

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

Arcadis of New York, Inc.
105 Maxess Road
Suite N108
Melville
New York 11747
Phone: 631 249 7600
Fax: 631 249 7610
www.arcadis.com

Date: April 1, 2024

Our Ref: 30218437.RPTI4
30191527.NAVI4

Subject: 2023 Annual Operation Maintenance and Monitoring Report
Operable Unit 2, Northrop Grumman Systems Corporation and Naval Weapons
Industrial Reserve Plant (NWIRP) Sites, Bethpage, New York.

Dear Jason,

On behalf of Northrop Grumman, Arcadis is providing the NYSDEC with one electronic PDF copy of the Operable Unit 2 (OU2) 2023 Annual Operation Maintenance and Monitoring Report (enclosed). As we have transitioned to electronic submittals (via PDF) in line with NYDEC's paper reduction program, hard copies of the report can be provided on request.

This report was prepared to document the operation, maintenance, and monitoring (OM&M) activities conducted for the on-site portion of the OU2 groundwater remedy and the results of ongoing volatile organic compound (VOC) and inorganic monitoring of groundwater to meet the applicable remedial objectives set forth in the March 2001 OU2 Record of Decision (ROD).

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

Jason Pelton
NYSDEC
April 1, 2024

Chris Engelhardt – NYSDEC Region 1
Sarah Johnston – NYSDEC
Jess LaClair – NYSDEC
Andrew Guglielmi, NYSDEC
James Sullivan – New York State Department of Health
Angela Pettinelli – NCDOH
Robin Putman – NCDOH
Richard Castle – NCDOH
Scott Sokolowski– NAVFAC Mid-Atlantic Environmental
Rick Moore – TetraTech NUS, Inc
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 – Liberty Utilities
Frank Koch – South Farmingdale Water District
John Reinhardt – Town of Hempstead Water District
Michael Boufis – Bethpage Water District
Bethpage Public Library
File

Enclosures

Northrop Grumman

2023 ANNUAL OPERATION, MAINTENANCE AND MONITORING REPORT

Operable Unit 2 - Groundwater

Bethpage, New York

NYSDEC Sites # 1-30-003A and 1-30-003B

March 31, 2024

2023 Annual Operation, Maintenance and Monitoring Report

March 31, 2024

Prepared By:

Arcadis of New York, Inc.
105 Maxess Road, Suite N108
Melville
New York 11747
Phone: 631 249 7600
Fax: 631 249 7610

Prepared For:

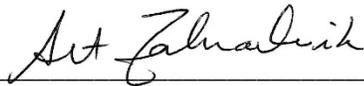
Northrop Grumman

Our Ref:

30218437.RPTI4/30191527.NAVI4



Christopher Engler, PE
Engineer of Record | New York PE-069748



Arthur Zahradnik
Project Manager



Carlo San Giovanni
Program Manager



Michael F. Wolfert
Technical Expert-Hydrogeology

This document is intended only for the use of the individual or entity for which it was prepared and may contain information that is privileged, confidential and exempt from disclosure under applicable law. Any dissemination, distribution or copying of this document is strictly prohibited.

Contents

Acronyms and Abbreviations.....	vii
Executive Summary.....	ES-1
1 Introduction.....	1
2 Site Overview.....	2
2.1 Description of Site.....	2
2.2 Nature and Extent of Impacted Groundwater.....	2
2.3 Remedial Action Objectives.....	3
2.4 Main Features/Components of the Remedy.....	3
3 Operation and Maintenance.....	4
3.1 Summary of Completed O&M Activities.....	4
3.2 Summary of System Operational Performance.....	6
4 Summary of Monitoring Completed.....	7
5 Remedial System Performance and Compliance.....	9
5.1 Remedial System Performance.....	9
5.2 Remedial System Compliance.....	10
5.2.1 Water Discharge.....	10
5.2.2 Air Discharge.....	10
6 Remedial System Environmental Effectiveness.....	12
6.1 Hydraulic Capture.....	12
6.1.1 Evidence of Mounding Along South Recharge Basins.....	13
6.1.2 Vertical Hydraulic gradients.....	13
6.1.3 Capture Zone Based on Potentiometric Surface Map (Zone 3).....	14
6.1.4 Calculations/Modeling for Capture of On-Site Portion of the Plume.....	14
6.2 Improvements in Groundwater Quality - Volatile Organic Compounds.....	15
6.2.1 Upgradient of the ONCT System.....	15
6.2.2 Proximate to the ONCT System.....	16
6.2.3 Near Central Downgradient of the ONCT System.....	17
6.2.4 Overall TVOC Distribution/Clean Water Area.....	18
7 Summary of Additional Groundwater Quality Data.....	21

7.1	Volatile Organic Compounds – Further Downgradient of the ONCT System	21
7.1.1	Far Central Downgradient Area.....	21
7.1.2	GM-38 Area	23
7.1.3	Former Outpost Wells	23
7.2	Cadmium and Chromium	24
7.2.1	Former Northrop Grumman Plant 1	24
7.2.2	Former Northrop Grumman Plant 2	25
7.3	Tentatively Identified Compounds.....	25
7.4	1,4-Dioxane.....	26
7.5	Vinyl Chloride.....	26
8	Findings and Conclusions.....	26
9	Suggestions	27
10	Certification Statement	29
11	References	30

Tables

Table ES-1	Lines of Evidence to Determine if On-Site Containment of VOC-impacted Groundwater is Being Achieved
Table 1A	Summary of Weekly Monitoring Data for 2023, Building 96 Treatment System
Table 1B	Summary of Weekly Monitoring Data for 2023, Building 102 Treatment System
Table 2	Summary of Non-Routine Maintenance for 2023, Building 96 and Building 102 Treatment Systems
Table 3	Operational Summary for the ONCT System, Fourth Quarter and Annual 2023 Reporting Period
Table 4	Summary of Volatile Organic Compounds and 1,4-Dioxane in 2023 Remedial Well Influent and Treatment System Effluent
Table 5A	Influent, Mid-Effluent, and Effluent Air Concentrations for 2023, Building 96 Treatment System
Table 5B	Influent and Effluent Air Concentrations for 2023, Building 102 Treatment System
Table 6A	2023 Rule 212 Applicability and Evaluation Building 96 Treatment System
Table 6B	2023 Rule 212 Applicability and Evaluation Building 102 Treatment System
Table 7	Summary of SPDES Equivalency Effluent Water Sample Analytical Results 2023, ONCT System
Table 8	Water-Level Measurement Results, Second Quarter 2023

Table 9	Water-Level Measurement Results, Fourth Quarter 2023
Table 10	Comparison of Fourth Quarter 2023 Field Measured Vertical Hydraulic Gradients to Model-Predicted Gradients
Table 11	Summary of Volatile Organic Compound Concentrations in Groundwater for 2023, Upgradient of the ONCT System
Table 12	Summary of Volatile Organic Compound Concentrations in Groundwater for 2023 Proximate to the ONCT System
Table 13	Summary of Volatile Organic Compound Concentrations in Groundwater for 2023 Downgradient of the ONCT System
Table 14	Summary of Metals Concentrations in Groundwater for 2023 Proximate to Former Northrop Grumman Plants 1 and 2
Table 15	Summary of 1,4-Dioxane Concentrations in Groundwater for 2023
Table 16	Percent Change in Total Volatile Organic Compounds Over Time in Monitoring and Remedial Wells

Figures

Figure 1	Locations of Wells and On-Site Groundwater Remedy
Figure 2	ONCT Groundwater Extraction and Treatment System Site Plan
Figure 3	ONCT Groundwater Extraction and Treatment System Schematic
Figure 4	Remedial Wells Total VOC Mass Recovery Rates Through December 2023
Figure 5	Remedial Wells Yearly Total VOC Mass Removed Through December 2023
Figure 6	Remedial Wells Cumulative Total VOC Mass Removed Through December 2023
Figure 7	Total Volatile Organic Compound Concentrations in On-Site Zone 3 OU2 Remedial Wells
Figure 8	Water Table Elevation and Generalized Horizontal Groundwater Flow Directions Zone 1 (0-300 Feet Below Land Surface), October 2023
Figure 9	Potentiometric Surface Elevation and Generalized Horizontal Groundwater Flow Directions in Zone 3 (500-700 Feet Below Land Surface) October 2023
Figure 10	Total Volatile Organic Compound Concentrations in Zone 1 Monitoring Wells Upgradient of OU2 ONCT System
Figure 11	Total Volatile Organic Compound Concentrations in Zones 1 – 4 Monitoring Wells Proximate to OU2 ONCT System

- Figure 12 Total Volatile Organic Compound Concentrations in Zones 2 and 3 Monitoring Wells Downgradient of OU2 ONCT System (Near Central)
- Figure 13 Cross Section Lines and Maximum TVOC Concentrations 2023
- Figure 14 TVOCs in Groundwater 2023 Cross-Section A-A'
- Figure 15 TVOCs in Groundwater 2023 Cross-Section B-B'
- Figure 16 Zone 1 (0 to 300 Feet Below Land Surface) Maximum TVOC Concentrations 2023
- Figure 17 Zone 2 (300 to 500 Feet Below Land Surface) Maximum TVOC Concentrations 2023
- Figure 18 Zone 3 (500 to 700 Feet Below Land Surface) Maximum TVOC Concentrations 2023
- Figure 19 Zone 4 (Greater Than 700 Feet Below Land Surface) Maximum TVOC Concentrations 2023
- Figure 20 Total Volatile Organic Compound Concentrations in Zone 3 and 4 Monitoring Wells and Zone 4 BWD Well 6-2 Far Central Downgradient of OU2 ONCT Systems
- Figure 21 Total Volatile Organic Compound Concentrations in Zones 1 and 2 GM-38 Area Monitoring Wells
- Figure 22 Total Volatile Organic Compound Concentrations in Off-Site Former Outpost Wells (Wells Monitor SFWD Well Field 1)
- Figure 23 Total Volatile Organic Compound Concentrations in Former Outpost Wells BPOW3-3, BPOW3-4, BPOW4-1R, and BPOW4-2R
- Figure 24 Total Chromium (Unfiltered) Concentrations in Zone 1 Monitoring Wells Near Former Plant 1
- Figure 25 Total Cadmium (Unfiltered) Concentrations in Zone 1 Monitoring Wells Near Former Plant 2
- Figure 26 Total Chromium (Unfiltered) Concentrations in Zone 1 Monitoring Wells Near Former Plant 2

Appendices

- Appendix A. AROD Table 1 OU2 Plume Constituents**
- Appendix B. Daily and Monthly Logs**
- Appendix C. Hazardous Waste Manifests**
- Appendix D. SPDES Discharge Monitoring Reports**
- Appendix E. Groundwater Sampling Logs and Chain of Custody Records**
- Appendix F. Modeling - OU2 ONCT System Capture Analysis**

Acronyms and Abbreviations

AERMAP	Terrain Processor for AERMOD
AERMOD	Air Quality Dispersion Model
AGCs	Annual Guideline Concentrations
AOC	Administrative Order on Consent
AOP	Advanced Oxidation Process
Arcadis	Arcadis of New York, Inc.
AROD	Amended ROD
BPOW	Bethpage Outpost Well
BWD	Bethpage Water District
CFR	Code of Federal Regulations
COCs	Constituents of Concern
DAR	Division of Air Resources
DCA	Dichloroethane
DCE	Dichloroethene
DMRs	Discharge Monitoring Reports
DON	Department of Navy
EDD	Electronic Data Deliverable
ESD	Explanation of Significant Differences
ft bls	Feet below land surface
ft/day	Feet per day
G&M	Geraghty and Miller
Gpm	Gallons per Minute
GWMP	Groundwater Monitoring Plan
GWTP	Groundwater Treatment Plant
HTAC	High Toxicity Air Contaminant
Lbs	Pounds

2023 Annual Operation, Maintenance and Monitoring Report

MEK	2-Butanone
Methylene Chloride	Dichloromethane
MG	Million Gallons
MW	Monitoring Well
NAVD	North American Vertical Datum
NED	Nation Elevation Dataset
NWIRP	Naval Weapons Industrial Reserve Plant
NYSDEC	New York State Department of Environmental Conservation
OM&M	Operation, Maintenance and Monitoring
ONCT	On-Site Containment and Treatment
OU2	Operable Unit 2
OXY	Occidental Chemical Corporation
PCE	Tetrachloroethene
PLT 1	Plant 1
PWSCP	Public Water Supply Contingency Plan
RAOs	Remedial Action Objectives
RE	Resolution
RIs	Remedial Investigations
ROD	Record of Decision
RVPGAC	Regenerable Vapor-Phase Granular Activated Carbon
RW	Remedial Well
SCADA	Supervisory Control and Data Acquisition
SCGs	Standards, Criteria and Guidance
SGC	Short term Guideline Concentrations
Site	Northrop Grumman, Bethpage, New York facility and the former Naval Weapons Industrial Reserve Plant (NWIRP), Bethpage, New York
SPDES	State Pollutant Discharge Elimination System

TCA	Trichloroethane
TCE	Trichloroethylene
TICs	Tentatively Identified Compounds
TMS	Silenol, Trimethyl
TVOC	Total Volatile Organic Compound
µg/L	Micrograms per Liter
USEPA	United States Environmental Protection Agency
VC	Vinyl Chloride
VOC	Volatile Organic Compound
VPGAC	Vapor-Phase Granular Activated Carbon
VPB	Vertical Profile Borings

Executive Summary

Introduction and Overview

Arcadis of New York, Inc. (Arcadis), on behalf of Northrop Grumman, has prepared this Operable Unit 2 (OU2) 2023 Annual Operation, Maintenance and Monitoring (OM&M) Report to document OM&M activities conducted for the on-site portion of the OU2 groundwater remedy (also referred to as the On-Site Containment and Treatment [ONCT] system) for the former Northrop Grumman, Bethpage, New York facility and the former Naval Weapons Industrial Reserve Plant (NWIRP), Bethpage, New York (Site).

Groundwater sampling conducted as part of the Remedial Investigations (RIs) for the former Northrop Grumman site, NWIRP, and Occidental Chemical Corporation (OXY)/Hooker Chemical Corporation/RUCO Polymer Corporation site (referred to throughout this report as the OXY Site) (NYSDEC Site # 1-30-0004) indicates that past chemical usage/storage and/or waste disposal practices at each of these sites has resulted in impacts to groundwater. Total Volatile Organic Compound (TVOC) concentrations discussed in this report are the sum of the 21 “Site-related” VOCs identified in **Appendix A**. The overall remedial goals for groundwater, as stated in the OU2 2001 New York State Department of Environmental Conservation (NYSDEC 2001) Record of Decision (ROD), is to meet Standards, Criteria and Guidance values (SCGs) and be protective of human health and the environment.

This report describes the performance, compliance, and effectiveness monitoring completed for the ONCT system for the Fourth Quarter 2023 (current period) and the Year 2023 (reporting period). This report uses various lines of evidence to evaluate the effectiveness of the ONCT system, an approach that is consistent with the United States Environmental Protection Agency (USEPA2008) “A Systematic Approach for Evaluation of Capture Zones at Pump and Treat Systems” report. The ONCT system was designed to create an effective hydraulic barrier to prevent the off-site migration of OU2 Volatile Organic Compound (VOC)-impacted groundwater. Throughout this report, the terms “prevent off-site migration”, “containment,” and “capture” are used interchangeably.

The information presented throughout this report confirms the ONCT system is operating as designed.

Operation and Maintenance

The operation and maintenance of the ONCT system was conducted in accordance with the OM&M Manual (Arcadis 2014) throughout 2023.

During 2023, the remedial wells extracted a total of 2,098 million gallons (MG) of groundwater for treatment (**Table 3**), approximately 5% more than the model design annual flow volume needed to maintain on-site containment of VOC-impacted groundwater. The ONCT system had a treatment system efficiency of 99.9%, treatment system uptimes of 99%, and remedial well uptimes of 93% or greater.

Summary of Monitoring Completed

Throughout 2023, ONCT system performance, compliance and environmental effectiveness monitoring was conducted to assess whether Remedial Action Objectives (RAOs) identified in the ROD (NYSDEC 2001) were achieved.

Remedial System Performance and Compliance

The ONCT system is operating as designed, from a compliance and performance perspective, and complied with applicable NYSDEC SCGs for ONCT system discharges and emissions (i.e., treated water discharges and air emissions). A calculated 3,564 pounds (lbs) of TVOCs were removed from the aquifer and treated by the ONCT system in 2023. Since full-time startup of the ONCT system in November 1998, approximately 228,000 lbs of VOCs have been removed from the aquifer and treated by the ONCT system.

Remedial System Environmental Effectiveness

The groundwater quality trend analysis and hydraulic effectiveness monitoring along with additional lines of evidence, were reviewed to assess the environmental effectiveness of the ONCT system. The results demonstrate that the ONCT system maintained horizontal and vertical capture of on-site OU2 VOC-impacted groundwater during 2023 via groundwater extraction from the five ONCT remedial wells and discharge/recharge of treated water to the south and west recharge basins. The assessments conducted to develop this conclusion conform with the lines of evidence and evaluation process recommended in USEPA's "A Systematic Approach for Evaluation of Capture Zones at Pump and Treat Systems" (USEPA 2008) report. (See **Table ES-1** for a summary of the lines of evidence).

Specifically, the capture zone created via operation of the ONCT system encompasses the volume of on-site OU2 VOC-impacted groundwater and creates an effective hydraulic barrier to its off-site migration.

The groundwater quality data from monitoring wells located in proximity of the hydraulic barrier near the southern boundary of the Site have, as expected, continued to exhibit downward TVOC concentration trends over time.

As operation of the ONCT system continues over time, bifurcation of TVOC-impacted groundwater, and an associated clean water area, will continue to expand downgradient of the ONCT system and with depth as on-site VOC-impacted groundwater continues to be removed from the aquifer by pumping the remedial wells, treated water continues to be discharged/recharged at the south recharge basins, and natural precipitation/recharge to the aquifer continues.

Zones 1, 2, 3 and 4 (See **Figures 16, 17, 18, and 19**) show the clean water area that has developed to date.

Additional Groundwater Quality Data

VOCS – Further Downgradient of the ONCT System

Results are also presented in this report for monitoring of VOCs in areas further downgradient of the ONCT system where Department of Navy (DON) is conducting remedial activities (i.e., Phase 1 remediation in vicinity of *This document is intended only for the use of the individual or entity for which it was prepared and may contain information that is privileged, confidential and exempt from disclosure under applicable law. Any dissemination, distribution or copying of this document is strictly prohibited.*

the RE108 area by pumping Well RW4 and Well RE137, and continuation of GM-38 system OM&M) and in areas of former outpost wells south of Hempstead Turnpike.

Cadmium and Chromium (Former Plants 1 and 2)

At former Plant 1, results for total chromium remain elevated above the SCG for the Fourth Quarter 2023 (current period) and Year 2023 (reporting period), except for Monitoring Well PLT1MW-04. PLT1 MW-05 has shown a generally decreasing trend over the period of record (i.e., time period for which we have groundwater quality data which varies depending on the monitoring well); however, variations in concentrations continue to occur year to year. Well GM-15SR exhibits an overall decreasing trend since 2010 although significant variations in concentrations continue to occur year to year.

At former Plant 2, the following was observed related to cadmium and chromium monitoring:

- Total cadmium exceedances did not occur in 2023; however, over the period of record, Well N-10631 has periodically been above the SCG while the remaining two monitoring wells have been below the SCG.
- or total chromium, Monitoring Well MW-02GF has shown widely varying concentrations for the period of record and more recently increasing concentrations above the SCG from 2018 through 2023. In Fourth Quarter 2023, total chromium was detected at a concentration of 396 micrograms per liter (ug/L) at MW-02GF, which is the highest concentration recorded since sampling began at this well in 2002.
- In addition, Well N-10631, which has had exceedances above the SCG prior to September 1999 and once in 2018, was observed to be filled with 22 feet of sediment and was no longer able to be sampled after the event in May 2020 until it was replaced by N-10631R in and sampled for metals in October 2023. Total chromium exceedance did not occur for N-10631 after its replacement in 2023 and the other three monitoring wells at this location have been below the SCG for their period of record.

1 Introduction

Arcadis, on behalf of Northrop Grumman, has prepared this OU2 2023 Annual Operation, Maintenance and Monitoring (OM&M) Report to document activities performed and data collected during 2023 for the OM&M of the on-site portion of the OU2 groundwater remedy (also referred to as the OU2 ONCT system) for the former Northrop Grumman, Bethpage, New York facility (Site No. 1-30-003A) and the former NWIRP, Bethpage, New York (Site No. 1-30-003B) (herein referred to as the “Site”). This report was prepared pursuant to the OU2 Administrative Order on Consent (AOC) (New York State Department of Environmental Conservation (NYSDEC 2015a) Index # W1-118-14-12, the March 2001 OU2 ROD, the December 2019 Amended ROD (AROD), the OU2 ONCT System OM&M Manual (Arcadis 2014), and the latest Updated Groundwater Monitoring Plan (GWMP) (Arcadis 2016).

This report describes the performance, compliance, and effectiveness monitoring (and associated analytical data) completed for the ONCT system for the Fourth Quarter 2023 and the Year 2023 (reporting period) and provides the basis for the annual engineering certification of the ONCT system required by Section 1.B of the OU2 AOC. In this report, the current period data is compared to data from the previous three 2023 quarterly reports (Arcadis 2023a; 2023b; 2023c) and to longer-term data trends for the period of record (e.g., system startup in 1998 or variable depending on the monitoring well sampling history), as applicable.

Specifically, this report summarizes the monitoring (and analytical results) of on- and off-site groundwater, which is impacted to some extent by Site-related VOCs (referred to as the OU2 Plume, though there are multiple plumes within this single plume), to the extent undertaken by Northrop Grumman as supplemented by groundwater analytical data reported by the Department of Navy (DON) from 56 wells located north of Hempstead Turnpike. This report does not describe the activities conducted by DON at the former NWIRP property nor the Navy ROD/Explanation of Significant Differences (ESD)-required off-site components of the groundwater remedial program, as these activities are separately managed, maintained, and reported by DON. The DON’s activities include monitoring of the GM-38 Hotspot, OM&M of the GM-38 groundwater extraction and treatment system, monitoring and remediation of VOC-impacted groundwater identified in the vicinity of DON’s Vertical Profile Borings (VPBs) VBP-139 and VPB-142 (also referred to as the RE108 hot spot), off-site groundwater investigation and remediation downgradient of the RE108 hot spot, and components of the public water supply contingency plan (i.e., additional outpost well installation and monitoring).

The effectiveness of the ONCT system at achieving its remedial action objectives (RAOs) , is evaluated in this report. Specifically, this report uses various lines of evidence, an approach that is consistent with the USEPA (2008) “A Systematic Approach for Evaluation of Capture Zones at Pump and Treat Systems” report, to sequentially evaluate hydraulic and water quality data to assess whether the lines of evidence are supportive of the ONCT system design goals of establishing and maintaining effective horizontal and vertical hydraulic containment of on-site OU2 VOC-impacted groundwater that prevents, its off-site migration. Throughout this report the terms “prevent off-site migration,” “on-site containment,” and “capture” are used interchangeably.

Consistent with the RAOs, the ONCT system was designed to:

- Create an effective hydraulic barrier that prevents off-site migration of on-site OU2 VOC-impacted groundwater.
 - An important element of an effective hydraulic barrier is the establishment of a collective capture zone that encompasses the volume of on-site OU2 VOC-impacted groundwater.

- Evidence of an effective hydraulic barrier includes documentation of a “collective zone of capture” (area of lowered water levels generated by remedial well pumping) and downward vertical hydraulic gradients, particularly near the remedial wells.
- Develop a clean water area (i.e., an area of less than 5 micrograms per liter (µg/L) total VOCs in groundwater) downgradient of the ONCT system that is a direct result of the collective capture zone and hydraulic barrier described above.
 - A clean water area would initially develop shallow and near the Site and would expand further downgradient and deeper over time, as on-site VOC-impacted groundwater is removed from the aquifer via the remedial wells, and treated water is discharged/recharged at the south recharge basins.
 - Evidence for the development of a clean water area includes separation (i.e., bifurcation) of the VOC-impacted groundwater plume on Site from off Site and decreasing concentrations in monitoring wells.

The data presented in this report confirms that the ONCT system is operating as designed.

2 Site Overview

This section provides a brief description of the Site, relevant history, main features/components of the ONCT system, associated remedial program and describes the RAOs specified in the OU2 ROD.

2.1 Description of Site

The Grumman Aerospace Corporation (now Northrop Grumman) (NYSDEC Site # 1-30-003A) formerly occupied approximately 638 acres in east-central Nassau County, in the Hamlet of Bethpage, Town of Oyster Bay, New York and, within this area, the former NWIRP (NYSDEC Site # 1-30-003B) occupied approximately 105 acres. The Site was bounded by Stewart Avenue to the north, South Oyster Bay Road to the west, Route 107 to the southwest, Central Avenue to the south and various residential and commercial areas to the east. **Figure 1** depicts the former property boundaries of the Site.

Additionally, the former OXY Site is located adjacent to the northwest portion of the Site and is generally hydraulically upgradient of the former Northrop Grumman site.

2.2 Nature and Extent of Impacted Groundwater

Groundwater sampling conducted as part of the Remedial Investigations (RIs) for the former Northrop Grumman, NWIRP, and OXY sites indicates that past chemical usage/storage and/or waste disposal practices at each of these sites have resulted in impacts to groundwater (i.e., the upper glacial and Magothy aquifers).

Exhibit A, **Table 1** of NYSDEC’s AROD (NYSDEC 2019) (provided as **Appendix A** of this Report) identifies the 21 VOC constituents of the OU2 Site plume (excluding total chromium and 1,4-dioxane). The primary groundwater constituents of concern (COCs) within the OU2 plume include trichloroethylene (TCE); tetrachloroethene (PCE); 1,1,1-trichloroethane (1,1,1-TCA); 1,2-dichloroethene (1,2-DCE); 1,1-dichloroethene (1,1-DCE); and 1,1-dichloroethane (1,1-DCA). As used in this report, TVOC concentrations are the sum of the 21

“site-related” VOCs identified in **Appendix A**. Groundwater associated with the former OXY site contains these primary COCs as well as vinyl chloride monomer (VC). The 1994 RI Report (Geraghty and Miller 1994) described the overall extent (on-site and off-site) of groundwater impacts prior to initiation of remedial activities.

Additionally, chromium and cadmium/chromium are COCs in groundwater in the vicinity of the former Northrop Grumman Plants 1 and 2, respectively.

Acetone, 2-Butanone (MEK), and Dichloromethane (Methylene Chloride), which are recognized lab contaminants, are not included on the list of COCs in **Appendix A** and, therefore, are not included in the plume and cross section depictions within this report. Furthermore, although 1,4-dioxane was identified as a COC in the AROD (NYSDEC 2019), it is not a constituent used to evaluate the ONCT system effectiveness; although 1,4-dioxane is co-located with VOCs and would be captured by the ONCT system, the captured groundwater is not currently treated for 1,4-dioxane.

2.3 Remedial Action Objectives

The overall remedial goals for groundwater, as stated in the OU2 ROD, is to meet Standards, Criteria and Guidance values (SCGs) and be protective of human health and the environment.

Consistent with the overall remedial goals selected for the Site, RAOs identified in the OU2 ROD, either in whole or in part, are to:

- Eliminate, to the extent practicable, site-related constituents from the affected public water supplies and prevent, to the extent practicable, the future impacts to public water supplies.
- Eliminate, to the extent practicable, exposures to impacted groundwater.
- Eliminate, to the extent practicable, off-site migration of impacted groundwater and, where practicable, restore the groundwater to pre-disposal conditions.
- Eliminate, to the extent practicable, the off-site migration of soil impacts entering the groundwater.
- Eliminate, to the extent practicable, exceedances of applicable environmental quality standards related to releases of constituents to the waters of the state.
- Comply with applicable NYSDEC SCGs for ONCT system treated water and air.

The AROD primarily focuses on COCs that exceed SCGs in off-site groundwater and, as such, the AROD RAOs do not specifically relate to the operation of the ONCT system.

2.4 Main Features/Components of the Remedy

Based on the OU2 ROD, and as shown on **Figures 2 and 3**, the following are the major elements of the remedial program and current components of the OU2 On-Site Groundwater Remedy:

- Operation, maintenance, and monitoring of the ONCT system, which currently consists of:
 - Five Remedial Wells (Remedial Wells 1, 3R, 17, 18, and 19) with design pumping rates (based on current groundwater model) of 800 gallons per minute (gpm), 700 gpm, 1,000 gpm, 800 gpm and 500 gpm, respectively. Current 2023 operational flow rates are discussed in **Section 3.2**.

- Two treatment systems (Building 96 and Building 102), each consisting of a packed-tower air stripper to remove VOCs from extracted groundwater, and vapor emission treatment units to remove VOCs from off-gas emissions. Building 102 (previously referred to as Tower 102, or T102) has a regenerable vapor-phase granular activated carbon (RVPGAC) system, with on-site steam regeneration via on-site boilers, to remove VOCs from the off-gas emissions. The RVPGAC system formerly operated at Building 96 (previously referred to as Tower 96, or T96) was reconfigured to bypass the RVPGAC components on 3/15/22. Currently the off-gas emissions are treated through the exterior Vapor Phase Granular Activated Carbon (VPGAC) emission control units.
- A pressurized discharge main to accept the treated water discharge, which is also available for limited non-potable reuse.
- Two sets of recharge basins (the south recharge basins and the west recharge basins) accept the treated water from the clear wells, which drain by gravity to the basins. A minimum design groundwater model-based discharge rate of 2,231 gallons per minute (gpm) to maintain on-site capture was developed for the south recharge basins.
- A groundwater monitoring program to assess the overall ONCT system's environmental effectiveness and a performance and compliance monitoring program to assess the performance of the ONCT system. The groundwater monitoring program also includes monitoring further off-site and upgradient of public water supply wells. The wells were initially installed to serve as outpost wells (i.e., to warn of the advance of the OU2 plume) and were sampled in accordance with the Public Water Supply Contingency Plan (PWSCP) (Arcadis G&M, Inc., 2003). However, these wells were repurposed as plume monitoring wells in 2015. The monitoring and former outpost wells included in Northrop Grumman's OU2 groundwater monitoring program, for which Northrop Grumman is responsible for reporting, and additional wells in the Site vicinity are shown on **Figure 1**. Select DON monitoring wells used to supplement Northrop Grumman data for evaluating remedial system effectiveness and downgradient groundwater quality are also shown on **Figure 1**.

3 Operation and Maintenance

The following subsections summarize routine/non-routine operation and maintenance activities completed during the 2023 reporting period and the operational performance of the ONCT system.

3.1 Summary of Completed O&M Activities

O&M of the ONCT system was conducted in accordance with the OM&M Manual (Arcadis 2014), and consisted of the following:

- Daily routine site visits by Northrop Grumman personnel to visually check the system for proper operation, leaks or potential emergency situations. Additionally, the ONCT system was continuously monitored by the Supervisory Control and Data Acquisition (SCADA) system. Daily site visit logs (paper forms and electronically collected data) are included in **Appendix B**.

- Weekly routine site checks by Northrop Grumman personnel to monitor and record key process parameters to confirm proper system operation, to assess whether a process parameter is changing, and to provide information that may be helpful later in the event of an operational problem. A monthly summary of the weekly monitoring data collected for Building 96 and Building 102 is provided in **Tables 1A and 1B**, respectively.
- Routine equipment maintenance by Northrop Grumman personnel in accordance manufacturers' specifications or otherwise, as needed, and per the routine maintenance schedule and checklist provided in the OM&M Manual (Arcadis 2014). It should be noted that the OM&M Manual is continually updated, as needed, as various components get replaced/repared over time to support effective and efficient operation of the ONCT system.
- Routine off-site disposal of solvent recovered by the RVPGAC system (a hazardous waste). As a part of routine system operation, recovered solvent is drummed, temporarily staged in an on-site hazardous waste storage area, and properly transported and disposed off-site by a Northrop Grumman subcontractor in accordance with applicable regulations. Copies of the completed hazardous waste manifests are included in **Appendix C**.
- Routine changeout of the carbon for the VPGAC exterior units at Building 96. Monthly routine VOC concentration screenings to monitor the condition of the carbon are conducted to assess the need for carbon changeouts; monitoring results are presented in **Section 5**.
- Non-routine equipment and system component maintenance by Northrop Grumman personnel or their subcontractors in response to alarm conditions, physical damage, or systems parameters operating outside of their normal operating ranges.

A detailed summary of the non-routine maintenance activities completed during the 2023 annual period is provided in **Table 2**, and a summary of the relatively larger-scale maintenance activities occurring in 2023 is provided below:

- Building 102 shut down for blower maintenance (rebalancing and adjusting the belt tension in the blower) on 1/16/23.
- Well 19 shut down for VFD fan repairs for less than 1 week (1/19/23 through 1/24/23).
- Well 1 shut down to replace the flow meter and replace the transducers for the pressure gauge on 2/23/23.
- Well 1 shut down to repair the flow meter on 3/7/23 through 3/8/23.
- Building 102 shut down to re-wire a treatment system steam condensate pump station on 4/12/23.
- Well 17 shut down for VFD replacement for approximately 1 week (5/9/23 through 5/16/23).
- Building 102 shut down to repair the air compressor on 6/9/23.
- Building 96 shut down to repair the blower motor relay on 6/27/23.
- Well 19 shut down for VFD replacement on 8/17/23 through 8/18/23.
- Building 102 shut down due to a blower bearing failure for less than 2 weeks (10/22/23 through 11/1/23). The blower was replaced.

Despite the downtime events identified above, the ONCT system maintained capture of the on-site portions of the OU2 plume. Further analysis of ONCT system capture through 2023 is provided in **Section 6**.

3.2 Summary of System Operational Performance

This subsection provides an evaluation of ONCT system operational performance throughout 2023.

As described below and summarized in **Table 3**, current model design flow rates are as follows: Well 1 (800 gpm); Well 3R (700 gpm); Well 17 (1,000 gpm); Well 18 (800 gpm); and Well 19 (500 gpm). Flow rates at Wells 3R and 18 were increased for extended periods of 2023 in response to remedial well and system downtime, as further detailed below.

An operational summary of remedial well and system uptimes, system discharges and treatment system efficiencies for 2023 are provided in **Table 3** and are summarized below along with additional operational performance considerations:

- The treatment system uptimes for 2023 were 99% (for both Building 96 and Building 102 treatment systems) (**Table 3**). The remedial wells operated at “uptimes” between 93% and 99% throughout 2023, calculated as a percentage of the reporting period (**Table 3**). Well uptime is generally an indication of system uptime, although there are differences because the system can still be running, for example, while one of the remedial wells are down. Remedial well uptimes are more relevant than treatment system uptimes when considering hydraulic capture.
- Based on system operational logs/reports, the remedial wells extracted a total of 2,098 MG of groundwater for treatment in 2023 (**Table 3**), approximately 5% more than model design annual flow volume based on individual remedial well flow rates needed to maintain on-site containment. In general, this is due to pumping some remedial wells at rates greater than 100% of design to compensate for remedial well and system downtime (e.g., Wells 17, 18, and 19).
- The water treatment components of the ONCT system (air stripper/clear well) performed within acceptable operating ranges for this reporting period, as indicated by the following:
 - The air stripper VOC removal efficiencies were greater than 99.9% (**Table 3**).
 - The air stripper effluent water discharge complied with applicable SCGs; additional details regarding system water monitoring for compliance are discussed in **Section 5**.
- The air treatment components of the ONCT system (RVPGAC/solvent recovery) performed within acceptable operating ranges during this reporting period. The RVPGAC stack discharges complied with applicable SGCs/AGCs (NYSDEC 2016) and discharge limits; additional details regarding system air monitoring for compliance are discussed in **Section 5**.
- Additional maintenance and assessment of the ONCT system’s critical alarms, SCADA system functionality, and set points were conducted during the reporting period and continued through March 2024.

4 Summary of Monitoring Completed

In accordance with the above-referenced plans, the following monitoring was completed during 2023:

- Quarterly remedial system performance monitoring:
 - Remedial well water quality monitoring was completed to monitor the performance of the ONCT system and assess VOC mass removal.
 - Water quality monitoring of treatment system effluent (Buildings 96 and 102) was completed to monitor the performance of the groundwater treatment components of the ONCT system.
 - Air quality monitoring of treatment system influent, mid-effluent and effluent (Buildings 96 and 102), as appropriate, was completed to monitor the performance of the air treatment components of the ONCT system.
 - Results are presented and evaluated in **Section 5** along with key findings that support overall conclusions and suggestions related to remedial system performance.
- Remedial system compliance monitoring:
 - Water and air quality monitoring of treatment system influent, mid-train, and effluent, as appropriate, was completed to gauge quarterly TCE mass removal for the Building 96 and 102 treatment systems.
 - Quarterly air monitoring and modeling was completed to determine the compliance status of the vapor-phase effluent discharged from the Building 96 and 102 treatment systems.
 - Monthly State Pollutant Discharge Elimination System (SPDES) monitoring was completed to verify that water discharged to the south recharge basins (i.e., Outfall 005) and west recharge basins (i.e., Outfall 006) met permit equivalency requirements. Monitoring was performed in accordance with the terms and conditions of Northrop Grumman's SPDES Permit Equivalent No. NY0096792 and discharge limits, per the SPDES permit equivalency, most recently amended on March 23, 2023, and transmitted by the NYSDEC to Northrop Grumman on April 18, 2023. This amendment incorporated treated water discharge from Northrop Grumman's OU3 off-site RW-21 remedial system (consisting of three remedial wells and an AOP treatment system at Building 109) to the south recharge basins (Outfall 005). As such, the south recharge basins received treated water discharge from both the Building 102 and the Building 109 treatment systems after RW-21 system start-up testing was initiated in May 2023, and continuing with full-scale operation beginning in August 2023). SPDES discharge monitoring data are documented on a monthly basis by Northrop Grumman in Discharge Monitoring Reports (DMRs) that are transmitted to the NYSDEC under separate cover. Copies of DMRs completed during this reporting period are provided in **Appendix D**.
 - Results are presented and evaluated in **Section 5** along with key findings that support overall conclusions and suggestions related to remedial system compliance.

- Remedial system environmental effectiveness monitoring:
 - Groundwater hydraulic (water-level) monitoring was completed to determine, monitor, and document local and regional groundwater flow patterns during operation of the ONCT system, including the vertical and horizontal extent of the cumulative capture zone created by operation of the ONCT system.
 - Groundwater quality monitoring was completed at and immediately downgradient of the Site to assess the effectiveness of the ONCT system with respect to containment and removal of OU2 VOC-impacted groundwater and prevention of its off-site migration. Groundwater quality results associated with the First, Second, and Third Quarters of 2023 have been previously submitted to the NYSDEC in Quarterly Reports and are also included in this report for completeness. Copies of completed Groundwater Sampling Logs and Chain of Custody Records are provided in **Appendix E**.
 - Results are presented and evaluated in **Section 6** along with key findings that support overall conclusions and suggestions related to remedial system environmental effectiveness.
- Additional groundwater quality monitoring:
 - Groundwater quality monitoring was also completed for VOCs in areas further downgradient of the ONCT system and for metals (cadmium and chromium) at former Northrop Grumman Plants 1 and 2.
 - The sampling frequency for outpost wells located in areas further downgradient of the ONCT system changed starting in third quarter 2023 compared to 2022 and previous years, as per the recommendations in the DON Final 2021 Monitoring Optimization Report for Operable Unit 2 (TetraTech 2022). The current sampling frequency is summarized below:
 - BPOW1-1 and BPOW1-3 were sampled annually instead of semi-annually.
 - BPOW1-2 was sampled quarterly instead of semi-annually.
 - BPOW1-4, BPOW1-5, and BPOW1-6 were sampled quarterly instead of semi-annually.
 - BPOW2-1, BPOW2-2 and BPOW2-3 were continued to be sampled quarterly.
 - BPOW3-1 and BPOW3-2 were continued to be sampled semi-annually.
 - BPOW3-3, BPOW3-4, BPOW4-1R and BPOW4-2 were sampled quarterly instead of semi-annually.
 - Results are presented and evaluated in **Section 7** along with key findings that support overall conclusions and suggestions, as warranted.
 - **Section 7** also presents and evaluates results related to tentatively identified compounds, 1,4-dioxane, and vinyl chloride.

Arcadis performed validation of treatment system vapor and water samples, and groundwater quality data in accordance with the updated GWMP (Arcadis 2016), following the contract laboratory program and applying relevant NYSDEC and USEPA protocols. The quality of the data is considered acceptable with the qualifiers indicated in the data summary tables presented in the following sections.

The analytical data associated with the monitoring completed in 2023 and presented in the following sections were and continue to be submitted to the NYSDEC on a quarterly basis in electronic data deliverable (EDD) format, in compliance with requirements outlined in Section 1.15(a) (Electronic Submissions) of NYSDEC's May 2010 DER-10 guidance document (NYSDEC 2010).

Data for select DON monitoring wells is included in **Section 6** and **Section 7**, as noted, to supplement evaluations related to remedial system effectiveness and groundwater quality with respect to VOCs in areas further downgradient of the ONCT system. Data for select OU3 monitoring wells is included in **Section 6**, as noted, to supplement water-level measurement coverage for assessing the ONCT capture zone to the east. These additional water-level measurement data were needed as the RW-21 system (Remedial Wells RW-20, RW-21 and RW-22) was put into full-scale operation in August 2023 and the pumping effects of the operation of these remedial wells are noticeable in the Zone 3 water level map (**Figure 9**) which depicts shifts in groundwater flow directions, as further discussed in **Section 6**.

The vertical groundwater zonation approach (i.e., depth intervals below the land surface) used in this report is consistent with the approach defined in the 2022 Annual OM&M Report (Arcadis 2023d), wherein four hydrological zones were adapted to be consistent with DON's depth interval structure, as follows: Zone 1 (0 to 300 feet [ft] below land surface [bls]); Zone 2 (300 to 500 ft bls); Zone 3 (500 to 700 ft bls); and Zone 4 (more than 700 ft bls).

5 Remedial System Performance and Compliance

Results of remedial system performance and compliance monitoring completed during the reporting period are presented and evaluated in the following subsections.

5.1 Remedial System Performance

The ONCT system remedial well influent concentrations, VOC mass recovered, VOC mass removal rates, and TVOC trends over time are provided in **Tables 3 and 4**, shown on **Figures 4, 5, 6, and 7**, and summarized below:

- Remedial well TVOC influent concentrations ranged from 44.12 µg/L (Remedial Well 18 in Q2 2023) to 600.55 µg/L (Remedial Well 1 in Q3 2023) (**Table 4**). TCE and PCE were the VOCs detected at the highest concentrations in all remedial wells, except for Well 19, where TCE and cis-1,2-dichloroethene (cis-1,2-DCE) were detected at the highest concentrations.
- Well 1 had the highest mass removal rate in 2023 (and since 2015) compared to the other remedial wells. Historically, Well 3 had the highest mass removal rate until 2015 (**Figure 4**).
- Although the remedial wells generally exhibit a slight to moderate increase in TVOC concentrations compared to 2022, TVOC concentrations in remedial wells continue to exhibit an overall decreasing or stable trend since 2016 (**Figure 7**).
- VC was only detected in Remedial Well 3R (**Table 4**), as its pumping rate was established to capture/contain VC entering the Site from the OXY site. OXY operates a biosparge system (per USEPA ROD) to reduce VC in groundwater upgradient (northwest) of Remedial Well 3R. Additional information on vinyl chloride is presented in **Section 7**.

- A calculated 3,564 lbs of TVOCs were removed from the aquifer and treated by the ONCT system in 2023 (**Table 3** and **Figure 5**), with the majority of VOC mass removed by Remedial Well 1 (50% of the total mass). Since 2006, the overall mass removal rate has been generally declining up until approximately 2018 when the mass removal rate began to stabilize. The VOC mass removed in 2023 was similar to the mass removed in the previous 5 years. Since the remedial wells have been generally operated at the same rate and uptime, this trend is expected as ONCT system capture removes mass from the aquifer resulting in improvements in on-site groundwater quality.
- Since full-time startup of the ONCT system in November 1998, approximately 228,000 lbs of VOCs have been removed from the aquifer and treated by the ONCT system (**Table 3** and **Figure 6**).
- Based on the influent and effluent TCE concentrations, the treatment system achieved TCE removal rates of greater than 99.9% for both Building 96 and 102 air strippers (**Table 3**).

5.2 Remedial System Compliance

5.2.1 Water Discharge

Treated groundwater effluent from the ONCT system met SPDES permit equivalent limits during the reporting period (see **Table 7** and **Appendix D** for detail). The measured concentrations of individual VOCs, nitrogen and pH levels in the treated effluent were below/within applicable discharge limits.

5.2.2 Air Discharge

Building 96 and Building 102 emissions were evaluated for the reporting period to determine compliance with the DAR-1 Guidelines for The Evaluation and Control of Ambient Air Contaminants (NYSDEC 2021), under 6 CRR-NY 212 (Rule 212).

- As shown in **Table 5A** (Building 96 vapor-phase analytical data for 2023), TCE (an A-rated compound) exhibited the highest concentrations of a single VOC compound in influent air by more than an order of magnitude at Building 96.
- As shown in **Table 5B** (Building 102 vapor-phase analytical data), TCE exhibited the highest concentration of a single VOC compound in influent air by close to an order of magnitude at Building 102.

Pursuant to 6 NYCRR Part 212-2.1, for an air contaminant listed in Section 212-2.2 Table 2 – High Toxicity Air Contaminant (HTAC) list, the facility owner or operator shall either limit the actual annual emissions from all process operations at the facility so as to not exceed the mass emission limit listed for the individual HTAC, or demonstrate compliance with the air cleaning requirements for the HTAC, as specified in Subdivision 212-2.3(b), Table 4 – Degree of Air Cleaning Required for Non-Criteria Air Contaminants of this Subpart for the environmental rating assigned to the contaminant by the NYSDEC. For each non-HTAC air contaminant, dispersion modeling will not be required if the actual annual emission rate is less than 100 pounds per year at each individual system. Actual annual emission rates used for comparison can take control devices into account and must meet the provisions of 212-1.5(g). Emission rates were calculated using the average of 2023 ambient air concentrations of the compounds identified in **Tables 5A and 5B** and are summarized in **Tables 6A and 6B** for Buildings 96 and 102, respectively. As shown in Table 6B, all detected compounds for Building 102 were below the compound

specific mass emission limit for the reporting period and therefore, no further analysis was required. As shown on Table 6A, further evaluation was required for TCE for Building 96, as follows.

For constituents that exceeded the Rule 212 emission limit, United States Environmental Protection Agency (USEPA) air quality dispersion model AERMOD modeling was used to estimate the highest ambient air impact beyond the property line during the reporting period. AERMOD is the USEPA's recommended state-of-the-art practice Gaussian plume dispersion model. Gaussian models are the most widely used techniques for estimating the impact of non-reactive pollutants, per Appendix W of Title 40 Code of Federal Regulations (CFR) 51 – Guideline of Air Quality Models. The model estimated maximum ambient air impacts were then compared to the respective annual and short-term guideline concentrations provided in NYSDEC DAR-1 guidance policy for compliance screening purposes.

The AERMOD air dispersion model program requires the input of site-specific data to produce results that are representative of the actual site conditions. In compliance with guidelines, the following parameters were used for the AERMOD model analysis:

- Stack height, stack diameter, exhaust gas temperature, and velocity for the Buildings 96 and 102 stacks.
- Urban dispersion coefficients.
- AERMAP base and terrain elevations, processed using National Elevation Dataset (NED) digitized terrain data.
- Surface and upper air observations measured at the Nation Weather Service stations located at Farmingdale and Brookhaven airports for calendar years 2011 to 2015, in accordance with NYSDEC's DAR-10 Air Dispersion Modeling Guidance Document.
 - Receptor grids, per the following methodology:
 - For Building 96 and Building 102, receptors were located along the property boundary at distances not exceeding 25 meters between receptors.
 - For Building 96, 1.5 km x 1.5 km Cartesian grid receptors with distances of 50 meters between the receptors and 3.0 km x 3.0 km Cartesian grid receptors with distances of 100 meters between the receptors.
 - For Building 102, discrete receptors were located off-site at distances not exceeding 50 meters, up to 500 meters from the plant boundary with additional off-site receptors placed at greater distances beyond 500 meters and discrete receptor spacing around the points of maximum predicted impacts did not exceed 50 meters.

The model was executed with a unit emission rate of 1.0 grams per second (normalized rate) for each source. The actual emission rate of each compound was multiplied by the predicted ambient impact at 1.0 grams per second to obtain the scaled impact (i.e., the scaled hourly ambient air impact and the scaled annual ambient air impact) for the compound for the annual reporting period.

As shown on **Table 6A**, TCE was the only constituent that triggered Rule 212 evaluation for Building 96 and the scaled ambient air impacts are below the SGC and AGC for TCE. Based on the ambient modeling analysis, the effluent air discharge for the annual reporting period meets the requirements of Rule 212 for Building 96. In addition, as noted in **Section 3**, Northrop Grumman replaced the VPGAC in the two exterior VPGAC emission

control units for the Building 96 system in March 2023 and September 2023, which will further limit the potential for SGC or AGC exceedances in the future.

6 Remedial System Environmental Effectiveness

This report section evaluates ONCT remedial system environmental effectiveness monitoring results as they relate to the achievement of the ONCT remedial system RAOs of containing on-site OU2 VOC-impacted groundwater and preventing its off-site migration. As mentioned in **Section 1**, this evaluation takes a line-of-evidence approach consistent with USEPA (USEPA 2008) “A Systematic Approach for Evaluation of Capture Zones at Pump and Treat Systems” report. Hydraulic capture and improvements in groundwater quality are the two main categories used in this approach. Hydraulic Capture is assessed by multiple lines of evidence, including groundwater flow patterns (water table configuration and potentiometric surface) and vertical hydraulic gradients. Improvement in groundwater quality is also assessed by multiple lines of evidence, including TVOC concentration trends in different areas near and around the ONCT system and TVOC plume extents and distribution. These lines of evidence are discussed in **Sections 6.1 and 6.2**, respectively.

If the ONCT system is effectively preventing the off-site movement of VOC-impacted groundwater it would be expected that a capture zone would develop that would envelop, in three dimensions, the VOC-impacted groundwater on-site and near-Site downgradient. Furthermore, vertical hydraulic gradients would develop that would be oriented downward within the established capture zone. Additionally, one would expect that a clean water area (i.e., an area of less than 5 µg/L total VOCs) would develop as a result of bifurcation of the plume (i.e., splitting of the plume into two parts with one part on-Site and the other off-site with a defined groundwater area of less than 5 µg/L total VOCs between the two parts of the plume). This bifurcation would be a direct result of hydraulic capture. This clean water area would develop at the water table near the Site and over time would expand further hydraulically downgradient of the Site and deeper in the aquifer. As part of this capture, one would expect monitoring well graphs of TVOCs versus time to show downward trends in areas proximate to and near central downgradient of the ONCT (see **Figure 1** for definition of these areas). In this Section, the available data is reviewed, and a determination is made as to whether the data supports the expectations described above.

Once remedial wells are pumping continuously at the rates required to establish containment, the propagation of drawdown occurs quickly on Long Island as a pressure response to pumping and hydraulic capture is achieved and can be documented in a relatively short time measured in weeks or months. However, improvement in groundwater quality (in this case volatile organic compounds) occurs more slowly as it depends on groundwater movement, which is relatively slow on the order of approximately 1 foot/day (ft/day) on Long Island; therefore, improvements in groundwater quality could take years to reflect the hydraulic capture that is occurring. Due to the different time frames described above, hydraulic capture is considered a leading indicator of remedial effectiveness and improvement in groundwater quality is considered a lagging indicator of remedial effectiveness.

6.1 Hydraulic Capture

During ONCT operation at design pumping and recharge rates certain changes in hydraulic conditions are expected as follows:

- 1) "Mounding" of the water table (i.e., a localized increase in groundwater elevation) resulting from the concentrated discharge of treated water to on-site recharge basins is expected to occur and be most evident in Zone 1 where the water table occurs.
- 2) The combination of proximate ONCT system shallow discharge to the on-site recharge basins and deep pumping engenders the expectation that groundwater flow in the vicinity of the ONCT system would have a downward vertical component from the shallow portions of the aquifer to the deep portions of the aquifer.
- 3) ONCT system remedial well pumping will generate "a cumulative zone of capture" (i.e., an area of lowered groundwater levels within which groundwater moves to and is withdrawn by one of the remedial wells), which is expected to occur and be most evident in Zone 3, where the remedial pumping wells are screened.
- 4) Groundwater modeling would substantiate the above three hydraulic factors.

As discussed below, these expectations are being realized, as documented in previous annual reports and for 2023. **Tables 8 and 9**, provide the water-level measurement data for the Second and Fourth Quarters of 2023 respectively, and the data in **Table 9** was used for the ONCT hydraulic capture evaluation provided below. The ONCT system operated consistently, at or above design pumping rates, during these measurement periods. **Table 10** summarizes calculated vertical hydraulic gradients for key monitoring well pairs in the vicinity of the ONCT system (which were calculated using the Fourth Quarter 2023 water-level measurements) and compares these gradients to groundwater model-predicted gradients (for the ONCT system operating at current design flow rates) that would result in capture of the VOC-impacted groundwater on-Site. **Figures 8 and 9** depict groundwater elevations and flow directions in Zones 1 and 3, respectively, during operation of the ONCT system, the RW-21 system and BWD Plant 6 in October 2023.

Furthermore, the potential impact of the RW21 remedial system, which began full-scale operation in August 2023, was factored into the hydraulic capture assessment provided herein, because treated water from the OU2 ONCT and the RW-21 systems discharges to the same on-site recharge basins (South) and remedial well pumping from the RW-21 system likely would affect local and regional flow patterns.

6.1.1 Evidence of Mounding Along South Recharge Basins

Figure 8 illustrates water table mounding in Zone 1 beneath the west recharge basins and the south recharge basins where the mounding extends beyond the Site's southern boundary. This mounding establishes a downward hydraulic gradient toward Zone 3, where OU2 ONCT remedial pumping is occurring. The mounding shown on **Figure 8** reflects the combined effect of treated water discharged to the south recharge basins from two separate remedial systems: OU2 ONCT system (specifically Building 102) and the RW-21 remedial system (an additional 1,350 gpm [average of treated water discharged from Building 109 from full scale startup in early August through October measurement period]).

6.1.2 Vertical Hydraulic Gradients

Data summarized in **Table 10** indicates that vertical hydraulic gradients exist and are reflective of mounding and deeper pumping. On **Table 10** data from 17 of the 19 monitoring well clusters are consistent with modeling results with 16 clusters showing downward gradients and one cluster showing an upward gradient. The two remaining monitoring well clusters did not align with the model's anticipated direction, and it is possible that these two

monitoring well clusters are influenced by local conditions. In summary, the majority of the hydraulic gradients calculated are consistent with modeled gradients and the expectation of vertical groundwater flow.

6.1.3 Capture Zone Based on Potentiometric Surface Map (Zone 3)

Figure 9 shows that the ONCT system remedial wells have developed a cumulative of capture in Zone 3 (500-700 foot depth below land surface) that encompasses and extends downgradient of the Site (see groundwater divide depicted on **Figure 9**, in the area just south of Central Avenue). This capture zone prevents the off-site migration of the on-site VOC-impacted groundwater, plus the remedial wells creating the capture zone also remove contaminant mass from the aquifer. In addition to the ONCT remedial well pumpage, the three RW-21 system remedial wells (RW-20, RW-21 and RW-22) began initial startup in May 2023 with full scale operation beginning in early August 2023 and continuing throughout the Fourth Quarter 2023 at an average combined rate of approximately 1,350 gpm. Due to the substantial RW-21 system remedial well pumpage and its proximity to the ONCT system, **Figure 9** incorporated groundwater levels from select OU3 monitoring wells, select Navy monitoring wells and the three RW21 remedial wells in conjunction with the OU2 monitoring and remedial well data to define groundwater contours. Data from these select monitoring wells, and the three remedial wells are presented on **Table 9** and on **Figure 9**. On **Figure 9** the influence of the RW-21 system pumpage was noticed in some of the OU3 monitoring wells and this pumpage resulted in significant changes in groundwater flow directions and the formation of additional capture zones around the RW21 remedial wells. **Figure 9** also suggests the emergence of a third capture zone resulting from pumping BWD Well 6-2 (N-8941). However, even with these other pumping influences **Figure 9** indicates that the ONCT capture zone was maintained and kept VOC-impacted groundwater from migrating offsite.

6.1.4 Calculations/Modeling for Capture of On-Site Portion of the Plume

The capture zone of the OU2 ONCT system was further assessed using groundwater flow modeling to support future planning, with evaluations conducted under various pumping scenarios. Modeling results, as detailed in **Appendix F**, show that RW21 remedial system pumpage and its treated water discharge at the South Recharge Basins have not hindered the OU2 ONCT system from maintaining its cumulative capture zone required to prevent the off-site movement of on-site VOC-impacted groundwater. Additionally, modeling results show that the potential future pumping of DEC Well EX-06 and its treated water discharge at the South Recharge Basins would not hinder the OU2 ONCT system from maintaining its cumulative capture zone. As such, the current model design flow rates were updated for the South Recharge Basins as noted in **Table 3**. Flow to South Recharge Basins reflects operation of the B109 treatment system with the high-end of range reflecting up to an additional 2,400 gpm contribution from B109 (RW-21 and DEC-EX-06). Model simulations conducted to date have demonstrated ONCT capture zone is maintained for discharge rates to the South Recharge Basin within the range noted in **Table 3**. Discharge rates outside the noted range would need further assessment using groundwater flow modeling to assess potential impact to capture zone.

Hydraulic data, supported by capture zone modeling, discussed in this report section confirms that the on-site VOC-impacted groundwater is being contained on-site by the hydraulic barrier developed and maintained by the ONCT system. In the sections below, ground water quality data is reviewed and evaluated relative to the expectations of on-site containment and development of a clean water area.

6.2 Improvements in Groundwater Quality - Volatile Organic Compounds

This report section evaluates the groundwater quality monitoring data collected during 2023 and in prior years to support the evaluation of groundwater quality trends.

Time-concentration graphs depicting the TVOC concentration trends in key monitoring wells, grouped by proximity to the hydraulic barrier created by ONCT system operation, are shown on **Figures 10, 11 and 12**. The above key wells selected for graphing are representative of overall conditions within the OU2 plume (both on-site and immediately downgradient of the Site) over time, both horizontally and vertically, and are considered surrogates for other wells that were not graphed.

For clarity, the key groundwater focus areas relative to the ONCT system are described below and discussed in the following subsections of this report:

- **Upgradient of the ONCT System:** Generally, north of the ONCT system and within the capture zone created by it.
- **Proximate to the ONCT System:** Generally, in the vicinity of the ONCT remedial wells and south recharge basins, inclusive of the resulting capture zone and clean water area created by the ONCT system.
- **Near Central Downgradient of the ONCT System:** Generally downgradient of the proximate area and slightly south of the clean water area but showing groundwater quality improvements suggesting the continued propagation of the clean water area to the south.

Discussion of these key areas is further organized by the hydrogeologic zones described in **Section 6**, where necessary. In general, as described below, the majority of the OU2 plume mass is within Zone 3. This section also provides an updated assessment of the three-dimensional distribution of TVOC concentrations (by hydrogeologic zone) and evaluates the current TVOC plume distribution to assess the development of a clean water area downgradient of the ONCT system.

Well locations are shown on **Figure 1**, with Northrop Grumman program wells depicted in black and supplemental Navy wells depicted in gray. Also included on **Figure 1** are brackets depicting the general locations of the upgradient, proximate, and near central downgradient areas in relation to the Site.

6.2.1 Upgradient of the ONCT System

Monitoring wells located in the area upgradient of the ONCT system are screened within Zone 1 and Zone 2; groundwater quality results for these wells are summarized in **Table 11**. Two of the monitoring wells (GM-13D, and MW-3-1) exhibited exceedances of SCGs for VOCs (**Table 11**); however, these wells continue to exhibit overall decreasing TVOC concentration trends since startup of the OU2 system (**Figure 10** and **Table 16**). Collectively, the upgradient monitoring wells currently exhibit a greater than 99 % decrease in TVOC concentrations from their highest historical values to current values (**Table 16**) and the water quality data is improving as anticipated.

These monitoring wells are located within the capture zone of the ONCT system; therefore, groundwater in this area is hydraulically contained and, over time, will be extracted and treated via the continued operation of the

ONCT system. Although upgradient monitoring wells, due to their location, do not provide direct evidence of the ability of the ONCT system to contain VOC-impacted groundwater on-site, their declining TVOC trends and overall substantial decrease in TVOC concentrations with time reflect removal of VOC mass from the impacted aquifer zones. These decreasing TVOC concentration trends in groundwater and the well locations within the capture zone support the conclusion that the ONCT system is operating as designed and per expectations (as summarized in **Section 1**).

6.2.2 Proximate to the ONCT System

The identity of groundwater quality results for the monitoring wells located in the area proximate to the ONCT system and screened within Zones 1 through 3 are summarized in **Table 12**. The trends for a representative subset of monitoring wells in this area are shown in **Figure 11**.

Zone 1

VOCs were either not detected or were detected at concentrations below SCGs in these wells, except for Monitoring Well GM-79D. Monitoring Well GM-79D had an exceedance of the TCE SCG (**Table 12**); however, this well continues to have an overall decreasing TVOC concentration trend since startup of the OU2 system (**Figure 11**), with an overall reduction in TVOC concentrations of greater than 89% from its highest historical value (**Table 16**).

Zone 2

Monitoring Well GM-78D2 exhibited exceedances of the Dichloromethane SCG (Table 13). Although this well showed an apparent increase to 16.72 µg/L TVOC from a historical high of 1.6 µg/L, this result is a suspected anomaly, which will be further assessed through continued sampling of this well in 2024. In addition, Monitoring Wells GM-39DB and GM-73D exhibited exceedances of the TCE SCGs (**Table 12**); however, these wells exhibited overall reductions in TVOC concentrations of greater than 72% and 81%, respectively, from their highest historical values (**Table 16**).

Zone 3

Monitoring Well GM-73D3 exhibited exceedances of the Dichloromethane SCGs (Table 13). Although this well showed an apparent increase to 15.06 µg/L TVOC from a historical high of 3.3 µg/L, this result is a suspected anomaly, which will be further assessed through continued sampling of this well in 2024. In addition, wells GM-15D2, GM-21D2, GM-33D2, GM-73D2, GM-74D2 and GM-74D3 exhibited exceedances of the TCE SCGs (**Table 12**). However, these wells exhibited overall reductions in TVOC concentrations of approximately 76%, 99%, 100%, 97%, 0.4%, and 44%, respectively, from their highest historical values (**Table 16**). In addition, Well GM-21D2, located immediately south of the Site within the proximate area, continues to steadily show decreases in TVOC concentrations (**Figure 11**), with TCE concentrations only slightly below 6 µg/L in the Fourth Quarter 2023. This continued decline in TVOCs is to be expected, as the clean water area (see Section 6.2.4) continues to expand within the GM-21 area south of the southern site boundary and beyond.

Zone 4

DON Well RE123D3 is the only well in Zone 4 in the proximate area and is screened from 815 to 835 ft bls. VOCs were detected at concentrations below SCGs in this well, exhibiting overall reduction in TVOC concentration of nearly 76% from the highest historical value (**Table 16**).

In summary, monitoring wells located in proximity to the ONCT system continue to show either VOCs less than SCGs or overall decreasing trends in TVOC concentrations since startup of the system (**Figure 11**). Additionally, for all monitored hydrogeologic zones (**Table 16**) the monitoring wells show a collective decrease in TVOC concentrations of 97% from their highest historical values. Groundwater in this proximate area is hydraulically contained by the ONCT system, both horizontally and vertically, and over time, will be extracted and treated via the continued operation of the ONCT system. These decreasing TVOC concentration trends in groundwater monitoring well locations within the capture zone supports the conclusion that the ONCT system is operating as designed and per expectations (as summarized in **Section 1**).

6.2.3 Near Central Downgradient of the ONCT System

A total of 10 monitoring wells (4 Northrop Grumman and 6 DON) are located in the near central downgradient area south of the Site, which extends from the “proximate” area to approximately 1,300 feet south of the Site. The TVOC trends for some of these wells are provided on **Figure 12**, and the identity and analytical results associated with the Northrop Grumman wells are provided on **Table 13**.

Two wells (GM37D [Zone 1] and GM-75D2 [Zone 3]) in this area exhibited slight VOC exceedances of the SCGs (**Table 13**); however, these wells show declining trends in TVOC concentrations over their period of record (see **Figure 12**) and have also exhibited overall reductions in TVOC concentrations of nearly 78% and 99% respectively, from their highest historical concentrations (**Table 16**). In addition, VOC concentrations above SCGs were noted in DON Well Clusters RE109 and RE126, which is to be expected as the majority and higher concentrations of TVOCs were identified within wells in Zone 3 in this area.

The RE126 well cluster is located approximately 800 feet downgradient of the “proximate” GM-21 well cluster (maximum TVOC concentration of 5.9 µg/L at Well GM-21D2 in 2023). Well RE126D2 (screened 555 to 575 ft bls) exhibited the highest TVOC concentration in this cluster, and also in the near central downgradient area, at approximately 273 µg/L (**Figure 12**). Well RE109D2 (screened 550 to 570 ft bls) located to the east of the RE126 cluster, exhibited the highest TVOC concentration in this cluster of approximately 30 µg/L (**Figure 12**). In contrast, GM-75D2 (screened 505 to 525 ft bls) located west of the RE126 cluster exhibited a maximum TVOC concentration of approximately 16 µg/L (**Figure 12 and Table 13**). It appears that although Zone 3 has the highest TVOC impacts in the near central area, these impacts vary noticeably based on specific screen zones and locations within Zone 3.

Although TVOC concentrations within Well RE126D2 are higher than those in adjacent Wells GM-75D2 and RE109D2, Well RE126D2 is exhibiting a declining trend over the period of record, as are Wells RE109D2 and GM-75D2 (see **Figure 12**), while the other two wells in Cluster 126 show low and flat/declining trends (**Figure 12**). Wells RE126D2, RE109D2, and GM-75D2, for their respective period of record, exhibited overall reductions in TVOC concentrations of nearly 53 %, 44 % and 99% respectively, consistent with their declining trends.

For comparison purposes, “proximate” area Well GM-21D2 located at the edge of the clean water area and approximately 800 feet north/upgradient of the Well RE126 cluster and screened approximately 50 to 80 feet shallower than the RE126 wells (though still within Zone 3) exhibited a maximum TVOC concentration of 5.9 µg/L,

as indicated above. TVOC concentrations in Well GM-21D2 have exhibited an overall decrease of nearly 98 % from the highest historical value. Given that Well GM-21D2 is located upgradient of the Well RE109 and RE126 clusters, it is expected that similar decreases will be observed at these well clusters over time, as the clean water area propagates through this vicinity and depth downgradient of the Site.

In summary, monitoring wells located in the near central area downgradient of the ONCT system continue to show either VOCs less than SCGs or overall decreasing trends or low flat trends in TVOC concentrations since startup of the system (**Figure 12**). Additionally, the wells show a collective decrease in TVOC concentrations of nearly 84% from their highest historical values in all monitored hydrogeologic zones (**Table 16**). These decreasing TVOC concentration trends in groundwater supports the conclusion that the ONCT system is operating as designed and per expectations.

6.2.4 Overall TVOC Distribution/Clean Water Area

This section provides an updated assessment of the three-dimensional distribution of TVOC concentrations (as indicated previously in this report, TVOC concentrations are the sum of 21 identified “Site-related” VOCs) and the clean water area in the OU2 portion of the upper glacial and Magothy aquifers. This assessment was developed by comparing the 2022 TVOC distribution to the most recently available data from monitoring wells, remedial wells, vertical profile borings, and public water supply wells collected in 2023. This evaluation focuses on the distribution of TVOCs on-site and extending downgradient from the Site to slightly south of Hempstead Turnpike. The maps and cross-sections discussed below supplement the discussions in **Sections 6.1** and **6.2.1, 6.2.2, and 6.2.3**.

Figures 13 through 19 provide the 2023 updated three-dimensional interpretation of the plume and clean water area based on analytical data included in this report, which was collected from multiple OU2 on-site and off-site Northrop Grumman monitoring and remedial wells, supplemented with available 2023 analytical data from on and off-site DON monitoring wells and vertical profile borings (VPB), and Bethpage Water District public supply wells. Five plan and two cross-sectional view figures (perpendicular and parallel to the regional ambient groundwater flow direction) were updated. These figures provide a comprehensive three-dimensional interpretation of TVOC concentrations and the clean water area in Zones 1 through 4 at and downgradient of the Site extending to slightly south of Hempstead Turnpike (the furthest south location where data was considered as part of determining ONCT system effectiveness). However, the further downgradient area is beyond the ONCT system capture zone and its resulting area of plume bifurcation and developing clean water area.

The locations of all monitoring and remedial wells and VPBs used to define the plume contours and clean water area are shown on the maps as data points for context. Key wells within the plume and clean water area are discussed herein and are labelled on the plan view and cross-section figures for convenience of review. Based on a review of the current figures and comparing them to those in the 2022 report, current plume conditions have changed somewhat as compared to 2022, and these changes are described below.

Figure 13 depicts a 2023 plan view of the overall TVOC distribution (i.e., the maximum concentrations in all zones were combined on one figure to show maximum OU2 plume extent) at and downgradient of the Site and the locations of the two cross-sections: A to A', oriented in a west-east direction along the former Northrop Grumman Site southern boundary and perpendicular to regional ambient groundwater flow; and B to B', oriented in a northwest-southeast direction from the southernmost portion of the Site to the Bethpage Water District Well Field 6, downgradient from the Site, and approximately parallel to regional ambient groundwater flow. **Figures 14**

and 15 respectively, provide A to A' and B to B' cross-sectional vertical interpretations of 2023 TVOC concentrations in groundwater and the clean water area from the water table to the top of the Raritan confining unit, which is the bottom of the Magothy aquifer. **Figures 16 through 19** provide plan-view interpretations of the maximum 2023 TVOC concentrations in Zone 1, Zone 2, Zone 3 and Zone 4, respectively.

Key findings based on review of **Figures 13 through 19** are summarized below:

- Plan-view **Figures 13** (all depths compiled onto one map, indicating maximum plume extents) **and 16 through 18** (depicting the OU2 plume for specific depth horizons [**Figures 16 (Zone 1), 17 (Zone 2), and 18 (Zone 3)**]) all show bifurcation of the plume and a clean water area as evidenced by an area of less than 5 µg/L TVOCs on-site and immediately south of the Site. As pumping continues, bifurcation of the plume and the associated clean water area will continue to expand downgradient of the ONCT system as on-site VOC-impacted groundwater continues to be removed from the aquifer by pumping the remedial wells and treated water continues to be recharged at the south recharge basins. **Figure 19** (Zone 4) does not show plume bifurcation as there is no Site-related VOC-impacted groundwater on-site in this zone however, there is an area of clean water that extends from the Site to approximately 2,000 feet south of it.
- As shown on **Figure 13**, the on-site northern and southern extent of the greater than 1,000 µg/L TVOC portion of the plume remained unchanged compared to 2022. The extent of the plume within the 5 to 50 and 50 to 500 µg/L TVOC area is further north compared to 2022. This is reflective of new DON data, not previously available, that allows for better plume definition in this area and, does not reflect plume migration because regional groundwater flow is to the south. Offsite, the plume is similar to 2022; however, there is an apparent widening to the west in the 5 to 50 µg/L plume portion and also in the 500 to 1,000 µg/L portion near Navy Remedial Well RE137; which may be due to pumpage of this well. Lastly, the clean water area is essentially the same as in 2022. Below more detail is provided on plume changes by zone.
 - Based on a comparative analysis of chemical compositions described in the 2021 Annual OM&M Report (Arcadis 2022), it was recognized that there could be more than one VOC source (or sources) besides the Site (Northrop Grumman/NWIRP) impacting groundwater at the RE107 monitoring well cluster and, as such, results associated with the RE107 well cluster are not further discussed in this report; however, as a conservative measure, RE107 is included in the plume update.
 - VOC-impacted groundwater detected at DON RE106 monitoring well cluster appears to be from a source other than OU2 (see 2021 annual report (Arcadis 2022), for a detailed discussion on this) and, accordingly, data from DON well cluster RE106 was not included in mapping the OU2 plume for this report.
- To review the plume in more detail, depictions of the plume in each zone are provided in the following figures and changes from 2022 are discussed below:
 - **Figure 16** - Zone 1: Compared to 2022, the on-site the plume has generally remained the same except that the 5 to 50 µg/L portion, which has decreased slightly in area to the south. To the north the plume is now shown to extend further to the north; however, as explained above in regard to Figure 13, this further northern extent is due to additional data not previously available

rather than plume growth. Off-site, the 5 to 50 ug/L portion of the plume has receded to the south with the 50 to 500 ug/L plume portion remaining essentially the same in area but changing slightly in shape. The clean water area has increased slightly to the south and now is south of Navy Remedial Well RW4. reduced to the north.

- **Figure 17** - Zone 2: Compared to 2022, on-site the plume extent is essentially the same with the only change being the 5 to 50 ug/L portion extending further to the north based on more available data and not actual plume growth. Off-Site, the greater than 500 µg/L area has disappeared, the overall extent of the 5 to 50 ug/L plume portion has widened slightly, and the 50 to 500 ug/L portion has remained essentially the same in area but has changed in shape. The clean water area has remained unchanged, but a second clean water area has appeared in the center of the off-site plume near the Navy Remedial Well RW4.
- **Figure 18** - Zone 3: On-site the 5 to 50 µg/L area has remained similar to 2022 with a slightly greater extent to the north. Off-site, the plume appears similar to 2022 with the 500 to 1,000 and greater than 1,000 µg/L areas appearing slightly larger, which may be due to continued pumping of Navy Remedial Wells RW4 and RE137. The clean water area remains unchanged from 2022.
- **Figure 19** - Zone 4: The 2023 and 2022 plumes look similar in extent with the 500 to 1,000 and greater than 1,000 ug/L portions being smaller in 2023 possibly due to the pumping of Navy Remedial Well RE137. The clean water area extends slightly further south in 2023 compared to 2022.
- Monitoring Well GM-33D2, located a short distance off-site and west of Remedial Well 17, has exhibited a decline in TVOCs of nearly 100% since 1994, while Monitoring Well GM-75D2, located off-site approximately 1,300 feet downgradient of the ONCT system, has exhibited a decline in TVOCs of 99%. These TVOC reductions would not be possible if TVOCs were still migrating from the Site.
- Based on the west-east A to A' cross-sectional interpretation shown on **Figure 14**, Remedial Wells 17 through 19 continue to intercept on-site VOC-impacted groundwater at the southern boundary of the Site. **Figure 14** documents the large volume of clean groundwater between the water table and generally minus 290 feet North American Vertical Datum 1988 (NAVD), where TVOCs are essentially less than 5 µg/L due to operation of the ONCT system. Deeper groundwater at minus 540 feet NAVD and below is also less than 5 µg/L and documents that the ONCT system is preventing further vertical migration of VOC-impacted groundwater. This cross-section is similar in appearance to the one for 2022 except that in 2023 the 500 to 1,000 µg/L vertical section has disappeared near Remedial Well 17, the 5 to 50 µg/L vertical section has disappeared near RE123D1 resulting in a clean water area, and the 50 to 500 ug/L vertical section no longer extends to Remedial Well 19.
- The northwest-southeast B to B' cross-sectional interpretation shown on **Figure 15** shows TVOCs less than 5 µg/L throughout a vertical section downgradient of Remedial Well 17 and indicates plume bifurcation and a clean water area. The northernmost area of the plume, where concentrations are greater than 5 µg/L (which is intercepted on-site by Remedial Well 17), and the southernmost downgradient area of concentrations greater than 5 µg/L are separated by the clean water area. The deeper portion of the aquifer did not exhibit TVOC concentrations greater than 5 µg/L, including beneath the ONCT system remedial wells. The 2022 and 2023 cross-sections appear similar except that in 2023 the 500 to 1,000 µg/L area does not extend around and past Bethpage Water District Well 6-2, possibly

due to reduced pumpage at this well. The 5 to 50 ug/L vertical section is thinner than last year near the Monitoring Well RE108 cluster while the 50 to 500 ug/L vertical section is thicker near the Monitoring Well RE108 cluster.

As the majority of pumping and enhanced recharge (concentrated in the south recharge basins) occurs near the southern Northrop Grumman property boundary, the resulting clean water area, which initially developed in Zone 1 in this area continues to propagate deeper and downgradient away from the Site in response to the prevailing regional ambient horizontal groundwater flow direction and vertical downward groundwater flow gradient. As expected, the clean water area is largest in Zone 1 (see **Figure 16**) where it first developed. Over time, the clean water area will continue to expand from Zone 1 to the more geologically complex deeper aquifer zones (Zones 2 through 3) while also expanding further (south) from the Site. This expansion is shown in **Figures 17 and 18** where a clean water area is also shown that is less than in Zone 1 but slightly larger in Zone 2 than Zone 3, which is to be expected as the clean water area expands deeper and to the south. In Zone 4, bifurcation of the plume is not shown as VOC impacts in this zone are not present on-site; however, the clean water area in this zone extends approximately 2,000 feet downgradient of the Site.

The clean water area created and maintained by the ONCT system is evident based on review of the water level maps, vertical hydraulic gradients, plume maps, cross-sections, monitoring well analytical data and associated trend graphs included herein. These lines of evidence and evaluations are consistent with those in USEPA (USEPA 2008) "A Systematic Approach for Evaluation of Capture Zones at Pump and Treat Systems" report. The continued expansion of the clean water area and associated reductions in TVOC concentrations could not have been achieved without the ONCT system effectively capturing and preventing the off-site movement of VOC-impacted groundwater.

7 Summary of Additional Groundwater Quality Data

7.1 Volatile Organic Compounds – Further Downgradient of the ONCT System

This section summarizes the VOC analytical results associated with the downgradient portion of Northrop Grumman's monitoring program for 2023 in the Far Central Downgradient area of the Site, followed by a discussion of VOC analytical results associated with the Former Outpost Monitoring Wells and the GM-38 Area (**Figure 1**). As the below subsections are reviewed, it is important to understand that differences in rates of TVOC reductions in groundwater quality are expected as the clean water area will take time to propagate with distance and depth.

7.1.1 Far Central Downgradient Area

The far central area south of the Site extends from the southern edge of the near central area (approximately 1,300 feet south of the Site) southward to approximately Hempstead Turnpike (**Figure 1**). This area is currently too far south to show propagation with distance (and depth) of the clean water area; however, given enough time this area would be expected to show the clean water area although such development can be impacted and possibly delayed by pumping of public supply or other remedial wells in the area. In this area the higher concentrations of TVOCs were generally identified within the DON wells in Zone 3. Also in this area, the DON has

installed and is currently operating Remedial Wells RW4 and RE137 to remove mass within the high concentration core of the OU2 off-site plume (TVOCs above 1,000 µg/L- “hot spot”). The continued operation of these remedial wells will improve groundwater quality in this area. Furthermore, the DON has installed Remedial Wells 5A/B, 6A/B, and 7A/B to the south of Hempstead Turnpike to remediate the RE108 “hot spot” as a part of their Phase II investigation and remediation program. The DON has also installed/is installing Remedial Wells RW-8, RW-9 and RW-10A to intercept the OU2 plume at Southern State Parkway and has been installing associated monitoring wells as part of this groundwater remediation program. When these remedial wells begin to operate, the DON will evaluate their progress in remediating and intercepting the plume through their own effectiveness monitoring program.

A total of 12 monitoring wells (8 Northrop Grumman and 4 DON wells) are located in the far central area. Identification of and analytical results for the Northrop Grumman wells in this area are discussed below and provided on **Table 13**; TVOC trends for select DON and Northrop Grumman wells and Bethpage Water District Well BWD 6-2 in this area, are provided on **Figure 20**.

Wells GM-34D and GM-71D2 in Zone 2, and GM-34D2 and GM-35D2 in Zone 3, in this area exhibited VOC exceedances of the SCGs (**Table 13**); however, these wells have also exhibited an overall reduction in TVOC concentrations of nearly 94%, 68%, 90% and over 95% respectively, from their highest historical concentrations (**Table 16**).

The RE122 well cluster is located downgradient of the clean water area, approximately 1,000 feet southeast (downgradient) of near central downgradient well GM-75D2. Well RE122D2 (screened 590 to 610 ft bls), with the highest TVOC concentrations in this cluster, exhibited TVOCs of approximately 3,600 µg/L (**Table 16** and **Figure 20**). In addition, the Well RE108 cluster is located approximately 500 feet east of the RE122 cluster, and Well RE108D2 (screened 630 to 650 ft bls), with the highest TVOC concentration in this cluster, exhibited a TVOC concentration of 2,400 µg/L (**Table 16** and **Figure 20**). Well RE122D3, which exhibited a TVOC concentration of 2.20 µg/L, is screened within Zone 4 (from 715 to 735 feet below grade). The multiple depths of the “RE” well clusters provide a snapshot of the vertical extents of the plume. In this case, Well RE122 D3 delineates the lower vertical extent of the plume in this area.

Although elevated relative to nearby upgradient Well GM-75D2 discussed in report Subsection 6.2.3, TVOC concentrations within Wells RE122D2 and RE108D2 exhibit decreasing trends over their period of record (**Figure 20**). For comparison, Well GM-75D2 (screened approximately 90 to 140 feet shallower than RE122D2 and RE108D2, respectively) exhibited a TVOC concentration of 16 µg/L and has shown an overall decrease in TVOC concentrations of 99% from its highest historical value. Given that Well GM-75D2 is located upgradient of the Well RE108 and RE122 clusters, it is expected that similar decreases will be observed at these well clusters over time, as the clean water areas continues to propagate through this vicinity and depth downgradient of the Site.

The variable pumping (remedial well shutdown or operation at increased or decreased flow rates) of Bethpage Water District Well 6-2 (BWD 6-2) over time may also have an influence on water quality in this far central downgradient area, and consequently the continued downgradient development of the clean water area. The operation of BWD 6-2 locally affects the groundwater flow direction and based on the water quality trends in BWD 6-2, may influence at least a portion of the OU2 plume to move east/southeast towards BWD 6-2, resulting in highly variable VOC concentrations in this well over time (**Figure 20**). Given the locations of Wells RE108D2 and RE122D2, approximately 2,000 feet northwest and generally upgradient of BWD 6-2, there is a potential that water quality at these wells is affected by the variable pumping of BWD 6-2, as illustrated by variable TVOC concentrations over time in Wells RE108D2 and RE122D2 similar to those in BWD 6-2 (**Figure 20**).

Operation of the ONCT system will continue to result in declining TVOC concentrations downgradient of the Site, as the clean water area continues to propagate and expand both further downgradient and at depth. As DON continues operating their Remedial Wells RW4 and RE137, further groundwater quality improvements are expected in this area and should be evidenced as DON evaluates the progress in remediating the RE108 “hot spot”.

7.1.2 GM-38 Area

DON operates an off-site groundwater extraction and treatment system at the GM-38 hotspot area located downgradient and approximately 0.75 miles southeast of the Site. OM&M reports for the GM-38 Area Remedy are submitted to NYSDEC by DON under separate cover, and these reports (KGS 2023a; KGS 2023b) are reviewed to supplement evaluation of off-site groundwater conditions. A summary of the GM-38 Area Remedy is provided below, based on the two referenced reports GM-38 Area Groundwater Remediation Reports.

During the current reporting period, Remedial Wells RW-1 and RW-4 were utilized for groundwater extraction and all extracted groundwater was treated in the GM-38 Area Groundwater Treatment Plant (GWTP). RW-4 is not part of the original GM-38 Area remedial system; however, once RW-4 went online in 2022 the pumping rates of GM-38 Areas Remedial Wells RW-1 and RW-3 had to be adjusted to accommodate the flow from Well RW-4 so that RW-4 water could be treated at the GM-38 GWTP and discharged at the Arthur Avenue basin. To accomplish this RW-3 was turned off in 2022 while RW-1 continued to operate at a reduced rate. RW-1 and RW-4 each operated at an approximate flow rate of 500 gpm during first and second quarters of 2023 (January to June), so that the total rate remained at 1,000 gpm so as not to exceed the GWTP capacity or Arthur Avenue recharge basin capacity. The treated combined effluent from RW-1 and RW-4 is routinely sampled for VOCs and 1,4-dioxane by DON. Since the GWTP has been in operation, there has been a consistent decline in TVOC concentrations observed in both the two remedial wells and their associated monitoring wells, which are sampled at varying frequencies throughout the year by DON. Additionally, this downward trend is apparent in Northrop Grumman owned monitoring wells GM-38D and GM-38D2, as discussed below.

As summarized in **Table 13**, Monitoring Wells GM-38D and GM-38D2 exhibited SCG groundwater exceedances for TCE, which is consistent with VOC data from previous quarters.

Figure 21 depicts TVOC trends for Zone 1 and 2 monitoring wells in the off-Site GM-38 Area. The TVOC concentrations in Wells GM-38D and GM-38D2 have decreased since 2006 and 2002, respectively, except for a short-term increase in TVOCs observed in GM-38D2 beginning in late 2015 after Navy Remedial Well RW3 was turned off in July 2015. In June 2018 Well RW3 was turned back on and subsequently the TVOCs in GM-38D2 decreased to pre-July 2015 levels. In April 2021, Well RW3 was taken offline to allow flow from Remedial Well RW-4 to be treated by the GM-38 Areas GWTP. Since then, minor increases in VOC trends have been observed in GM-38D and GM-38D2.

7.1.3 Former Outpost Wells

Fifteen former outpost monitoring wells were repurposed by Northrop Grumman at the end of 2015 as OU2 plume monitoring wells (Arcadis 2016) and continue to monitor the VOC plume upgradient of certain public supply wellfields. Due to their proximity to nearby drinking water supply wells, samples from the repurposed outpost monitoring wells continue to be analyzed using methods appropriate for water supply wells; USEPA Method 524.2 for VOCs and USEPA Method 522 for 1,4-dioxane. Based on the 2003 Public Water Supply Contingency Plan

(PWSCP) Well Cluster Bethpage Outpost Wells (BPOW) 1 is used to monitor groundwater quality upgradient of Wellfield 1 of the South Farmingdale Water District (SFWD); Well Cluster BPOW 2 is used to monitor groundwater quality upgradient of Wellfield 3 of the SFWD; Well Cluster BPOW 3 is used to monitor groundwater quality upgradient of New York Liberty Utilities (NYLU) Seaman's Neck Road (SNR) wellfield; and Well Cluster BPOW 4 is used to monitor groundwater quality upgradient of Well N-5303 of the Town of Hempstead/Levittown Water District.

In October 2023, DON submitted an updated PWSCP (TetraTech 2023c). In this update, DON has revised trigger values for VOCs and developed trigger values for 1,4-Dioxane. Additionally, DON has revisited which water supply wells are monitored by which outpost wells (based groundwater modeling) and has provided a rationale for repurposing most outpost wells to plume monitoring wells (with commensurate sampling frequency changes). For example, BPOW Clusters 1, 2 and 4 are no longer considered outpost wells, due to the presence of well head treatment on the supply well, and DON proposes they be sampled as plume monitoring wells on a semi-annual basis. BPOW 3-3 and BPOW 3-4 also will no longer be considered outpost wells and DON proposes they be sampled as plume monitoring wells reducing the frequency to a semi-annual basis. However, DON proposes BPOW 3-1 and BPOW 3-2 still be sampled as outpost wells on a quarterly basis to monitor Freon 113 until air stripping treatment is in place for NYLU-SNR well field. Nevertheless, for purposes of this report, data from the former outpost wells continue to be simply presented from the perspective of plume monitoring.

As summarized in **Table 13**, only three of the 15 former outpost wells (BPOW 3-4, BPOW 4-1R, and BPOW 4-2R) in Zones 3 and 4 exhibited VOC exceedances of the SCGs in 2023. These exceedances at BPOW 3-4 were for Freon-113, TCE, and 1,1-Dichloroethene, while the exceedances at BPOW 4-1R and BPOW 4-2R were for Freon-113.

Figure 22 highlights the downward or stable trend in TVOC concentrations for the BPOW 1 cluster (Wells BPOW 1-1 and BPOW 1-2, respectively). Well BPOW 1-3 shows an initial declining trend through late 2010 and after that time the well has a flat trend with mostly non-detect values. BPOW 1-4 has a flat trend with mostly non-detect values. BPOW 1-5 and BPOW 1-6 were non-detect for TVOCs for the period of record and were, therefore, not graphed. **Figure 23** shows the increasing trends for Wells BPOW 3-4, BPOW 4-1R, and BPOW 4-2R and the stable trend and mostly non-detects for BPOW 3-3. Wells BPOW 3-1 and BPOW 3-2 were essentially non-detect for TVOCs for their period of record and, therefore, were not graphed. Well Cluster BPOW 2 has not exhibited exceedances of the SCGs since 2007 and was not graphed.

7.2 Cadmium and Chromium

Representative monitoring wells located in proximity to former Northrop Grumman Plants 1 and 2 are sampled for laboratory analysis of total and dissolved cadmium (Plant 2 only) and chromium (Plants 1 and 2). Analytical results for the Second and Fourth Quarters of 2023 are provided in **Table 14**. As a conservative approach, only total (unfiltered) metals concentrations are discussed below and depicted on the corresponding figures.

7.2.1 Former Northrop Grumman Plant 1

Exceedances of total chromium were detected in three of four monitoring wells (GM-15SR, PLT1 MW-05, PLT1 MW-06) associated with Plant 1 (PLT 1) during 2023 as indicated in **Table 14**.

As depicted on **Figure 24**, total chromium in Well PLT1 MW-05 has shown a generally decreasing trend over the period of record; however, significant variations in concentrations continue to occur year to year. Well GM-15SR is exhibiting a downward trend in concentration since late 2010 although significant variations in concentrations continue to occur year to year.

Well PLT1 MW-06 shows an overall steady decline in concentrations for the period of record. However, these three wells have all been above the SCG for the period of record.

There have been no detections of total chromium in Well PLT1 MW-04 for the period of record except for one detection in 2003.

7.2.2 Former Northrop Grumman Plant 2

As shown in **Table 14**, total cadmium exceedances of the SCG were not detected in monitoring Wells GM-78I, GM-78S, MW-01GF and N-10631R associated with Plant 2 during 2023. However, former Well N-10631 has periodically been above the SCG over the period of record; no other wells at Plant 2 have been above the SCG for the period of record (**Figure 25**).

As shown in **Table 14**, total chromium exceedances of the SCG were detected in one (MW-02GF) of five wells associated with Plant 2 during 2023.

As depicted on **Figure 26**, monitoring Well MW-02GF has shown widely varying concentrations for the period of record, with more recently increasing concentrations above the SCG from 2018 through 2023. In the Fourth Quarter 2023, total Chromium was detected at a concentration of 396 ug/L at MW-02GF, which is the highest concentration recorded since beginning of sampling at this well in 2002.

As described above, Well N-10631 (where total chromium was previously detected above the SCG prior to September 1999 and once in 2019) was observed to be filled with sediment and was no longer able to be sampled after May 2020. Replacement Well N-10631R was installed in September 2023, and sampled in October 2023. Exceedance of the chromium SCG did not occur in Well N-10631R after its installation in 2023. For the period of record, samples from Wells GM-78S, GM-78I, MW-01GF, and N-10631R have been below the SCG.

7.3 Tentatively Identified Compounds

In line with past Annual Groundwater Monitoring Reports, this section discusses Tentatively Identified Compounds (TICs). In 2023, only one compound (trimethyl-silanol [TMS]) was found in outpost well BPOW1-5. As in previous years, TICs remain sporadic and isolated, showing no signs of persistence. For instance, although TMS was detected as a TIC in 2023, it appeared in a different well compared to the previous year. Due to its irregular and inconsistent occurrence in different wells each year, the following justification is provided to support discontinuing TIC analysis or future sampling events.

Current analysis of groundwater samples for TICs as part of OU2 plume monitoring is a carryover from the remedial investigation of the OU2 plume. When that study was carried out (early 1990s) the nature and extent of the OU2 plume was being determined and constituents characteristic of the plume were being evaluated with tentatively identified compounds (TICs) being analyzed for to assist in plume delineation. After over 30 years of plume monitoring and having a thorough understanding of the characteristic plume constituents, further analysis for TICs provides limited to no value, especially as TICs have not been persistent and only sporadically detected,

as noted in the last few OU2 annual reports. As a result, conducting analysis for TICs will be discontinued starting from the First Quarter 2024 sampling event.

7.4 1,4-Dioxane

1,4-dioxane is a constituent analyzed for in the remedial, outpost monitoring, and plume monitoring wells sampled under the OU2 groundwater monitoring program. As described in **Section 4.1**, 1,4-dioxane was analyzed using USEPA Method 8270D SIM CLLE for monitoring wells and remedial wells, while samples collected from former outpost wells continue to be analyzed using USEPA Method 522. The results of 1,4-dioxane analysis of groundwater samples collected during all four quarters in 2023 are provided in **Table 15**, organized by hydrogeologic zone.

Out of a total of 159 samples collected from former outpost wells, monitoring wells, and remedial wells in 2023, including replicates, 14 samples were non-detect for 1,4-dioxane. Detected concentrations ranged from 0.091 µg/L (BPOW1-2) to 16.7 µg/L (BPOW3-4). The highest 1,4-dioxane concentrations detected in the 2023 reporting period were generally observed in the area farther downgradient of the ONCT system remedial wells near the former outpost wells (BPOW1, 2, 3 and 4 cluster wells).

7.5 Vinyl Chloride

Vinyl chloride (VC) is routinely detected in Remedial Well 3R and adjacent Monitoring Well MW-3-1, which are both located in the northwestern portion of the former Site. VC was detected in quarterly influent samples at Remedial Well 3R at concentrations ranging from 1.7 to 2.5 µg/L in 2023 (**Table 4**), while groundwater samples collected from monitoring Well MW-3-1 had VC concentrations ranging from 10.2 to 16.8 µg/L in 2023 (**Table 11**). Groundwater remediation (i.e., biosparge system) to address VC upgradient (northwest) of Remedial Well 3R and Monitoring Well MW-3-1 is ongoing by OXY under USEPA oversight. Based on the USEPA-approved work plan, OXY performed the trial/partial Shutdown of the biosparge system during first quarter 2023 and they planned to continue the shutdown during the second and third quarters as a part of the second semi-annual 2023 biosparge system performance monitoring event (GHD 2023). Northrop Grumman still believes it was premature to allow OXY to conduct a trial/partial shutdown of their system considering that the SCG for VC was exceeded in both Well MW3-1 and Remedial Well 3R in 2023.

8 Findings and Conclusions

The following findings and conclusions are provided regarding the performance of the ONCT system and its ability to achieve the RAOs for the Site for the 2023 reporting period:

- The ONCT system maintained horizontal and vertical containment of on-site OU2 VOC-impacted groundwater during 2023. The evaluations conducted to support this conclusion conform with the lines of evidence and evaluation process recommended in the USEPA's "A Systematic Approach for Evaluation of Capture Zones at Pump and Treat Systems" (USEPA 2008) document, as summarized below.
 - The capture zone created via operation of the ONCT system encompasses the area of on-site OU2 VOC-impacted groundwater and creates an effective hydraulic barrier to its off-site migration.

- The groundwater quality data from monitoring wells located immediately downgradient of the hydraulic barrier at the southern boundary of the Site have, as expected, continued to exhibit downward TVOC concentration trends over time due to the continued effectiveness of the ONCT system.
- Groundwater quality data indicates that bifurcation of the VOC plume and propagation of the clean water area continues to expand south of the hydraulic barrier at the southern boundary of the Site.
- The ONCT system is operating as designed from a compliance and performance perspective:
 - The ONCT system complied with applicable NYSDEC SCGs for ONCT system discharges and emissions (i.e., treated water discharge and air emissions).
- At former Plant 1:
 - Results for total chromium remain elevated above the SCG for the period of record, except for Monitoring Well PLT1 MW-04.
 - Several monitoring wells (notably PLT1 MW-05 and GM-15SR) show generally decreasing chromium trends although significant variations in concentrations continue to occur year to year.
- At former Plant 2:
 - Total cadmium exceedances of the SCG did not occur in 2023.
 - For chromium, Monitoring Well MW-02GF has shown concentrations above the SCG from 2018 through 2023 and in 2023 the highest concentration was detected in this well since sampling at this well began.
 - For Chromium, Monitoring Well N-10631, which has had sporadic exceedances above the SCG in the past, was replaced by Monitoring Well N-10631R. Exceedance of the chromium SCG did not occur in Well N-10631R in 2023. The other three monitoring wells at former Plant 2 have been below the SCG for their period of record.

9 Suggestions

Based on the findings and conclusions presented herein, the following suggestions are provided:

- The ONCT system should continue to be operated as designed to meet remedial objectives and maintain/expand the clean water area created by the system. Northrop Grumman is moving forward with construction of a new treatment system to address 1,4-dioxane in the water being treated by the OU2 ONCT system, as required in the SPDES permit equivalency recently amended on March 23, 2023.
- Groundwater monitoring should continue as previously specified in the 2016 Groundwater Monitoring Plan (Arcadis 2016) with the following exceptions:
 - Northrop Grumman has elected and will continue to sample Monitoring Well GM-21D2 on a quarterly sampling frequency, as proposed in the 2018 OU2 Annual Report (Arcadis 2019a).

- Northrop Grumman will continue to monitor the former outpost wells as recommended in the DON's Final 2021 Monitoring Optimization Report until proposed modifications in the October 2023 PWSCP Update are reviewed and accepted by Northrop Grumman.
- Other sampling frequency modifications suggested in the 2018 and 2019 OU2 Annual Reports (Arcadis 2019, Arcadis 2020) are currently being revisited in coordination with DON from a more comprehensive perspective. An optimization approach, similar to that enacted by Navy, will be proposed to NYSDEC in a separate submittal.
- Due to irregular and inconsistent occurrence in different monitoring wells each year, as described in **Section 7**, analysis for TICs will be discontinued for future sampling events starting 2024.
- Groundwater quality and hydraulic monitoring in the vicinity of the ONCT system should continue to be enhanced by incorporating data obtained from DON monitoring well clusters RE123, RE126 and RE109, and by supplementing, as needed, with data obtained from DON monitoring well clusters RE107, RE108 and RE122. Given that these DON well clusters are generally located in critical areas nearby/downgradient of the clean water area and are screened at multiple depth horizons, they provide useful information to supplement Northrop Grumman well data to better monitor contaminant concentrations in these areas. These wells should continue to be evaluated as part of the routine annual system evaluation/certification process. Additionally, water-levels should continue to be measured in select OU3 monitoring wells to enhance data coverage for the area east of the ONCT system.

10 Certification Statement

For each institutional or engineering control identified for the OU2 On-Site Groundwater Remedy, I certify that all of the following statements are true:

- a. The engineering control employed for the OU2 On-Site Groundwater Remedy is unchanged from the date the control was put in place, or last approved by New York State Department of Environmental Conservation Division of Environmental Remediation (DER).
- b. Nothing has occurred that would impair the ability of such control to protect public health and the environment.
- c. Nothing has occurred that would constitute a violation or failure to comply with any operation, maintenance, and monitoring plan for this control.
- d. Access to the OU2 On-Site Groundwater Remedy will continue to be provided to DER to evaluate the remedy, including access to evaluate the continued maintenance of this control.



Christopher Engler, P.E.
Engineer of Record
New York License # 069748

11 References

- Arcadis G&M, Inc. 2003. Public Water Supply Contingency Plan, Naval Facilities Engineering Command. July 22, 2003.
- Arcadis of New York, Inc. (Arcadis). 2014. Operation, Maintenance, and Monitoring Manual, On-Site Groundwater Containment System, Operable Unit 2 – Northrop Grumman and NWIRP Sites, Bethpage, New York, NYSDEC Site #s 1-30-003A and B, May 2014.
- Arcadis of New York, Inc. (Arcadis) 2016. Updated Groundwater Monitoring Plan, Operable Unit 2 Northrop Grumman and NWIRP Sites, Bethpage, New York, NYSDEC Site #s 1-30-003A and B, June 2016.
- Arcadis of New York, Inc. (Arcadis). 2019. 2018 Annual Operation Maintenance and Monitoring Report Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York. March 2019.
- Arcadis of New York, Inc. (Arcadis). 2020. 2019 Annual Operation Maintenance and Monitoring Report Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York. March 2020.
- Arcadis of New York, Inc. (Arcadis). 2022. 2021 Annual Operation Maintenance and Monitoring Report Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York. March 2022.
- Arcadis of New York, Inc. (Arcadis). 2023a. First Quarter 2023 Operation Maintenance and Monitoring Report Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York. May 2023.
- Arcadis of New York, Inc. (Arcadis). 2023b. Second Quarter 2023 Operation Maintenance and Monitoring Report Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York. August 2023.
- Arcadis of New York, Inc. (Arcadis). 2023c. Third Quarter 2023 Operation Maintenance and Monitoring Report Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York. November 2023.
- Arcadis of New York, Inc. (Arcadis). 2023d. 2022 Annual Operation Maintenance and Monitoring Report Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York. April 2023.
- TetraTech 2022. Final 2021 Monitoring Optimization Report for Operable Unit 2, NWIRP Bethpage, NY, February 2022
- KGS 2023a. Quarterly Operations Report First Quarter 2023 Groundwater Treatment Plant GM-38 Area Groundwater Remediation NWIRP Bethpage, NY, June 8, 2023
- KGS 2023b. Quarterly Operations Report Second Quarter 2023 Groundwater Treatment Plant GM-38 Area Groundwater Remediation NWIRP Bethpage, NY, September 20, 2023

2023 Annual Operation, Maintenance and Monitoring Report

TetraTech 2023c. Public Water Supply Contingency Plan Update for OU2 Volatile Organic Compounds and 1,4-Dioxane NWIRP Bethpage, NY, October 2023

Geraghty & Miller. 1994. Remedial Investigation Report, Grumman Aerospace Corporation, Bethpage, New York. September 26, 1994.

GHD. 2023. Semi-Annual Report – 1st Half 2023 (January through July), Administrative Orders Hooker Chemical/Ruco Polymer Corporation Site, Index Nos. II CERCLA 80216, II CERCLA 94 0210, and II CERCLA 02 2001 2018. July 14, 2023.

New York State Department of Environmental Conservation (NYSDEC). 2019. Amended Record of Decision for Hydraulic Containment of the Navy Grumman Groundwater Plume, Northrop Grumman – Bethpage Facility and Naval Weapons Industrial Reserve Plant Site, Bethpage, Nassau County, Site Number 130003A and 130003B, December 20, 2019

NYSDEC. 2001. Record of Decision, Operable Unit 2 Groundwater, Northrop Grumman and Naval Weapons Industrial Reserve Plant Sites, Nassau County, Site Numbers 1-30-003A & B, March 29, 2001.

NYSDEC. 2010. Technical Guidance for Site Investigation and Remediation (DER-10)

NYSDEC. 2015a. Order on Consent and Administrative Settlement, Operable Unit 2, site # 130003A, April 21, 2015.

NYSDEC. 2016. DAR-1 AGC/SGC Tables, Revised February 12, 2021.

USEPA. 2008. A Systematic Approach for Evaluation of Capture Zones at Pump and Treat Systems, Washington, DC, January 29, 2008.

Tables

Table ES-1
 Lines of Evidence to Determine if On-Site Containment of VOC-impacted Groundwater is Being Achieved
 Operable Unit 2
 Northrop Grumman
 Bethpage, New York



Line of Evidence	Is Line of Evidence Achieved? Yes or No	If not why not?	Remarks
Water Levels- Hydraulic Capture			
Water Table Map -is mounding evident along south recharge basins?	Yes		
Vertical hydraulic gradients (VHG) -are substantial majority of VHGs in the same direction as model predicted VHGs?	Yes		
Potentiometric Surface Map (Zone 3 500-700 foot depth) -is capture of VOC-impacted groundwater area indicated?	Yes		Mapping of groundwater levels in Zone 3 shows the ONCT capture zone and also the capture zones of the RW21 remedial system, which began full scale operation in August 2023, and Bethpage Water District Well 6-2 (N-8941). The presence of these two other capture zones did not prevent the ONCT system from maintaining capture of onsite VOC-impacted groundwater in 2023.
Calculations/Modeling – does modeling of the capture zone under 2023 operating conditions show capture of the on-site portion of the plume?	Yes		The regional groundwater model was used to determine if the addition of treated water to the South Recharge Basins from the RW21 remedial system, which began full scale operation in August 2023, would reduce the ONCT cumulative capture zone and prevent it from achieving it's goal of containing VOC-impacted groundwater onsite. The results of this analysis indicate that capture was maintained in 2023.
Improvements in Groundwater Quality-Volatile Organic Compounds			
WQ trends upgradient -are substantial majority of trends downward?	Yes		
WQ trends proximate - are substantial majority of trends downward?	Yes		
WQ trends near central downgradient - are substantial majority of trends downward?	Yes		
Percent TVOC reduction upgradient -do a -substantial majority of wells and average of all -wells show reductions of >75%?	Yes		
Percent TVOC reduction proximate - do a -substantial majority of wells and average of all -wells show reductions of >75%?	Yes		
Percent TVOC reduction near central downgradient -do a -substantial majority of wells and average of all -wells show reductions of >75%?	Yes		
Zone 1 -is a clean water area evident?	Yes		
Zone 2 -is a clean water area evident?	Yes		
Zone 3 -is a clean water area evident?	Yes		
Zone 4 -is a clean water area evident	Yes		
Weight of Above Evidence			
Does it indicate onsite containment of VOC-impacted groundwater ?	Yes		

Table 1A
Summary of Weekly Monitoring Data for 2023^(1,2)
Building 96 Treatment System
Operable Unit 2
Northrop Grumman
Bethpage, New York



Date	WELL 1					WELL 3R					Air Stripper			
	Extracted Groundwater			VFD		Extracted Groundwater			VFD		Influent Water Flow			Ambient Influent Air Temperature (°F)
	Flow Rate (gpm)	Totalizer (x1000) (gal)	Pressure (psig)	Frequency (Hz)	Amperage (Amps)	Flow Rate (gpm)	Totalizer (x1000) (gal)	Pressure (psig)	Frequency (Hz)	Amperage (Amps)	Flow Recorder Rate (gpm)	Flow Meter Rate (gpm)	Totalizer (x100) (gal)	
1/10/2023	805	1,338,187	46	48.98	90.4	820	347,607	30	45.59	85.0	1,609	1,593	6,481,856	40
2/14/2023	804	1,378,754	60	48.98	90.6	815	388,815	30	45.8	85.8	1,617	1,595	7,274,492	41
3/7/2023	800	932	45	48.98	91.0	819	413,122	30	45.64	84.3	1,608	1,592	7,746,477	40
4/25/2023	809	22,995	46	49.2	88.5	814	470,718	30	45.62	84.4	1,589	1,565	8,846,550	57
5/23/2023	809	55,652	45	48.11	88.4	818	503,709	30	45.63	84.5	1,589	1,577	9,477,430	56
6/13/2023	811	80,156	46	48.2	88.6	819	528,424	30	45.59	84.1	1,590	1,569	9,951,725	63
7/11/2022	810	109,030	47	48.19	89.0	816	559,791	30	45.7	84.5	1,593	1,571	10,533,644	70
8/1/2023	811	133,448	46	48.23	88.9	818	583,552	30	45.84	84.9	1,594	1,577	10,998,157	65
9/12/2023	810	182,488	45	48.2	88.1	818	633,055	30	45.9	85.1	1,592	1,571	11,949,851	70
10/17/2022	809	222,933	45	48.15	88.4	817	673,884	30	45.85	84.3	1,584	1,562	12,732,750	49
11/28/2023	808	271,997	46	48.13	88.7	817	723,411	30	45.88	84.7	1,584	1,574	13,679,736	34
12/19/2023	810	296,489	46	51	95.5	818	748,123	30	45.86	85.1	1,662	1,645	14,169,106	40

Notes and Abbreviations on last page

Table 1A
Summary of Weekly Monitoring Data for 2023^(1,2)
Building 96 Treatment System
Operable Unit 2
Northrop Grumman
Bethpage, New York



Date	SUPPLEMENTAL AIR TREATMENT SYSTEM		WEST RECHARGE BASINS			
	Influent Blower	Total System Effluent	North		South	
	Pressure (iwc)	Pressure (iwc)	Basin Water Height (ft)	Status ⁽³⁾ (On/Off)	Basin Water Height (ft)	Status ⁽³⁾ (On/Off)
1/10/2023	-4.5	5	3.5	On	5	On
2/14/2023	-4.5	5	4	On	5.7	On
3/7/2023	-4.5	5	4.5	On	6	On
4/25/2023	-4.5	5.0	4.5	On	6.0	On
5/23/2023	-4.3	5.0	4.0	On	6.0	On
6/13/2023	-4.1	5.0	4.0	On	5.6	On
7/11/2022	-4.3	5.0	4.5	On	6.0	On
8/1/2023	-4.0	5.0	4.7	On	6.0	On
9/12/2023	-4.0	5.0	3.8	On	4.0	On
10/17/2022	-4.0	5.0	3.9	On	5.8	On
11/28/2023	-4.5	5.0	4.0	On	5.2	On
12/19/2023	-4.5	5.0	5.0	On	7.0	On

Notes and Abbreviations on last page

Table 1A
Summary of Weekly Monitoring Data for 2023^(1,2)
Building 96 Treatment System
Operable Unit 2
Northrop Grumman
Bethpage, New York



Notes and Abbreviations:

⁽¹⁾ Operational data collected weekly by Northrop Grumman and supplemented by monthly Arcadis measurements, as needed. For clarity, data shown is considered to be representative of monthly conditions collected during a single weekly Northrop Grumman site visit or monthly Arcadis visit.

⁽²⁾ Instantaneous values from field-mounted instruments, except otherwise noted.

⁽³⁾ Status indicates if the basin was accepting water (on) or not accepting water (off).

°F	degrees Fahrenheit
Amps	amperes
cfm	cubic feet per minute
ft	feet
gal	gallons
gpm	gallons per minute
Hz	hertz
iwc	inches of water column
min	minutes
psig	pounds per square inch, gauge
scfm	standard cubic feet per minute
NA	Not Available
NC	Not Calculated
NR	Not Recorded
SCADA	Supervisory Control and Data Acquisition
SPDES	State Pollutant Discharge Elimination System
VFD	Variable Frequency Drive

Table 1B
Summary of Weekly Monitoring Data for 2023^(1,2)
Building 102 Treatment System
Operable Unit 2
Northrop Grumman
Bethpage, New York



Date	WELL 17				WELL 18				WELL 19			
	Extracted Groundwater			VFD	Extracted Groundwater			VFD	Extracted Groundwater			VFD
	Flow Meter Rate (gpm)	Totalizer (x1000) (gal)	Pressure (psig)	Frequency (Hz)	Flow Meter Rate (gpm)	Totalizer (x1000) (gal)	Pressure (psig)	Frequency (Hz)	Flow Meter Rate (gpm)	Totalizer (x1000) (gal)	Pressure (psig)	Frequency (Hz)
1/10/2023	1,000	4,051,521	60	51.5	1,011	3,116,207	60	52.1	511	1,379,713	51	41.5
2/14/2023	998	4,101,700	56	51.6	1,007	3,165,343	59	52.1	514	1,404,189	51	41.3
3/28/2023	1,004	4,162,153	56	51.5	1,007	3,224,424	60	52.0	509	1,435,097	51	41.5
4/18/2023	1,000	4,190,792	54	51.5	1,006	3,252,634	59	51.2	512	1,450,251	51	41.8
5/23/2023	1,000	4,230,929	56	51.6	1,009	3,301,786	59	52.0	514	1,476,948	51	42.0
6/13/2023	1,000	4,260,751	56	51.6	1,009	3,331,019	60	51.9	510	1,491,277	50	41.5
7/11/2022	1,002	4,301,124	56	51.6	1,011	3,370,565	59	52.1	509	1,511,904	51	41.5
8/1/2023	1,000	4,331,388	56	51.5	1,012	2,400,144	59	51.8	514	1,527,370	51	41.5
9/12/2023	1,001	4,391,967	56	51.3	1,010	3,459,432	59	51.8	510	1,558,190	51	41.5
10/17/2022	1,001	4,422,452	56	51.5	1,008	3,508,843	59	51.7	514	1,583,983	51	41.2
11/28/2023	1,002	4,488,339	56	51.4	1,008	3,556,037	59	51.7	513	1,612,108	51	41.3
12/19/2023	1,001	4,518,563	57	51.6	1,009	3,585,627	59	51.9	514	1,627,532	54	44.0

Notes and Abbreviations on last page

Table 1B
Summary of Weekly Monitoring Data for 2023^(1,2)
Building 102 Treatment System
Operable Unit 2
Northrop Grumman
Bethpage, New York



Date	AIR STRIPPER					HEAT EXCHANGER			
	Influent Water Flow				Ambient Influent Air Temperature (°F)	Air Inlet Temperature (°F)	Steam Inlet Pressure (psig)	Air Outlet Temperature (°F)	Calculated Differential Between Inlet Air and Outlet Air Temperatures (°F)
	Flow Meter Rate (gpm)	Totalizer (x1000) (gal)	Influent Water Temperature (°F)	Influent Water Pressure (psig)					
1/10/2023	2,402	104,788,739	59	30	40	60	38	80	20
2/14/2023	2,400	105,976,677	59	30	41	60	34	80	20
3/28/2023	2,397	107,443,631	59	30	42	60	30	80	20
4/18/2023	2,407	108,141,960	59	30	50	60	20	80	20
5/23/2023	2,418	109,260,555	59	30	53	60	22	80	20
6/13/2023	2,390	109,981,306	59	30	63	60	17	80	20
7/11/2022	2,375	110,957,388	59	30	70	60	16	80	20
8/1/2023	2,395	111,685,443	59	30	65	60	17	80	20
9/12/2023	2,379	113,141,251	59	30	70	60	17	80	20
10/17/2022	2,380	114,356,269	59	30	49	60	32	80	20
11/28/2023	2,385	115,453,609	59	30	33	60	48	80	20
12/19/2023	2,498	116,206,342	59	30	38	60	40	80	20

Notes and Abbreviations on last page

Table 1B
Summary of Weekly Monitoring Data for 2023^(1,2)
Building 102 Treatment System
Operable Unit 2
Northrop Grumman
Bethpage, New York



Date	PROCESS BLOWER TO RVPGAC TREATMENT UNITS				CONDENSER				AIR COMPRESSOR
	Blower Influent Pressure (iwc)	VIV Position (% open)	Blower Effluent Pressure (iwc)	Calculated Blower Static Pressure (iwc)	Cooling Water			Condensed Steam Water	Delivery Pressure (psig)
					Influent Temperature ⁽³⁾ (°F)	Effluent Temperature (°F)	Calculated Temperature Increase (°F)	Decanter Vent Temperature (°F)	
1/10/2023	8	100	22	14	59	83	24	84	103
2/14/2023	8	100	22	14	59	85	26	94	101
3/28/2023	8	99	22	14	59	83	24	79	81
4/18/2023	8	95	22	14	59	83	24	82	90
5/23/2023	8	95	22	14	59	85	26	83	96
6/13/2023	8	95	22	14	59	84	25	84	98
7/11/2022	8	95	22	14	59	85	26	86	103
8/1/2023	8	95	22	14	59	85	26	84	95
9/12/2023	8	95	22	14	59	83	24	84	99
10/17/2022	8	95	22	14	59	98	39	90	105
11/28/2023	8	100	22	14	59	86	27	87	105
12/19/2023	8	100	22	14	59	88	29	87	103

Notes and Abbreviations on last page

Table 1B
Summary of Weekly Monitoring Data for 2023^(1,2)
Building 102 Treatment System
Operable Unit 2
Northrop Grumman
Bethpage, New York



Date	T102 VAPOR DISCHARGE		T102 WEIR		FORCE MAIN	REGENERATIVE VAPOR PHASE TREATMENT UNITS					
	Effluent Treated Vapor		Effluent Treated Groundwater			Desorb					
	Flow (cfm)	Temperature (°F)	Flow Meter Rate (gpm)	Totalizer (x1000) (gal)		Distribution System Pressure (psig)	Desorb Bed (A/B)	Time Into Cycle (min)	Influent Steam Pressure (psig)	Influent Steam Temperature (°F)	Desorb Bed Temperature (°F)
1/10/2023	8,040	92	2,594	10,779	69	A	78	3.5	245	172	200
2/14/2023	8,140	84	2,608	12,054	71	B	72	3.5	235	171	201
3/28/2023	8,120	82	2,352	13,610	71	B	31	3.5	247	165	201
4/18/2023	7,570	88	2,387	14,291	10	A	55	3.5	250	170	201
5/23/2023	7,870	80	2,379	15,388	69	B	65	3.5	237	172	199
6/13/2023	7,600	82	2,456	16,094	73	A	90	3.5	238	173	200
7/11/2022	8,020	83	2,340	17,031	68	B	57	3.5	242	170	201
8/1/2023	7,560	80	2,332	17,737	71	A	78	3.5	239	172	200
9/12/2023	8,050	83	2,336	19,150	70	B	53	3.4	242	171	200
10/17/2022	8,130	84	2,370	20,335	71	B	78	3.5	236	171	200
11/28/2023	8,050	83	2,370	21,412	72	A	63	4	244	180	200
12/19/2023	7,450	82	2,497	22,147	72	A	138	3.5	238	176	200

Notes and Abbreviations on last page

Table 1B
Summary of Weekly Monitoring Data for 2023^(1,2)
Building 102 Treatment System
Operable Unit 2
Northrop Grumman
Bethpage, New York



Date	SOUTH RECHARGE BASINS ⁽⁵⁾					
	South Basin 1		South Basin 2		South Basin 3	
	Basin Water Height (ft)	Status ⁽⁴⁾ (On/Off)	Basin Water Height (ft)	Status ⁽⁴⁾ (On/Off)	Basin Water Height (ft)	Status ⁽⁴⁾ (On/Off)
1/10/2023	0.8	On	0.8	On	1.9	On
2/14/2023	0.5	On	0.8	On	2.0	On
3/28/2023	3.0	On	1.2	On	1.1	On
4/18/2023	2.1	On	1.8	On	1.0	On
5/23/2023	2.6	On	2.5	On	0.8	On
6/13/2023	2.0	On	1.8	On	0.8	On
7/11/2022	1.8	On	1.4	On	1.2	On
8/1/2023	1.5	On	1.4	On	1.2	On
9/12/2023	2.8	On	2.7	On	2.2	On
10/17/2022	4.5	On	4.3	On	2.9	On
11/28/2023	4.5	On	4.2	On	4.0	On
12/19/2023	7.0	On	8.0	On	8.2	On

Notes and Abbreviations on last page

Table 1B
Summary of Weekly Monitoring Data for 2023^(1,2)
Building 102 Treatment System
Operable Unit 2
Northrop Grumman
Bethpage, New York



Notes and Abbreviations:

⁽¹⁾ Operational data collected weekly by Northrop Grumman and supplemented by monthly Arcadis measurements, as needed. For clarity, data shown is considered to be representative of monthly conditions collected during a single weekly Northrop Grumman site visit or monthly Arcadis visit.

⁽²⁾ Instantaneous values from field-mounted instruments, except otherwise noted.

⁽³⁾ Measurement collected with infrared temperature gun.

⁽⁴⁾ Status indicates if the basin was accepting water (on) or not accepting water (off).

⁽⁵⁾ RW-21 system start-up testing was initiated in May 2023, and continuing with full-scale operation beginning in August 2023. As such, flow volumes to the south recharge basins are representative of volumes from the Building 102 and Building 109 treatment systems since RW-21 system start-up.

°F	degrees Fahrenheit
ft	feet
gal	gallons
gpm	gallons per minute
Hz	hertz
iwc	inches of water column
min	minutes
psig	pounds per square inch, gauge
scfm	standard cubic feet per minute
NA	Not Available
NC	Not Calculated
NR	Not Recorded
RVPGAC	Regenerative Vapor Phase Granular Activated Carbon
SCADA	Supervisory Control and Data Acquisition
SPDES	State Pollutant Discharge Elimination System
T102	Tower 102
VFD	Variable Frequency Drive
VIV	Variable Influent Vane

Table 2
Summary of Non-Routine Maintenance for 2023
Building 96 and Building 102 Treatment Systems
Operable Unit 2
Northrop Grumman
Bethpage, New York



Date Completed	Maintenance Item ⁽¹⁾	Description/Comments
01/16/23	Building 102	Conducted blower maintenance (rebalancing and adjusting the belt tension in the blower).
1/19/23 - 1/24/23	Well 19	Unscheduled VFD fan repairs.
02/23/23	Well 1	Replaced flow meter for Well 1 and replaced transducers for pressure gauge. The Well 1 flow meter was replaced with a tempory meter, and the original flow meter was repaired and replaced (4/5/23).
03/01/23	Building 96	Replaced GAC in the lead and lag exterior units (3/1/23).
3/7/23 - 3/8/23	Well 1	Well 1 required maintenance due to a faulty flow meter. The flow meter was temporarily replaced while the unit was sent out for repairs.
04/12/23	Building 102	Maintenance event scheduled to re-wire a treatment system steam condensate pump station
4/23/2023 - 4/24/2023	Well 1	PSEG power issues were addressed
5/9/23 - 5/16/23	Well 17	VFD failure and replacement
06/09/23	Building 102	Air compressor failure and repairs
06/27/23	Building 96	External blower motor relay failure was addressed
7/3/23 - 7/5/23	Well 1	Various maintenance and troubleshooting activities.
7/5/23 - 7/6/23	Building 96	Various maintenance and troubleshooting activities.
7/12/23 - 7/13/24	Well 3R	Various maintenance and troubleshooting activities.
8/17/23 - 8/18/23	Well 19	VFD failure and replacement
09/12/23	Tower 96	Exterior GAC change-out
10/22/23 - 11/1/23	Building 102	Blower bearing failure. Blower was replaced and system was restarted

Notes and Abbreviations:

⁽¹⁾ Maintenance items were recorded based on Arcadis observations of the treatment systems during routine weekly or quarterly site visits and does not necessarily include all downtime associated with each maintenance item.

RVPGAC	Regenerative Vapor Phase Granular Activated Carbon
SCADA	Supervisory Control and Data Acquisition
T96	Tower 96 Treatment System
T102	Tower 102 Treatment System
VFD	Variable Frequency Drive
ONCT	On-Site Containment System
NG	Northrop Grumman Systems Corporation
RVPGAC	Regenerative Vapor Phase Granular Activated Carbon

Table 3
Operational Summary for the ONCT System
Fourth Quarter and Annual 2023⁽¹⁾ Reporting Period
Operable Unit 2
Northrop Grumman
Bethpage, New York

	Fourth Quarter Flow Rates (gpm)		Fourth Quarter Flow Volumes (MG)			Annual Flow Volumes (MG)		
	Current Model Design ⁽²⁾	Current Operational Flow ^(3,4)	Design ⁽²⁾	Actual ^(3,4)	% of Design	Design ⁽²⁾	Actual ^(3,4)	% of Design
Influent Groundwater⁽⁷⁾								
Well 1	800	810	106	107	101%	420	412	98%
Well 3R	700	810	93	107	115%	368	422	115%
Well 17	1,000	980	132	118	89%	526	502	95%
Well 18	800	900	106	117	110%	420	509	121%
Well 19	500	454	66	59	89%	263	253	96%
Total ⁽⁸⁾	3,800	3,954	503	508	101%	1,997	2,098	105%
Effluent Groundwater^(9,14)								
Calpine	100 - 400	159	--	21	--	--	102	--
OXY Biosparge ⁽¹⁰⁾	2 - 42	0	--	0	--	--	0	--
West Recharge Basins	1,112 - 1,455	1,342	--	178	--	--	541	--
South Recharge Basins (Combined)	2231 - 4631	4,576	495 - 806	607	--	--	2,251	--
Total	--	5,258	--	697	--	--	2,894	--
Additional Flow to South Recharge Basins								
Storm Water Runoff Contributing to South Recharge Basins Flow Volume ⁽¹¹⁾	--	--	--	328	--	--	658	--
Total Flow Volume to South Recharge Basins ^(10,11,12)	--	--	495 - 806	826	--	--	2,909	--
Treatment System								
	Treatment System Efficiencies ⁽¹³⁾							
Building 96 System:	>99.9%							
Building 102 System:	>99.9%							

See Notes and Abbreviations on last page.

Table 3
Operational Summary for the ONCT System
Fourth Quarter and Annual 2023⁽¹⁾ Reporting Period
Operable Unit 2
Northrop Grumman
Bethpage, New York

	Fourth Quarter VOC Concentrations (µg/L)		VOC Mass Removed (lbs)				Fourth Quarter Remedial Well Uptime (%)	Annual Remedial Well Uptime (%)
	TCE ⁽⁵⁾	TVOC ^(5,6)	Fourth Quarter	Annual	Percent of Annual Mass Removal	Cumulative		
Influent Groundwater⁽⁷⁾								
Well 1	474	502	449	1,781	50%	58,594	100%	97%
Well 3R	175	238	213	820	23%	95,344	100%	99%
Well 17	126	145	143	624	18%	56,826	91%	93%
Well 18	24.6	48.0	47	200	6%	7,716	98%	99%
Well 19	54.7	69.7	34	139	4%	9,868	98%	97%
Total ⁽⁸⁾	--	--	886	3,564	100%	228,348	--	--
Effluent Groundwater^(9,14)								
Calpine	--	--	--	--	--	--	--	--
OXY Biosparge ⁽¹⁰⁾	--	--	--	--	--	--	--	--
West Recharge Basins	--	ND	--	--	--	--	--	--
South Recharge Basins (Combined)	--	ND	--	--	--	--	--	--
Total								
Additional Flow to South Recharge Basins								
Storm Water Runoff Contributing to South Recharge Basins Flow Volume ⁽¹¹⁾	--	--	--	--	--	--	--	--
Total Flow Volume to South Recharge Basins ^(10,11,12)								
Treatment System							Treatment System Uptimes (%)	
Building 96 System:							100.0%	99.0%
Building 102 System:							98.3%	99.0%

See Notes and Abbreviations on last page.

Notes and Abbreviations:

- (1) Quarterly reporting period: October 1, 2023 through December 31, 2023. Annual reporting period: January 1, 2023 through December 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 and 2023). 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. Flow to SRB reflects operation of the B109 treatment system. High-end of range reflects up to a 2,400 gpm contribution from B109 (RW-21 and DEC-EX-06). Model simulations demonstrated ONCT capture zone maintained for SRB discharge rates within range. "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 November 7, 2023.
- (6) The TVOC concentrations for the West Recharge Basin (Outfall 006 of the Building 96 System) and the South Recharge Basin (Outfall 005 of the Building 102 System) are their respective average monthly Outfall SPDES concentrations for the current quarter.
- (7) Building 102 (Wells 17, 18, and 19) was shut down this reporting period on October 22, 2023 through November 2, 2023 due to a blower bearing failure. The blower was replaced.
- (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 Building 96 system (Remedial Wells 1 and 3R) discharges effluent water to the WRB, less Calpine usage and less 119 gpm of Building 102 steam condenser usage (15.8 MG); the Building 102 System (Remedial Wells 17 through 19), including the Building 102 steam condenser usage (15.8 MG), and the Building 109 System (Remedial Wells 20 through 22) discharge 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 October, November, and December 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 (B102 and B109 treatment systems) and from storm water runoff to South Recharge Basins. Fourth 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.
- (14) RW-21 system start-up testing was initiated in May 2023, and continuing with full-scale operation beginning in August 2023. As such, flow volumes to the south recharge basins are representative of volumes from the Building 102 and Building 109 treatment systems since RW-21 system start-up.

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

Table 4
Summary of Volatile Organic Compounds and
1,4-Dioxane in 2023 Remedial Well Influent and
Treatment System Effluent
Operable Unit 2
Northrop Grumman
Bethpage, New York



Constituents ⁽¹⁾ (units in µg/L)	Location ID:	WELL 1	WELL 1	WELL 1	WELL 1
	Sample ID:	WELL 1	WELL 1	WELL 1	WELL 1
	Sample Date:	2/7/2023	5/18/2023	8/30/2023	11/7/2023
<u>Volatile Organic Compounds (VOCs)⁽²⁾</u>	NYSDEC SCGs ⁽³⁾				
1,1,1-Trichloroethane	5	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2,2-Tetrachloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	5	0.61 J	0.76 J	0.75 J	0.82 J
1,1-Dichloroethene	5	1.9	2.7	2.8	2.7
1,2-Dichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	5	2.5	2.5	2.7	3.3
2-Butanone (MEK)	50	< 10	< 10	< 10	< 10
2-Hexanone (MBK)	50	< 5.0	< 5.0	< 5.0	< 5.0
4-methyl-2-pentanone (MIK)	50	< 5.0	< 5.0	< 5.0	< 5.0
Acetone	50	< 10	< 10	< 10	< 10
Benzene	1	< 0.50	< 0.50	< 0.50	< 0.50
Bromodichloromethane	50	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform	50	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	5	< 2.0	< 2.0	< 2.0	< 2.0
Carbon Disulfide	50	< 2.0	< 2.0	< 2.0	< 2.0
Carbon Tetrachloride	5	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	5	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0
Chloroform	7	< 0.50	< 0.50	< 0.50	< 0.50
Chloromethane	5	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene	5	5.6	6.8	6.3	6.1
cis-1,3-Dichloropropene	5	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	5	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	5	< 1.0	< 1.0	< 1.0	< 1.0
Methylene Chloride	5	< 0.50	< 0.50	< 0.50	< 0.50
Styrene	5	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	5	13.5	12.7	13.3	12.5
Toluene	5	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethene	5	< 0.50	< 0.50	< 0.50	< 0.50
trans-1,3-Dichloropropene	5	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethylene	5	484	431	572	474
Trichlorotrifluoroethane (Freon 113)	5	1.5	2.6	2.7	2.4
Vinyl Chloride	2	< 0.50	< 0.50	< 0.50	< 0.50
Xylene-o	5	< 1.0	< 1.0	< 1.0	< 1.0
Xylene-m,p	5	< 1.0	< 1.0	< 1.0	< 1.0
Total VOCs⁽⁴⁾		510	459	601	502
1,4-Dioxane⁽²⁾	NS	7.4	4.5 B	6.1	5.5

Notes and Abbreviations on last page

Table 4
Summary of Volatile Organic Compounds and
1,4-Dioxane in 2023 Remedial Well Influent and
Treatment System Effluent
Operable Unit 2
Northrop Grumman
Bethpage, New York



Constituents ⁽¹⁾ (units in µg/L)	Location ID:	WELL 3R	WELL 3R	WELL 3R	WELL 3R
	Sample ID:	WELL 3R	WELL 3R	WELL 3R	WELL 3R
	Sample Date:	2/7/2023	5/18/2023	8/30/2023	11/7/2023
<u>Volatile Organic Compounds (VOCs)⁽²⁾</u>	NYSDEC SCGs ⁽³⁾				
1,1,1-Trichloroethane	5	< 0.50	0.59	0.56	< 0.50
1,1,2,2-Tetrachloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	5	1.4	1.7	1.6	1.6
1,1-Dichloroethene	5	4.4	5.9	5.2	5.9
1,2-Dichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	5	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)	50	< 10	< 10	< 10	< 10
2-Hexanone (MBK)	50	< 5.0	< 5.0	< 5.0	< 5.0
4-methyl-2-pentanone (MIK)	50	< 5.0	< 5.0	< 5.0	< 5.0
Acetone	50	< 10	< 10	< 10	< 10
Benzene	1	< 0.50	< 0.50	< 0.50	< 0.50
Bromodichloromethane	50	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform	50	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	5	< 2.0	< 2.0	< 2.0	< 2.0
Carbon Disulfide	50	< 2.0	< 2.0	< 2.0	< 2.0
Carbon Tetrachloride	5	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	5	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0
Chloroform	7	< 0.50	< 0.50	< 0.50	0.50
Chloromethane	5	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene	5	3.2	3.8	3.5	3.5
cis-1,3-Dichloropropene	5	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	5	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	5	< 1.0	< 1.0	< 1.0	< 1.0
Methylene Chloride	5	< 0.50	< 0.50	< 0.50	< 0.50
Styrene	5	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	5	41.8	45.7	43.6	46.8
Toluene	5	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethene	5	< 0.50	< 0.50	< 0.50	< 0.50
trans-1,3-Dichloropropene	5	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethylene	5	142	175	199	175
Trichlorotrifluoroethane (Freon 113)	5	1.9	2.4	2.1	2.1
Vinyl Chloride	2	1.7	2.5	2.2	2.1
Xylene-o	5	< 1.0	< 1.0	< 1.0	< 1.0
Xylene-m,p	5	< 1.0	< 1.0	< 1.0	< 1.0
Total VOCs⁽⁴⁾		196	238	258	238
1,4-Dioxane⁽²⁾	NS	7.4	5.8 B	7.0	8.3

Notes and Abbreviations on last page

Table 4
Summary of Volatile Organic Compounds and
1,4-Dioxane in 2023 Remedial Well Influent and
Treatment System Effluent
Operable Unit 2
Northrop Grumman
Bethpage, New York



Constituents ⁽¹⁾ (units in µg/L)	Location ID:	96 EFFLUENT	96 EFFLUENT	96 EFFLUENT	96 EFFLUENT
	Sample ID:	96 EFFLUENT	96 EFFLUENT	96 EFFLUENT	96 EFFLUENT
	Sample Date:	2/7/2023	5/18/2023	8/30/2023	11/7/2023
<u>Volatile Organic Compounds (VOCs)⁽²⁾</u>	NYSDEC SCGs ⁽³⁾				
1,1,1-Trichloroethane	5	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2,2-Tetrachloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	5	< 0.50	< 0.50	< 0.50	< 0.50
1,2-Dichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	5	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)	50	< 10	< 10	< 10	< 10
2-Hexanone (MBK)	50	< 5.0	< 5.0	< 5.0	< 5.0
4-methyl-2-pentanone (MIK)	50	< 5.0	< 5.0	< 5.0	< 5.0
Acetone	50	< 10	< 10	< 10	< 10
Benzene	1	< 0.50	< 0.50	< 0.50	< 0.50
Bromodichloromethane	50	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform	50	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	5	< 2.0	< 2.0	< 2.0	< 2.0
Carbon Disulfide	50	< 2.0	< 2.0	< 2.0	< 2.0
Carbon Tetrachloride	5	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	5	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0
Chloroform	7	< 0.50	< 0.50	< 0.50	< 0.50
Chloromethane	5	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene	5	< 0.50	< 0.50	< 0.50	< 0.50
cis-1,3-Dichloropropene	5	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	5	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	5	< 1.0	< 1.0	< 1.0	< 1.0
Methylene Chloride	5	< 0.50	< 0.50	< 0.50	< 0.50
Styrene	5	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	5	< 0.50	< 0.50	< 0.50	< 0.50
Toluene	5	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethene	5	< 0.50	< 0.50	< 0.50	< 0.50
trans-1,3-Dichloropropene	5	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethylene	5	0.54	< 0.50	< 0.50	< 0.50
Trichlorotrifluoroethane (Freon 113)	5	< 0.50	< 0.50	< 0.50	< 0.50
Vinyl Chloride	2	< 0.50	< 0.50	< 0.50	< 0.50
Xylene-o	5	< 1.0	< 1.0	< 1.0	< 1.0
Xylene-m,p	5	< 1.0	< 1.0	< 1.0	< 1.0
Total VOCs⁽⁴⁾		0.54	ND	ND	ND
1,4-Dioxane⁽²⁾	NS	7.6	4.3 B	6.4	8.5

Notes and Abbreviations on last page

Table 4
Summary of Volatile Organic Compounds and
1,4-Dioxane in 2023 Remedial Well Influent and
Treatment System Effluent
Operable Unit 2
Northrop Grumman
Bethpage, New York



Constituents ⁽¹⁾ (units in µg/L)	Location ID:	WELL 17	WELL 17	WELL 17	WELL 17
	Sample ID:	WELL 17	WELL 17	WELL 17	WELL 17
	Sample Date:	2/7/2023	5/18/2023	8/30/2023	11/7/2023
<u>Volatile Organic Compounds (VOCs)⁽²⁾</u>	NYSDEC SCGs ⁽³⁾				
1,1,1-Trichloroethane	5	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2,2-Tetrachloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	5	< 1.0	< 1.0	0.58 J	0.57 J
1,1-Dichloroethene	5	1.0	0.99	0.95	1.1
1,2-Dichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	5	< 1.0	0.95 J	1.1	1.3
2-Butanone (MEK)	50	< 10	< 10	< 10	< 10
2-Hexanone (MBK)	50	< 5.0	< 5.0	< 5.0	< 5.0
4-methyl-2-pentanone (MIK)	50	< 5.0	< 5.0	< 5.0	< 5.0
Acetone	50	< 10	< 10	< 10	< 10
Benzene	1	< 0.50	< 0.50	< 0.50	< 0.50
Bromodichloromethane	50	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform	50	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	5	< 2.0	< 2.0	< 2.0	< 2.0
Carbon Disulfide	50	< 2.0	< 2.0	< 2.0	< 2.0
Carbon Tetrachloride	5	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	5	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0
Chloroform	7	< 0.50	< 0.50	< 0.50	< 0.50
Chloromethane	5	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene	5	2.4	2.2	2.2	2.1
cis-1,3-Dichloropropene	5	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	5	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	5	< 1.0	< 1.0	< 1.0	< 1.0
Methylene Chloride	5	< 0.50	< 0.50	< 0.50	< 0.50
Styrene	5	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	5	13.4	11.1	13.1	12.4
Toluene	5	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethene	5	< 0.50	< 0.50	< 0.50	< 0.50
trans-1,3-Dichloropropene	5	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethylene	5	119	125	151	126
Trichlorotrifluoroethane (Freon 113)	5	1.5	1.4	1.7	1.3
Vinyl Chloride	2	< 0.50	< 0.50	< 0.50	< 0.50
Xylene-o	5	< 1.0	< 1.0	< 1.0	< 1.0
Xylene-m,p	5	< 1.0	< 1.0	< 1.0	< 1.0
Total VOCs⁽⁴⁾		137	142	171	145
1,4-Dioxane⁽²⁾	NS	7.6	5.0	6.2	7.4

Notes and Abbreviations on last page

Table 4
Summary of Volatile Organic Compounds and
1,4-Dioxane in 2023 Remedial Well Influent and
Treatment System Effluent
Operable Unit 2
Northrop Grumman
Bethpage, New York



Constituents ⁽¹⁾ (units in µg/L)	Location ID:	WELL 18	WELL 18	WELL 18	WELL 18
	Sample ID:	WELL 18	WELL 18	WELL 18	WELL 18
	Sample Date:	2/7/2023	5/18/2023	8/30/2023	11/7/2023
<u>Volatile Organic Compounds (VOCs)⁽²⁾</u>	NYSDEC SCGs ⁽³⁾				
1,1,1-Trichloroethane	5	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2,2-Tetrachloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	5	1.2	1.3	1.4	1.7
1,1-Dichloroethene	5	1.1	2.2	2.3	2.6
1,2-Dichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	5	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)	50	< 10	< 10	< 10	< 10
2-Hexanone (MBK)	50	< 5.0	< 5.0	< 5.0	< 5.0
4-methyl-2-pentanone (MIK)	50	< 5.0	< 5.0	< 5.0	< 5.0
Acetone	50	< 10	< 10	< 10	< 10
Benzene	1	< 0.50	< 0.50	< 0.50	< 0.50
Bromodichloromethane	50	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform	50	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	5	< 2.0	< 2.0	< 2.0	< 2.0
Carbon Disulfide	50	< 2.0	< 2.0	< 2.0	< 2.0
Carbon Tetrachloride	5	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	5	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0
Chloroform	7	< 0.50	< 0.50	< 0.50	< 0.50
Chloromethane	5	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene	5	2.4	2.3	2.4	2.5
cis-1,3-Dichloropropene	5	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	5	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	5	< 1.0	< 1.0	< 1.0	< 1.0
Methylene Chloride	5	< 0.50	< 0.50	< 0.50	< 0.50
Styrene	5	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	5	15.6	12.8	14.5	15.6
Toluene	5	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethene	5	< 0.50	< 0.50	< 0.50	< 0.50
trans-1,3-Dichloropropene	5	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethylene	5	26.6	24.8	26.5	24.6
Trichlorotrifluoroethane (Freon 113)	5	0.94	0.72	0.77	0.72
Vinyl Chloride	2	< 0.50	< 0.50	< 0.50	< 0.50
Xylene-o	5	< 1.0	< 1.0	< 1.0	< 1.0
Xylene-m,p	5	< 1.0	< 1.0	< 1.0	< 1.0
Total VOCs⁽⁴⁾		47.8	44.1	47.9	47.7
1,4-Dioxane⁽²⁾	NS	4.6	2.2	3.9	4.4

Notes and Abbreviations on last page

Table 4
Summary of Volatile Organic Compounds and
1,4-Dioxane in 2023 Remedial Well Influent and
Treatment System Effluent
Operable Unit 2
Northrop Grumman
Bethpage, New York



Constituents ⁽¹⁾ (units in µg/L)	Location ID:	WELL 19	WELL 19	WELL 19	WELL 19
	Sample ID:	WELL 19	WELL 19	WELL 19	WELL 19
	Sample Date:	2/7/2023	5/18/2023	8/30/2023	11/7/2023
<u>Volatile Organic Compounds (VOCs)⁽²⁾</u>	NYSDEC SCGs ⁽³⁾				
1,1,1-Trichloroethane	5	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2,2-Tetrachloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	5	0.89	0.97	0.91	1.2
1,2-Dichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	5	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)	50	< 10	< 10	< 10	< 10
2-Hexanone (MBK)	50	< 5.0	< 5.0	< 5.0	< 5.0
4-methyl-2-pentanone (MIK)	50	< 5.0	< 5.0	< 5.0	< 5.0
Acetone	50	< 10	< 10	< 10	< 10
Benzene	1	< 0.50	< 0.50	< 0.50	< 0.50
Bromodichloromethane	50	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform	50	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	5	< 2.0	< 2.0	< 2.0	< 2.0
Carbon Disulfide	50	< 2.0	< 2.0	< 2.0	< 2.0
Carbon Tetrachloride	5	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	5	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0
Chloroform	7	< 0.50	< 0.50	< 0.50	< 0.50
Chloromethane	5	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene	5	8.8	8.8	6.9	7.5
cis-1,3-Dichloropropene	5	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	5	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	5	< 1.0	< 1.0	< 1.0	< 1.0
Methylene Chloride	5	< 0.50	< 0.50	< 0.50	< 0.50
Styrene	5	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	5	5.8	4.5	3.5	5.3
Toluene	5	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethene	5	< 0.50	< 0.50	< 0.50	< 0.50
trans-1,3-Dichloropropene	5	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethylene	5	58.6	62.6	50.2	54.7
Trichlorotrifluoroethane (Freon 113)	5	0.85	0.88	0.65	0.95
Vinyl Chloride	2	< 0.50	< 0.50	< 0.50	< 0.50
Xylene-o	5	< 1.0	< 1.0	< 1.0	< 1.0
Xylene-m,p	5	< 1.0	< 1.0	< 1.0	< 1.0
Total VOCs⁽⁴⁾		74.9	77.8	62.2	69.7
1,4-Dioxane⁽²⁾	NS	3.5	2.5	3.1	3.3

Notes and Abbreviations on last page

Table 4
Summary of Volatile Organic Compounds and
1,4-Dioxane in 2023 Remedial Well Influent and
Treatment System Effluent
Operable Unit 2
Northrop Grumman
Bethpage, New York



Constituents ⁽¹⁾ (units in µg/L)	Location ID:	WELL 3R	WELL 3R	WELL 3R	WELL 3R
	Sample ID:	REP-020723-PD-1	REP-051023-KC-1	REP-083023-PD-1	REP-110723-LW-1
	Sample Date:	2/7/2023	5/18/2023	8/30/2023	11/7/2023
<u>Volatile Organic Compounds (VOCs)⁽²⁾</u>	NYSDEC SCGs ⁽³⁾				
1,1,1-Trichloroethane	5	< 0.50	0.54	0.61	< 0.50
1,1,2,2-Tetrachloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	5	1.4	1.5	1.6	1.8
1,1-Dichloroethene	5	4.6	5.0	5.4	5.7
1,2-Dichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	5	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)	50	< 10	< 10	< 10	< 10
2-Hexanone (MBK)	50	< 5.0	< 5.0	< 5.0	< 5.0
4-methyl-2-pentanone (MIK)	50	< 5.0	< 5.0	< 5.0	< 5.0
Acetone	50	< 10	< 10	< 10	< 10
Benzene	1	< 0.50	< 0.50	< 0.50	< 0.50
Bromodichloromethane	50	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform	50	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	5	< 2.0	< 2.0	< 2.0	< 2.0
Carbon Disulfide	50	< 2.0	< 2.0	< 2.0	< 2.0
Carbon Tetrachloride	5	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	5	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0
Chloroform	7	< 0.50	0.56	0.54	0.54
Chloromethane	5	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene	5	3.4	3.6	3.4	3.6
cis-1,3-Dichloropropene	5	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	5	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	5	< 1.0	< 1.0	< 1.0	< 1.0
Methylene Chloride	5	< 0.50	< 0.50	< 0.50	< 0.50
Styrene	5	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	5	44.3	38.0	45.0	45.3
Toluene	5	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethene	5	< 0.50	< 0.50	< 0.50	< 0.50
trans-1,3-Dichloropropene	5	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethylene	5	149	135	180	177
Trichlorotrifluoroethane (Freon 113)	5	1.8	1.8	2.1	2.3
Vinyl Chloride	2	1.9	2.0	2.6	1.9
Xylene-o	5	< 1.0	< 1.0	< 1.0	< 1.0
Xylene-m,p	5	< 1.0	< 1.0	< 1.0	< 1.0
Total VOCs⁽⁴⁾		206	188	241	238
1,4-Dioxane⁽²⁾	NS	9.3	4.0 B	5.9	9.1

Notes and Abbreviations on last page

Table 4
Summary of Volatile Organic Compounds and
1,4-Dioxane in 2023 Remedial Well Influent and
Treatment System Effluent
Operable Unit 2
Northrop Grumman
Bethpage, New York



Constituents ⁽¹⁾ (units in µg/L)	Location ID:	102 EFFLUENT	102 EFFLUENT	102 EFFLUENT	102 EFFLUENT
	Sample ID:	102 EFFLUENT	102 EFFLUENT	102 EFFLUENT	102 EFFLUENT
	Sample Date:	2/7/2023	5/18/2023	8/30/2023	11/7/2023
<u>Volatile Organic Compounds (VOCs)⁽²⁾</u>	NYSDEC SCGs ⁽³⁾				
1,1,1-Trichloroethane	5	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2,2-Tetrachloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	5	< 0.50	< 0.50	< 0.50	< 0.50
1,2-Dichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	5	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)	50	< 10	< 10	< 10	< 10
2-Hexanone (MBK)	50	< 5.0	< 5.0	< 5.0	< 5.0
4-methyl-2-pentanone (MIK)	50	< 5.0	< 5.0	< 5.0	< 5.0
Acetone	50	< 10	< 10	< 10	< 10
Benzene	1	< 0.50	< 0.50	< 0.50	< 0.50
Bromodichloromethane	50	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform	50	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	5	< 2.0	< 2.0	< 2.0	< 2.0
Carbon Disulfide	50	< 2.0	< 2.0	< 2.0	< 2.0
Carbon Tetrachloride	5	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	5	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0
Chloroform	7	< 0.50	< 0.50	< 0.50	< 0.50
Chloromethane	5	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene	5	< 0.50	< 0.50	< 0.50	< 0.50
cis-1,3-Dichloropropene	5	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	5	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	5	< 1.0	< 1.0	< 1.0	< 1.0
Methylene Chloride	5	< 0.50	< 0.50	< 0.50	< 0.50
Styrene	5	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	5	< 0.50	< 0.50	< 0.50	< 0.50
Toluene	5	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethene	5	< 0.50	< 0.50	< 0.50	< 0.50
trans-1,3-Dichloropropene	5	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethylene	5	< 0.50	< 0.50	< 0.50	< 0.50
Trichlorotrifluoroethane (Freon 113)	5	< 0.50	< 0.50	< 0.50	< 0.50
Vinyl Chloride	2	< 0.50	< 0.50	< 0.50	< 0.50
Xylene-o	5	< 1.0	< 1.0	< 1.0	< 1.0
Xylene-m,p	5	< 1.0	< 1.0	< 1.0	< 1.0
Total VOCs⁽⁴⁾		ND	ND	ND	ND
1,4-Dioxane⁽²⁾	NS	6.6	4.0	4.3	4.8

Notes and Abbreviations on last page

Table 4
Summary of Volatile Organic Compounds and
1,4-Dioxane in 2023 Remedial Well Influent and
Treatment System Effluent
Operable Unit 2
Northrop Grumman
Bethpage, New York



Notes and Abbreviations:

- ⁽¹⁾ Results for the program are validated at 20% frequency, per protocols specified in OU2 Groundwater Monitoring Plan (Arcadis 2016c).
- ⁽²⁾ VOC samples analyzed using USEPA Method 8260C. 1,4-Dioxane samples analyzed using USEPA Method 8270D-SIM-CLLE.
- ⁽³⁾ Standards, Criteria, and Guidance (SCG) values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller, Inc. 2000) that are based on the NYSDEC TOGs (NYSDEC 1998); most stringent values are listed.
- ⁽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.

	Compound detected in exceedance of NYSDEC SCG Criteria
2.0	Bold value indicates a detection
< 0.50	Compound is not detected above its laboratory quantification limit
µg/L	micrograms per liter
CLLE	Continuous Liquid-Liquid Extraction
J	Constituent value is estimated
ND	Not detected
NS	None Specified
NYSDEC	New York State Department of Conservation
OU2	Operable Unit 2
REP	blind replicate sample
TOGs	Technical and Operational Guidance Series
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound

Table 5A
Influent, Mid-Effluent, and Effluent Air Concentrations for 2023⁽²⁾
Building 96 Treatment System
Operable Unit 2
Northrop Grumman
Bethpage, New York



Constituents (Units in µg/m ³)	Location ID:	96 INFLUENT	96 MID-EFFLUENT	96 EFFLUENT	96 INFLUENT	96 MID-EFFLUENT	96 EFFLUENT
	Sample ID:	96 INFLUENT 2/7/2023	96 MID-EFFLUENT 2/7/2023 ⁽³⁾	96 EFFLUENT 2/7/2023 ⁽³⁾	96 INFLUENT 5/10/2023	96 MID-EFFLUENT 5/10/2023	96 EFFLUENT 5/10/2023
Volatile Organic Compounds (VOCs)⁽¹⁾							
1,1,1-Trichloroethane		< 22	< 44	< 44	< 55	< 22	0.65
1,1,2,2-Tetrachloroethane		< 27	< 55	< 55	< 69	< 27	< 0.55
1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113)		82.8	96.6	101	89.7	143	25
1,1,2-Trichloroethane		< 22	< 44	< 44	< 55	< 22	< 0.44
1,1-Dichloroethane		45.7	52.6 J	55.9 J	< 81	63.5	26
1,1-Dichloroethene		117	136	141	129	232	162
1,2-Dichloroethane		< 32	< 65	< 65	< 81	< 32	< 0.65
1,2-Dichloropropane		61.5	71.6 J	43 J	< 92	19 J	< 0.74
Benzene		< 26	< 51	< 51	< 64	< 26	< 0.51
Bromodichloromethane		< 27	< 54	< 54	< 67	< 27	< 0.54
Bromoform		< 17	< 33	< 33	< 42	< 17	< 0.33
Bromomethane		< 31	< 62	< 62	< 78	< 31	< 0.62
Carbon Disulfide		< 25	< 50	< 50	< 62	< 25	< 0.50
Carbon Tetrachloride		< 10	< 20	< 20	< 26	< 10	< 0.20
Chlorobenzene		< 37	< 74	< 74	< 92	< 37	< 0.74
Chloroethane		< 21	< 42	< 42	< 53	< 21	2.5
Chloroform		< 39	< 78	< 78	< 98	23 J	4.8
Chloromethane		< 17	< 33	< 33	< 41	< 17	1.1
cis-1,2-Dichloroethene		160	184	195	165	262	35
cis-1,3-Dichloropropene		< 36	< 73	< 73	< 91	< 36	< 0.73
Dibromochloromethane		< 34	< 68	< 68	< 85	< 34	< 0.68
Ethylbenzene		< 35	< 69	< 69	< 87	< 35	< 0.69
Methylene Chloride		< 28	< 56	< 56	196	< 28	13
Styrene		< 34	< 68	< 68	< 85	< 34	< 0.68
Tetrachloroethene		990	< 22	< 22	1270	< 11	0.36
Toluene		< 30	< 60	< 60	< 75	17 J	< 0.60
trans-1,2-Dichloroethene		< 32	< 63	< 63	< 79	< 32	0.48 J
trans-1,3-Dichloropropene		< 36	< 73	< 73	< 91	< 36	< 0.73
Trichloroethene		11500	14700	15300	12300	8760	67.7
Vinyl chloride		37.1	41.2	45.8	29.9	36.6	27.6
Xylene-o		< 35	< 69	< 69	< 87	< 35	< 0.69
Xylenes-m,p		< 35	< 69	< 69	< 87	< 35	< 0.69
Total VOCs⁽²⁾		13,000	15,300	15,900	14,200	9,560	366

Notes and Abbreviations on last page

Table 5A
Influent, Mid-Effluent, and Effluent Air Concentrations for 2023⁽²⁾
Building 96 Treatment System
Operable Unit 2
Northrop Grumman
Bethpage, New York



Constituents (Units in µg/m ³)	Location ID:	96 INFLUENT	96 MID-EFFLUENT	96 EFFLUENT	96 INFLUENT	96 MID-EFFLUENT	96 EFFLUENT
	Sample ID:	9/26/2023	9/26/2023	9/26/2023	11/7/2023 ⁽⁴⁾	11/7/2023 ⁽⁴⁾	11/7/2023
Volatile Organic Compounds (VOCs)⁽¹⁾							
1,1,1-Trichloroethane		< 60	< 0.44	< 0.44	R	13 J	< 0.44
1,1,2,2-Tetrachloroethane		< 76	< 0.55	< 0.55	R	R	< 0.55
1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113)		103	< 0.61	0.67	79.7 J	134 J	1.8
1,1,2-Trichloroethane		< 60	< 0.44	< 0.44	R	R	< 0.44
1,1-Dichloroethane		51.0 J	0.97	0.57 J	52.2 J	66.8 J	8.5
1,1-Dichloroethene		137	8.7	1.3	104 J	190 J	57.1
1,2-Dichloroethane		< 89	< 0.65	< 0.65	R	R	< 0.65
1,2-Dichloropropane		66.6 J	< 0.74	< 0.74	61.5 J	12 J	< 0.74
Benzene		< 70	< 0.51	0.80	R	R	< 0.51
Bromodichloromethane		< 74	< 0.54	< 0.54	R	R	< 0.54
Bromoform		< 44	< 0.33	< 0.33	R	R	< 0.33
Bromomethane		< 85	< 0.62	< 0.62	R	R	< 0.62
Carbon Disulfide		< 69	< 0.50	< 0.50	R	R	< 0.50
Carbon Tetrachloride		< 27	< 0.20	< 0.20	R	R	< 0.20
Chlorobenzene		< 100	< 0.74	< 0.74	R	R	< 0.74
Chloroethane		< 58	2.9	2.9	R	2.9 J	1.6
Chloroform		< 110	< 0.78	0.39 J	R	23 J	2.3
Chloromethane		< 45	0.93	0.99	R	R	0.62
cis-1,2-Dichloroethene		197	3.3	1.5	195 J	257 J	8.3
cis-1,3-Dichloropropene		< 100	< 0.73	< 0.73	R	R	< 0.73
Dibromochloromethane		< 94	< 0.68	< 0.68	R	R	< 0.68
Ethylbenzene		< 96	< 0.69	< 0.69	R	R	< 0.69
Methylene Chloride		< 76	6.3	3.1	R	R	1.9
Styrene		< 94	< 0.68	< 0.68	R	R	< 0.68
Tetrachloroethene		1040	5.6	1.8	1170 J	8.8 J	1.4
Toluene		< 83	2.8	7.9	R	R	< 0.60
trans-1,2-Dichloroethene		< 87	< 0.63	< 0.63	R	R	< 0.63
trans-1,3-Dichloropropene		< 100	< 0.73	< 0.73	R	R	< 0.73
Trichloroethene		15300	8.6	67.7	14200 J	6500 JD	34
Vinyl chloride		35.3	30.4	29.4	24 J	29.9 J	20
Xylene-o		< 96	< 0.69	< 0.69	R	R	< 0.69
Xylenes-m,p		< 96	< 0.69	0.56 J	R	R	< 0.69
Total VOCs⁽²⁾		16,900	70.5	119.6	15,900	7,240	137.5

Notes and Abbreviations on last page

Table 5A
Influent, Mid-Effluent, and Effluent Air Concentrations for 2023^(1,2)
Building 96 Treatment System
Operable Unit 2
Northrop Grumman
Bethpage, New York

Notes and Abbreviations:

- ⁽¹⁾ 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.
- ⁽²⁾ 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.
- ⁽³⁾ As the elevated concentration on 2/7/23 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 Limit for the reporting period, the modeling in Table 6A 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.
- ⁽⁴⁾ Samples T96 INFLUENT and T96 MID-EFFLUENT sampled on 11/7/23 had return pressure readings (recorded upon receipt at the lab) that were less than -1 mmHg. Based on validation process, any non-detect results in these 2 samples were qualified as rejected/unusable (R) and detectable results were qualified as estimated (J).

117	Bold value indicates a detection
R	The sample result has been rejected
D	Diluted sample analysis
J	Compound detected below its reporting limit; value is estimated
µg/m ³	Micrograms per cubic meter
mmHg	Millimeter of mercury
ELAP	Environmental Laboratory Approval Program
NYSDCE	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound

Table 5B
Influent and Effluent Air Concentrations for 2023⁽¹⁾
Building 102 Treatment System
Operable Unit 2
Northrop Grumman
Bethpage, New York



Constituents (Units in µg/m ³)	Location ID:	102 INFLUENT	102 EFFLUENT	102 INFLUENT	102 EFFLUENT
	Sample ID:	102 INFLUENT 2/7/2023	102 EFFLUENT 2/7/2023	102 INFLUENT 5/18/2023	102 EFFLUENT 5/18/2023 ⁽³⁾
<u>Volatile Organic Compounds (VOCs)⁽¹⁾</u>					
1,1,1-Trichloroethane		< 5.5	1.4	< 4.4	< 8.7
1,1,1,2-Tetrachloroethane		< 6.9	< 0.55	< 5.5	< 11
1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113)		25	19	21	31
1,1,2-Trichloroethane		< 5.5	< 0.44	< 4.4	< 8.7
1,1-Dichloroethane		20	20	14	22
1,1-Dichloroethene		33	32	32	50.4
1,2-Dichloroethane		< 8.1	0.57 J	< 6.5	< 13
1,2-Dichloropropane		10	0.83	7.4	10 J
Benzene		< 6.4	< 0.51	< 5.1	< 10
Bromodichloromethane		< 6.7	< 0.54	< 5.4	< 11
Bromoform		< 4.1	< 0.33	< 3.3	< 6.6
Bromomethane		< 7.8	< 0.62	< 6.2	< 12
Carbon Disulfide		< 6.2	< 0.50	< 5.0	< 10
Carbon Tetrachloride		< 2.5	1.1	< 2.0	< 4.0
Chlorobenzene		< 9.2	< 0.74	< 7.4	< 15
Chloroethane		< 5.3	< 0.42	< 4.2	< 8.4
Chloroform		< 9.8	3.2	< 7.8	< 16
Chloromethane		< 4.1	1.1	< 3.3	< 6.6
cis-1,2-Dichloroethene		72.2	48.4	66.2	94.0
cis-1,3-Dichloropropene		< 9.1	< 0.73	< 7.3	< 15
Dibromochloromethane		< 8.5	< 0.68	< 6.8	< 14
Ethylbenzene		< 8.7	< 0.69	< 6.9	< 14
Methylene Chloride		< 6.9	0.66	65.7	25
Styrene		< 8.5	< 0.68	< 6.8	< 14
Tetrachloroethene		237	10	199	< 4.3
Toluene		< 7.5	0.45 J	< 6.0	< 12
trans-1,2-Dichloroethene		< 7.9	0.59 J	< 6.3	< 13
trans-1,3-Dichloropropene		< 9.1	< 0.73	< 7.3	< 15
Trichloroethene		1850	154	1560	1860
Vinyl chloride		< 1.0	0.20	< 0.82	< 1.6
Xylene-o		< 8.7	< 0.69	< 6.9	< 14
Xylenes-m,p		< 8.7	< 0.69	< 6.9	< 14
Total VOCs⁽²⁾		2,250	294	1,970	2,090

Notes and Abbreviations on last page

Table 5B
Influent and Effluent Air Concentrations for 2023⁽¹⁾
Building 102 Treatment System
Operable Unit 2
Northrop Grumman
Bethpage, New York



Constituents (Units in µg/m ³)	Location ID:	102 INFLUENT	102 EFFLUENT	102 INFLUENT	102 EFFLUENT
	Sample ID:	102 INFLUENT 8/30/2023	102 EFFLUENT 8/30/2023 ⁽⁴⁾	102 INFLUENT 11/7/2023	102 EFFLUENT 11/7/2023
<u>Volatile Organic Compounds (VOCs)⁽¹⁾</u>					
1,1,1-Trichloroethane		< 8.7	4.7	< 11	1.2
1,1,2,2-Tetrachloroethane		< 11	< 2.7	< 14	< 1.4
1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113)		38	21	37	24
1,1,2-Trichloroethane		< 8.7	< 2.2	< 11	< 1.1
1,1-Dichloroethane		32	21	29	20
1,1-Dichloroethene		51.1	27	44.4	36
1,2-Dichloroethane		< 13	< 3.2	< 16	< 1.6
1,2-Dichloropropane		17	4.6	17 J	1.1 J
Benzene		< 10	< 2.6	< 13	< 1.3
Bromodichloromethane		< 11	< 2.7	< 13	< 1.3
Bromoform		< 6.6	< 1.7	< 8.3 J	< 0.83 J
Bromomethane		< 12	< 3.1	< 16	< 1.6
Carbon Disulfide		< 10	< 2.5	< 12	< 1.2
Carbon Tetrachloride		< 4.0	3.2	< 5.0	< 0.50
Chlorobenzene		< 15	< 3.7	< 18	< 1.8
Chloroethane		< 8.4	< 2.1	< 11	< 1.1
Chloroform		7.3 J	5.4	< 20	3.2
Chloromethane		< 6.6	< 1.7	< 8.3	1.2
cis-1,2-Dichloroethene		111	81.3	100	53.9
cis-1,3-Dichloropropene		< 15	< 3.6	< 18	< 1.8
Dibromochloromethane		< 14	< 3.4	< 17	< 1.7
Ethylbenzene		< 14	< 3.5	< 17	< 1.7
Methylene Chloride		< 11	24	< 14	5.2
Styrene		< 14	< 3.4	< 17	< 1.7
Tetrachloroethene		371	18	609	23
Toluene		< 12	< 3.0	< 15	3.8
trans-1,2-Dichloroethene		< 13	< 3.2	< 16	< 1.6
trans-1,3-Dichloropropene		< 15	< 3.6	< 18	< 1.8
Trichloroethene		2790	1200	2740	282
Vinyl chloride		< 1.6	< 0.41	< 2.0	< 0.20
Xylene-o		< 14	< 3.5	< 17	< 1.7
Xylenes-m,p		< 14	< 3.5	< 17	1.4 J
Total VOCs⁽²⁾		3,420	1,410	3,580	456

Notes and Abbreviations on last page

Table 5B
Influent and Effluent Air Concentrations for 2023⁽¹⁾
Building 102 Treatment System
Operable Unit 2
Northrop Grumman
Bethpage, New York



Notes and Abbreviations:

⁽¹⁾ 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.

⁽²⁾ 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.

⁽³⁾ The elevated B102 effluent vapor-phase contaminant concentrations on 5/18/23 are potentially related to malfunctioning steam actuator valves operated during the regenerative vapor-phase granular activated carbon (RVPGAC) process. Impacted air stream may have commingled with treated vapor-phase effluent. It should be noted that there were no SGC or AGC air emission exceedances associated with these sample events, and the malfunctioning steam actuator valves were repaired.

⁽⁴⁾ It is unclear why the effluent Trichloroethylene concentration on 8/30/23 is markedly higher than historical effluent concentrations, although mechanical issues with the Regenerative VPGAC and timing of associated maintenance may have been a factor in this apparently anomalous result. Although the mass emission rate of Trichloroethylene as shown in Table 4B was higher than the Rule 212 Limit for the reporting period, the modeling indicates that the emission rate is below the short-term and annual emission limits.

25	Bold value indicates a detection
D	Diluted sample analysis
J	Compound detected below its reporting limit; value is estimated
µg/m ³	Micrograms per cubic meter
ELAP	Environmental Laboratory Approval Program
NA	Not Applicable
NYSDOH	New York State Department of Health
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound

Table 6A
 2023 Rule 212 Applicability and Evaluation
 Building 96 Treatment System
 Operable Unit 2
 Northrop Grumman
 Bethpage, New York



Project VOCs	CAS#	HTAC? ¹	2023 Building 96 Treatment System Average Effluent Conc. (ug/m3) ²	2022 Building 96 Emissions (lb/yr) ⁴	Rule 212 Limit (lb/yr) ⁵	Rule 212 Applicability ⁶	Further evaluation Required? ⁶	2021 Tower 96 Emissions (g/s) ⁷	Total Scaled Impact -Hourly (ug/m3) ⁸	Total Scaled Impact -Annual (ug/m3) ⁸	SGC3 (ug/m3) ⁹	AGC3 (ug/m3) ⁹
1,1,1-Trichloroethane	71-55-6	No	0.7	0.094	100	Less than limit, Rule 212 compliant	N	--	--	--	9,000	5,000
1,1-Dichloroethane	75-34-3	No	22.74	3.274	100	Less than limit, Rule 212 compliant	N	--	--	--	--	0.63
1,1-Dichloroethene	75-35-4	No	90.4	13.005	100	Less than limit, Rule 212 compliant	N	--	--	--	--	200
1,2-Dichloroethane	107-06-2	Yes		0.000	100	Less than limit, Rule 212 compliant	N	--	--	--	--	0.038
1,2-Dichloropropane	78-87-5	No	43	6.189	100	Less than limit, Rule 212 compliant	N	--	--	--	--	4
Benzene	71-43-2	Yes		0.000	100	Less than limit, Rule 212 compliant	N	--	--	--	27	0.13
Carbon Tetrachloride	56-23-5	Yes		0.000	100	Less than limit, Rule 212 compliant	N	--	--	--	1,900	0.17
Chloroethane	75-00-3	No	1.75	0.252	100	Less than limit, Rule 212 compliant	N	--	--	--	--	10000
Chloroform	67-66-3	Yes	1.87	0.270	100	Less than limit, Rule 212 compliant	N	--	--	--	150	14.7
Chloromethane	74-87-3	No	0.68	0.098	100	Less than limit, Rule 212 compliant	N	--	--	--	22000	90
cis-1,2 Dichloroethene	156-59-2	No	59.95	8.629	100	Less than limit, Rule 212 compliant	N	--	--	--	--	63
Ethylbenzene	100-41-4	No		0.000	100	Less than limit, Rule 212 compliant	N	--	--	--	--	1000
Methylene Chloride	75-09-2	No	4.5	0.648	100	Less than limit, Rule 212 compliant	N	--	--	--	14,000	4.6
Tetrachloroethene	127-18-4	Yes	0.89	0.128	1000	Less than limit, Rule 212 compliant	N	--	--	--	300	3.8
Toluene	108-88-3	No	7.9	1.137	100	Less than limit, Rule 212 compliant	N	--	--	--	37,000	5000
trans-1,2-Dichloroethene	156-60-5	No	0.48	0.069	100	Less than limit, Rule 212 compliant	N	--	--	--	--	63
Trichloroethylene	79-01-6	Yes	3,867.4	556.665	500	Subject to Rule 212 Requirement	Y	8.0E-03	1.19	0.035	20	0.2
Trichlorotrifluoroethane (Freon 113)	76-13-1	No	1.8	0.259	100	Less than limit, Rule 212 compliant	N	--	--	--	960,000	180,000
Vinyl Chloride	75-01-4	Yes	30.7	4.419	100	Less than limit, Rule 212 compliant	N	--	--	--	180,000	0.11
Xylenes (Total) ⁽³⁾	1330-20-7	No	0.56	0.081	100	Less than limit, Rule 212 compliant	N	--	--	--	22,000	100

Flowrate

Description	Flow (cfm)
Tower 96	4,396

- Notes:**
- High toxicity air contaminant (HTAC) based on 6 CRR-NY Rule 212-2.2, Table 2 – High Toxicity Air Contaminant List.
 - Average effluent concentrations based on sampling performed in 2022. Average concentrations from all sampling events during the reporting period are noted for each compound. Compounds not detected above the laboratory reporting limit are excluded from the air quality impact analysis summary.
 - Total for xylenes m, o, and p
 - Emission rate calculated based on average effluent concentration and maximum air flow rates measured during the sampling events. Emission rate standardized at 70 °F and 1 atm.

$$\text{Trichloroethylene (lb/yr)} = \text{Trichloroethylene } [\mu\text{g}/\text{m}^3] \times \text{Air Flow Rate } [\text{ft}^3/\text{min}] \times (1 \text{ m}^3/35.3147 \text{ ft}^3) \times (60 \text{ min}/\text{hr}) \times (0.000001 \text{ g}/1 \mu\text{g}) \times (0.0022 \text{ lb}/\text{g}) \times 8,760 \text{ hrs}/\text{yr}$$
 - 100 lb/yr for non-HTACs, and mass emission limits based on Rule 212-2.2, Table 2 for HTACs.
 - For HTACs, no further demonstration is required if the actual emissions are less than mass emission limit at each individual system. For non-HTACs, no further demonstration is required if the actual emissions are less than 100 lbs/yr at each individual system.
 - $\text{g/s} = \text{Concentration } [\mu\text{g}/\text{m}^3] \times \text{Air Flow Rate } [\text{ft}^3/\text{min}] \times (1 \text{ m}^3/35.3147 \text{ ft}^3) \times (60 \text{ min}/\text{hr}) \times (0.000001 \text{ g}/1 \mu\text{g}) \times (0.0022 \text{ lb}/\text{g}) \times \text{hr}/3,600 \text{ sec} \times 453.59 \text{ g}/\text{lb}$
 - 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.

$$\text{Scaled hourly impact } (\mu\text{g}/\text{m}^3) = \text{AERMOD predicted hourly ambient impact at 1 g/s } ((\mu\text{g}/\text{m}^3)/[\text{g/s}]) \times \text{Actual emission rate (g/s)}$$

$$\text{Scaled annual impact } (\mu\text{g}/\text{m}^3) = \text{AERMOD predicted annual ambient impact at 1 g/s } ((\mu\text{g}/\text{m}^3)/[\text{g/s}]) \times \text{Actual emission rate (g/s)}$$
 - Example for total scaled hourly for Trichloroethylene

$$\text{Trichloroethylene scaled hourly impact } (\mu\text{g}/\text{m}^3) = (\text{T96 hourly ambient impact at 1 g/s } ((\mu\text{g}/\text{m}^3)/[\text{g/s}]) \times \text{Actual emission rate (g/s)})$$

$$\text{Trichloroethylene scaled hourly impact } (\mu\text{g}/\text{m}^3) = 148.1 (\mu\text{g}/\text{m}^3)/(\text{g/s}) \times 1.2\text{E-}02 (\text{g/s})$$
 - Short-term and annual guideline concentrations specified in the NYSDEC DAR-1 AGC/SGC tables revised February 12, 2021.
 - 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.

Table 6B
2023 Rule 212 Applicability and Evaluation
Building 102 Treatment System
Operable Unit 2
Northrop Grumman



Project VOCs	CAS#	HTAC? ¹	2023 Building 102 Treatment System Average Effluent Conc. (ug/m3) ²	2022 Building 102 Emissions (lb/yr) ⁴	Rule 212 Limit (lb/yr) ⁵	Rule 212 Applicability ⁶	Further evaluation Required? ⁶
1,1,1-Trichloroethane	71-55-6	No	1.8	0.492	100	Less than limit, Rule 212 compliant	N
1,1-Dichloroethane	75-34-3	No	20.8	5.594	100	Less than limit, Rule 212 compliant	N
1,1-Dichloroethene	75-35-4	No	36.4	9.799	100	Less than limit, Rule 212 compliant	N
1,2-Dichloroethane	107-06-2	Yes	0.6	0.154	100	Less than limit, Rule 212 compliant	N
1,2-Dichloropropane	78-87-5	No	5.6	1.496	100	Less than limit, Rule 212 compliant	N
Benzene	71-43-2	Yes		0.000	100	Less than limit, Rule 212 compliant	N
Bromomethane	74-83-9	No		0.000	100	Less than limit, Rule 212 compliant	N
Carbon Disulfide	75-15-0	No		0.000	100	Less than limit, Rule 212 compliant	N
Carbon Tetrachloride	56-23-5	Yes	2.2	0.580	100	Less than limit, Rule 212 compliant	N
Chloroform	67-66-3	Yes	3.9	1.060	100	Less than limit, Rule 212 compliant	N
Chloromethane	74-87-3	No	1.2	0.310	100	Less than limit, Rule 212 compliant	N
cis-1,2 Dichloroethene	156-59-2	No	69.4	18.709	100	Less than limit, Rule 212 compliant	N
Ethylbenzene	100-41-4	No		0.000	100	Less than limit, Rule 212 compliant	N
Methylene Chloride	75-09-2	No	13.7	3.697	100	Less than limit, Rule 212 compliant	N
Tetrachloroethene	127-18-4	Yes	17.0	4.583	1000	Less than limit, Rule 212 compliant	N
Toluene	108-88-3	No	2.1	0.573	100	Less than limit, Rule 212 compliant	N
trans-1,2-Dichloroethene	156-60-5	No	0.6	0.159	100	Less than limit, Rule 212 compliant	N
Trichloroethylene	79-01-6	Yes	874.0	235.609	500	Less than limit, Rule 212 compliant	N
Trichlorotrifluoroethane (Freon 113)	76-13-1	No	23.8	6.402	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
Xylenes (Total) ⁽³⁾	1330-20-7	No	1.4	0.377	100	Less than limit, Rule 212 compliant	N

Flowrate

Description	Flow (cfm)
Tower 102	8,233

Notes:

- High toxicity air contaminant (HTAC) based on 6 CRR-NY Rule 212-2.2, Table 2 – High Toxicity Air Contaminant List.
- Average effluent concentrations based on sampling performed in 2023. Average concentrations from all sampling events during the reporting period are noted for each compound. Compounds not detected above the laboratory reporting limit are excluded from the air quality impact analysis summary.
- Total for xylenes m, o, and p
- Emission rate calculated based on average effluent concentration and maximum air flow rates measured during the sampling events. Emission rate standardized at 70 °F and 1 atm.

$$\text{Trichloroethylene (lb/yr)} = \text{Trichloroethylene } [\mu\text{g}/\text{m}^3] \times \text{Air Flow Rate } [\text{ft}^3/\text{min}] \times (1 \text{ m}^3/35.3147 \text{ ft}^3) \times (60 \text{ min}/\text{hr}) \times (0.000001 \text{ g}/1 \mu\text{g}) \times (0.0022 \text{ lb}/\text{g}) \times 8,760 \text{ hrs}/\text{yr}$$
- 100 lb/yr for non-HTACs, and mass emission limits based on Rule 212-2.2, Table 2 for HTACs.
- For HTACs, no further demonstration is required if the actual emissions are less than mass emission limit at each individual system. For non-HTACs, no further demonstration is required if the actual emissions are less than 100 lbs/yr at each individual system.

Table 7
 Summary of SPDES Equivalency Effluent Water⁽¹⁾ Sample Analytical Results 2023
 ONCT System
 Operable Unit 2
 Northrop Grumman
 Bethpage, New York



PARAMETER	Units	Discharge Limit ⁽²⁾	Location ID: Sample ID: Sample Date:	OUTFALL 06 OUTFALL 06 1/10/2023	OUTFALL 06 OUTFALL 06 2/7/2023	OUTFALL 06 OUTFALL 06 3/7/2023	OUTFALL 06 OUTFALL 06 4/11/2023	OUTFALL 06 OUTFALL 06 5/10/2023	OUTFALL 06 OUTFALL 06 6/7/2023	OUTFALL 06 OUTFALL 06 7/14/2023	OUTFALL 06 OUTFALL 06 8/8/2023	OUTFALL 06 OUTFALL 06 9/7/2023	OUTFALL 06 OUTFALL 06 10/4/2023	OUTFALL 06 OUTFALL 06 11/7/2023	OUTFALL 06 OUTFALL 06 12/7/2023
<u>Volatil Organic Compounds (VOCs)⁽³⁾</u>															
1,1,1-Trichloroethane (TCA)	µg/L	5		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2-Trichlorotrifluoroethane (Freon 113)	µg/L	5		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	< 2.0	< 1.0
1,1-Dichloroethene (1,1-DCE)	µg/L	5		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
cis-1,2-dichloroethene	µg/L	5		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Chloroform	µg/L	5		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Methylene Chloride	µg/L	5		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Tetrachloroethene (PCE)	µg/L	5		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
trans-1,2-dichloroethene	µg/L	5		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Trichloroethene (TCE)	µg/L	5		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Vinyl Chloride	µg/L	2		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	< 1.0	< 1.0
TVOCs⁽⁴⁾				ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<u>Semivolatile Organic Compounds (SVOCs)⁽⁶⁾</u>															
1,4-Dioxane	µg/L	NA / Monitor		5.7	9.6	6.3	6.0	5.6	4.9	5.1	6.2	5.9	4.6	7.5	8.8
<u>Anions⁽⁵⁾</u>															
Iron	µg/L	600		< 100	< 100	216	< 100	< 100	< 100	< 100	< 100	< 100	217	< 100	< 100
Manganese	µg/L	600		< 15	< 15	22	< 15	< 15	< 15	< 15	< 15	< 15	19	< 15	< 15
Nitrogen, (Nitrate+Nitrite)	mg/L	NA		4	4.9	5.1	4.7	271	5.3	4.7	4.5	4.7	4.1	4.4	4.4
Nitrogen, Total Kjeldahl	mg/L	NA		< 0.20	< 0.20	< 0.20	9.7	< 0.20	< 0.20	< 0.20	0.87	< 0.20	< 0.20	< 0.20	0.14 U
Total Nitrogen	mg/L	10		4	4.9	5.1	14.4 ⁽⁸⁾	271 ⁽⁸⁾	5.3	4.7	5.3	4.7	4.1	4.4	4.4
pH - Intake (Tower 96)	S.U.	NA		5.4	5.7	5.8	5.12	6.7	5.0	5.6	5.4	5.8	6.0	5.4	5.3
pH - Effluent	S.U.	5.0 - 8.5		5.8	6.1	6.4	6.15	6.9	6.9	6.8	7.0	7.1	7.9	7.5	6.4

Notes and Abbreviations on last page

Table 7
 Summary of SPDES Equivalency Effluent Water⁽¹⁾ Sample Analytical Results 2023
 ONCT System
 Operable Unit 2
 Northrop Grumman
 Bethpage, New York



PARAMETER	Units	Discharge Limit ⁽²⁾	Location ID: Sample ID: Sample Date:	OUTFALL 05 OUTFALL 05 1/10/2023	OUTFALL 05 OUTFALL 05 2/7/2023	OUTFALL 05 OUTFALL 05 3/7/2023	OUTFALL 05 OUTFALL 05 4/11/2023	OUTFALL 05 OUTFALL 05 5/10/2023	OUTFALL 05 OUTFALL 05 6/7/2023	OUTFALL 05 ⁽⁹⁾ OUTFALL 05 7/14/2023	OUTFALL 05 ⁽⁹⁾ OUTFALL 05 8/8/2023	OUTFALL 05 ⁽⁹⁾ OUTFALL 05 9/7/2023	OUTFALL 05 ⁽⁹⁾ OUTFALL 05 10/4/2023	OUTFALL 05 ⁽⁹⁾ OUTFALL 05 11/7/2023	OUTFALL 05 ⁽⁹⁾ OUTFALL 05 12/7/2023
Volatile Organic Compounds (VOCs)⁽³⁾															
1,1,1-Trichloroethane (TCA)	µg/L	5		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2-Trichlorotrifluoroethane (Freon 113)	µg/L	5		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	< 2.0	< 1.0
1,1-Dichloroethene (1,1-DCE)	µg/L	5		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
cis-1,2-dichloroethene	µg/L	5		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Chloroform	µg/L	5		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.72	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Methylene Chloride	µg/L	5		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Tetrachloroethene (PCE)	µg/L	5		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
trans-1,2-dichloroethene	µg/L	5		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Trichloroethene (TCE)	µg/L	5		1.1	1.1	0.99	1.0	1.2	0.91	0.68	0.80	0.51	0.64	< 0.50	0.52
Vinyl Chloride	µg/L	2		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	< 1.0	< 1.0
TVOCs⁽⁴⁾				1.1	1.1	0.99	1.0	1.2	0.91	1.40	0.80	0.51	0.64	ND	0.52
Semivolatile Organic Compounds (SVOCs)⁽⁶⁾															
1,4-Dioxane	µg/L	NA / Monitor		3.9	1.9	5.9	3.0	3.6	1.7	4.8	5.2	3.6	3.0	2.6	3.2
Anions⁽⁵⁾															
Iron	µg/L	600		< 100	< 100	< 100	120	< 100	< 100	< 100	< 100	< 100	< 100	117	< 100
Manganese	µg/L	600		< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15	< 15
Nitrogen, (Nitrate+Nitrite)	mg/L	NA		3.7	4.4	4.6	4.4	3.8	4.8	4.0	3.8	3.7	3.3	3.4	4.0
Nitrogen, Total Kjeldahl	mg/L	NA		< 0.20	< 0.20	< 0.20	2.9	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Total Nitrogen	mg/L	10		3.7	4.4	4.6	7.3	3.8	4.8	4.0	3.9	3.7	3.3	3.4	4.0
pH - Intake (Tower 102)	S.U.	NA		6.3	5.6	5.1	5.2	5.2	4.9	5.2	5.5	6.4	6.9	5.6	5.1
pH - Effluent	S.U.	5.0 - 8.5		5.4	6.2	5.6	6.1	5.9	7.0	7.0	7.0	7.1	8.1	.. ⁽⁷⁾	7.2

Notes and Abbreviations on last page

Notes and Abbreviations:

- ⁽¹⁾ SPDES effluent water samples are collected at a point closest to the respective Outfalls to each of the recharge basins, not directly from the treatment system tower effluent ports unless otherwise noted.
- ⁽²⁾ Discharge limits are per the SPDES permit equivalency, dated October 12, 2017, amended on March 23, 2023 and transmitted by the NYSDEC to Northrop Grumman on April 18, 2023.
- ⁽³⁾ Samples were analyzed for permit specified VOCs using USEPA Method 624.
- ⁽⁴⁾ 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.
- ⁽⁵⁾ Samples were analyzed for Nitrogen, (Nitrate+Nitrite) and Total Kjeldahl Nitrogen (TKN) by USEPA Methods 353.2 and 351.2, respectively. Total Nitrogen is calculated as the sum of Nitrogen, (Nitrate+Nitrite) and TKN concentrations and is rounded to two significant figures.
- ⁽⁶⁾ A SPDES equivalency letter was issued October 2017, at that time 1,4-Dioxane was added to the analyte list. Basin discharges are being reported under the current SPDES Permit Equivalency; however, discussion regarding pH and other analytes are ongoing with NYSDEC.
- ⁽⁷⁾ pH not recorded due to a field recording error.
- ⁽⁸⁾ The Nitrogen sample result exceeds the SPDES discharge limit. The elevated concentration is suspect based on historical sampling results. Resampling was conducted on 5/10/23 (original laboratory) and 5/18/23 (secondary laboratory). The 5/10/23 sample result from the original laboratory was still elevated. The 5/18/23 sample result from secondary laboratory was below discharge limits and in line with historical concentrations. The April and May elevated results were either transitory or an issue with the original laboratory's analysis. Monitoring will continue as per the SPDES permit equivalency.
- ⁽⁹⁾ Outfall 005 combines discharge from Building 109 and Tower 102 treatment systems; however, Tower 102 has not yet been upgraded for 1,4-D treatment. Although sample Outfall 005-T102 is included on the COC for the SPDES sampling report, analytical results have not been included in this report since this sample was collected for internal monitoring and analytical data associated with Outfall 005-T102 will be included in a separate EDD submittal.

--	Not Analyzed
1.2	Bolded value indicates a detection
< 0.50	Compound not detected above its laboratory quantification limit
µg/L	micrograms per liter
mg/L	milligrams per liter
J	Constituent value is estimated
DUP	Field Duplicate Sample
NA	Not Applicable
ND	Not Detected
ONCT	On-Site Containment and Treatment
SPDES	State Pollution Discharge Elimination System
S.U.	Standard Units
SVOCs	Semivolatile Organic Compounds
USEPA	United States Environmental Protection Agency
VOCs	Volatile Organic Compounds

Table 8
Water-Level Measurement Results, Second Quarter 2023
Operable Unit 2
Northrop Grumman
Bethpage, New York



Well Identification	Screen Interval (ft bls)	Measuring Point Elevation (ft msl)	Depth to Water (ft bmp)	Water-Level Elevation (ft NAVD 88)
Zone 1 Wells ⁽¹⁾				
FW-03	49-64	124.30	56.58	67.72
MW-3R ⁽¹⁾	45-55	101.45	NM	NM
N-9921 ⁽¹⁾	58-62	94.23	NM	NM
N-10597	63-67	109.85	48.99	60.86
N-10600	57-61	102.41	39.54	62.87
N-10631 ⁽¹⁾	63-67	103.47	NM	NM
N-10633	63-67	103.80	40.18	63.62
N-10634	63-67	101.20	41.28	59.92
N-10821 ⁽¹⁾	63-67	91.58	NM	NM
GM-15SR	70-80	109.35	45.65	63.70
GM-15I	95-105	109.29	45.38	63.91
GM-16SR	60-70	115.86	47.86	68.00
GM-16I	135-145	115.81	47.60	68.21
GM-17I	100-120	115.83	44.32	71.51
GM-17SR	60-70	115.79	43.35	72.44
GM-18S	63-67	107.60	41.79	65.81
GM-18I	95-105	109.03	43.03	66.00
GM-19S	48-53	109.86	43.53	66.33
GM-19I	130-140	109.86	44.09	65.77
GM-20I	95-105	103.88	37.67	66.21
GM-21S	63-67	105.81	36.57	69.24
GM-21I	130-140	105.72	39.02	66.70
GM-74I	94-114	107.42	39.90	67.52
GM-78S	60-70	104.94	42.12	62.82
GM-78I	90-110	105.06	42.40	62.66
GM-79S (N-10628)	63-67	100.88	46.41	54.47
HN-24S	49-59	122.73	57.10	65.63
HN-29I	120-130	116.42	47.30	69.12
HN-40S	49-59	116.35	50.18	66.17
HN-40I	108-118	115.91	49.94	65.97
HN-42S	50-60	120.32	52.45	67.87
HN-42I	100-110	119.61	51.77	67.84
PZ-ONCT-1 ⁽²⁾	48-58	104.03	33.64	70.39
PZ-ONCT-2 ⁽²⁾	48-58	102.38	33.13	69.25
PZ-ONCT-4	48-58	105.90	37.73	68.17
PZ-ONCT-5	53-63	106.71	33.19	73.52
PZ-ONCT-6	48-58	106.43	37.15	69.28
PZ-ONCT-7	48-58	105.67	31.23	74.44
PZ-ONCT-8	48-58	106.76	42.72	64.04
PZ-ONCT-9	48-58	104.63	41.03	63.60
PZ-PLT5-1	57-67	118.29	48.49	69.80
PZ-PLT5-2	52-62	117.29	46.45	70.84
PZ-PLT5-3	50-60	115.96	42.72	73.24
PZ-PLT5-4	50-60	115.11	45.43	69.68
PZ-PLT5-5	53-63	113.22	46.02	67.20
PZ-PLT5-6	51-61	114.81	47.54	67.27

Notes and Abbreviations on Last Page

Table 8
Water-Level Measurement Results, Second Quarter 2023
Operable Unit 2
Northrop Grumman
Bethpage, New York



Well Identification	Screen Interval (ft bls)	Measuring Point Elevation (ft msl)	Depth to Water (ft bmp)	Water-Level Elevation (ft NAVD 88)
Zone 1 Wells Continued				
N-10624	190-194	93.61	32.91	60.70
GM-13D	200-210	113.97	46.54	67.43
HN-24I	148-158	125.80	57.16	68.64
HN-29D	210-220	115.11	47.46	67.65
GM-79I	170-180	101.09	42.21	58.88
N-10627	290-295	93.70	33.38	60.32
GM-17D	278-298	115.68	48.11	67.57
GM-18D	290-300	108.88	45.74	63.14
GM-20D	216-226	103.92	39.41	64.51
GM-21D	278-288	105.66	43.84	61.82
GM-36D	204-214	91.63	34.99	56.64
GM-37D	242-262	97.26	39.48	57.78
GM-39D _A	262-282	102.23	39.49	62.74
GM-74D	295-305	107.43	45.89	61.54
BPOW 1-1	196-241	73.65	29.33	44.32
GM-79D	280-290	101.25	40.55	60.70
MW203D ⁽³⁾	275-290 ⁽³⁾	127.15	57.31	69.84
MW178S ⁽³⁾	190-210 ⁽³⁾	114.48	47.38	67.10
MW179D ⁽³⁾	212-232 ⁽³⁾	118.48	49.67	68.81
MW178I ⁽³⁾	290-310	114.75	48.00	66.75
Zone 2 Wells				
GM-15D	332-342	109.84	47.78	62.06
GM-34D	309-319	71.19	15.13	56.06
GM-37D2	370-390	97.17	40.04	57.13
GM-38D	320-340	91.75	38.52	53.23
GM-39D _B	410-420	102.08	42.34	59.74
GM-70D2	310-330	99.58	31.81	67.77
GM-73D ⁽¹⁾	401-411 ⁽¹⁾	103.92	NM	NM
GM-78D	354-364	103.81	44.39	59.42
BPOW 1-2	310-335	73.54	30.60	42.94
BPOW 1-3	374-419	71.92	31.16	40.76
BPOW 1-4	340-400	56.68	13.70	42.98
BPOW 2-1	360-400	58.64	19.21	39.43
GM-38D2	475-495	91.56	40.20	51.36
GM-71D2	444-464	98.45	41.79	56.66
GM-78D2	459-479	103.82	46.37	57.45
BPOW 2-2	455-495	58.50	19.53	38.97
BPOW 3-1	446-516	61.43	23.92	37.51
RE106D1	440-460	101.19	42.27	58.92
RE106D2	480-490	101.37	42.76	58.61
MW201D ⁽³⁾	335-350 ⁽³⁾	120.92	52.82	68.10
MW201D1 ⁽³⁾	480-500 ⁽³⁾	120.80	53.30	67.50
MW202D ⁽³⁾	335-350 ⁽³⁾	125.95	56.44	69.51
MW202D1 ⁽³⁾	425-440 ⁽³⁾	125.98	56.73	69.25
MW203D1 ⁽³⁾	335-350 ⁽³⁾	127.07	57.33	69.74
MW203D2 ⁽³⁾	435-450 ⁽³⁾	127.02	57.60	69.42
MW178I1 ⁽³⁾	420-440 ⁽³⁾	113.88	48.86	65.02

Notes and Abbreviations on Last Page

Table 8
Water-Level Measurement Results, Second Quarter 2023
Operable Unit 2
Northrop Grumman
Bethpage, New York



Well Identification	Screen Interval (ft bls)	Measuring Point Elevation (ft msl)	Depth to Water (ft bmp)	Water-Level Elevation (ft NAVD 88)
Zone 2 Wells Continued				
MW179D1 ⁽³⁾	305-325	119.31	50.86	68.45
MW179D2 ⁽³⁾	400-420	119.00	50.62	68.38
RE123D1 ⁽¹⁾⁽³⁾	480-500	105.49	NM	NM
Zone 3 Wells				
Well 3R ⁽⁴⁾	421-531	119.80	80.30	39.50
GM-15D2	536-556	109.78	49.83	59.95
GM-21D2	516-526	104.62	49.59	55.03
GM-33D2	500-520	106.85	49.59	57.26
GM-34D2	510-520	71.19	17.48	53.71
GM-35D2	510-530	96.28	40.96	55.32
GM-36D2	520-540	91.60	37.61	53.99
GM-73D2 ⁽¹⁾	532-552	103.63	NM	NM
GM-73D3 ⁽¹⁾	635-650	103.04	NM	NM
GM-74D2	542-562	107.36	53.20	54.16
GM-74D3 ⁽¹⁾	625-645	106.56	NM	NM
GM-75D2	505-525	93.63	36.29	57.34
MW 3-1	556-566	115.28	61.54	53.74
Well 1 ⁽⁴⁾⁽⁵⁾	519-570	116.78	85.50	31.28
Well 17 ⁽⁴⁾⁽⁵⁾	480-563	104.10	65.10	39.00
Well 18 ⁽⁴⁾⁽⁵⁾	466-570	110.00	74.40	35.60
Well 19 ⁽⁴⁾⁽⁵⁾	465-617	108.70	59.3	49.40
BPOW 1-5	600-650	56.75	15.02	41.73
BPOW 2-3	564-594	57.98	19.11	38.87
BPOW 3-2	612-647	61.82	26.10	35.72
BPOW 3-3	580-620	60.64	21.90	38.74
BPOW 3-4	640-690	62.44	23.64	38.80
BPOW 4-1R ⁽⁶⁾	652-692	67.34	23.72	43.62
RE106D3	510-530	101.34	42.89	58.45
RE107D1	505-525	98.92	39.48	59.44
RE107D2	560-580	98.99	39.00	59.99
RE107D3	645-665	99.96	41.03	58.93
RE109D1 ⁽³⁾	515-535	100.03	44.74	55.29
RE109D2 ⁽³⁾	550-570	100.15	45.04	55.11
RE109D3 ⁽³⁾	580-600	100.40	45.06	55.34
RE123D2 ⁽³⁾	635-655	106.11	49.60	56.51
RE126D1 ⁽³⁾	500-520	101.03	46.62	54.41
RE126D2 ⁽³⁾	555-575	101.39	47.31	54.08
RE126D3 ⁽³⁾	640-660	101.10	47.09	54.01

Notes and Abbreviations on last page

Table 8
Water-Level Measurement Results, Second Quarter 2023
Operable Unit 2
Northrop Grumman
Bethpage, New York



Well Identification	Screen Interval (ft bls)	Measuring Point Elevation (ft msl)	Depth to Water (ft bmp)	Water-Level Elevation (ft NAVD 88)
Zone 4 Wells				
BPOW 1-6	700-750	57.06	15.33	41.73
BPOW 4-2R ⁽⁶⁾	725-765	67.18	25.00	42.18
RE123D3 ⁽⁵⁾	815-835	105.92	49.72	56.20

Notes and Abbreviations:

Water-level monitoring was performed from May 2 to May 5, 2023.

⁽¹⁾ Well N-9921 was not accessible due to soil re-grading activities on the road median that covered the well.

Well N-10631 was not measured due to concerns with well integrity (screen zone filled with material that was not able to be removed during 2021 redevelopment efforts).

Wells GM-73D, GM-73D2, GM-73D3 and GM-74D3 were not accessible due to construction activities near recharge basin.

Well N-10821 no longer exists. New well located in same place (well construction details unknown).

Well MW-3R could not be located.

RE123D1 water level data is collected by Navy and provided to Arcadis. For Q2 2023, the water level for RE123D1 was not measured by Navy.

⁽²⁾ PZ-ONCT-1 and PZ-ONCT-2 were located and resurveyed on December 12, 2023 due to the well casing modification from construction performed in the B109 construction area. Water level elevations were corrected for second quarter 2023 based on new survey data.

⁽³⁾ Water level data for this well was collected by Navy and was provided to Arcadis.

⁽⁴⁾ Pumping rates for the Remedial Wells collected during Water Level Measurements are as follows: Well 1 is 812 gpm, Well 17 is 1,000 gpm, Well 18 is 1,011 gpm and Well 19 is 509 gpm as recorded on May 2, 2023 and Well 3R is 820 as recorded on May 9, 2023.

⁽⁵⁾ Surveyed elevation not available, elevation is estimated from topographic map of the area.

⁽⁶⁾ The NAVY abandoned original Wells BPOW4-1R and BPOW4-2R between August, 2014 and October, 2014 and installed replacements.

ft bmp	feet below measuring point
NM	not measured
ft (NAVD 88)	Feet relative to North American Vertical Datum 1988.
gpm	gallons per minute
OU2	Operable Unit 2

Table 9
Water-Level Measurement Results, Fourth Quarter 2023
Operable Unit 2
Northrop Grumman
Bethpage, New York



Well Identification	Screen Interval (ft bls)	Measuring Point Elevation (ft msl)	Depth to Water (ft bmp) ⁽⁷⁾	Water-Level Elevation (ft NAVD 88)
Zone 1 Wells				
FW-03	49-64	124.30	56.94	67.36
MW-3R ⁽¹⁾	45-55	101.45	NM	NM
N-9921 ⁽¹⁾	58-62	94.23	NM	NM
N-10597	63-67	109.85	47.97	61.88
N-10600	57-61	102.41	41.62	60.79
N-10631R ⁽¹⁾⁽²⁾	63-67	105.77	42.60	63.17
N-10633	63-67	103.80	37.82	65.98
N-10634	63-67	101.20	40.20	61.00
N-10821 ⁽¹⁾	NM	NM	NM	NM
GM-15SR	70-80	109.35	45.13	64.22
GM-15I	95-105	109.29	44.86	64.43
GM-16SR	60-70	115.86	48.08	67.78
GM-16I	135-145	115.81	47.98	67.83
GM-17I	100-120	115.83	44.75	71.08
GM-17SR	60-70	115.79	44.11	71.68
GM-18S	63-67	107.60	42.18	65.42
GM-18I	95-105	109.03	42.62	66.41
GM-19S	48-53	109.86	40.43	69.43
GM-19I	130-140	109.86	42.67	67.19
GM-20I	95-105	103.88	36.56	67.32
GM-21S	63-67	105.81	32.65	73.16
GM-21I	130-140	105.72	36.17	69.55
GM-74I	94-114	107.42	38.63	68.79
GM-78S	60-70	104.94	41.72	63.22
GM-78I	90-110	105.06	41.96	63.10
GM-79S (N-10628)	63-67	100.88	44.68	56.20
HN-24S	49-59	122.73	56.10	66.63
HN-29I ⁽¹⁾	120-130	116.42	NM	NM
HN-40S	49-59	116.35	50.46	65.89
HN-40I	108-118	115.91	50.25	65.66
HN-42S	50-60	120.32	53.17	67.15
HN-42I	100-110	119.61	52.49	67.12
PZ-ONCT-1 ⁽²⁾	48-58	104.03	34.60	69.43
PZ-ONCT-2 ⁽²⁾	48-58	102.38	33.57	68.81
PZ-ONCT-4	48-58	105.9	35.10	70.80
PZ-ONCT-5	53-63	106.71	33.04	73.67
PZ-ONCT-6	48-58	106.43	32.22	74.21
PZ-ONCT-7	48-58	105.67	30.05	75.62
PZ-ONCT-8	48-58	106.76	40.17	66.59
PZ-ONCT-9	48-58	104.63	38.09	66.54
PZ-PLT5-1	57-67	118.29	50.11	68.18
PZ-PLT5-2	52-62	117.29	48.75	68.54
PZ-PLT5-3	50-60	115.96	44.88	71.08
PZ-PLT5-4	50-60	115.11	45.49	69.62
PZ-PLT5-5	53-63	113.22	45.19	68.03
PZ-PLT5-6	51-61	114.81	46.60	68.21

Notes and Abbreviations on last page

Table 9
Water-Level Measurement Results, Fourth Quarter 2023
Operable Unit 2
Northrop Grumman
Bethpage, New York



Well Identification	Screen Interval (ft bls)	Measuring Point Elevation (ft msl)	Depth to Water (ft bmp)	Water-Level Elevation (ft NAVD 88)
Zone 1 Wells Continued				
N-10624	190-194	93.61	32.52	61.09
GM-13D	200-210	113.97	46.82	67.15
HN-24I	148-158	125.80	54.45	71.35
HN-29D ⁽¹⁾	210-220 ⁽¹⁾	115.11	NM	NM
GM-79I	170-180	101.09	40.42	60.67
N-10627	290-295	93.70	33.01	60.69
GM-17D	278-298	115.68	49.69	65.99
GM-18D	290-300	108.88	45.63	63.25
GM-20D	216-226	103.92	38.46	65.46
GM-21D	278-288	105.66	43.12	62.54
GM-36D	204-214	91.63	35.33	56.30
GM-37D	242-262	97.26	40.21	57.05
GM-39D _A	262-282	102.23	39.17	63.06
GM-74D	295-305	107.43	45.40	62.03
BPOW 1-1	196-241	73.65	30.09	43.56
GM-79D	280-290	101.25	42.33	58.92
MW203D ⁽³⁾	275-290	127.15	57.61	69.54
MW178S ⁽³⁾	190-210	114.48	47.36	67.12
MW179D ⁽³⁾	212-232 ⁽³⁾	118.48	49.72	68.76
MW178I ⁽³⁾	290-310	114.75	47.92	66.83
Zone 2 Wells				
GM-15D	332-342	109.84	47.91	61.93
GM-34D	309-319	71.19	16.02	55.17
GM-37D2	370-390	97.17	40.21	56.96
GM-38D	320-340	91.75	39.43	52.32
GM-39D _B	410-420	102.08	42.11	59.97
GM-70D2	310-330	99.58	41.64	57.94
GM-73D ⁽²⁾	401-411	103.55	46.67	56.88
GM-78D	354-364	103.81	44.32	59.49
BPOW 1-2	310-335	73.54	30.99	42.55
BPOW 1-3	374-419	71.92	31.86	40.06
BPOW 1-4	340-400	56.68	14.20	42.48
BPOW 2-1	360-400	58.64	21.09	37.55
GM-38D2	475-495	91.56	41.59	49.97
GM-71D2	444-464	98.45	42.98	55.47
GM-78D2	459-479	103.82	46.43	57.39
BPOW 2-2	455-495	58.50	20.88	37.62
BPOW 3-1	446-516	61.43	24.33	37.10
RE106D1	440-460	101.19	43.11	58.08
RE106D2	480-490	101.37	43.09	58.28
MW201D ⁽³⁾	335-350	120.92	52.84	68.08
MW201D1 ⁽³⁾	480-500	120.80	53.22	67.58
MW202D ⁽³⁾	335-350	125.95	56.56	69.39
MW202D1 ⁽³⁾	425-440	125.98	56.66	69.32
MW203D1 ⁽³⁾	335-350	127.07	57.58	69.49
MW203D2 ⁽³⁾	435-450	127.02	57.70	69.32
MW178I1 ⁽³⁾	420-440	114.75	47.92	66.83

Notes and Abbreviations on last page

Table 9
Water-Level Measurement Results, Fourth Quarter 2023
Operable Unit 2
Northrop Grumman
Bethpage, New York



Well Identification	Screen Interval (ft bls)	Measuring Point Elevation (ft msl)	Depth to Water (ft bmp)	Water-Level Elevation (ft NAVD 88)
Zone 2 Wells Continued				
MW179D1 ⁽³⁾	305-325	119.31	50.87	68.44
MW179D2 ⁽³⁾	400-420	119.00	51.40	67.60
RE123D1 ⁽³⁾	480-500	105.49	47.45	58.04
Zone 3 Wells				
Well 3R ⁽⁴⁾⁽⁵⁾	421-531	119.80	93.6	26.20
GM-15D2	536-556	109.78	50.47	59.31
GM-21D2	516-526	104.62	49.86	54.76
GM-33D2	500-520	106.85	49.74	57.11
GM-34D2	510-520	71.19	18.11	53.08
GM-35D2	510-530	96.28	41.42	54.86
GM-36D2	520-540	91.60	39.03	52.57
GM-73D2 ⁽²⁾	532-552	103.63	43.98	59.65
GM-73D3 ⁽²⁾	635-650	103.04	45.09	57.95
GM-74D2	542-562	107.36	53.65	53.71
GM-74D3	625-645	106.56	51.81	54.75
GM-75D2	505-525	93.63	36.41	57.22
MW 3-1	556-566	115.28	62.11	53.17
Well 1 ⁽⁴⁾⁽⁵⁾	519-570	116.78	88.10	28.68
Well 17 ⁽⁴⁾⁽⁵⁾	480-563	104.10	66.00	38.10
Well 18 ⁽⁴⁾⁽⁵⁾	466-570	110.00	78.60	31.40
Well 19 ⁽⁴⁾⁽⁵⁾	465-617	108.70	61.90	46.80
BPOW 1-5	600-650	56.75	16.31	40.44
BPOW 2-3	564-594	57.98	20.56	37.42
BPOW 3-2	612-647	61.82	25.06	36.76
BPOW 3-3	580-620	60.64	22.32	38.32
BPOW 3-4	640-690	62.44	24.21	38.23
BPOW 4-1R ⁽⁶⁾	652-692	67.34	24.22	43.12
RE106D3	510-530	101.34	43.21	58.13
RE107D1	505-525	98.92	42.31	56.61
RE107D2	560-580	98.99	42.69	56.30
RE107D3	645-665	99.96	42.94	57.02
RE109D1 ⁽³⁾	515-535	100.03	45.63	54.40
RE109D2 ⁽³⁾	550-570	100.15	45.94	54.21
RE109D3 ⁽³⁾	580-600	100.40	45.95	54.45
RE123D2 ⁽³⁾	635-655	106.11	48.84	57.27
RE126D1 ⁽³⁾	500-520	101.03	45.76	55.27
RE126D2 ⁽³⁾	555-575	101.39	46.33	55.06
RE126D3 ⁽³⁾	640-660	101.10	46.09	55.01

Notes and Abbreviations on last page

Table 9
Water-Level Measurement Results, Fourth Quarter 2023
Operable Unit 2
Northrop Grumman
Bethpage, New York



Well Identification	Screen Interval (ft bls)	Measuring Point Elevation (ft msl)	Depth to Water (ft bmp)	Water-Level Elevation (ft NAVD 88)
Zone 3 Additional Wells				
MW-111-4	448-468	103.38	44.50	58.88
MW-117-5	737-757	94.80	42.92	51.88
RW-21_MW-1	615-625	101.29	42.68	58.61
RW-21_MW-2	600-610	96.28	42.99	53.29
RW-21_MW-3-2	595-605	97.53	52.79	44.74
RW-21_MW-5-2	560-570	96.84	44.22	52.62
RW-21_MW-6	604-624	94.02	42.70	51.32
RW-21_MW-9	630-640	91.60	42.61	48.99
MW-118-5	713-738	85.53	41.66	43.87
Zone 4 Wells				
BPOW 1-6	700-750	57.06	16.22	40.84
BPOW 4-2R ⁽⁶⁾	725-765	67.18	25.41	41.77
RE123D3 ⁽³⁾	815-835	105.92	48.95	56.97

Notes and Abbreviations:

Water-level monitoring was performed from October 9 to October 11, 2023.

⁽¹⁾ Well N-9921 was not accessible due to past soil re-grading activities on the road median that covered the well.

Wells HN-29I and HN-29D were not measured inadvertently.

Well N-10631 was replaced with N-10631R during October 2023.

Well N-10821 no longer exists. New well located in same place (well construction details unknown).

Well MW-3R could not be located.

⁽²⁾ PZ-ONCT-1, PZ-ONCT-2, GM-73D, GM-73D2 and GM-73D3 were located and resurveyed on December 12, 2023 due to the well casing modification from construction performed in the B109 construction area activities. Monitoring well N-10631R was located and resurveyed on December 12, 2023 due to new well construction as part of well replacement activities. Water level elevations were corrected for second quarter 2023 based on new survey data.

⁽³⁾ Water level data for this well was collected by Navy and was provided to Arcadis

⁽⁴⁾ Pumping rates for the Remedial Wells collected during Water Level Measurement are as follows: Well 1 is 809 gpm, Well 3R is 817 gpm, Well 17 is 1,000 gpm, Well 18 is 1,011 gpm and Well 19 is 509 gpm as recorded on October 10, 2023.

⁽⁵⁾ Surveyed elevation not available, elevation is estimated from topographic map of the area.

⁽⁶⁾ The NAVY abandoned original Wells BPOW4-1R and BPOW4-2R between August, 2014 and October, 2014 and installed replacements.

ft bmp	feet below measuring point
ft (NAVD 88)	Feet relative to North American Vertical Datum 1988.
gpm	gallons per minute
NM	not measured
OU2	Operable Unit 2

Table 10
Comparison of Fourth Quarter 2023
Field Measured Vertical Hydraulic Gradients to
Model-Predicted Gradients
Operable Unit 2
Northrop Grumman
Bethpage, New York



Well Pair ID	Measuring Point Elevation (ft NAVD 88)	Well Screen Midpoint Elevation (ft NAVD 88)	Water-Level Elevation (ft NAVD 88)	Field-Measured Vertical Gradient ⁽¹⁾ (ft/ft) x 10 ⁻³	Model-Predicted, Steady-State Vertical Gradient ⁽²⁾ (ft/ft) x 10 ⁻³	Difference Between Field Measured and Model Predicted Gradients ⁽³⁾
In Zone 1						
GM-17SR	115.79	50.79	71.68	13.35	2.67	10.68
GM-17I	115.83	5.83	71.08			
GM-78S	104.94	39.94	63.22	3.49	1.75	1.74
GM-78I	105.06	5.56	63.10			
GM-19S	109.86	59.36	69.43	26.51	0.47	26.04
GM-19I	109.86	-25.14	67.19			
GM-21S	105.81	40.81	73.16	51.51	5.99	45.52
GM-21I	105.72	-29.28	69.55			
GM-17I	115.83	5.83	71.08	28.57	20.43	8.14
GM-17D	115.68	-172.32	65.99			
GM-18I	109.03	9.03	66.41	16.19	19.16	-2.97
GM-18D	108.88	-186.12	63.25			
GM-20I	103.88	3.88	67.32	15.38	26.70	-11.32
GM-20D	103.92	-117.08	65.46			
GM-21I	105.72	-29.28	69.55	47.35	42.55	4.80
GM-21D	105.66	-177.34	62.54			
Between Zones 1 & 2						
GM-74I	107.42	8.42	68.79	33.63	35.13	-1.50
GM-74D	107.43	-192.57	62.03			
GM-39D _A	102.23	-169.77	63.06	21.59	25.92	-4.33
GM-39D _B	102.08	-312.92	59.97			
Between Zones 2 & 3						
GM-15D	109.66	-227.34	61.93	12.54	-16.32	-28.86
GM-15D2	109.59	-436.20	59.31			
GM-73D ⁽⁴⁾	103.55	-301.13	56.88	-20.33	23.85	-44.18
GM-73D2 ⁽⁴⁾⁽⁵⁾	103.63	-437.38	59.65			
RE123D1 ⁽⁵⁾	105.49	-384.51	58.04	4.99	5.94	-0.96
RE123D2 ⁽⁵⁾	106.11	-538.89	57.27			
Between Zones 1 & 3						
GM-18D	108.88	-186.12	63.25	28.29	49.49	-21.20
GM-33D2	106.85	-403.15	57.11			
GM-21D	105.66	-177.34	62.54	32.52	21.27	11.25
GM-21D2	104.62	-416.60	54.76			

Notes and Abbreviations on last page

Table 10
Comparison of Fourth Quarter 2023
Field Measured Verical Hydraulic Gradients to
Model-Predicted Gradients
Operable Unit 2
Northrop Grumman
Bethpage, New York



Well Pair ID	Measuring Point Elevation (ft NAVD 88)	Well Screen Midpoint Elevation (ft NAVD 88)	Water-Level Elevation (ft NAVD 88)	Field-Measured Vertical Gradient ⁽¹⁾ (ft/ft) x 10-3	Model-Predicted, Steady-State Vertical Gradient ⁽²⁾ (ft/ft) x 10-3	Difference Between Field Measured and Model Predicted Gradients ⁽³⁾
In Zone 3						
GM-74D2	107.63	-444.64	53.71	-12.56	-37.49	-24.93
GM-74D3	107.58	-527.42	54.75			
GM-73D2 ⁽⁴⁾⁽⁵⁾	103.63	-301.13	59.65	7.18	10.12	-2.94
GM-73D3 ⁽⁴⁾⁽⁵⁾	103.04	-537.86	57.95			
RE109D1 ⁽⁵⁾	100.03	-424.97	54.40	5.45	-1.79	-7.24
RE109D2 ⁽⁵⁾	100.15	-459.85	54.21			
RE126D1 ⁽⁵⁾	101.03	-408.97	55.27	3.84	-0.64	-4.48
RE126D2 ⁽⁵⁾	101.39	-463.61	55.06			

Notes and Abbreviations:

- (1) Vertical hydraulic gradients are calculated as follows:

$$\frac{(\text{Water-Level Elevation}_1 - \text{Water-Level Elevation}_2)}{(\text{Screen Midpoint Elevation}_1 - \text{Screen Midpoint Elevation}_2)}$$
 $_1$ - Shallower well of pairing
 $_2$ - Deeper well of pairing
 Positive gradient value indicates a downward hydraulic gradient.
 Negative gradient value indicates an upward hydraulic gradient.
- (2) The 2019 model was used to calculate the Steady State Vertical Gradient when OU2 ONCT remedial wells were operating at rates designed to prevent off-Site migration of VOC-impacted groundwater .
- (3) Positive value indicates an increase compared to model predicted gradient.
 Negative value indicates a decrease compared to model predicted gradient.
- (4) Wells GM-73D, GM-73D2, and GM-73D3 were located and resurveyed on December 12, 2023 due to the well casing modification from construction activities performed in the B109 construction area. Water level elevations were corrected for the second quarter 2023 based on new survey data.
- (5) Water level data for this well was collected by Navy and was provided to Arcadis

ft (NAVD 88) Feet relative to North American Vertical Datum 1988.

OU2 Operable Unit 2

Table 11
Summary of Volatile Organic Compound Concentrations in Groundwater for 2023
Upgradient of the ONCT System
Operable Unit 2
Northrop Grumman
Bethpage, New York



Constituents units in ug/L	Zone: Well ID: Sample ID: Date:	Zone 1							Zone 2	
		FW-03 FW-03 5/30/2023	GM-13D GM-13D 5/30/2023	HN-24I HN-24I 4/17/2023	HN-40I HN-40I 4/17/2023	HN-40S HN-40S 4/17/2023	HN-42I HN-42I 10/17/2023	HN-42S HN-42S 10/17/2023	MW-3-1 MW-3-1 4/17/2023	MW-3-1 MW-3-1 10/26/2023
Volatile Organic Compounds (VOCs) ⁽¹⁾	NYSDEC SCGs (ug/L)⁽²⁾									
1,1,1-Trichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	5	< 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	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	0.82 J	0.97 J
1,1,2-Trichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	5	< 1.0	1.3	0.93 J	< 1.0	< 1.0	< 1.0	< 1.0	2.8	1.7
1,1-Dichloroethene	5	< 1.0 J	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	2.4	1.6
1,2-Dichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)	50	< 10 J	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
4-Methyl-2-Pentanone	50	< 5.0 J	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Acetone	50	< 10 J	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Benzene	1	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromodichloromethane	50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform	50	< 1.0	< 1.0 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	5	< 2.0 J	< 2.0 J	< 2.0 J	< 2.0 J	< 2.0 J	< 2.0	< 2.0	< 2.0 J	< 2.0 J
Carbon Disulfide	50	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Carbon Tetrachloride	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorodibromomethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	5	< 1.0	< 1.0 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J
Chloroform	7	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	5	< 1.0	< 1.0 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene	5	< 1.0	5.1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	6.0	7.2
cis-1,3-Dichloropropene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloromethane	5	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Ethylbenzene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m&p-Xylenes	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methyl N-Butyl Ketone (2-Hexanone)	50	< 5.0 J	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-Xylene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene (Monomer)	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	5	2.5 J	12.9	2.1	1.7	< 1.0	< 1.0	< 1.0	18.5	16.3
Toluene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,3-Dichloropropene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	5	< 1.0 J	11.2	3.7	< 1.0	< 1.0	< 1.0	< 1.0	95.1	114
Vinyl chloride	2	< 1.0	< 1.0 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	10.2	16.8
TVOCs⁽³⁾⁽⁴⁾		2.5	31.5	6.7	1.7	ND	ND	ND	135.8	159

Notes and Abbreviations on last page

Table 11
Summary of Volatile Organic Compound Concentrations in Groundwater for 2023
Upgradient of the ONCT System
Operable Unit 2
Northrop Grumman
Bethpage, New York

Notes and Abbreviations:

⁽¹⁾ Samples analyzed for the TCL VOCs using USEPA Method 8260C.

⁽²⁾ Standards, Criteria, and Guidance (SCG) values based on NYSDEC TOGs (NYSDEC 1998); most stringent values are listed.

⁽³⁾ 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.

⁽⁴⁾ Acetone, 2-Butanone (MEK), and Dichloromethane (Methylene Chloride), each of which are recognized lab contaminants and are not included on the list of COCs in Appendix A and therefore, are not included in the total VOC values on this table.

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

Bold value indicates a detection.

	Compound detected in exceedance of NYSDEC SCG Criteria
< 5.0	Compound not detected above its method detection limit

µg/L	Micrograms per Liter
J	Value is estimated concentration
NYSDEC	New York State Department of Environmental Conservation
TCL	Target Compound List
TVOCs	Total Volatile Organic Compounds (known lab contaminants acetone, 2-butanone, and methylene chloride are not included in calculation of TVOCs)
TOGs	Technical and Operational Guidance Series
VOCs	Volatile Organic Compounds
USEPA	United States Environmental Protection Agency

Table 12
 Summary of Volatile Organic Compound Concentrations in Groundwater for 2023
 Proximate to the ONCT System
 Operable Unit 2
 Northrop Grumman
 Bethpage, New York



Constituents units in ug/L	Zone:	Zone 1											
	Well ID:	GM-15I	GM-15I	GM-15SR	GM-15SR	GM-17D	GM-17D	GM-17I	GM-17I	GM-18D	GM-18D	GM-18I	GM-18I
	Sample ID: Date:	GM-15I 4/18/2023	GM-15I 10/24/2023	GM-15SR 4/18/2023	GM-15SR 10/24/2023	GM-17D 4/11/2023	GM-17D 10/17/2023	GM-17I 4/11/2023	GM-17I 10/17/2023	GM-18D 6/12/2023	GM-18D 10/26/2023	GM-18I 6/12/2023	GM-18I 10/26/2023
Volatile Organic Compounds (VOCs) ⁽¹⁾	NYSDEC SCGs (ug/L)⁽²⁾												
1,1,1-Trichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J	< 1.0
1,1,2-trichloro-1,2,2-trifluoroethane	5	< 5.0 J	< 5.0	< 5.0 J	< 5.0	< 5.0 J	< 5.0	< 5.0 J	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)	50	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10 J	< 10
4-Methyl-2-Pentanone	50	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Acetone	50	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Benzene	1	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromodichloromethane	50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform	50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	5	< 2.0 J	< 2.0	< 2.0 J	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0 J	< 2.0 J	< 2.0	< 2.0 J
Carbon Disulfide	50	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0 J	< 2.0	< 2.0 J	< 2.0
Carbon Tetrachloride	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J	< 1.0	< 1.0 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorodibromomethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	5	< 1.0 J	< 1.0	< 1.0 J	< 1.0	< 1.0 J	< 1.0	< 1.0 J	< 1.0	< 1.0	< 1.0 J	< 1.0	< 1.0 J
Chloroform	7	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J	< 1.0	< 1.0 J	< 1.0
Chloromethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J	< 1.0
cis-1,2-Dichloroethene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,3-Dichloropropene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloromethane	5	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Ethylbenzene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m&p-Xylenes	5	< 1.0	< 1.0	< 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)	50	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-Xylene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene (Monomer)	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,3-Dichloropropene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J	< 1.0	< 1.0	< 1.0
Trichloroethene	5	< 1.0	< 1.0	1.5	0.68 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl chloride	2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TVOCs⁽³⁾⁽⁴⁾		ND	ND	1.5	0.68	ND	ND	ND	ND	ND	ND	ND	ND

Notes and Abbreviations on last page

Table 12
 Summary of Volatile Organic Compound Concentrations in Groundwater for 2023
 Proximate to the ONCT System
 Operable Unit 2
 Northrop Grumman
 Bethpage, New York



Constituents units in ug/L	Zone:	Zone 1												
	Well ID:	GM-20D	GM-20D	GM-20I	GM-21D	GM-21I	GM-21S	GM-39DA	GM-39DA	GM-74I	GM-74I	GM-78I	GM-79D	GM-79D
	Sample ID: Date:	GM-20D 4/24/2023	GM-20D 6/15/2023	GM-20I 6/15/2023	GM-21D 4/19/2023	GM-21I 6/15/2023	GM-21S 4/19/2023	GM-39DA 6/14/2023	GM-39DA 10/25/2023	GM-74I 4/10/2023	GM-74I 10/16/2023	GM-78I 4/12/2023	GM-79D 4/13/2023	GM-79D 10/19/2023
Volatile Organic Compounds (VOCs) ⁽¹⁾	NYSDEC SCGs (ug/L)⁽²⁾													
1,1,1-Trichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0 J	< 1.0	< 1.0 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-trichloro-1,2,2-trifluoroethane	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	5	< 1.0	< 1.0	< 1.0	< 1.0 J	< 1.0	< 1.0 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)	50	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
4-Methyl-2-Pentanone	50	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Acetone	50	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Benzene	1	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromodichloromethane	50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform	50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	5	< 2.0	< 2.0	< 2.0	< 2.0 J	< 2.0	< 2.0 J	< 2.0	< 2.0	< 2.0 J	< 2.0	< 2.0	< 2.0	< 2.0
Carbon Disulfide	50	< 2.0	< 2.0	< 2.0	< 2.0 J	< 2.0	< 2.0 J	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Carbon Tetrachloride	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorodibromomethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroform	7	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,3-Dichloropropene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloromethane	5	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Ethylbenzene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m&p-Xylenes	5	< 1.0	< 1.0	< 1.0	< 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)	50	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-Xylene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene (Monomer)	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,3-Dichloropropene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.1	0.99 J	< 1.0	< 1.0	< 1.0	9.5	12.5
Vinyl chloride	2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TVOCs⁽³⁾⁽⁴⁾		ND	ND	ND	ND	ND	ND	1.1	0.99	ND	ND	ND	9.5	12.5

Notes and Abbreviations on last page

Table 12
 Summary of Volatile Organic Compound Concentrations in Groundwater for 2023
 Proximate to the ONCT System
 Operable Unit 2
 Northrop Grumman
 Bethpage, New York



Constituents units in ug/L	Zone:	Zone 2											
	Well ID:	GM-79I	GM-79I	N-10631R	N-10631R	GM-15D	GM-15D	GM-39DB	GM-39DB	GM-73D	GM-73D	GM-73D	GM-74D
	Sample ID: Date:	GM-79I 4/13/2023	GM-79I 10/19/2023	N-10631R 10/26/2023	N-10631R REP102623PQ1 10/26/2023	GM-15D GM-15D 4/18/2023	GM-15D GM-15D 10/24/2023	GM-39DB GM-39DB 6/14/2023	GM-39DB GM-39DB 10/25/2023	GM-73D GM-73D 4/10/2023	GM-73D GM-73D 10/23/2023	GM-73D REP102323AH1 10/23/2023	GM-74D GM-74D 4/10/2023
Volatile Organic Compounds (VOCs) ⁽¹⁾	NYSDEC SCGs (ug/L)⁽²⁾												
1,1,1-Trichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	5	< 1.0	< 1.0	< 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	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)	50	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
4-Methyl-2-Pentanone	50	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Acetone	50	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Benzene	1	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromodichloromethane	50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform	50	< 1.0	< 1.0	< 1.0	< 1.0 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J	< 1.0	< 1.0	< 1.0 J
Bromomethane	5	< 2.0	< 2.0	< 2.0 J	< 2.0 J	< 2.0 J	< 2.0	< 2.0	< 2.0	< 2.0 J	< 2.0	< 2.0	< 2.0 J
Carbon Disulfide	50	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Carbon Tetrachloride	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorodibromomethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J	< 1.0	< 1.0	< 1.0 J
Chloroethane	5	< 1.0	< 1.0	< 1.0 J	< 1.0 J	< 1.0 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroform	7	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	5	< 1.0	< 1.0	< 1.0	< 1.0 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,3-Dichloropropene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloromethane	5	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Ethylbenzene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m&p-Xylenes	5	< 1.0	< 1.0	< 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)	50	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-Xylene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene (Monomer)	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	5	< 1.0	< 1.0	< 1.0	< 1.0 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.8	1.8	< 1.0
Toluene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,3-Dichloropropene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	5	1.2	0.94 J	1.2	0.94 J	< 1.0	< 1.0	42.5	30.7	12.5	146	143	1.3
Vinyl chloride	2	< 1.0	< 1.0	< 1.0	< 1.0 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TVOCs⁽³⁾⁽⁴⁾		1.2	0.94	1.2	0.94	ND	ND	42.5	30.7	12.5	148	145	1.3

Notes and Abbreviations on last page

Table 12
 Summary of Volatile Organic Compound Concentrations in Groundwater for 2023
 Proximate to the ONCT System
 Operable Unit 2
 Northrop Grumman
 Bethpage, New York



Constituents units in ug/L	Zone:	Zone 2												
	Well ID:	GM-74D	GM-78D	GM-78D	GM-78D2	GM-78D2	GM-15D2	GM-15D2	GM-15D2	GM-21D2	GM-21D2	GM-21D2	GM-21D2	GM-33D2
	Sample ID: Date:	GM-74D 10/16/2023	GM-78D 4/12/2023	GM-78D 10/25/2023	GM-78D2 4/12/2023	GM-78D2 10/25/2023	GM-15D2 4/18/2023	GM-15D2 10/24/2023	GM-15D2 REP102423PQ1 10/24/2023	GM-21D2 2/23/2023	GM-21D2 4/19/2023	GM-21D2 9/7/2023	GM-21D2 10/25/2023	GM-33D2 6/6/2023
Volatile Organic Compounds (VOCs) ⁽¹⁾	NYSDEC SCGs (ug/L)⁽²⁾													
1,1,1-Trichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0	1.2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J	< 1.0	< 1.0	< 1.0
1,1,2-trichloro-1,2,2-trifluoroethane	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0 J	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	1.7 J
1,1,2-Trichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0	0.83 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)	50	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
4-Methyl-2-Pentanone	50	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Acetone	50	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10 J	< 10	< 10
Benzene	1	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromodichloromethane	50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform	50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	5	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0 J	< 2.0	< 2.0	< 2.0	< 2.0 J	< 2.0	< 2.0	< 2.0
Carbon Disulfide	50	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0 J	< 2.0	< 2.0	< 2.0
Carbon Tetrachloride	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorodibromomethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroform	7	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,3-Dichloropropene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloromethane	5	< 2.0	< 2.0	< 2.0	< 2.0	9.6	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Ethylbenzene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m&p-Xylenes	5	< 1.0	< 1.0	< 1.0	< 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)	50	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-Xylene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene (Monomer)	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	5	< 1.0	< 1.0	< 1.0	< 1.0	2.8	2.8	2.5	2.6	0.59 J	< 1.0	< 1.0	0.63 J	0.87 J
Toluene	5	< 1.0	< 1.0	< 1.0	< 1.0	0.59 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,3-Dichloropropene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	5	2.3	0.65 J	0.67 J	0.73 J	1.7	5.8	6.1	6.0	4.3	4.8	< 1.0	5.3	7.2
Vinyl chloride	2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TVOCs⁽³⁾⁽⁴⁾		2.3	0.65	0.67	0.73	16.7	8.6	8.6	8.6	4.9	4.8	ND	5.9	9.8

Notes and Abbreviations on last page

Table 12
 Summary of Volatile Organic Compound Concentrations in Groundwater for 2023
 Proximate to the ONCT System
 Operable Unit 2
 Northrop Grumman
 Bethpage, New York



Constituents units in ug/L	Zone:		Zone 3									
	Well ID:		GM-33D2	GM-73D2	GM-73D2	GM-73D3	GM-73D3	GM-74D2	GM-74D2	GM-74D2	GM-74D3	GM-74D3
	Sample ID:	Date:	GM-33D2	GM-73D2	GM-73D2	GM-73D3	GM-73D3	GM-74D2	GM-74D2	REP101623PQ1	GM-74D3	GM-74D3
			10/26/2023	4/10/2023	10/23/2023	4/10/2023	10/23/2023	4/10/2023	10/16/2023	10/16/2023	5/30/2023	10/16/2023
Volatile Organic Compounds (VOCs) ⁽¹⁾	NYSDEC SCGs (ug/L)⁽²⁾											
1,1,1-Trichloroethane	5	< 1.0	< 1.0	2.0	< 1.0	0.90 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	5	< 1.0	< 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	5	1.1 J	< 5.0	0.95 J	< 5.0	0.86 J	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.82 J	0.96 J	1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.1	1.2	1.2	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	5	< 1.0	< 1.0	0.70 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)	50	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
4-Methyl-2-Pentanone	50	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Acetone	50	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Benzene	1	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromodichloromethane	50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform	50	< 1.0	< 1.0 J	< 1.0	< 1.0 J	< 1.0	< 1.0 J	< 1.0	< 1.0	< 1.0	< 1.0 J	< 1.0
Bromomethane	5	< 2.0 J	< 2.0 J	< 2.0	< 2.0 J	< 2.0	< 2.0 J	< 2.0	< 2.0	< 2.0	< 2.0 J	< 2.0
Carbon Disulfide	50	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Carbon Tetrachloride	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorodibromomethane	5	< 1.0	< 1.0 J	< 1.0	< 1.0 J	< 1.0	< 1.0 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	5	< 1.0 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J	< 1.0
Chloroform	7	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J	< 1.0
cis-1,2-Dichloroethene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.2	1.5	1.5	< 1.0	< 1.0	< 1.0
cis-1,3-Dichloropropene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloromethane	5	< 2.0	< 2.0	8.0	< 2.0	6.2	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Ethylbenzene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m&p-Xylenes	5	< 1.0	< 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)	50	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-Xylene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene (Monomer)	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	5	0.73 J	1.5	2.9	1.9	3.5	5.5	8.1	7.9	2.3	3.2	
Toluene	5	< 1.0	< 1.0	0.58 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,3-Dichloropropene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	5	4.3	98.3	22.2	2.1	3.6	12.0	14.9	14.6	2.7	3.2	
Vinyl chloride	2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J	< 1.0
TVOCs⁽³⁾⁽⁴⁾		6.1	99.8	37.3	4.0	15.1	20.6	26.7	26.2	5.0	6.4	

Notes and Abbreviations on last page

Table 12
 Summary of Volatile Organic Compound Concentrations in Groundwater for 2023
 Proximate to the ONCT System
 Operable Unit 2
 Northrop Grumman
 Bethpage, New York

Notes and Abbreviations:

- ⁽¹⁾ Samples analyzed for the TCL VOCs using USEPA Method 8260C.
- ⁽²⁾ Standards, Criteria, and Guidance (SCG) values based on NYSDEC TOGs (NYSDEC 1998); most stringent values are listed.
- ⁽³⁾ 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.
- ⁽⁴⁾ Acetone, 2-Butanone (MEK), and Dichloromethane (Methylene Chloride), each of which are recognized lab contaminants and are not included on the list of COCs in Appendix A and therefore, are not included in the total VOC values on this table.

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

⁽⁵⁾ Well N-10631R is a new well which was installed prior to Q4 of 2023.

Bold value indicates a detection.

< 5.0	Compound not detected above its method detection limit
ND	Non-Detect
µg/L	micrograms per Liter
J	Value is estimated concentration
NYSDEC	New York State Department of Environmental Conservation
TCL	Target Compound List
TOGs	Technical and Operational Guidance Series
TVOCs	Total Volatile Organic Compounds (known lab contaminants acetone, 2-butanone, and methylene chloride are not included in calculation of TVOCs).
USEPA	United States Environmental Protection Agency
VOCs	Volatile Organic Compounds
 	Compound detected in exceedance of NYSDEC SCG Criteria
USEPA	United States Environmental Protection Agency
REP	Blind duplicate sample

Table 13
 Summary of Volatile Organic Compound Concentrations in Groundwater for 2023
 Downgradient of the ONCT System
 Operable Unit 2
 Northrop Grumman
 Bethpage, New York



		Far Central										
Constituents ug/L	units in	Zone:	Zone 1	Zone 2			Zone 3					
		Well ID:	GM-36D	GM-34D	GM-34D	GM-70D2	GM-71D2	GM-34D2	GM-34D2	GM-35D2	GM-35D2	GM-36D2
		Sample ID:	GM-36D	GM-34D	GM-34D	GM-70D2	GM-71D2	GM-34D2	GM-34D2	GM-35D2	GM-35D2	GM-36D2
		Date:	6/5/2023	4/13/2023	10/19/2023	4/11/2023	4/11/2023	4/13/2023	10/19/2023	4/19/2023	10/23/2023	6/5/2023
Volatile Organic Compounds (VOCs) ⁽¹⁾		NYSDEC SCGs (ug/L) ⁽²⁾										
1,1,1-Trichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J	< 1.0	< 1.0
1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113)	5	< 5.0	< 5.0	< 5.0	< 5.0 J	< 5.0 J	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.76 J
1,1-Dichloroethene	5	< 1.0	0.60 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J	< 1.0	0.83 J
1,2-Dichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)	50	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
4-Methyl-2-Pentanone	50	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Acetone	50	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Benzene	1	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromodichloromethane	50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform	50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	5	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0 J	< 2.0	< 2.0
Carbon Disulfide	50	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0 J	< 2.0	< 2.0
Carbon Tetrachloride	5	< 1.0	< 1.0	< 1.0	< 1.0 J	< 1.0 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorodibromomethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0 J	< 1.0 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroform	7	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene	5	< 1.0	4.0	1.8	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,3-Dichloropropene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloromethane	5	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Ethylbenzene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m&p-Xylenes	5	< 1.0	< 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)	50	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-Xylene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene (Monomer)	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	5	< 1.0	4.0	5.8	1.9	< 1.0	< 1.0	5.8	5.5	3.7	3.5	< 1.0
Toluene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,3-Dichloropropene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	5	< 1.0	92.9	66.7	4.5	8.4	36.0	35.5	16.5	17.4	3.5	< 1.0
Vinyl chloride	2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TVOCs⁽³⁾⁽⁴⁾		ND	101.5	74.3	6.4	8.4	41.8	41.0	20.2	20.9	5.1	< 1.0

Notes and Abbreviations on last page

Table 13
 Summary of Volatile Organic Compound Concentrations in Groundwater for 2023
 Downgradient of the ONCT System
 Operable Unit 2
 Northrop Grumman
 Bethpage, New York



		Former Outpost Well Now Plume Monitoring Well																		
Constituents ug/L	units in	Zone:	Zone 1				Zone 2													
		Well ID:	BPOW 1-1	BPOW 1-2	BPOW 1-2	BPOW 1-2	BPOW 1-3	BPOW 1-4	BPOW 1-4	BPOW 1-4	BPOW 1-4	BPOW 2-1	BPOW 2-1	BPOW 2-1	BPOW 2-1	BPOW 2-1	BPOW 2-2	BPOW 2-2	BPOW 2-2	BPOW 2-2
		Sample ID:	BPOW 1-1	BPOW 1-2	BPOW 1-2	BPOW 1-2	BPOW 1-3	BPOW 1-4	BPOW 1-4	BPOW 1-4	BPOW 1-4	BPOW 2-1	BPOW 2-1	BPOW 2-1	BPOW 2-1	REP11223PQ 1	BPOW 2-2	BPOW 2-2	BPOW 2-2	BPOW 2-2
Date:	6/9/2023	6/9/2023	8/30/2023	11/2/2023	6/9/2023	6/13/2023	8/30/2023	10/30/2023	2/21/2023	5/1/2023	8/29/2023	11/2/2023	11/2/2023	2/21/2023	5/1/2023	8/29/2023	11/2/2023			
Volatile Organic Compounds (VOCs) ⁽¹⁾		NYSDEC SCGs (ug/L) ⁽²⁾																		
1,1,1-Trichloroethane	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
1,1,2,2-Tetrachloroethane	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113)	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
1,1,2-Trichloroethane	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
1,1-Dichloroethane	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
1,1-Dichloroethene	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
1,2-Dichloroethane	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
1,2-Dichloropropane	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
2-Butanone (MEK)	50	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0		
4-Methyl-2-Pentanone	50	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0		
Acetone	50	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0		
Benzene	1	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
Bromodichloromethane	50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
Bromoform	50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
Bromomethane	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
Carbon Disulfide	50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
Carbon Tetrachloride	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
Chlorobenzene	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
Chlorodibromomethane	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
Chloroethane	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
Chloroform	7	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
Chloromethane	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
cis-1,2-Dichloroethene	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
cis-1,3-Dichloropropene	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
Dichloromethane	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
Ethylbenzene	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
m&p-Xylenes	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
Methyl N-Butyl Ketone (2-Hexanone)	50	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0		
o-Xylene	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
Styrene (Monomer)	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
Tetrachloroethene	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
Toluene	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
trans-1,2-Dichloroethene	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
trans-1,3-Dichloropropene	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
Trichloroethene	5	0.88	0.65	0.56	0.47 J	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
Vinyl chloride	2	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
TVOCs⁽³⁾⁽⁴⁾		0.88	0.65	0.56	0.47	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		

Notes and Abbreviations on last page

Table 13
 Summary of Volatile Organic Compound Concentrations in Groundwater for 2023
 Downgradient of the ONCT System
 Operable Unit 2
 Northrop Grumman
 Bethpage, New York



Constituents ug/L	units in	Outpost Wells		Former Outpost Well Now Plume Monitoring Well								Outpost Well	Former Outpost Well Now Plume Monitoring Well						
		Zone:	Zone 2		Zone 3														
		Well ID: Sample ID: Date:	BPOW 3-1 BPOW 3-1 5/1/2023	BPOW 3-1 BPOW 3-1 11/2/2023	BPOW 1-5 BPOW 1-5 6/13/2023	BPOW 1-5 BPOW 1-5 8/30/2023	BPOW 1-5 BPOW 1-5 10/30/2023	BPOW 2-3 BPOW 2-3 2/21/2023	BPOW 2-3 BPOW 2-3 5/1/2023	BPOW 2-3 BPOW 2-3 8/29/2023	BPOW 2-3 REP082923P Q1 8/29/2023	BPOW 2-3 BPOW 2-3 11/2/2023	BPOW 3-2 BPOW 3-2 11/2/2023	BPOW 3-3 BPOW 3-3 6/9/2023	BPOW 3-3 BPOW 3-3 8/28/2023	BPOW 3-3 BPOW 3-3 10/30/2023	BPOW 3-3 REP103023SV 1 10/30/2023	BPOW 3-4 BPOW 3-4 6/9/2023	BPOW 3-4 REP060923P Q1 6/9/2023
Volatile Organic Compounds (VOCs)⁽¹⁾		NYSDEC SCGs (ug/L)⁽²⁾																	
1,1,1-Trichloroethane	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.51	0.61
1,1,2,2-Tetrachloroethane	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 J	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113)	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.72 J	0.82 J	0.83 J	0.74 J	6.1	7.0
1,1,2-Trichloroethane	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	1.3	1.4
1,1-Dichloroethane	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.92	1.2
1,1-Dichloroethene	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	6.8	8.2
1,2-Dichloroethane	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.18 J	0.18 J
1,2-Dichloropropane	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2-Butanone (MEK)	50	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
4-Methyl-2-Pentanone	50	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0 J	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Acetone	50	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	1	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromodichloromethane	50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromoform	50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 J	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromomethane	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Carbon Disulfide	50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Carbon Tetrachloride	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	1.1	1.3
Chlorobenzene	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Chlorodibromomethane	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Chloroethane	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Chloroform	7	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	1.3	1.6
Chloromethane	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
cis-1,2-Dichloroethene	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	2.0	2.4
cis-1,3-Dichloropropene	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Dichloromethane	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Ethylbenzene	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
m&p-Xylenes	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 J	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Methyl N-Butyl Ketone (2-Hexanone)	50	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0 J	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
o-Xylene	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 J	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Styrene (Monomer)	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 J	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Tetrachloroethene	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Toluene	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
trans-1,2-Dichloroethene	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
trans-1,3-Dichloropropene	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50 J	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Trichloroethene	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	220	231
Vinyl chloride	2	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
TVOCs⁽³⁾⁽⁴⁾		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.72	0.82	0.83	0.74	240	255

Notes and Abbreviations on last page

Table 13
 Summary of Volatile Organic Compound Concentrations in Groundwater for 2023
 Downgradient of the ONCT System
 Operable Unit 2
 Northrop Grumman
 Bethpage, New York



		Former Outpost Well Now Plume Monitoring Well											GM-38 Area				
Constituents units in ug/L	Zone:	Zone 3					Zone 4						Zone 2				
	Well ID:	BPOW 3-4	BPOW 3-4	BPOW 4-1R	BPOW 4-1R	BPOW 4-1R	BPOW 1-6	BPOW 1-6	BPOW 1-6	BPOW 4-2R	BPOW 4-2R	BPOW 4-2R	GM-38D	GM-38D	GM-38D	GM-38D2	GM-38D2
	Sample ID: Date:	BPOW 3-4 8/28/2023	BPOW 3-4 10/30/2023	BPOW 4-1R 6/12/2023	BPOW 4-1R 8/28/2023	BPOW 4-1R 11/6/2023	BPOW 1-6 6/13/2023	BPOW 1-6 8/31/2023	BPOW 1-6 10/30/2023	BPOW 4-2R 6/12/2023	BPOW 4-2R 8/31/2023	BPOW 4-2R 11/6/2023	GM-38D 4/11/2023	GM-38D REP041123SH1 4/11/2023	GM-38D 10/3/2023	GM-38D2 4/11/2023	GM-38D2 10/23/2023
Volatile Organic Compounds (VOCs)⁽¹⁾	NYSDEC SCGs (ug/L)⁽²⁾																
1,1,1-Trichloroethane	5	0.63	0.63	< 0.50	0.23 J	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	< 1.0	< 1.0	< 1.0	1.0
1,1,2,2-Tetrachloroethane	5	< 0.50	< 0.50	< 0.50	< 0.50 J	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113)	5	8.0	8.9	28.1	37.8	26.5	< 1.0	< 1.0	< 1.0	11.7	13.9	6.7	< 5.0 J	< 5.0 J	< 5.0 J	< 5.0 J	< 5.0
1,1,2-Trichloroethane	5	1.4	1.1	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	5	1.1	1.2	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.88J	< 1.0	0.84 J	3.3	3.5
1,1-Dichloroethene	5	7.7	9.1	0.84	0.91	0.77	< 0.50	< 0.50	< 0.50	0.30 J	0.33 J	< 0.50	< 1.0	< 1.0	0.76 J	1.1	2.0
1,2-Dichloroethane	5	0.18 J	0.18 J	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	< 1.0	0.81 J	< 1.0	< 1.0
1,2-Dichloropropane	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Butanone (MEK)	50	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 10	< 10	< 10	< 10
4-Methyl-2-Pentanone	50	< 2.0	< 2.0	< 2.0	< 2.0 J	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Acetone	50	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	< 10	< 10	< 10	< 10
Benzene	1	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bromodichloromethane	50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform	50	< 0.50	< 0.50	< 0.50	< 0.50 J	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Carbon Disulfide	50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Carbon Tetrachloride	5	1.4	1.4	0.26 J	0.38 J	0.24 J	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0 J	< 1.0 J	< 1.0 J	< 1.0 J	< 1.0
Chlorobenzene	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorodibromomethane	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0 J	< 1.0 J	< 1.0 J	< 1.0 J	< 1.0
Chloroform	7	1.4	1.3	0.87	0.77	0.65	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene	5	2.4	2.3	0.32 J	< 0.50	0.33 J	< 0.50	< 0.50	< 0.50	< 0.50	0.16 J	< 0.50	0.63J	< 1.0	0.81J	0.77 J	1.6
cis-1,3-Dichloropropene	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichloromethane	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Ethylbenzene	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m&p-Xylenes	5	< 0.50	< 0.50	< 0.50	< 0.50 J	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methyl N-Butyl Ketone (2-Hexanone)	50	< 2.0	< 2.0	< 2.0	< 2.0 J	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-Xylene	5	< 0.50	< 0.50	< 0.50	< 0.50 J	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene (Monomer)	5	< 0.50	< 0.50	< 0.50	< 0.50 J	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.36 J	0.59	0.23 J	1.2	1.6	1.6	< 1.0	< 1.0
Toluene	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	< 1.0	< 1.0	0.49 J	< 1.0
trans-1,2-Dichloroethene	5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,3-Dichloropropene	5	< 0.50	< 0.50	< 0.50	< 0.50 J	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	5	209 D	201 D	0.90	1.7	0.93	< 0.50	< 0.50	< 0.50	1.4	2.0	0.92	101	104	134	62.0	129
Vinyl chloride	2	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TVOCs⁽³⁾⁽⁴⁾		233	227	31.3	41.8	29.4	ND	ND	ND	13.8	17.0	7.9	104	106	139	67.7	137

Notes and Abbreviations on last page

Table 13
 Summary of Volatile Organic Compound Concentrations in Groundwater for 2023
 Downgradient of the ONCT System
 Operable Unit 2
 Northrop Grumman
 Bethpage, New York



		Near Central					
Constituents ug/L	units in	Zone:	Zone 1		Zone 2	Zone 3	
		Well ID:	GM-37D	N-10624	GM-37D2	GM-75D2	GM-75D2
		Sample ID:	GM-37D	N-10624	GM-37D2	GM-75D2	GM-75D2
		Date:	6/5/2023	6/6/2023	6/5/2023	6/6/2023	10/26/2023
Volatile Organic Compounds (VOCs) ⁽¹⁾		NYSDEC SCGs (ug/L) ⁽²⁾					
1,1,1-Trichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0	0.77 J	
1,1,2,2-Tetrachloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113)	5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	
1,1,2-Trichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
1,1-Dichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
1,1-Dichloroethene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
1,2-Dichloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
1,2-Dichloropropane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
2-Butanone (MEK)	50	< 10	< 10	< 10	< 10	< 10	
4-Methyl-2-Pentanone	50	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	
Acetone	50	< 10	< 10	< 10	< 10	< 10	
Benzene	1	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	
Bromodichloromethane	50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Bromoform	50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Bromomethane	5	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0 J	
Carbon Disulfide	50	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	
Carbon Tetrachloride	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Chlorobenzene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Chlorodibromomethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Chloroethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0 J	
Chloroform	7	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Chloromethane	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
cis-1,2-Dichloroethene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
cis-1,3-Dichloropropene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Dichloromethane	5	< 2.0	< 2.0	< 2.0	< 2.0	1.3 J	
Ethylbenzene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
m&p-Xylenes	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Methyl N-Butyl Ketone (2-Hexanone)	50	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	
o-Xylene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Styrene (Monomer)	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Tetrachloroethene	5	< 1.0	< 1.0	0.68 J	< 1.0	2.3	
Toluene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
trans-1,2-Dichloroethene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
trans-1,3-Dichloropropene	5	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Trichloroethene	5	9.1	0.57 J	0.71 J	10.2	11.7	
Vinyl chloride	2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
TVOCs⁽³⁾⁽⁴⁾		9.1	0.57	1.39	10.2	16.1	

Notes and Abbreviations on last page

Notes and Abbreviations:

- ⁽¹⁾ Samples were analyzed using USEPA Method 8260C.
- ⁽²⁾ Standards, Criteria, and Guidance (SCG) values based on NYSDEC TOGs (NYSDEC 1998); most stringent values are listed.
- ⁽³⁾ 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.
- ⁽⁴⁾ Acetone, 2-Butanone (MEK), and Dichloromethane (Methylene Chloride), each of which are recognized lab contaminants and are not included on the list of COCs in Appendix A and therefore, are not included in the total VOC values on this table.

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

Bold value indicates a detection.

< 5.0	Compound not detected above its method detection limit
µg/L	micrograms per liter
D	Concentration is based on a diluted sample analysis
J	Value is estimated concentration.
NYSDEC	New York State Department of Environmental Conservation
OU2	Operable Unit 2
REP	Blind duplicate sample
TOGs	Technical and Operational Guidance Series
TVOCs	Total Volatile Organic Compounds (known lab contaminants acetone, 2-butanone, and methylene chloride are not included in calculation of TVOCs)
VOCs	Volatile Organic Compounds
	Compound detected in exceedance of NYSDEC SCG Criteria
USEPA	United States Environmental Protection Agency

Table 14
 Summary of Metals Concentrations in Groundwater for 2023
 Proximate to Former Northrop Grumman Plants 1 and 2
 Operable Unit 2
 Northrop Grumman
 Bethpage, New York

Constituent (units in ug/L)	Location:	Plant 1							
	Well ID:	GM-15SR	GM-15SR	PLT1 MW-04	PLT1 MW-04	PLT1 MW-05	PLT1 MW-05	PLT1 MW-06	PLT1 MW-06
	Sample ID:	GM-15SR	GM-15SR	PLT1 MW-04	PLT1 MW-04	PLT1 MW-05	PLT1 MW-05	PLT1 MW-06	PLT1 MW-06
	Sample Date:	4/18/2023	10/24/2023	4/18/2023	10/24/2023	4/18/2023	10/24/2023	4/18/2023	10/24/2023
	NYSDEC SCGs (ug/L)⁽¹⁾								
Cadmium (Total)	5	--	--	--	--	--	--	--	--
Cadmium (Dissolved)	5	--	--	--	--	--	--	--	--
Chromium (Total)	50	175 J	249	< 10	< 10	254 J	226	128	137
Chromium (Dissolved)	50	204 J	249	< 10	< 10	294 J	229	128	135

Notes and Abbreviations on last page

Table 14
 Summary of Metals Concentrations in Groundwater for 2023
 Proximate to Former Northrop Grumman Plants 1 and 2
 Operable Unit 2
 Northrop Grumman
 Bethpage, New York

Constituent (units in ug/L)	Location:	Plant 2									
	Well ID:	GM-78I	GM-78S	MW-01GF	MW-01GF	MW-01GF	MW-01GF	MW-02GF	MW-02GF	N-10631R ⁽²⁾	N-10631R ⁽²⁾
	Sample ID: Sample Date:	GM-78I 4/12/2023	GM-78S 4/12/2023	MW-01GF 6/13/2023	REP061323PQ1 6/13/2023	MW-01GF 10/25/2023	REP061323PQ1 10/25/2023	MW-02GF 6/13/2023	MW-02GF 10/25/2023	N-10631R 10/26/2023	REP102623PQ1 10/26/2023
	NYSDEC SCGs (ug/L)⁽¹⁾										
Cadmium (Total)	5	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Cadmium (Dissolved)	5	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Chromium (Total)	50	< 10	< 10	< 10	< 10	< 10	< 10	190	396	10.1	< 10
Chromium (Dissolved)	50	< 10	< 10	< 10	< 10	< 10	< 10	179	398	< 10	< 10

Notes and Abbreviations on last page

Table 14
Summary of Metals Concentrations in Groundwater for 2023
Proximate to Former Northrop Grumman Plants 1 and 2
Operable Unit 2
Northrop Grumman
Bethpage, New York

Notes and Abbreviations:

⁽¹⁾ Standards, Criteria, and Guidance (SCG) values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller, Inc. 2000) that are based on the NYSDEC TOGs

(NYSDEC 1998); most stringent values listed.

⁽²⁾ Well N-10631 was observed to be filled with approximately 22 feet of sediment in July 2021 and therefore was not sampled in 2022 or 2023. A new well N-10631R was installed in Q4 of 2023 and results for this well are included in the table.

Samples analyzed for Cadmium and Chromium using USEPA Method 6010C; Total indicates unfiltered sample and Dissolved indicates filtered sample.

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

Location of monitoring well relative to former Northrop Grumman Plants 1 and 2.

Bold value indicates : Not analyzed

--	Compound not detected above its laboratory quantification limit
< 3.0	Micrograms per liter
µg/L	New York State Department of Environmental Conservation
NYSDEC	Operable Unit 2
OU2	Blind Duplicate Sample
REP	Technical Operational and Guidance Series
TOGs	United States Environmental Protection Agency
USEPA	Compound detected in exceedance of NYSDEC SCG Criteria

Table 15
Summary of 1,4-Dioxane Concentrations in Groundwater for 2023
Operable Unit 2
Northrop Grumman
Bethpage, New York



Well ID	Sample ID	Sample Date	1,4-Dioxane (µg/L)
Zone 1			
BPOW 1-1	BPOW 1-1	6/9/2023	0.146 BJ
FW-03	FW-03	5/30/2023	< 0.24
GM-13D	GM-13D	5/30/2023	3.1
GM-15I	GM-15I	4/18/2023	0.61 J
GM-15I	GM-15I	10/24/2023	1.0
GM-15SR	GM-15SR	4/18/2023	0.67 J
GM-15SR	GM-15SR	10/24/2023	1.9
GM-17D	GM-17D	4/11/2023	3.9
GM-17D	GM-17D	10/17/2023	6.8
GM-17I	GM-17I	4/11/2023	3.8
GM-17I	GM-17I	10/17/2023	1.4
GM-18D	GM-18D	6/12/2023	5.3
GM-18D	GM-18D	10/26/2023	9.1
GM-18I	GM-18I	6/12/2023	2.4 J
GM-18I	GM-18I	10/26/2023	7.5
GM-20D	GM-20D	4/24/2023	4.8
GM-20D	GM-20D	6/15/2023	3.6
GM-20I	GM-20I	6/15/2023	3.7
GM-21D	GM-21D	4/19/2023	4.0 J
GM-21I	GM-21I	6/15/2023	3.9
GM-21S	GM-21S	4/19/2023	4.1 J
GM-36D	GM-36D	6/5/2023	0.54
GM-37D	GM-37D	6/5/2023	0.15 J
GM-39DA	GM-39DA	6/14/2023	1.1
GM-39DA	GM-39DA	10/25/2023	2.5
GM-74I	GM-74I	4/10/2023	5.7
GM-74I	GM-74I	10/16/2023	2.9
GM-78I	GM-78I	4/12/2023	1.5
GM-78S	GM-78S	4/12/2023	3.5
GM-79D	GM-79D	4/13/2023	4.3
GM-79D	GM-79D	10/19/2023	5.6
GM-79I	GM-79I	4/13/2023	2.4
GM-79I	GM-79I	10/19/2023	4.8
HN-24I	HN-24I	4/17/2023	0.44
HN-40I	HN-40I	4/17/2023	0.20 J
HN-40S	HN-40S	4/17/2023	< 0.24
HN-42I	HN-42I	10/17/2023	0.42
HN-42S	HN-42S	10/17/2023	< 0.24
N-10624	N-10624	6/6/2023	2.2
N-10631R	N-10631R	10/26/2023	5.6
N-10631R	REP102623PQ1	10/26/2023	4.2

Notes and Abbreviations on last page

Table 15
Summary of 1,4-Dioxane Concentrations in Groundwater for 2023
Operable Unit 2
Northrop Grumman
Bethpage, New York



Well ID	Sample ID	Sample Date	1,4-Dioxane (µg/L)
Zone 2			
BPOW 1-2	BPOW 1-2	6/9/2023	< 0.200
BPOW 1-2	BPOW 1-2	9/19/2023	< 0.200
BPOW 1-2	BPOW 1-2	11/2/2023	0.091 J
BPOW 1-3	BPOW 1-3	6/9/2023	< 0.200
BPOW 1-4	BPOW 1-4	6/13/2023	0.246 B
BPOW 1-4	BPOW 1-4	9/20/2023	0.196 J
BPOW 1-4	BPOW 1-4	10/30/2023	0.38
BPOW 2-1	BPOW 2-1	2/21/2023	0.323
BPOW 2-1	BPOW 2-1	5/1/2023	0.970
BPOW 2-1	BPOW 2-1	8/29/2023	2.97
BPOW 2-1	BPOW 2-1	11/2/2023	1.1
BPOW 2-1	REP11223PQ1	11/2/2023	1.1
BPOW 2-2	BPOW 2-2	2/21/2023	0.596
BPOW 2-2	BPOW 2-2	5/1/2023	0.633
BPOW 2-2	BPOW 2-2	8/29/2023	0.415
BPOW 2-2	BPOW 2-2	11/2/2023	0.77
BPOW 3-1	BPOW 3-1	5/1/2023	0.657
BPOW 3-1	BPOW 3-1	11/2/2023	1.1
GM-15D	GM-15D	4/18/2023	0.093 J
GM-15D	GM-15D	10/24/2023	< 0.23
GM-34D	GM-34D	4/13/2023	5.7
GM-34D	GM-34D	10/19/2023	6.0
GM-37D2	GM-37D2	6/5/2023	0.13 J
GM-38D	GM-38D	4/11/2023	2.2
GM-38D	REP041123SH1	4/11/2023	2.8
GM-38D	GM-38D	10/23/2023	2.4
GM-38D2	GM-38D2	4/11/2023	1.9
GM-38D2	GM-38D2	10/23/2023	3.1
GM-39DB	GM-39DB	6/14/2023	0.63
GM-39DB	GM-39DB	10/25/2023	2.1
GM-70D2	GM-70D2	4/11/2023	3.5
GM-71D2	GM-71D2	4/11/2023	2.8
GM-73D	GM-73D	4/10/2023	1.6
GM-73D	GM-73D	10/23/2023	1.3
GM-73D	REP102323AH1	10/23/2023	1.1
GM-74D	GM-74D	4/10/2023	5.6
GM-74D	GM-74D	10/16/2023	6.7
GM-78D	GM-78D	4/12/2023	5.7
GM-78D	GM-78D	10/25/2023	9.8
GM-78D2	GM-78D2	4/12/2023	5.8
GM-78D2	GM-78D2	10/25/2023	12

Notes and Abbreviations on last page

Table 15
Summary of 1,4-Dioxane Concentrations in Groundwater for 2023
Operable Unit 2
Northrop Grumman
Bethpage, New York



Well ID	Sample ID	Sample Date	1,4-Dioxane (µg/L)
Zone 2 (cont'd)			
MW-3-1	MW-3-1	4/17/2023	6.7
MW-3-1	MW-3-1	10/26/2023	6.3
WELL 3R	WELL 3R	2/7/2023	7.4
WELL 3R	REP-020723-PD-1	2/7/2023	9.3
WELL 3R	WELL 3R	5/10/2023	5.8 B
Well 3R	REP-051023-KC-1	5/10/2023	4.0 B
WELL 3R	WELL 3R	8/30/2023	7.0
WELL 3R	REP-083023-PD-1	8/30/2023	5.9
WELL 3R	WELL 3R	11/7/2023	8.3
Well 3R	REP-110723-LW	11/7/2023	9.1
Zone 3			
BPOW 1-5	BPOW 1-5	6/13/2023	< 0.200
BPOW 1-5	BPOW 1-5	9/20/2023	< 0.200
BPOW 1-5	BPOW 1-5	10/30/2023	< 0.20
BPOW 2-3	BPOW 2-3	2/21/2023	3.33
BPOW 2-3	BPOW 2-3	5/1/2023	4.69
BPOW 2-3	BPOW 2-3	8/29/2023	3.55
BPOW 2-3	REP082923PQ1	8/29/2023	4.26
BPOW 2-3	BPOW 2-3	11/2/2023	5.8
BPOW 3-2	BPOW 3-2	11/2/2023	4.6
BPOW 3-3	BPOW 3-3	6/9/2023	8.40 B
BPOW 3-3	BPOW 3-3	8/28/2023	8.82
BPOW 3-3	BPOW 3-3	10/30/2023	11.9
BPOW 3-3	REP103023SV1	10/30/2023	12.0
BPOW 3-4	BPOW 3-4	6/9/2023	8.99 B
BPOW 3-4	REP060923PQ1	6/9/2023	9.99 B
BPOW 3-4	BPOW 3-4	8/28/2023	10.6
BPOW 3-4	BPOW 3-4	10/30/2023	16.7
BPOW 4-1R	BPOW 4-1R	6/12/2023	3.49 B
BPOW 4-1R	BPOW 4-1R	8/28/2023	4.42
BPOW 4-1R	BPOW 4-1R	11/6/2023	6.1
GM-15D2	GM-15D2	4/18/2023	1.8 J
GM-15D2	GM-15D2	10/24/2023	3.2
GM-15D2	REP102423PQ1	10/24/2023	2.1
GM-21D2	GM-21D2	2/23/2023	2.7
GM-21D2	GM-21D2	4/19/2023	3.5 J
GM-21D2	GM-21D2	9/7/2023	R
GM-21D2	GM-21D2	10/25/2023	5.3
GM-33D2	GM-33D2	6/6/2023	6.2
GM-33D2	GM-33D2	10/26/2023	4.2
GM-34D2	GM-34D2	4/13/2023	3.2

Notes and Abbreviations on last page

Table 15
Summary of 1,4-Dioxane Concentrations in Groundwater for 2023
Operable Unit 2
Northrop Grumman
Bethpage, New York



Well ID	Sample ID	Sample Date	1,4-Dioxane (µg/L)
Zone 3 (cont'd)			
GM-34D2	GM-34D2	10/19/2023	7.8
GM-35D2	GM-35D2	4/19/2023	4.2 J
GM-35D2	GM-35D2	10/23/2023	5.8
GM-36D2	GM-36D2	6/5/2023	2.2
GM-73D2	GM-73D2	4/10/2023	1.5
GM-73D2	GM-73D2	10/23/2023	1.0
GM-73D3	GM-73D3	4/10/2023	1.1
GM-73D3	GM-73D3	10/23/2023	1.5
GM-74D2	GM-74D2	4/10/2023	3.3
GM-74D2	GM-74D2	10/16/2023	2.0
GM-74D2	REP101623PQ1	10/16/2023	2.7
GM-74D3	GM-74D3	5/30/2023	0.71
GM-74D3	GM-74D3	10/16/2023	1.1
GM-75D2	GM-75D2	6/6/2023	4.0
GM-75D2	GM-75D2	10/26/2023	8.2
WELL 1	WELL 1	2/7/2023	7.4
WELL 1	WELL 1	5/10/2023	4.5 B
WELL 1	WELL 1	8/30/2023	6.1
WELL 1	WELL 1	11/7/2023	5.5
WELL 17	WELL 17	2/7/2023	7.6
WELL 17	WELL 17	5/18/2023	5.0
WELL 17	WELL 17	8/30/2023	6.2
WELL 17	WELL 17	11/7/2023	7.4
WELL 18	WELL 18	2/7/2023	4.6
WELL 18	WELL 18	5/18/2023	2.2
WELL 18	WELL 18	8/30/2023	3.9
WELL 18	WELL 18	11/7/2023	4.4
WELL 19	WELL 19	2/7/2023	3.5
WELL 19	WELL 19	5/18/2023	2.5
WELL 19	WELL 19	8/30/2023	3.1
WELL 19	WELL 19	11/7/2023	3.3
Zone 4			
BPOW 1-6	BPOW 1-6	6/13/2023	< 0.200
BPOW 1-6	BPOW 1-6	9/20/2023	< 0.200
BPOW 1-6	BPOW 1-6	10/30/2023	< 0.20
BPOW 4-2R	BPOW 4-2R	6/12/2023	1.25 B
BPOW 4-2R	BPOW 4-2R	9/19/2023	1.96
BPOW 4-2R	BPOW 4-2R	11/6/2023	< 0.20

Notes and Abbreviations on last page

Table 15
Summary of 1,4-Dioxane Concentrations in Groundwater for 2023
Operable Unit 2
Northrop Grumman
Bethpage, New York



Notes and Abbreviations:

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

Samples were analyzed for 1,4-Dioxane using USEPA Method 8270D SIM, except for outpost wells (BPOW designation in Well ID) which were analyzed using USEPA Method 522.

Bold value indicates constituent detected.

< 0.20	Compound not detected above its laboratory quantification limit
ID	Identification
µg/L	micrograms per liter
J	Value is estimated concentration
B	Analyte found in associated method blank
R	The sample results are rejected. (unusable data point)
REP	Blind Duplicate Sample
OU2	Operable Unit 2
USEPA	United States Environmental Protection Agency
SIM	Selective Ion Monitoring

Table 16
 Percent Change in Total Volatile Organic Compounds Over Time
 in Monitoring and Remedial Wells
 Operable Unit 2
 Northrop Grumman
 Bethpage, New York



Well ID	Highest Historical TVOC Concentration		Current TVOC Concentration ⁽¹⁾		Percent Change From Highest Historical TVOC Concentration
	Date	µg/L	Date	µg/L	
Upgradient From OU2 ONCT System					
Zone 1					
FW-03	1/3/2002	64.9	5/30/2023	2.5	-96.1%
GM-13D	3/23/2000	2,401	5/30/2023	31.5	-98.7%
HN-24I	12/1/1991	58,034	4/17/2023	6.7	-100.0%
HN-40I	12/22/2003	53.3	4/17/2023	1.7	-96.8%
HN-40S	3/17/2006	8.0	4/17/2023	ND	-100.0%
HN-42I	7/8/2009	27.4	10/17/2023	ND	-100.0%
HN-42S	3/18/2003	5.0	10/17/2023	ND	-100.0%
Zone 2					
MW-3-1	3/28/2012	1,620	10/26/2023	159	-90.2%
Average Upgradient:	--	7,777	--	40.3	-99.5%
Proximate to OU2 ONCT System					
Zone 1					
GM-15SR	6/28/2017	11.1	10/24/2023	0.68	-93.9%
GM-15I	2/24/2010	38.2	10/24/2023	ND	-100.0%
GM-17D	12/27/2001	3.0	10/17/2023	ND	-100.0%
GM-17I	3/28/2003	2.5	10/17/2023	ND	-100.0%
GM-18D	4/11/2006	12.9	10/26/2023	ND	-100.0%
GM-18I	10/29/1991	14.0	10/26/2023	ND	-100.0%
GM-20D	6/28/2018	50.2	6/15/2023	ND	-100.0%
GM-20I	6/5/2001	899	6/15/2023	ND	-100.0%
GM-21D	9/10/2019	8.0	4/19/2023	ND	-100.0%
GM-21I	10/23/1991	17.0	6/15/2023	ND	-100.0%
GM-21S	10/22/1991	7.0	4/19/2023	ND	-100.0%
GM-39DA	3/23/2004	42.0	10/25/2023	1.0	-97.6%
GM-74I	12/9/2013	1.4	10/16/2023	ND	-100.0%
GM-78I	1/9/2002	7.0	4/12/2023	ND	-100.0%
GM-78S	6/18/2002	8.8	4/12/2023	ND	-100.0%
GM-79D	4/7/2003	116	10/19/2023	12.5	-89.2%
GM-79I	2/14/2012	31.4	10/19/2023	0.9	-97.1%
Zone 2					
RE123D1	9/29/2015	22.1	3/27/2023	ND	-100.0%
GM-15D	10/8/2001	39.9	10/24/2023	ND	-100.0%
GM-39DB	1/7/2003	111	10/25/2023	30.7	-72.3%
GM-73D	10/18/2002	780	10/23/2023	148.0	-81.0%
GM-74D	2/5/2001	87.0	10/16/2023	2.3	-97.4%
GM-78D	4/26/2013	4.8	10/25/2023	0.67	-86.0%
GM-78D2	5/4/2017	1.6	10/25/2023	16.72	945.0%
Zone 3					
RE123D2	3/9/2017	9.7	3/28/2023	4.25	-56.2%
GM-15D2	3/21/2003	36.5	10/24/2023	8.6	-76.4%
GM-21D2	2/11/2016	278	10/25/2023	5.9	-97.9%
GM-33D2	11/2/1994	16,000	10/26/2023	6.1	-100.0%
GM-73D2	11/22/2002	1,204	10/23/2023	37.3	-96.9%
GM-73D3	10/8/2019	3.3	10/23/2023	15.06	356.4%
GM-74D2	3/22/2004	26.8	10/16/2023	26.7	-0.4%
GM-74D3	6/13/2015	11.5	10/16/2023	6.4	-44.4%
Zone 4					
RE123D3	3/9/2017	0.95	3/28/2023	0.23	-75.8%
Average Proximate:	--	603	--	18.0	-97.0%

Notes and Abbreviations on last page

Table 16
 Percent Change in Total Volatile Organic Compounds Over Time
 in Monitoring and Remedial Wells
 Operable Unit 2
 Northrop Grumman
 Bethpage, New York



Well ID	Highest Historical TVOC Concentration		Current TVOC Concentration		Percent Change From Highest Historical Concentration
	Date	µg/L	Date	µg/L	
Near Central Downgradient of OU2 ONCT System					
Zone 1					
GM-37D	9/7/1999	41.0	6/5/2023	9.1	-77.8%
N-10624	10/26/2023	1.2	10/26/2023	1.2	-100.0%
Zone 2					
GM-37D2	7/13/2000	29.0	6/5/2023	1.39	-95.2%
Zone 3					
GM-75D2	10/3/2002	1,566	10/26/2023	16.07	-99.0%
RE109D1	12/19/2018	31.2	11/7/2023	ND	-100.0%
RE109D2	9/17/2019	53.8	11/7/2023	30.1	-44.1%
RE109D3	9/17/2019	91.0	11/7/2023	26.1	-71.3%
RE126D1	12/7/2017	87.5	3/14/2023	14.4	-83.5%
RE126D2	6/22/2021	575.0	8/14/2023	272.59	-52.6%
RE126D3	3/10/2017	19.8	8/4/2023	3.2	-83.9%
Average Near:	--	227	--	37.4	-83.5%
Far Central Downgradient of OU2 ONCT System					
Zone 1					
GM-36D	8/23/1993	255	6/5/2023	ND	-100.0%
Zone 2					
GM-34D	11/30/2006	1,172	10/19/2023	74.3	-93.7%
GM-36D2	6/26/2018	5.3	6/5/2023	5.1	-3.8%
GM-70D2	12/16/1996	314	4/11/2023	6.4	-98.0%
GM-71D2	4/12/2016	26.5	4/11/2023	8.4	-68.3%
Zone 3					
GM-34D2	6/9/2005	415	10/19/2023	41.0	-90.1%
GM-35D2	10/3/2002	455	10/23/2023	20.9	-95.4%
RE108D1	9/24/2014	143.87	5/23/2023	27.4	-81.0%
RE108D2	3/12/2014	4,653	5/23/2023	2400	-48.4%
RE122D1	9/9/2019	765	5/16/2023	318.9	-58.3%
RE122D2	9/9/2019	6,343	5/16/2023	3600	-43.3%
Zone 4					
RE122D3	3/13/2017	15.50	5/16/2023	2.20	-85.8%
Average Far:	--	1,214	--	717.5	-40.9%
GM-38 Area Downgradient of OU2 ONCT System					
Zone 2					
GM-38D	12/11/1996	1,622	10/23/2023	139	-91.4%
GM-38D2	7/1/2002	2,012	10/23/2023	129.0	-93.6%
Average GM-38 Area:	--	1,817	--	133.9	-92.6%
Plume Monitoring (Former Outpost) Wells Downgradient of OU2 ONCT System					
Zone 1					
BPOW 1-1	4/30/2004	30.2	6/9/2023	0.88	-97.1%
Zone 2					
BPOW 1-2	6/7/2016	1.6	11/2/2023	0.47	-70.6%
BPOW 1-3	6/18/2007	16.0	6/9/2023	ND	-100.0%
BPOW 1-4	11/8/2017	0.2	10/30/2023	ND	-100.0%
BPOW 2-1	6/19/2007	230	11/2/2023	ND	-100.0%
BPOW 2-2	1/17/2006	2.6	11/2/2023	ND	-100.0%
BPOW 3-1	6/4/2019	0.2	11/2/2023	ND	-100.0%
Zone 3					
BPOW 1-5	8/10/2011	0.00	10/30/2023	ND	-100.0%
BPOW 2-3	12/22/2011	0.6	11/2/2023	ND	-100.0%
BPOW 3-2	10/21/2003	0.3	11/2/2023	ND	-100.0%
BPOW 3-3	8/11/2011	0.0	10/30/2023	0.8	-100.0%
BPOW 3-4	8/11/2011	43.5	10/30/2023	227	421.8%
BPOW 4-1R	12/30/2014	8.8	11/6/2023	29.4	234.1%

Notes and Abbreviations on last page

Table 16
 Percent Change in Total Volatile Organic Compounds Over Time
 in Monitoring and Remedial Wells
 Operable Unit 2
 Northrop Grumman
 Bethpage, New York



Well ID	Highest Historical TVOC Concentration		Current TVOC Concentration		Percent Change From Highest Historical Concentration
	Date	µg/L	Date	µg/L	
Zone 4					
BPOW 1-6	11/29/2016	0.1	10/30/2023	ND	-100.0%
BPOW 4-2R	12/30/2014	11.7	11/6/2023	7.9	-32.5%
Average Plume Monitoring Wells:	--	23.0	--	44.4	93.0%
ONCT Remedial Wells					
Zone 2					
Well 3R	12/13/2017	647	11/7/2023	238	-63.2%
Zone 3					
Well 1	3/17/1989	14,362	11/7/2023	502	-96.5%
Well 17	3/5/1998	7,200	11/7/2023	145	-98.0%
Well 18	10/16/2000	221	11/7/2023	47.7	-78.4%
Well 19	2/27/2012	237	11/7/2023	70	-70.5%
Average ONCT Wells:	--	4,533	--	200	-95.6%

Notes and Abbreviations:

Yellow color indicates % increase from historical high concentration.

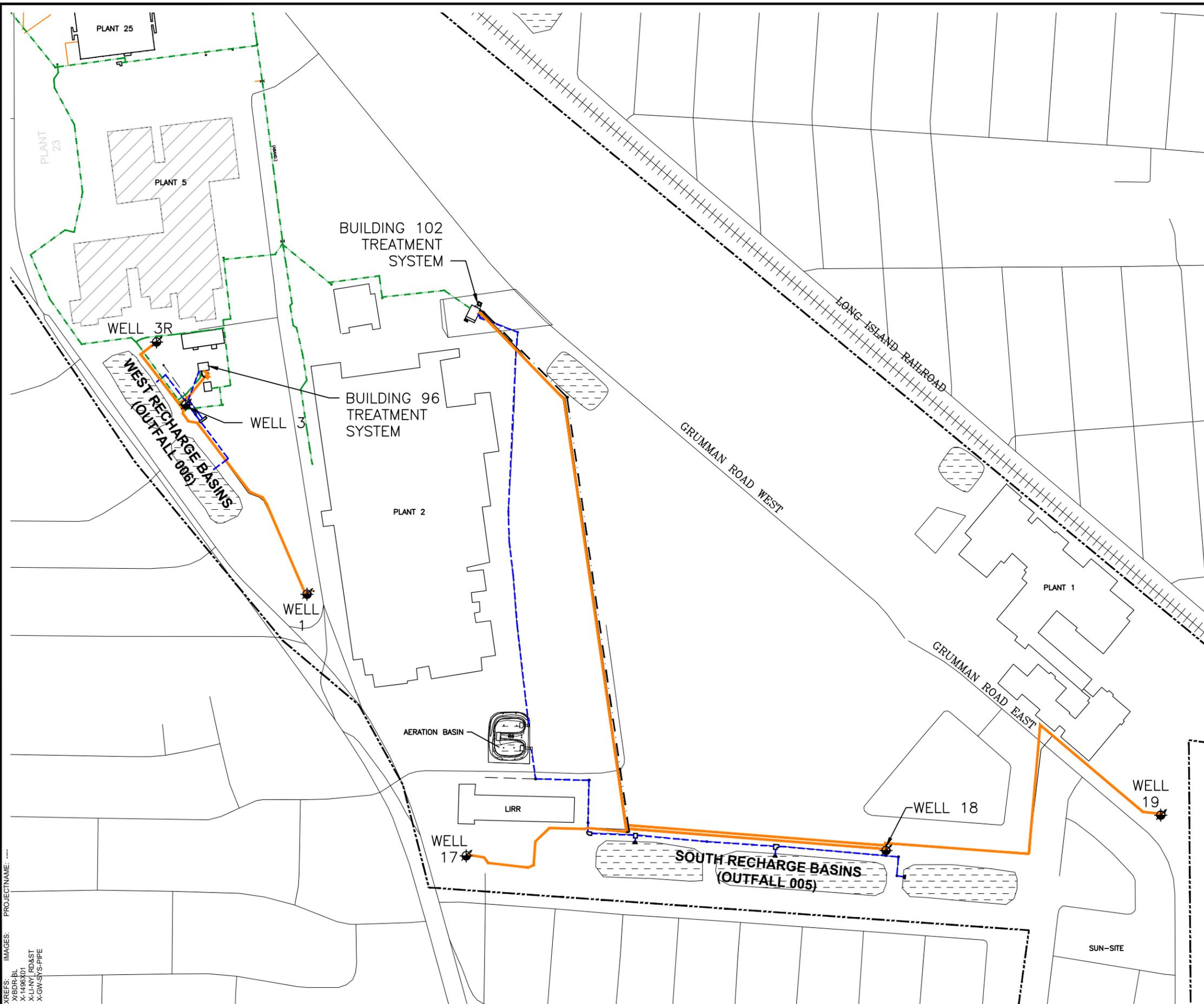
Green color indicates % decrease from historical high concentration.

ND Non-Detect
 NA Not Applicable

⁽¹⁾ 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.

Figures

CITY:SYRACUSE,NY DIV:GROUPEPENY DBA:SANJHEZ LD:ALS DFC:(G)I TH:(G)I LVR:(G)ONCT-GW-ETS-SITEPLAN.dwg LAYOUT:2 SAVED:3/28/2024 11:57 AM ACADVER:24.23 (LMS TECH) PAGES:1/1 PLOTSTYLETABLE:--- PLOTSETUP:--- BY:SMALL,BRIAN
 XREFS: IMAGES: PROJECTNAME: ---
 XBD:R-BL
 X-1486(K)I
 X-LIN:LRD&ST
 X-GW-SYS-PIPE



LEGEND:

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

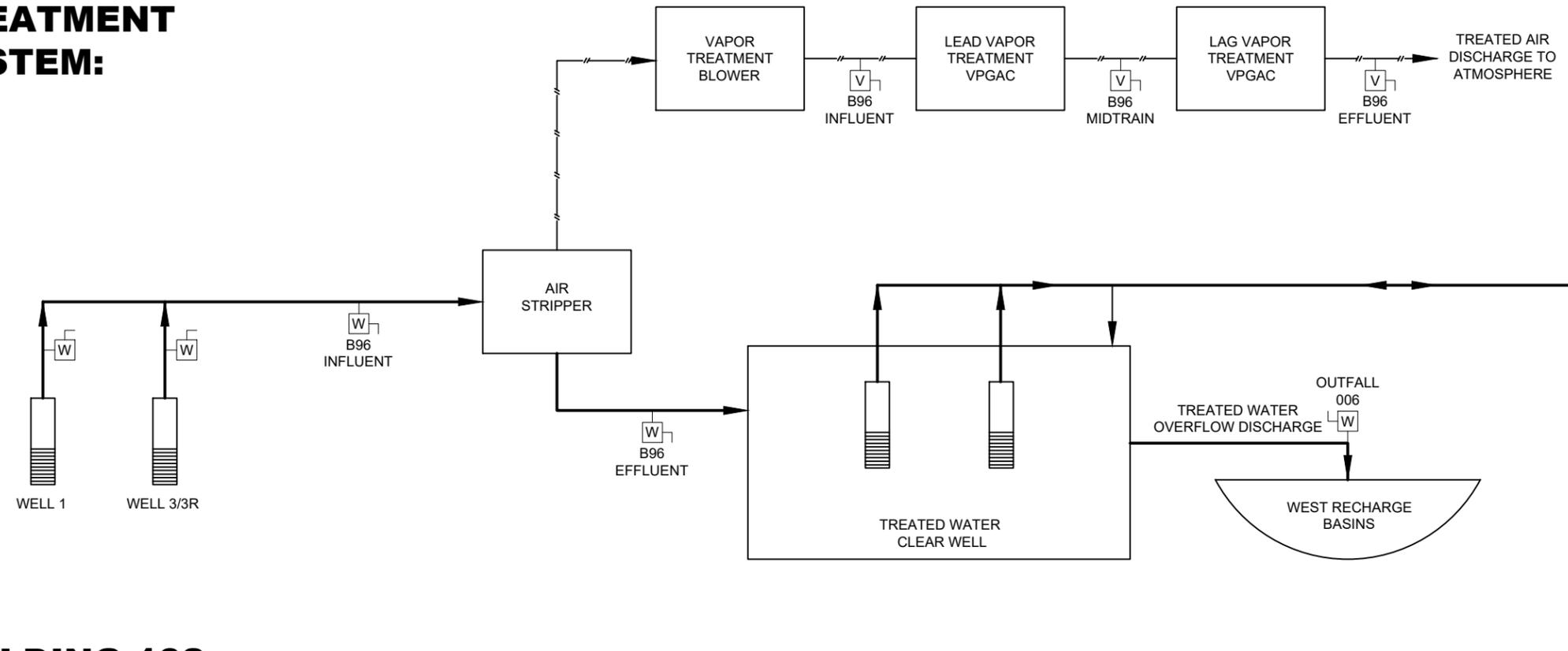
NOTES:

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.

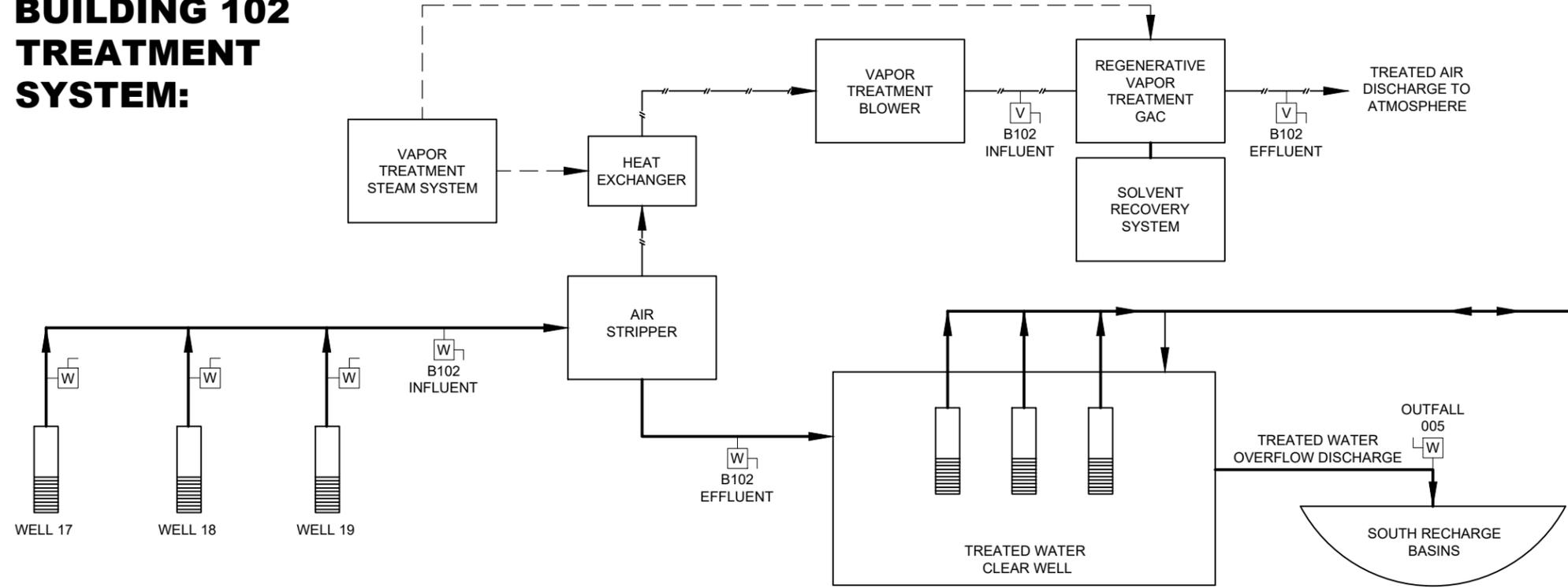
NORTHROP GRUMMAN BETHPAGE, NEW YORK OPERABLE UNIT 2	
ONCT GROUNDWATER EXTRACTION AND TREATMENT SYSTEM SITE PLAN	
	FIGURE 2

CITY: MANCHESTER DIV/GRP: ENV/CAD DB: B.SMALL PM: TM
 C:\Users\BSSMAIL\OneDrive\Documents\ARCADIS\ACC US\AUS-9898989-NOR GRUM_BETHPAGE_NY\Project Files\10_WIP\101_ARC_ENV\202401-DWG\OU2-F03-GWE SYSTEM.dwg LAYOUT: 3
 PLOTTED: 3/28/2024 12:05 PM BY: SMALL, BRIAN
 XREFS: IMAGES: PROJECTNAME: ---
 PAGES: 24.2S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLTFULL.CTB

BUILDING 96 TREATMENT SYSTEM:



BUILDING 102 TREATMENT SYSTEM:



NOTE:
 SCHEMATIC REPRESENTS SYSTEM CONFIGURATIONS
 AT THE TIME OF SAMPLE LOCATION EVENTS, AFTER
 B96 RECONFIGURATION TO BYPASS THE
 REGENERATIVE VAPOR-PHASE GAC COMPONENTS

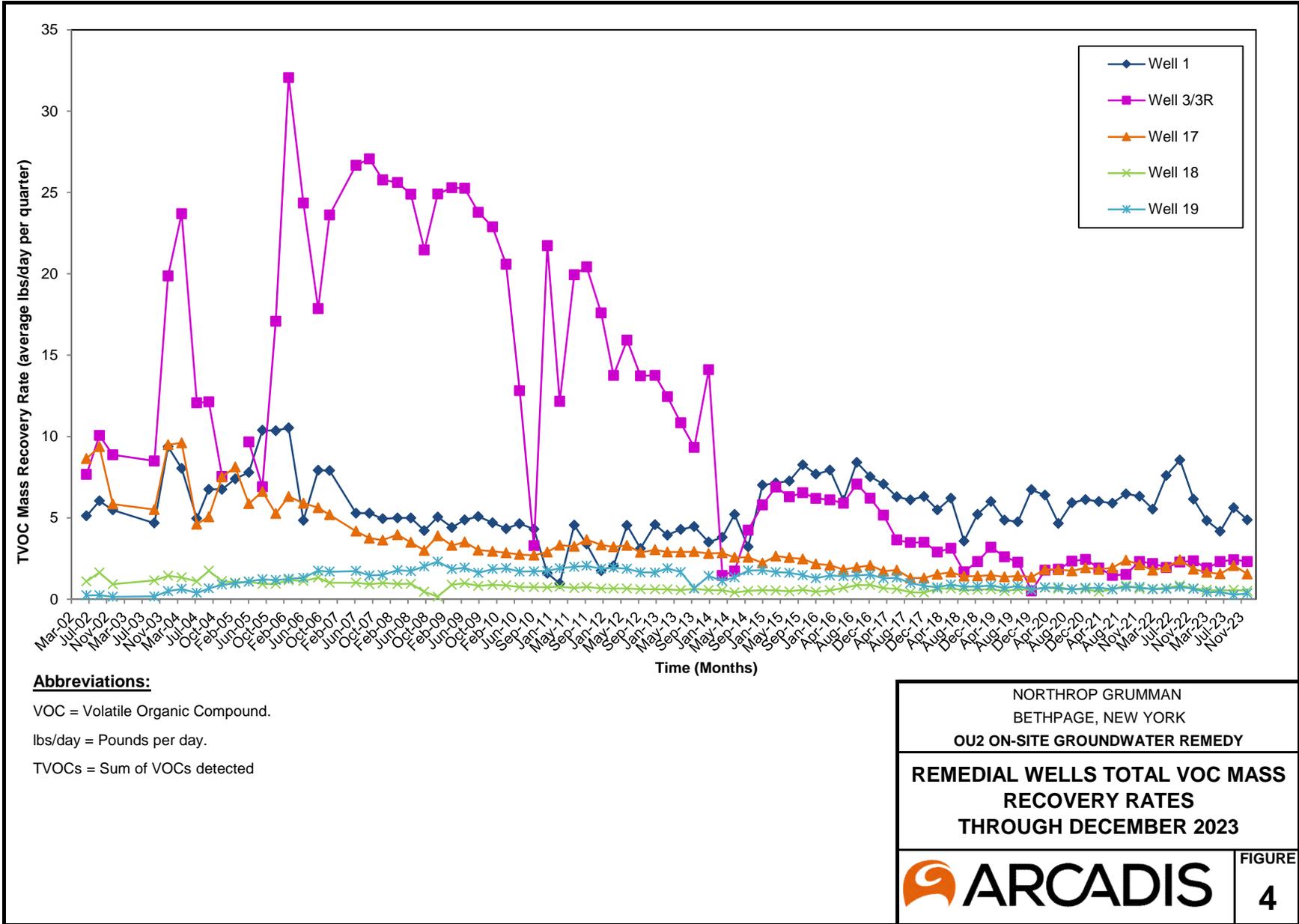
- LEGEND:
- PROCESS WATER
 - - - PROCESS AIR
 - - - - STEAM
 - W SAMPLE LOCATION
 - W WATER SAMPLE
 - V VAPOR SAMPLE
 - ONCT ON-SITE CONTAMINANT

NORTHROP GRUMMAN
 BETHPAGE, NEW YORK
OPERABLE UNIT 2

**ONCT GROUNDWATER
 EXTRACTION AND TREATMENT
 SYSTEM SCHEMATIC**

ARCADIS

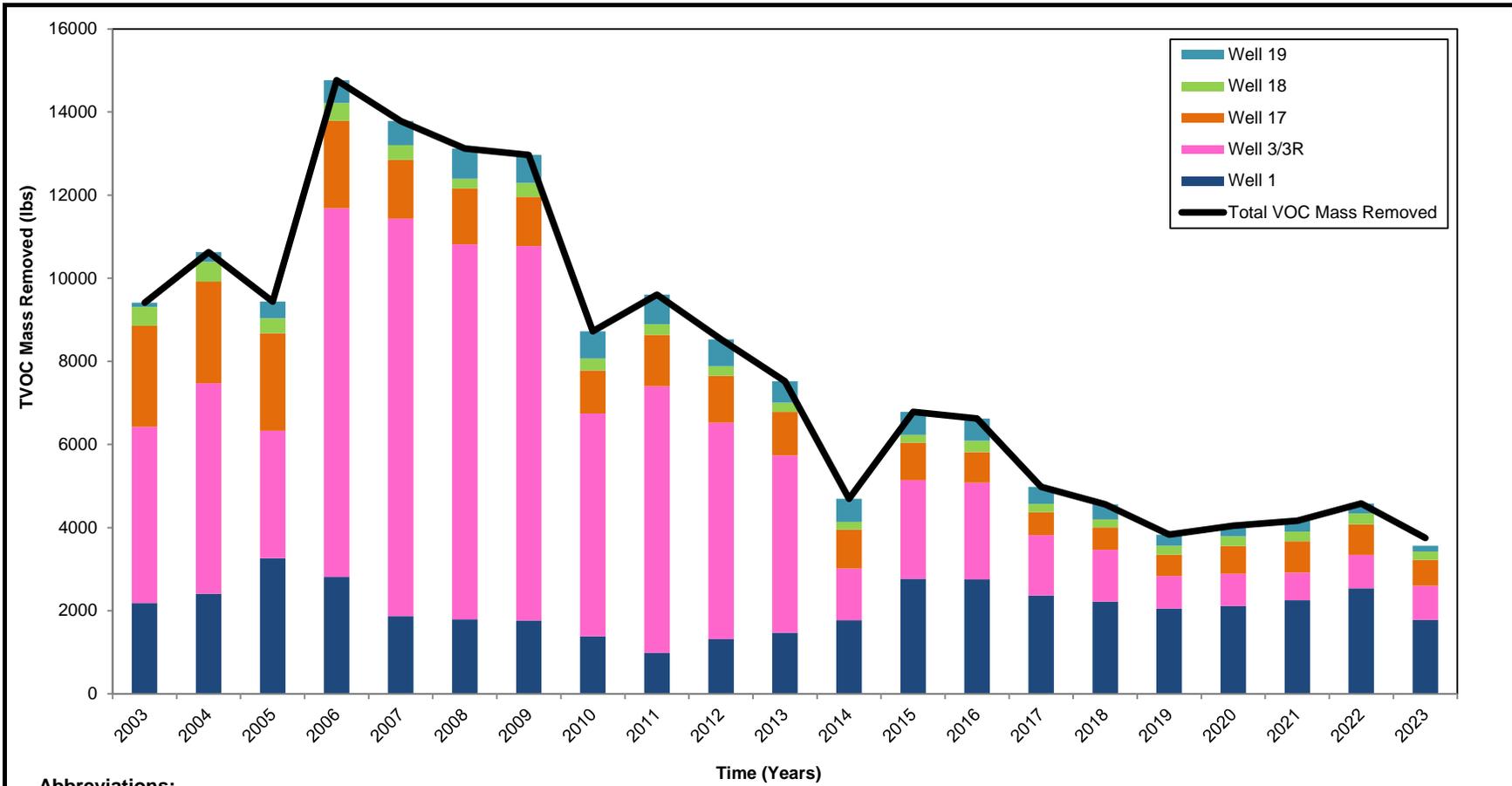
FIGURE
3



NORTHROP GRUMMAN
 BETHPAGE, NEW YORK
 OU2 ON-SITE GROUNDWATER REMEDY

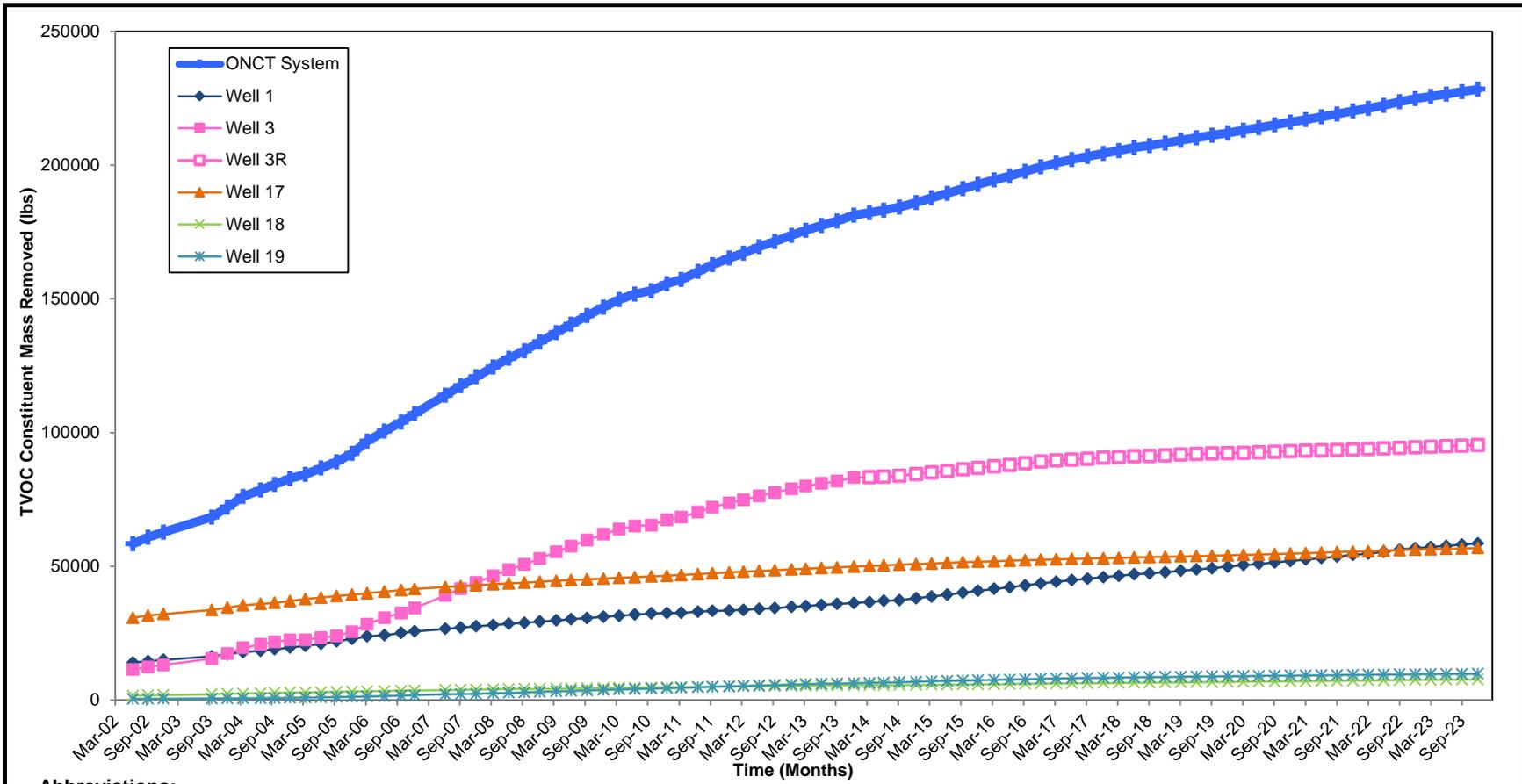
REMEDIAL WELLS TOTAL VOC MASS RECOVERY RATES THROUGH DECEMBER 2023

ARCADIS **FIGURE 4**



Abbreviations:
 VOC = Volatile Organic Compound
 lbs = Pounds
 TVOCs = Sum of VOCs detected

NORTHROP GRUMMAN BETHPAGE, NEW YORK OU2 ON-SITE GROUNDWATER REMEDY	
REMEDIAL WELLS YEARLY TOTAL VOC MASS REMOVED THROUGH DECEMBER 2023	
	FIGURE 5



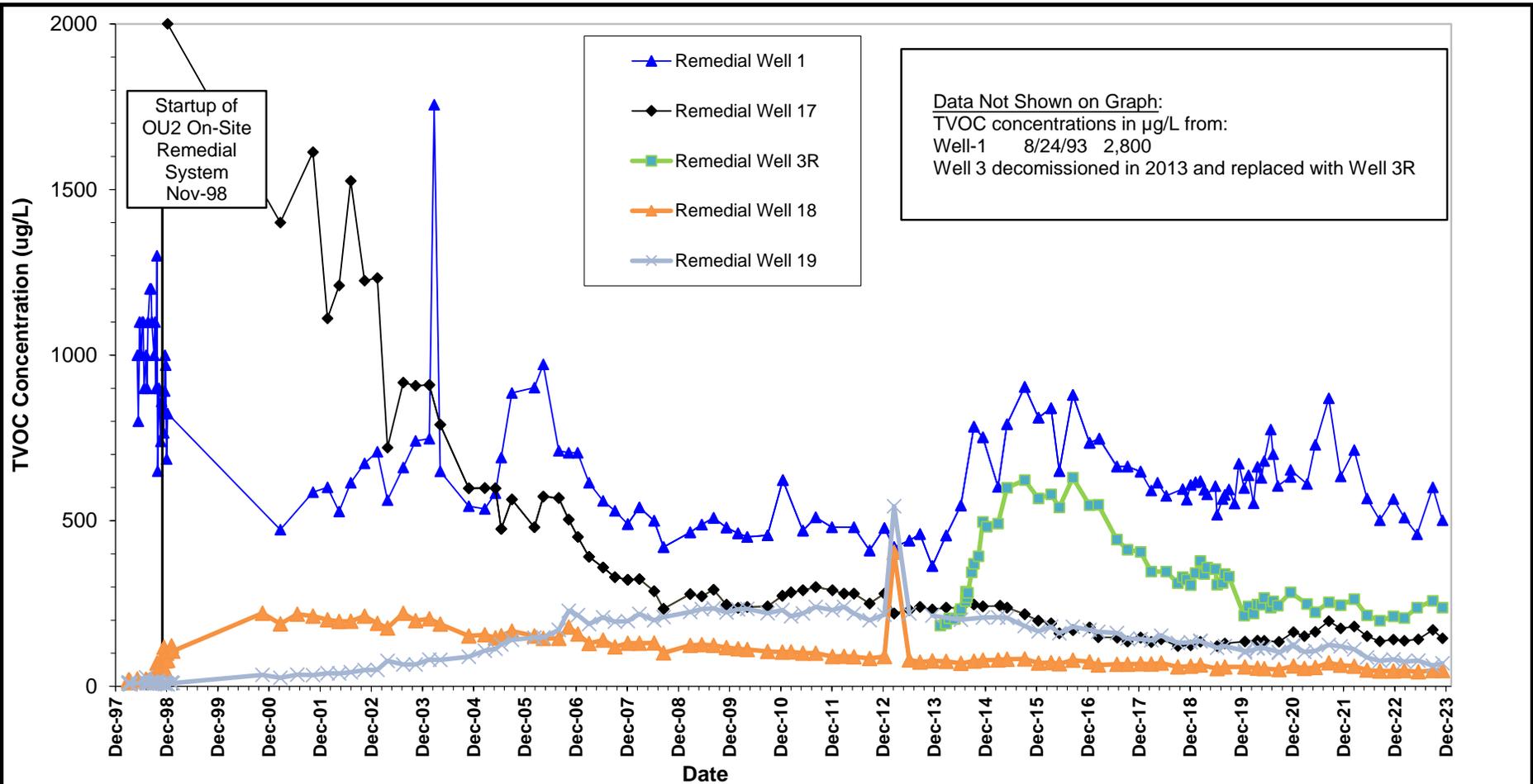
Abbreviations:

VOC = Volatile Organic Compound
 lbs = Pounds
 TVOCs = Sum of VOCs detected
 ONCT = On-Site Containment

Notes:

1. Cumulative Total VOC Mass Removed includes mass removed since startup of the ONCT system in September 1998.

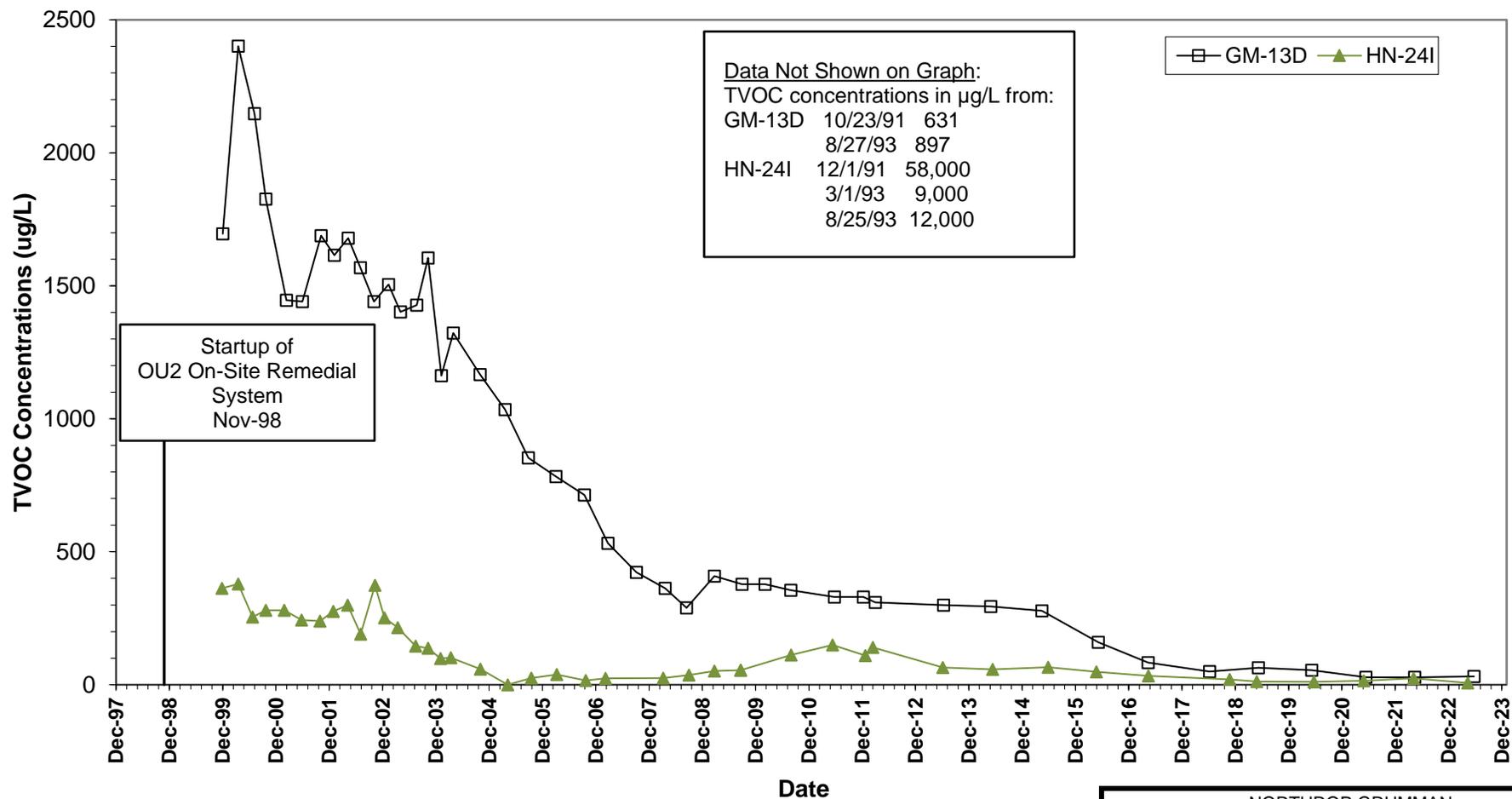
NORTHROP GRUMMAN BETHPAGE, NEW YORK OU2 ON-SITE GROUNDWATER REMEDY	
REMEDIAL WELLS CUMULATIVE TOTAL VOC MASS REMOVED THROUGH DECEMBER 2023	
	FIGURE 6



Notes and Abbreviations:

TVOC: Total volatile organic compound
 Total VOCs: Sum of VOCs detected
 $\mu\text{g/L}$: micrograms per liter

NORTHROP GRUMMAN BETHPAGE, NEW YORK OPERABLE UNIT 2	
Total Volatile Organic Compound Concentrations in On-Site Zone 3 OU2 Remedial Wells	
	FIGURE 7



Notes and Abbreviations:

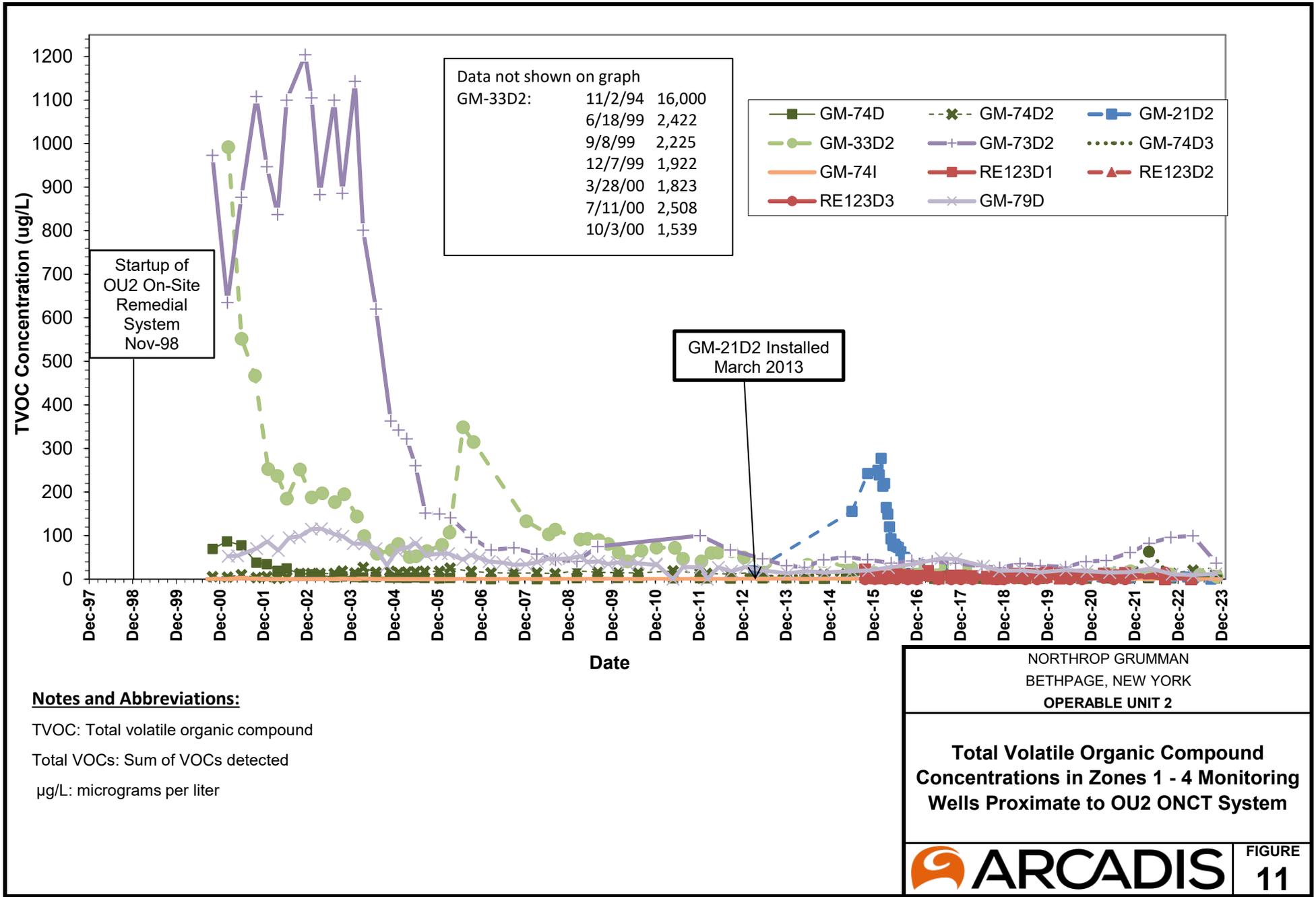
TVOC: Total volatile organic compound
 Total VOCs: Sum of VOCs detected
 $\mu\text{g/L}$: micrograms per liter

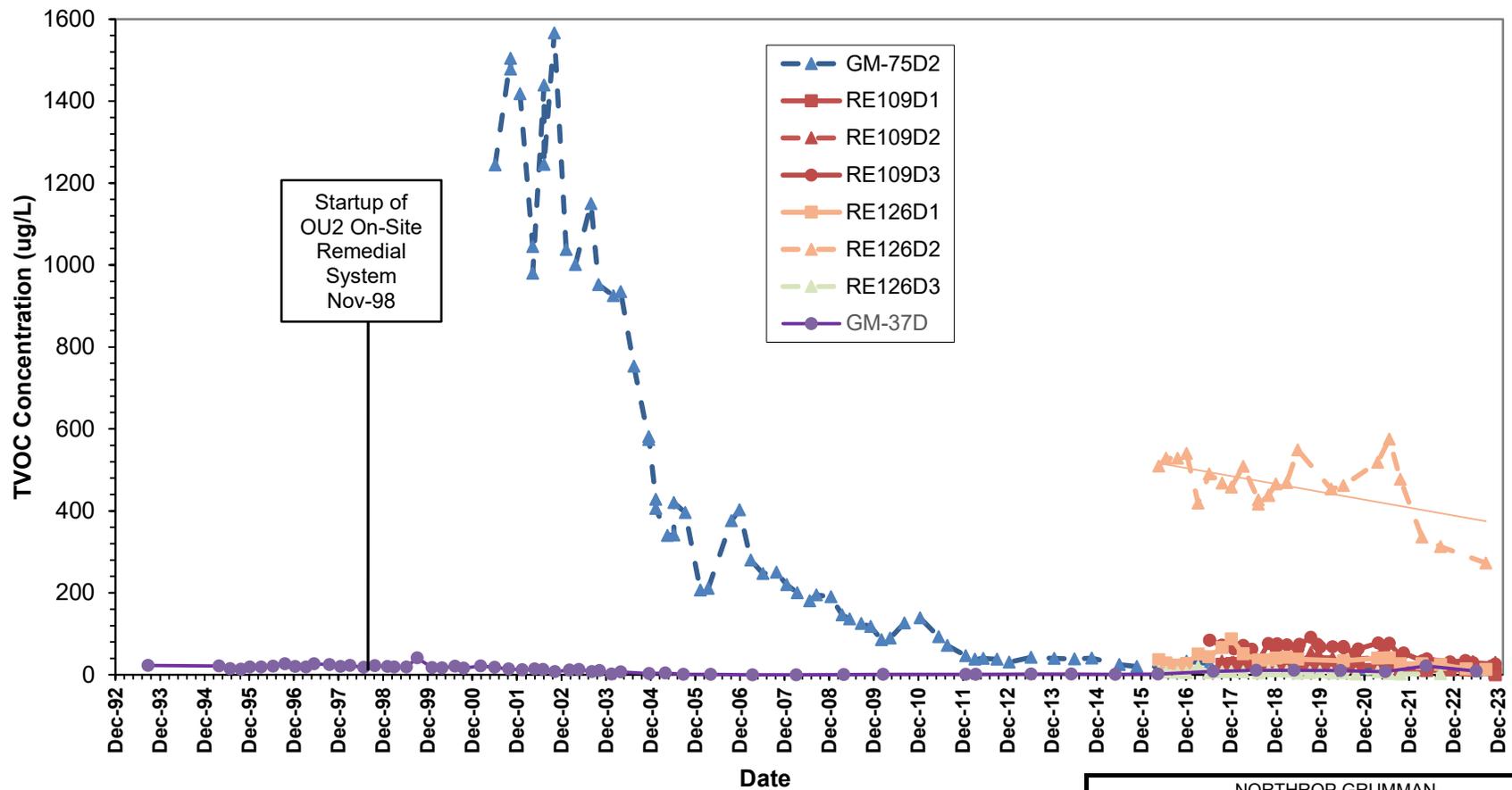
NORTHROP GRUMMAN
 BETHPAGE, NEW YORK
 OPERABLE UNIT 2

**Total Volatile Organic Compound
 Concentrations in Zone 1 Monitoring
 Wells Upgradient of OU2 ONCT System**

 **ARCADIS**

FIGURE
10

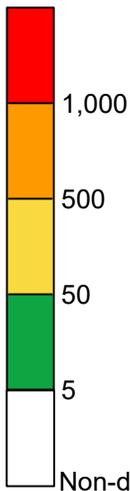
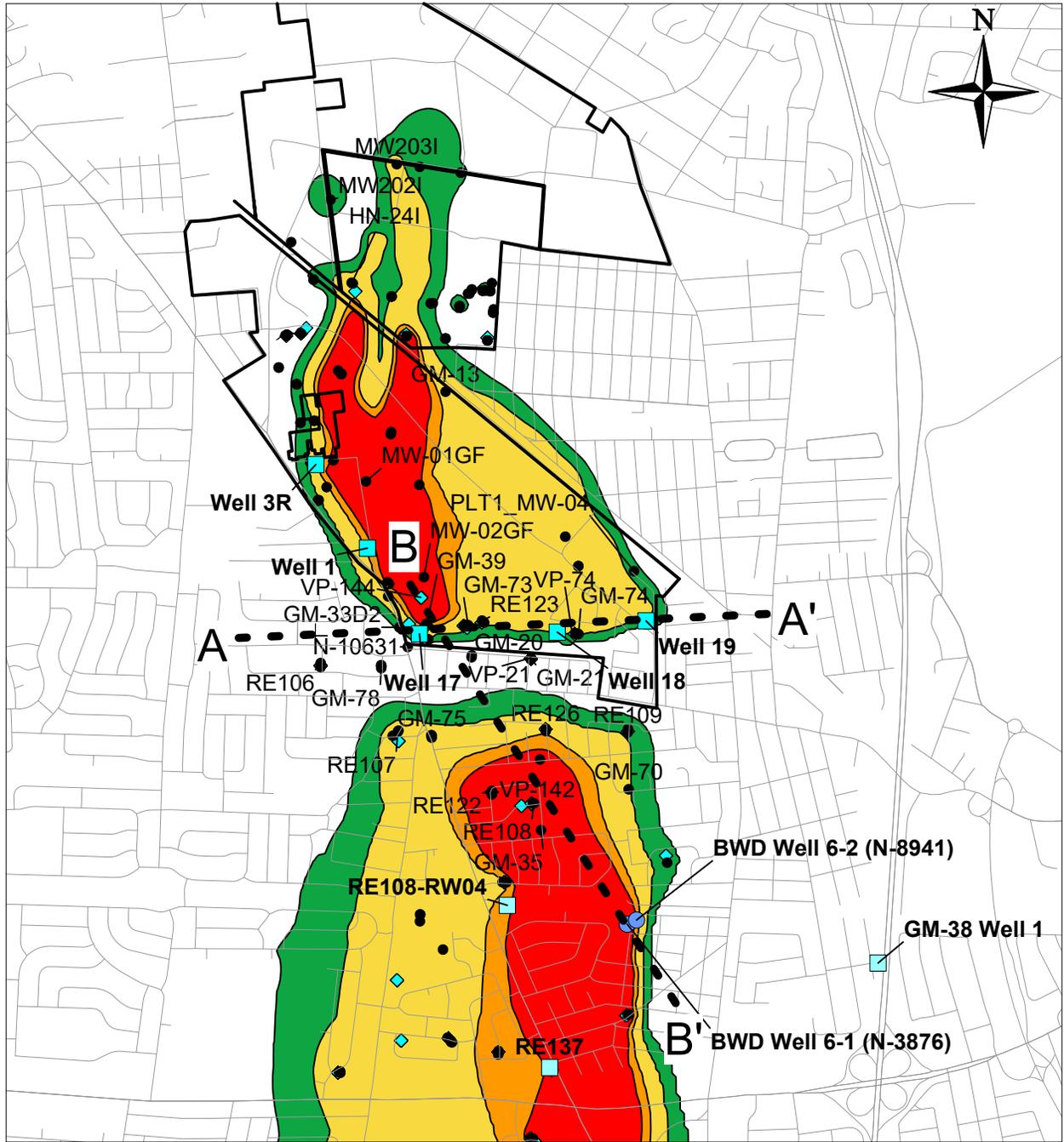




Notes and Abbreviations:

TVOC: Total volatile organic compound
 Total VOCs: Sum of VOCs detected
 µg/L: micrograms per liter
 Trend line shown for RE-126D2

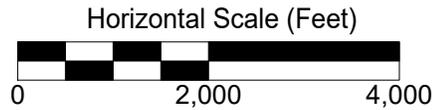
NORTHROP GRUMMAN BETHPAGE, NEW YORK OPERABLE UNIT 2	
Total Volatile Organic Compound Concentrations in Zones 2 and 3 Monitoring Wells Downgradient of OU2 ONCT System	
	FIGURE 12



Total Volatile Organic Compound (TVOC)
Concentrations ($\mu\text{g/L}$)

- Boundary of the Former Northrop Grumman / NWIRP Site
- A-A'** - - Cross-Section Line
- Monitoring Well
- ◆ Vertical Profile Boring
- Remediation Well
- Public Supply Well

Plume is based on the most recently available data from each sampling location collected between 2016 and 2023. Data were collected from monitoring wells, vertical profile borings, remedial wells, and public supply wells.

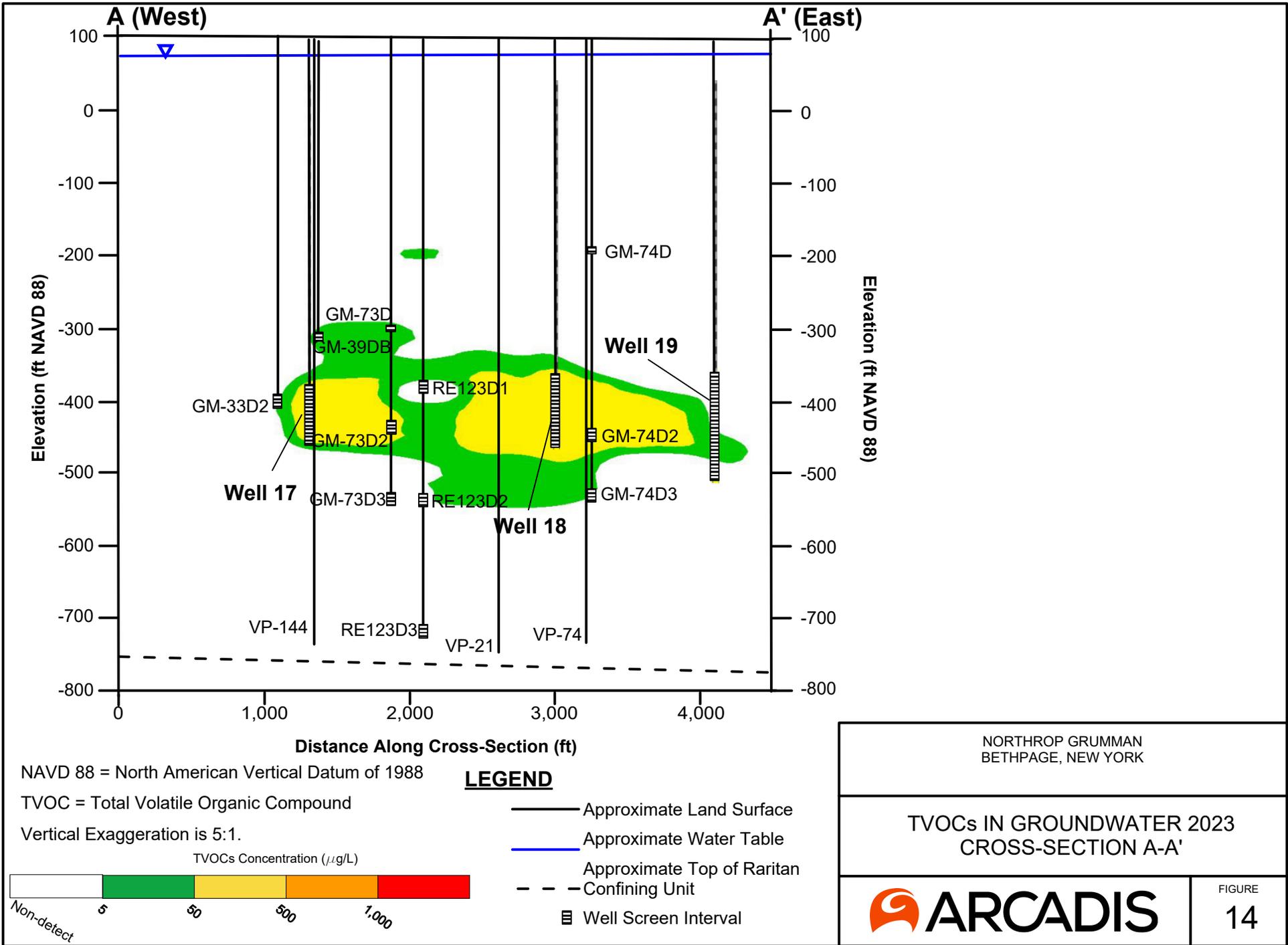


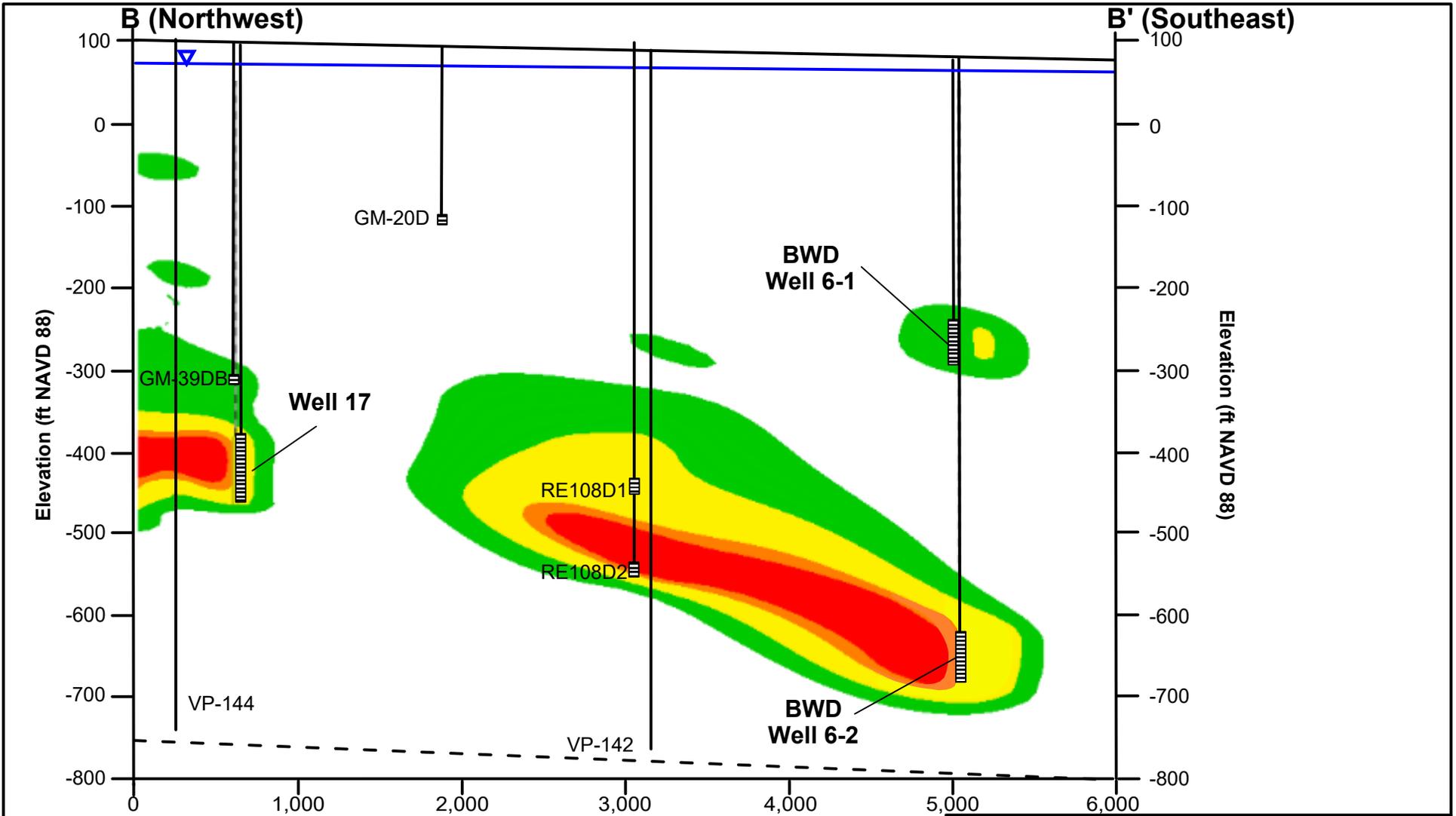
Horizontal Scale (Feet)

Northrop Grumman
Bethpage, New York

**CROSS-SECTION LINES AND MAXIMUM
TVOC CONCENTRATIONS 2023**





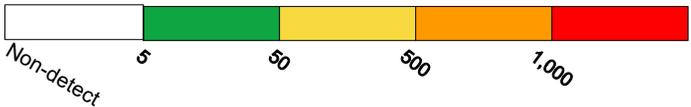


NAVD 88 = North American Vertical Datum of 1988

TVOC = Total Volatile Organic Compound

Vertical Exaggeration is 5:1.

TVOCs Concentration ($\mu\text{g/L}$)



LEGEND

- Approximate Land Surface
- Approximate Water Table
- Approximate Top of Raritan
- - - Confining Unit
- ▤ Well Screen Interval

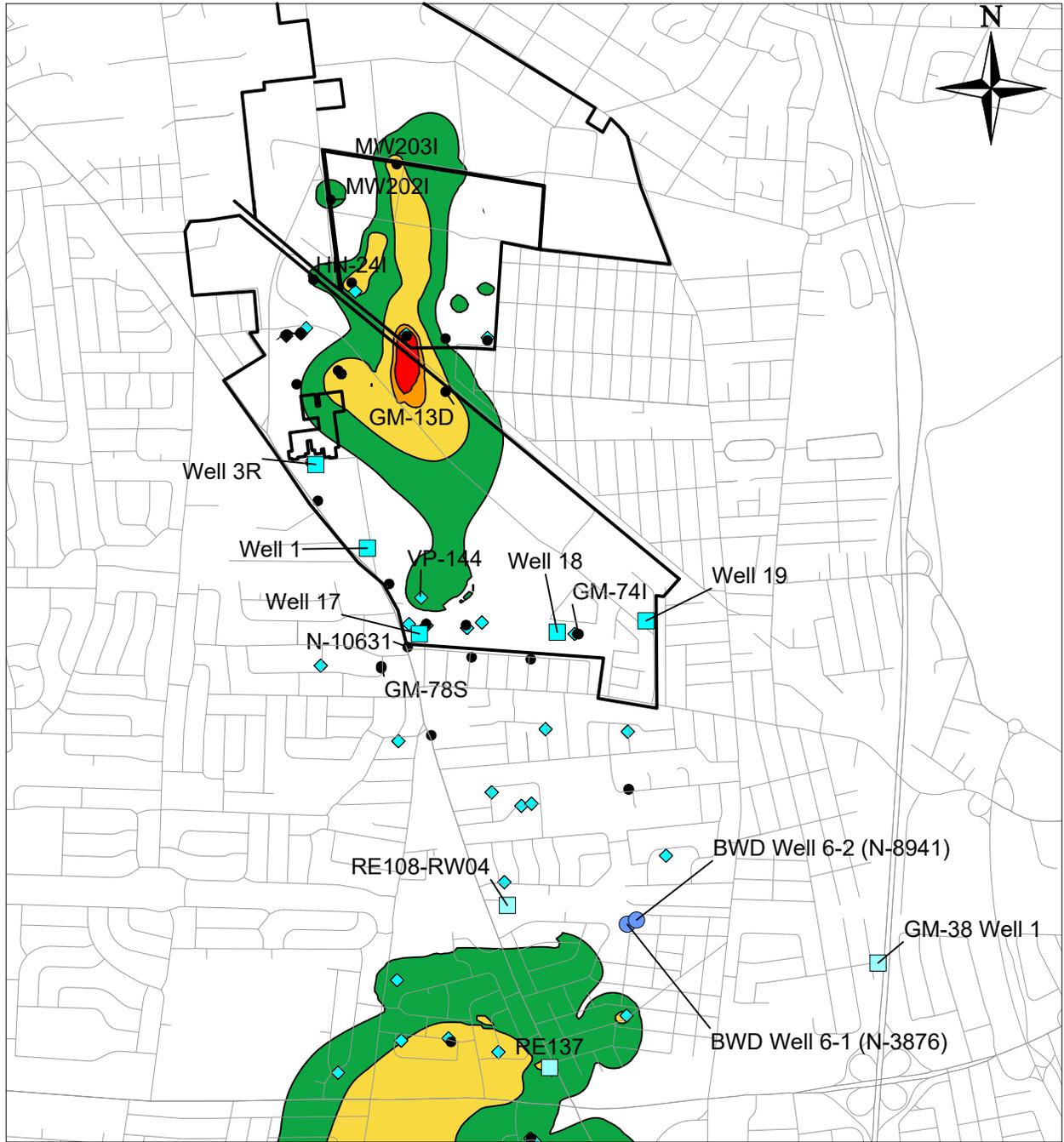
NORTHROP GRUMMAN
BETHPAGE, NEW YORK

TVOCs IN GROUNDWATER 2023
CROSS-SECTION B-B'



FIGURE

15



Total Volatile Organic Compound (TVOC)
Concentrations ($\mu\text{g/L}$)

1,000
500
50
5
Non-detect

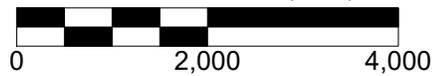
— Boundary of the Former Northrop Grumman / NWIRP Site

- Monitoring Well
- ◆ Vertical Profile Boring
- Remediation Well
- Public Supply Well

Remediation and public supply wells are shown for reference and are not necessarily screened in this zone.

Plume is based on the most recently available data from each sampling location collected between 2016 and 2023. Data were collected from monitoring wells, vertical profile borings, remedial wells, and public supply wells.

Horizontal Scale (Feet)



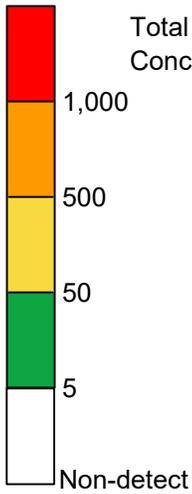
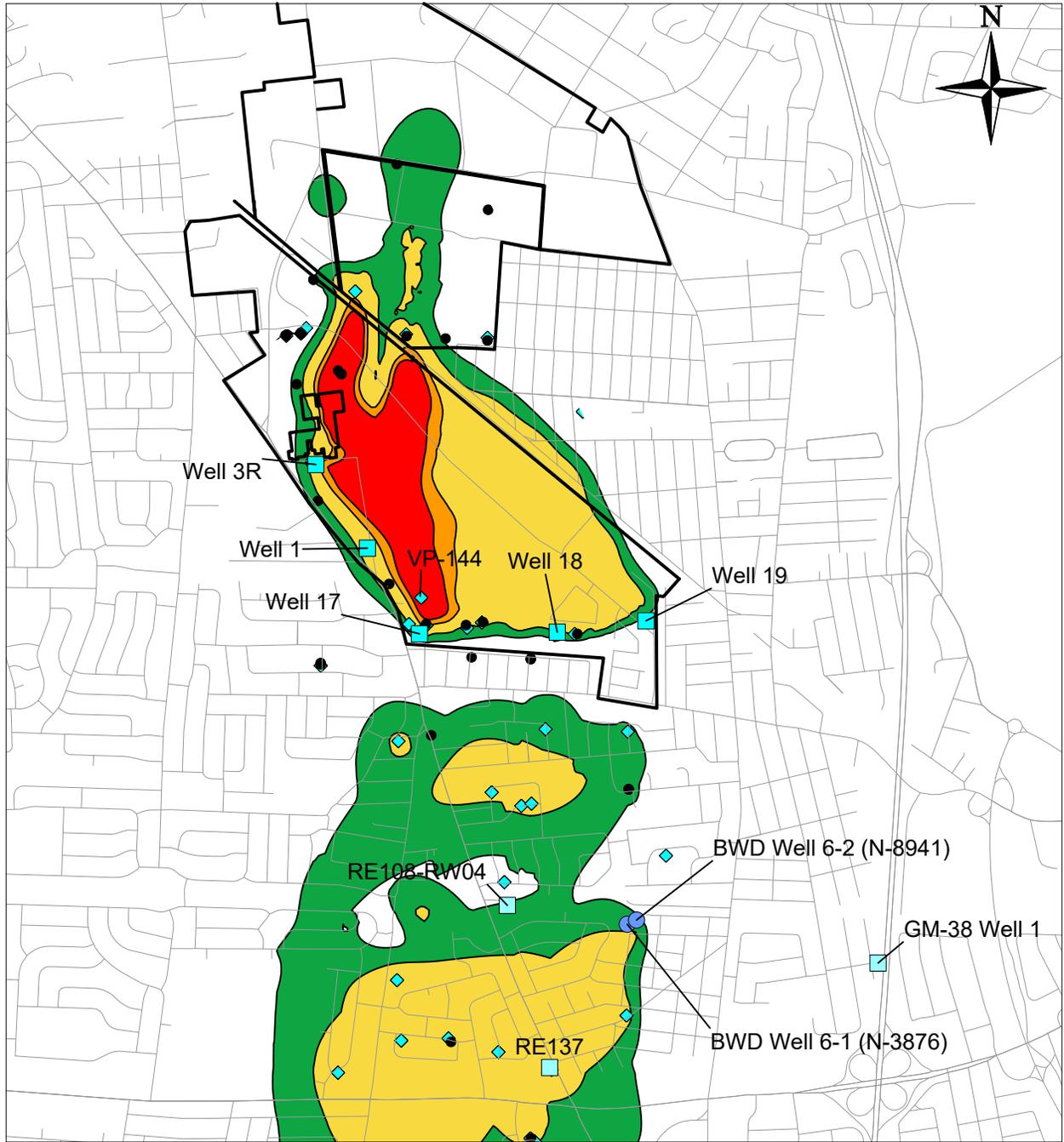
Northrop Grumman
Bethpage, New York

ZONE 1 (0 TO 300 FEET BELOW LAND SURFACE) MAXIMUM TVOC CONCENTRATIONS 2023

ARCADIS

FIGURE

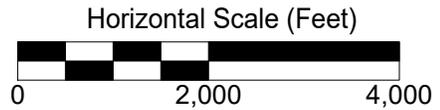
16



Total Volatile Organic Compound (TVOC)
Concentrations ($\mu\text{g/L}$)

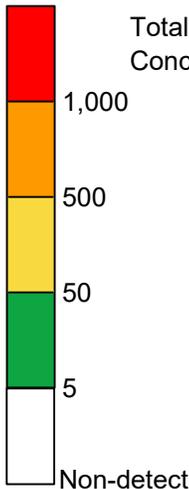
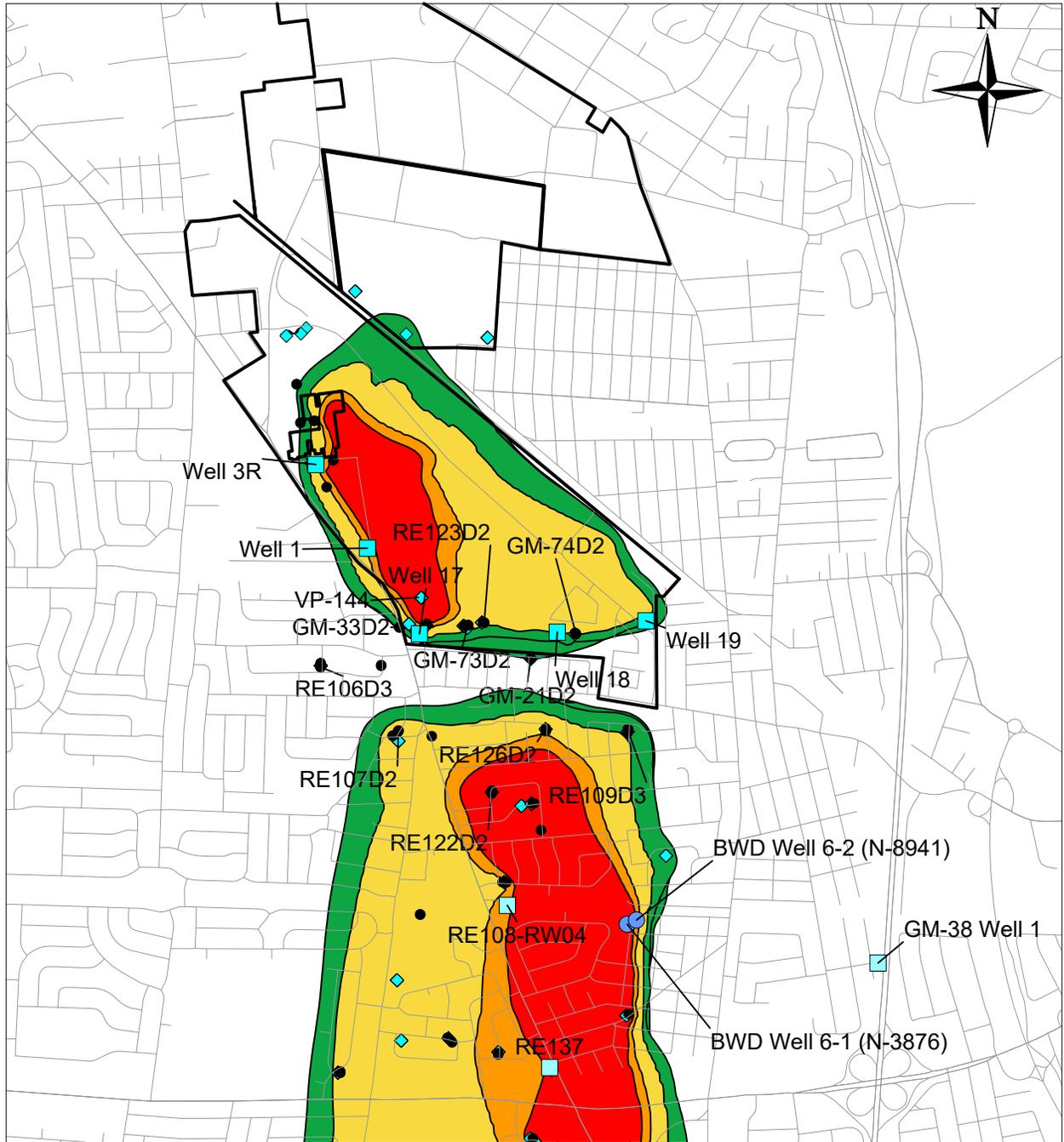
- Boundary of the Former Northrop Grumman / NWIRP Site
- Monitoring Well
- ◆ Vertical Profile Boring
- Remediation Well
- Public Supply Well

Remediation and public supply wells are shown for reference and are not necessarily screened in this zone. Plume is based on the most recently available data from each sampling location collected between 2016 and 2023. Data were collected from monitoring wells, vertical profile borings, remedial wells, and public supply wells.



Horizontal Scale (Feet)

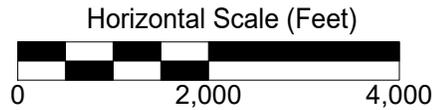
Northrop Grumman Bethpage, New York	
ZONE 2 (300 TO 500 FEET BELOW LAND SURFACE) MAXIMUM TVOC CONCENTRATIONS 2023	
	FIGURE 17



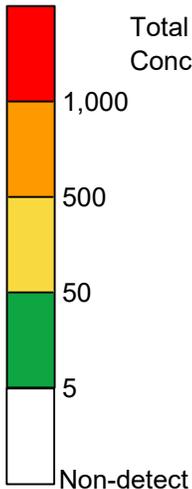
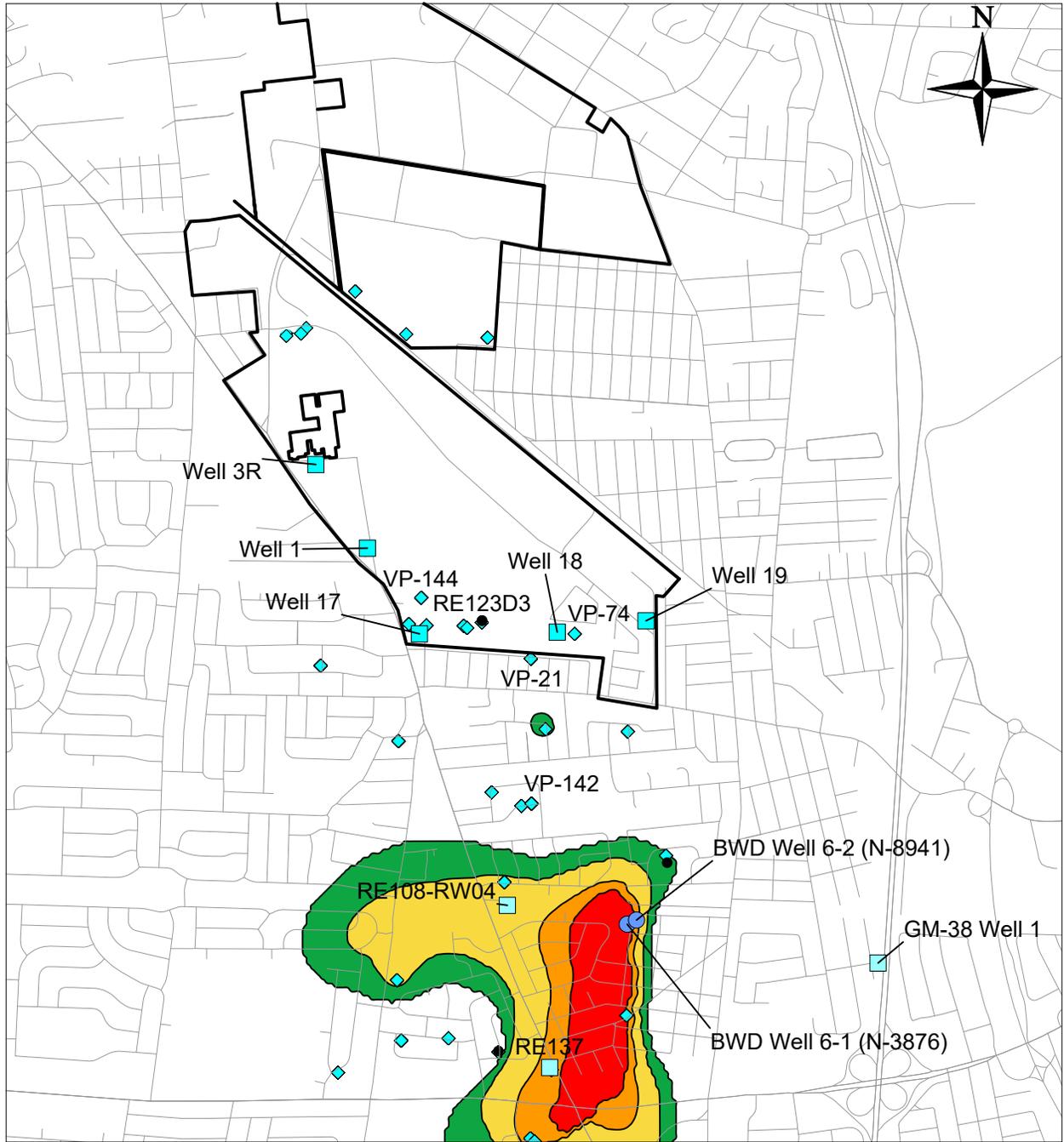
Total Volatile Organic Compound (TVOC)
Concentrations ($\mu\text{g/L}$)

- Boundary of the Former Northrop Grumman / NWIRP Site
- Monitoring Well
- ◆ Vertical Profile Boring
- Remediation Well
- Public Supply Well

Remediation and public supply wells are shown for reference and are not necessarily screened in this zone. Plume is based on the most recently available data from each sampling location collected between 2016 and 2023. Data were collected from monitoring wells, vertical profile borings, remedial wells, and public supply wells.



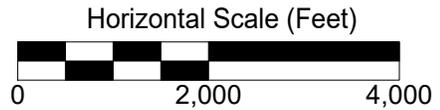
Northrop Grumman Bethpage, New York	
ZONE 3 (500 TO 700 FEET BELOW LAND SURFACE) MAXIMUM TVOC CONCENTRATIONS 2023	
ARCADIS	FIGURE 18



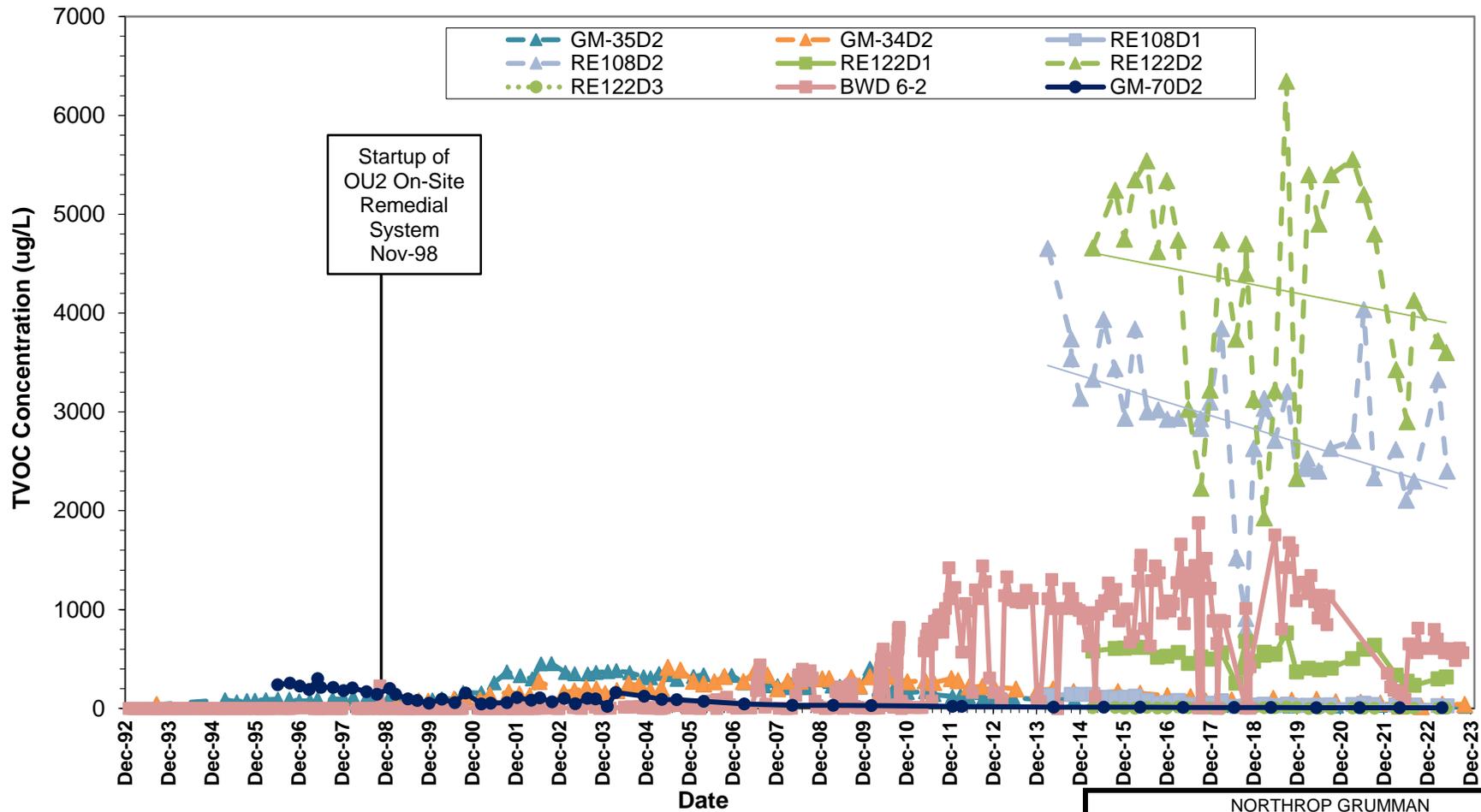
Total Volatile Organic Compound (TVOC)
Concentrations ($\mu\text{g/L}$)

- Boundary of the Former Northrop Grumman / NWIRP Site
- Monitoring Well
- ◆ Vertical Profile Boring
- Remediation Well
- Public Supply Well

Remediation and public supply wells are shown for reference and are not necessarily screened in this zone. Plume is based on the most recently available data from each sampling location collected between 2016 and 2023. Data were collected from monitoring wells, vertical profile borings, remedial wells, and public supply wells.



Northrop Grumman Bethpage, New York	
ZONE 4 (GREATER THAN 700 FEET BELOW LAND SURFACE) MAXIMUM TVOC CONCENTRATIONS 2023	
	FIGURE 19



Notes and Abbreviations:

TVOC: Total volatile organic compound

Total VOCs: Sum of VOCs detected

µg/L: micrograms per liter

Trend lines shown for RE-108D2 and RE-122D2

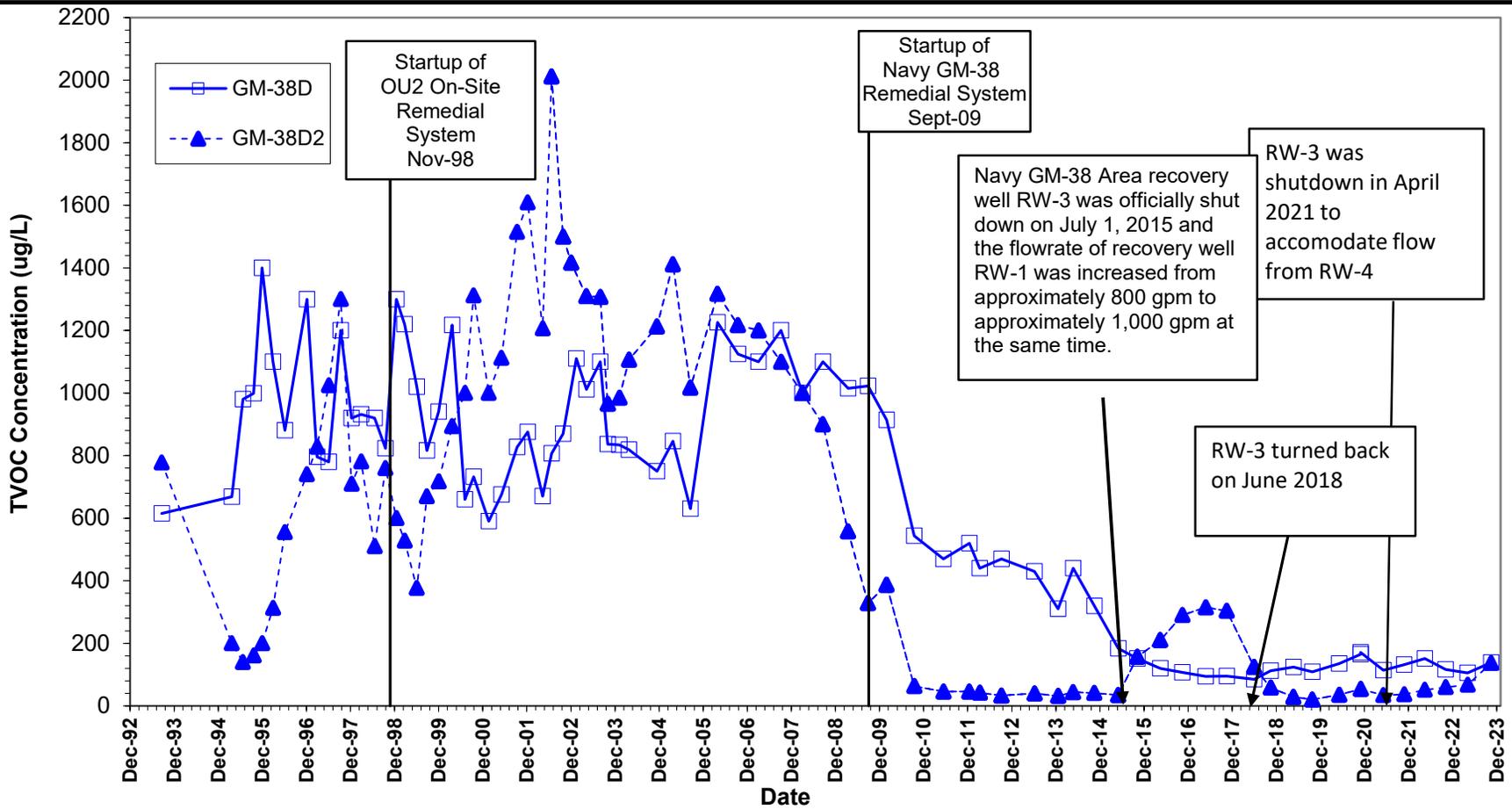
NORTHROP GRUMMAN
BETHPAGE, NEW YORK
OPERABLE UNIT 2

**Total Volatile Organic Compound
Concentrations in
Zones 3 and 4 Monitoring Wells and
Zone 4 BWD Well 6-2 Far Central
Downgradient of OU2 ONCT System**



FIGURE

20



Notes and Abbreviations:

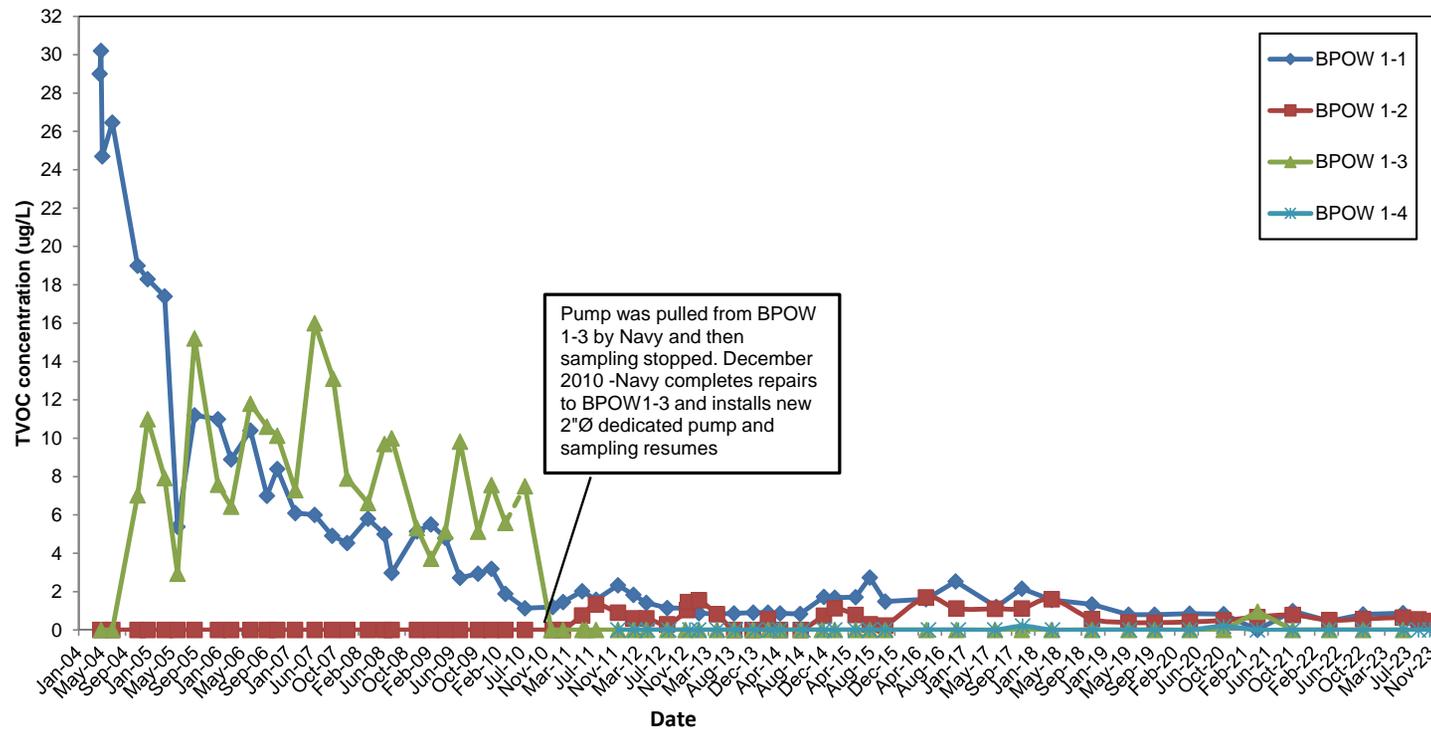
TVOC: Total volatile organic compound
 Total VOCs: Sum of VOCs detected
 ug/L: micrograms per liter

NORTHROP GRUMMAN
 BETHPAGE, NEW YORK
 OPERABLE UNIT 2

**Total Volatile Organic Compound
 Concentrations in Zones 1 and 2 GM-38
 Area Monitoring Wells**

 **ARCADIS**

FIGURE
21

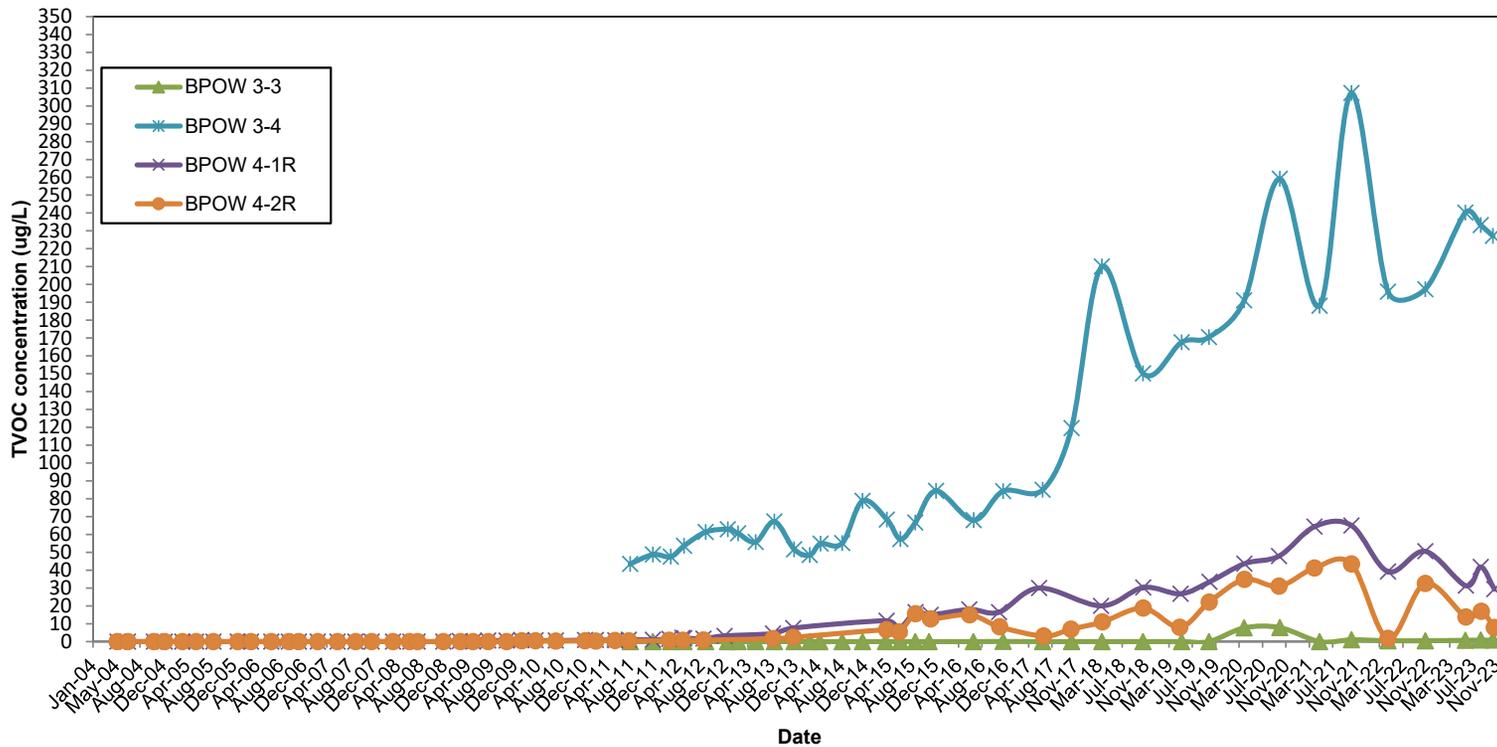


Pump was pulled from BPOW 1-3 by Navy and then sampling stopped. December 2010 -Navy completes repairs to BPOW1-3 and installs new 2"Ø dedicated pump and sampling resumes

Notes and Abbreviations:

TVOCs for BPOW 1-5 and 1-6 are non detect for the period of record.
 TVOC: Total volatile organic compound
 SFWD: South Farmingdale Water District
 ug/L: micrograms per Liter
 Total VOCs: Sum of VOCs detected

NORTHROP GRUMMAN	
BETHPAGE, NEW YORK	
OPERABLE UNIT 2	
Total Volatile Organic Compound Concentrations in Offsite Former Outpost Wells (Wells monitor SFWD Well Field 1)	
	ARCADIS
	22



Notes and Abbreviations:

BPOW 3-3/3-4 Wells Monitor NYLU Seaman's Neck Road Well Field and BPOW 4-1R/4-2R Monitor Town of Hempstead Levittown Water District Well N-5303.

TVOCs for both BPOW 3-1 and BPOW 3-2 are non-detect for the period of record except for a detection of 0.2 ug/L in well BPOW 3-1 in June 2019.

TVOC: Total volatile organic compound

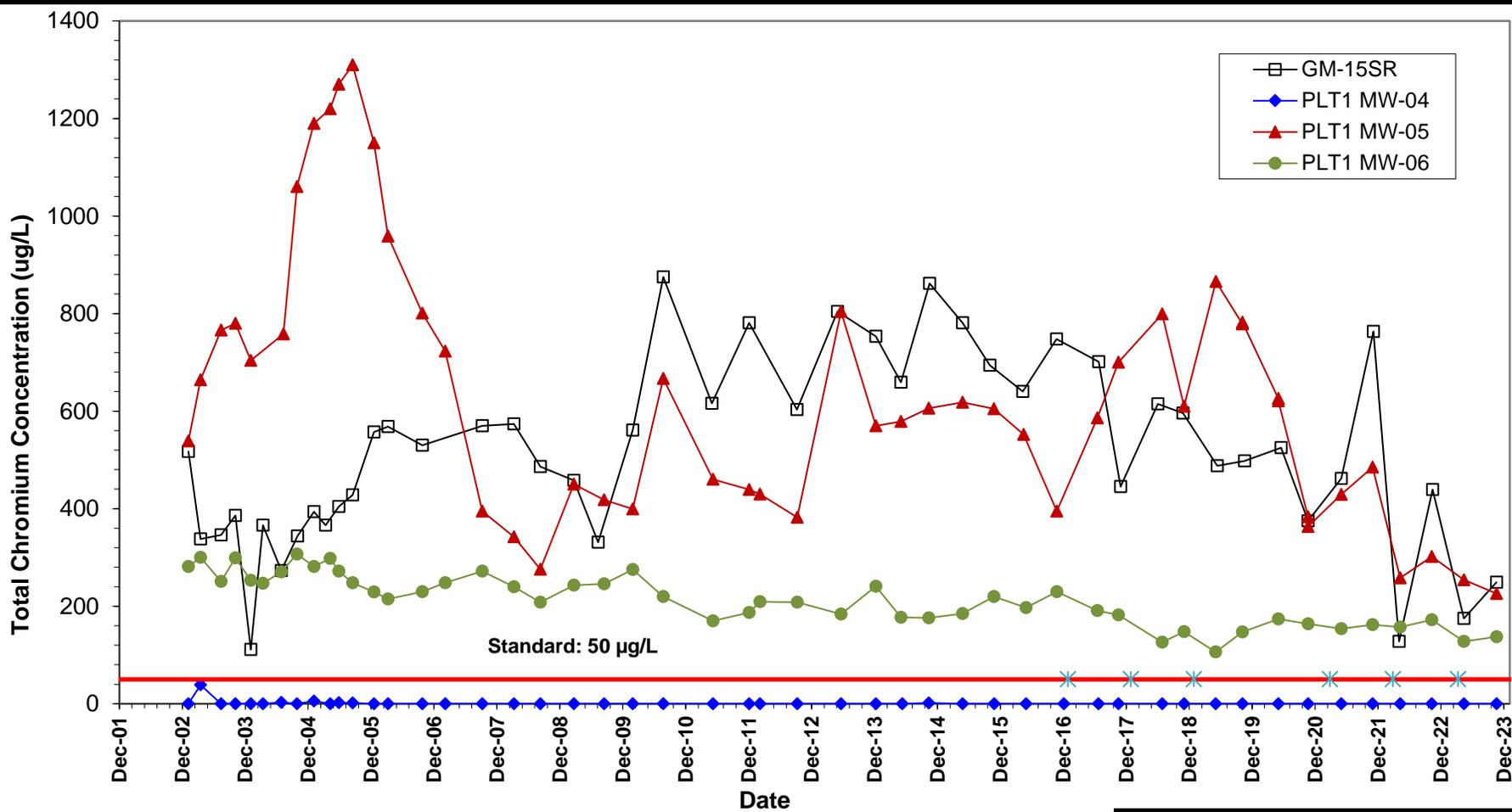
NYLU: New York Liberty Utilities

ug/L: micrograms per Liter

Total VOCs: Sum of VOCs detected

NORTHROP GRUMMAN
BETHPAGE, NEW YORK
OPERABLE UNIT 2

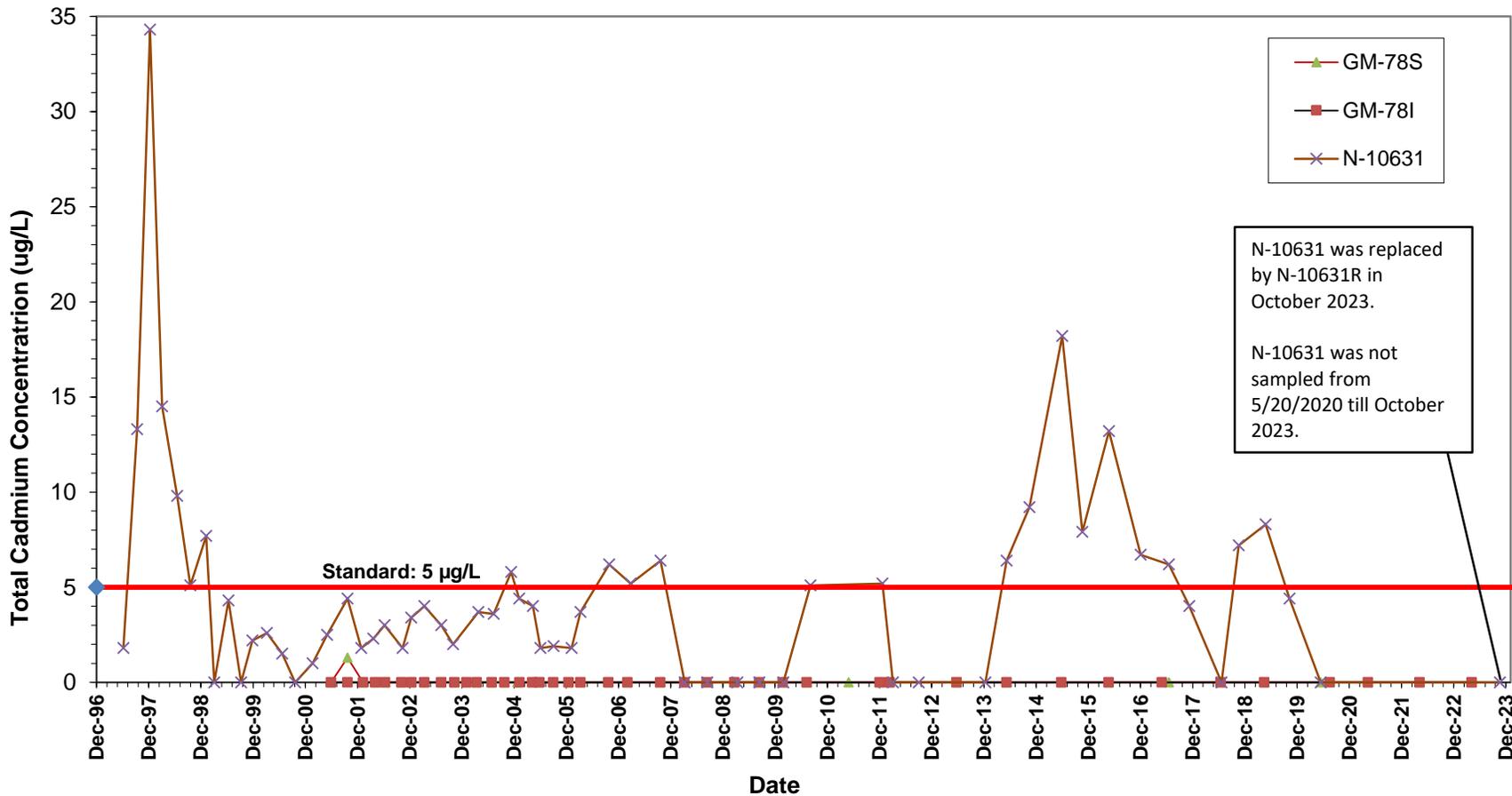
**Total Volatile Organic Compound
Concentrations in Former Outpost Wells
BPOW 3-3, BPOW 3-4, BPOW 4-1R, and
BPOW 4-2R**



Notes and Abbreviations:

µg/L: micrograms per liter

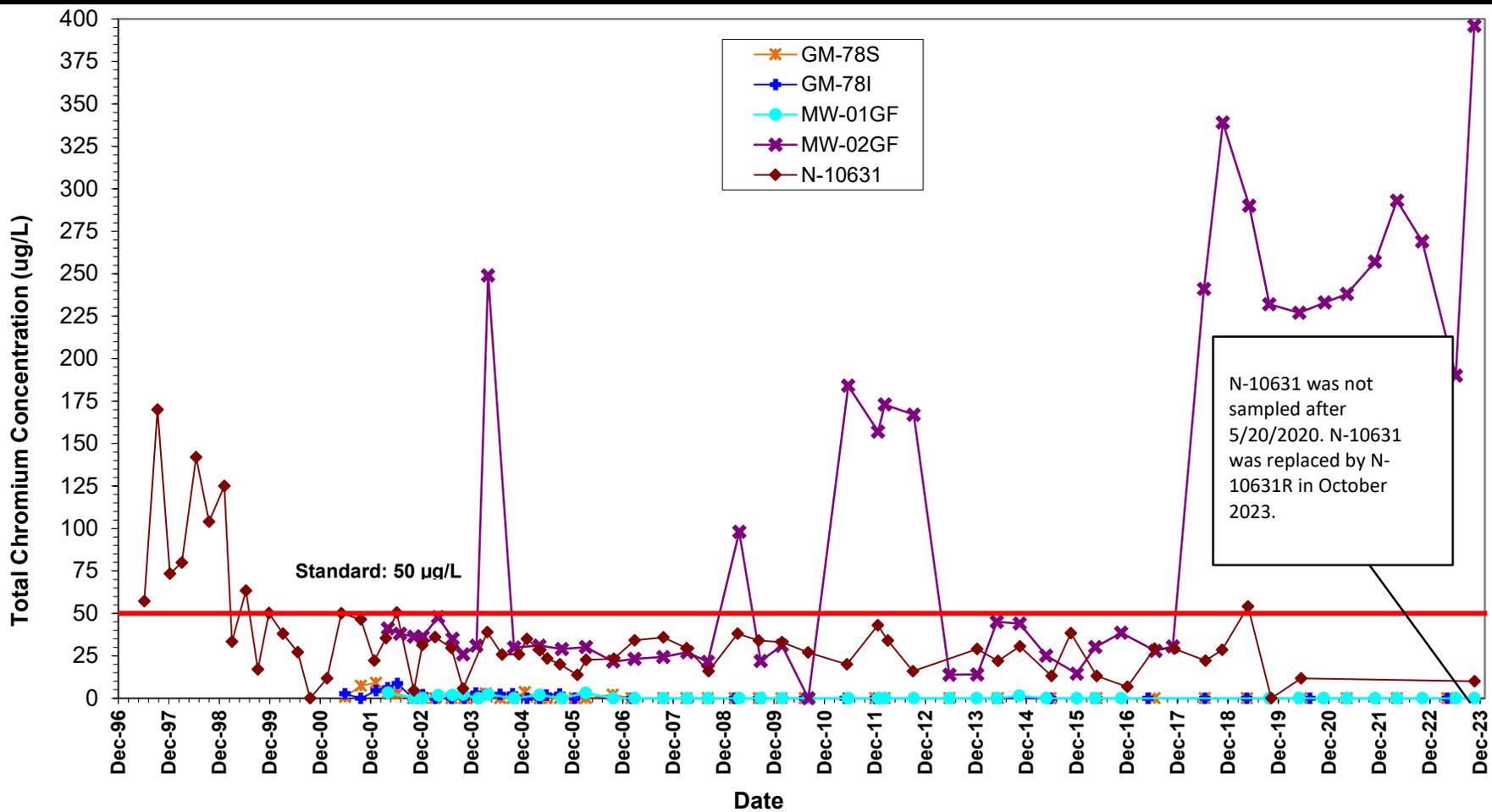
NORTHROP GRUMMAN BETHPAGE, NEW YORK OPERABLE UNIT 2	
Total Chromium (unfiltered) Concentrations in Zone 1 Monitoring Wells Near Former Plant 1	
	FIGURE 24



Notes and Abbreviations:

µg/L: micrograms per liter

NORTHROP GRUMMAN BETHPAGE, NEW YORK OPERABLE UNIT 2	
Total Cadmium (unfiltered) Concentrations in Zone 1 Monitoring Wells Near Former Plant 2	
	FIGURE 25



N-10631 was not sampled after 5/20/2020. N-10631 was replaced by N-10631R in October 2023.

Notes and Abbreviations:

µg/L: micrograms per liter

NORTHROP GRUMMAN BETHPAGE, NEW YORK OPERABLE UNIT 2	
Total Chromium (unfiltered) Concentrations in Zone 1 Monitoring Wells Near Former Plant 2	
	FIGURE 26

Appendix A

AROD Table 1 OU2 Plume Constituents

ppb with an average of 1,362 ppb. The average annual TCE concentration in raw, untreated groundwater from Well 6-2 increased over 700 percent from 2008 (161 ppb) to 2017 (1,362 ppb). In 2017, TCE concentrations in raw, untreated water from Bethpage Water District Well 4-1 ranged from 85 ppb to 183 ppb with an average of 143 ppb. The average annual TCE concentration in raw, untreated groundwater from Well 4-1 increased nearly 300 percent from 2008 (36 ppb) to 2017 (143 ppb). The Bethpage Water District provides treatment at each of its wells prior to distribution of water to customers.

Table 1 - Groundwater

Detected Constituents	Concentration Range Detected (ppb) ^a	SCG ^b (ppb)	Frequency Exceeding SCG
VOCs			
1,1,1-Trichloroethane	0.1 - 110	5	31 of 4,618
1,1,2,2-Tetrachloroethane	0.2 - 0.25	5	0 of 4,596
1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	0.22 - 250	5	335 of 4,107
1,1,2-Trichloroethane	0.21 - 5	1	83 of 4,604
1,1-Dichloroethane	0.16 - 110	5	205 of 4,615
1,1-Dichloroethene	0.19 - 110	5	195 of 4,618
1,2-Dichloroethane	0.14 - 39.9	0.6	133 of 4,616
1,2-Dichloroethene	0.21 - 1,100	5	43 of 1,843
1,2-Dichloropropane	0.28 - 32.7	1	38 of 4,433
1,4-Dioxane	0.046 - 190	0.35	306 of 634
Carbon Disulfide	0.089 - 18	60	0 of 4,231
Carbon Tetrachloride	0.09 - 8	5	3 of 4,605
Chlorobenzene	0.3 - 7	5	2 of 4,605
Chlorodifluoromethane (Freon 22)	0.21 - 400	5	22 of 1,276
Chloroform	0.11 - 110	7	100 of 4,550
Chromium, Total	0.4 - 804	5	56 of 113
Cis-1,2-Dichloroethylene	0.19 - 210,000	5	494 of 4,243
Dichlorodifluoromethane (Freon 12)	0.2 - 32	5	5 of 3,767
Tetrachloroethylene (PCE)	0.2 - 940	5	890 of 5,447
Toluene	0.06 - 84,000	5	59 of 4,441
Trans-1,2-Dichloroethene	0.23 - 95	5	23 of 4,238
Trichloroethylene (TCE)	0.23 - 11,200	5	2,257 of 5,545
Vinyl Chloride	0 - 6,300	2	568 of 5,403
Inorganics			
Iron	120 - 1,700	300	11 of 15
Nickel	30.6 - 30.6	100	0 of 15

a - ppb: parts per billion, which is equivalent to micrograms per liter, ug/L, in water.

b - SCG: Standard Criteria or Guidance - Ambient Water Quality Standards and Guidance Values (TOGs 1.1.1), 6 NYCRR Part 703, Surface water and Groundwater Quality Standards, and Part 5 of the New York State Sanitary Code (10 NYCRR Part 5).

Based on the findings of the expanded investigation combined with earlier RIs, the past disposal of hazardous waste has resulted in the contamination of on-site and off-site groundwater. While on-site groundwater contamination identified during the previous RIs was addressed during the IRMs described in Section 7.3.2 and will be further addressed in accordance with existing RODs, contaminant concentrations in off-site groundwater continue to increase and the plume continues to migrate to the south-southeast. The site contaminants that are

Appendix B

Daily and Monthly Logs

Building 96

Daily Inspection

January through December 2023

Appendix B-1: Tower 96 Daily Inspection Forms
2023 Electronic iForm Data

Date and Time	Technician	T96 System Operating?	AS Influent Flow Recorder (gpm) (Typical: 1,500, max: 1,800)	AS Influent Flow Recorder Totalizer (x100 gal)	Blower Influent Pressure (iwc) (Typical -5 to -6)	Blower Effluent Pressure (iwc) (Typical 2-4)	Blower Effluent Temperature (F) (Typical 80-100)	Steam Header Pressure (psi) (Typical 12-20)	Air Flow Rate (x10 acfm) (Typical 4800)	Oxy Effluent Pressure (iwc) (Typical 4.5-5)	Clear Well Discharge Pressure (psi) (Typical 60)
2023-01-04	NG Operator	Yes	1609	6333015	5	3	80	NR	4370	5	73
2023-01-05	NG Operator	Yes	1610	6360539	5	3	80	NR	4390	5	72.3
2023-01-06	NG Operator	Yes	1608	6378544	5	3.8	60	NR	4400	5	73.8
2023-01-09	NG Operator	Yes	1611	6452382	5	3.5	80	NR	4360	5	72.2
2023-01-11	NG Operator	Yes	1610	6497638	5	3.5	80	NR	4420	5	72
2023-01-12	NG Operator	Yes	1607	6519021	5	3.4	80	NR	4380	5	71.3
2023-01-13	NG Operator	Yes	1607	6543108	5	3.4	80	NR	4380	5	70.7
2023-01-16	NG Operator	Yes	1609	6608221	5	3.3	80	NR	4400	5	72.3
2023-01-18	NG Operator	Yes	1610	6654413	5	3	80	NR	4370	5	71.5
2023-01-19	NG Operator	Yes	1607	6680279	5	3	80	NR	4390	5	71.1
2023-01-20	NG Operator	Yes	1591	6700567	NR	NR	NR	NR	4410	5	73
2023-01-23	NG Operator	Yes	1615	6769116	5	3.5	80	NR	4400	4.5	73
2023-01-25	NG Operator	Yes	1611	6818532	5	3	80	NR	4410	5	74.2
2023-01-26	NG Operator	Yes	1612	6839237	5	3	80	NR	4380	5	73.1
2023-01-27	NG Operator	Yes	1613	6861840	5	3	80	NR	4410	5	72.1
2023-01-30	NG Operator	Yes	1611	6929596	5	3	80	NR	4370	5	73
2023-01-31	NG Operator	Yes	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-02-01	NG Operator	Yes	1610	6978613	5	3	80	NR	4410	5	71.7
2023-02-02	NG Operator	Yes	1613	7003047	5	3	80	NR	4420	5	72.3
2023-02-03	NG Operator	Yes	1611	7022155	5	3	80	NR	4390	5	72.7
2023-02-06	NG Operator	Yes	1610	7090141	5	3	80	NR	4410	5	74
2023-02-07	NG Operator	Yes	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-02-08	NG Operator	Yes	1610	7141024	5.5	3	80	NR	4390	5	73.5
2023-02-09	NG Operator	Yes	1614	7160471	5.5	3	80	NR	4380	5	73.5
2023-02-10	NG Operator	Yes	1609	7183435	5.5	3	80	NR	4410	5	73.5
2023-02-13	NG Operator	Yes	1618	7250585	5.5	3	80	NR	4380	5	74.1
2023-02-14	NG Operator	Yes	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-02-15	NG Operator	Yes	1614	7298349	5.5	4	80	NR	4400	5	73.8
2023-02-16	NG Operator	Yes	1613	7320912	5.5	3	80	NR	4370	5	72.5
2023-02-17	NG Operator	Yes	1609	7344553	5.5	3	80	NR	4380	5	72.4
2023-02-20	NG Operator	Yes	1615	7414755	5.5	3	80	NR	4370	5	73.5
2023-02-21	NG Operator	Yes	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-02-22	NG Operator	Yes	1609	7460070	5.5	3	80	NR	4390	5	73.8
2023-02-23	NG Operator	Yes	1606	7482333	5.6	3	80	NR	4380	5	73.1
2023-02-24	NG Operator	Yes	1614	7505438	5	3	80	NR	4380	5	70.9
2023-02-27	NG Operator	Yes	1597	7572766	NR	NR	NR	NR	4402	NR	71
2023-02-28	NG Operator	Yes	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-03-01	NG Operator	Yes	1608	7617425	5.4	3	80	NR	4410	5	70.8
2023-03-02	NG Operator	Yes	1604	7633282	5.4	3	80	NR	4400	5	72.7
2023-03-03	NG Operator	Yes	1608	7654891	5.4	3	80	NR	4410	5	74.1
2023-03-06	NG Operator	Yes	1596	7722797	4.8	3.3	88	NR	4380	5	74.1
2023-03-07	NG Operator	Yes	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-03-08	NG Operator	Yes	1611	778950	NR	3	80	NR	4510	5	74.5
2023-03-09	NG Operator	Yes	1619	7784923	5.2	3	80	NR	4420	5	71.9
2023-03-10	NG Operator	Yes	1615	7807165	5	3	79	NR	4380	5	71.9
2023-03-13	NG Operator	Yes	1621	7873632	5.2	3	80	NR	4400	5	71.3
2023-03-14	NG Operator	Yes	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-03-15	NG Operator	Yes	1621	7921434	5.4	3	80	NR	4410	5	71.7
2023-03-16	NG Operator	Yes	1613	7945118	5	3	80	NR	4420	5	74.1
2023-03-17	NG Operator	Yes	1618	7965333	5	3	80	NR	4400	5	72.6
2023-03-20	NG Operator	Yes	1620	8035136	5.2	3	80	NR	4390	5	73.9
2023-03-21	NG Operator	Yes	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-03-22	NG Operator	Yes	1619	8083583	5.4	3	80	NR	4410	5	73.9
2023-03-23	NG Operator	Yes	1623	8103417	5.2	3	80	NR	4390	5	73.3
2023-03-24	NG Operator	Yes	1626	8129279	5.3	3	80	NR	4410	5	73.4
2023-03-27	NG Operator	Yes	1622	8195120	5.4	3	80	NR	4390	5	73.9
2023-03-28	NG Operator	Yes	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-03-29	NG Operator	Yes	1618	8242294	5	3	80	NR	4430	5	73.1
2023-03-30	NG Operator	Yes	1619	8265479	5	3	80	NR	4420	5	75
2023-03-31	NG Operator	Yes	1625	8289101	5	3	80	NR	4430	5	75.4
2023-04-03	NG Operator	Yes	1622	8356879	5	3	79	NR	4420	5	75
2023-04-04	NG Operator	Yes	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-04-05	NG Operator	Yes	1619	8402646	5.2	3	80	NR	4420	5	73
2023-04-06	NG Operator	Yes	1592	8427017	5.1	3	80	NR	4390	5	75.6
2023-04-07	NG Operator	Yes	1591	8446661	5	3	80	NR	4390	5	74.5
2023-04-10	NG Operator	Yes	1594	8515553	5	3	NR	NR	4400	5	73.9
2023-04-11	NG Operator	Yes	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-04-12	NG Operator	Yes	1593	8651741	5	3	80	NR	4410	5	74.9
2023-04-13	NG Operator	Yes	1591	8583503	5.4	3	80	NR	4390	5	70.3
2023-04-14	NG Operator	Yes	1590	8606255	5	3	80	NR	4380	5	71.1
2023-04-17	NG Operator	Yes	1594	8674495	5.5	3	80	NR	4410	5	73.1
2023-04-18	NG Operator	Yes	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-04-19	NG Operator	Yes	1591	8721087	5	3	80	NR	4410	5	74
2023-04-20	NG Operator	Yes	1596	8743206	5	3	80	NR	4390	5	73.2
2023-04-21	NG Operator	Yes	1589	8765690	5	3	80	NR	4390	5	72.4
2023-04-24	NG Operator	Yes	1587	8823510	5	3	80	NR	4400	5	75.2
2023-04-25	NG Operator	Yes	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-04-27	NG Operator	Yes	1598	8887743	5	3	80	NR	4410	5	74.6
2023-04-28	NG Operator	Yes	1593	8909838	5	3	80	NR	4410	5	74.8
2023-05-01	NG Operator	Yes	1593	8978218	5	3	80	NR	4440	5	74.8

Appendix B-1: Tower 96 Daily Inspection Forms
2023 Electronic iForm Data

Date and Time	Technician	T96 System Operating?	AS Influent Flow Recorder (gpm) (Typical: 1,500, max: 1,800)	AS Influent Flow Recorder Totalizer (x100 gal)	Blower Influent Pressure (iwc) (Typical -5 to -6)	Blower Effluent Pressure (iwc) (Typical 2-4)	Blower Effluent Temperature (F) (Typical 80-100)	Steam Header Pressure (psi) (Typical 12-20)	Air Flow Rate (x10 acfm) (Typical 4800)	Oxy Effluent Pressure (iwc) (Typical 4.5-5)	Clear Well Discharge Pressure (psi) (Typical 60)
2023-05-02	NG Operator	Yes	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-05-03	NG Operator	Yes	1591	9024130	5	3	80	NR	4430	5	72.4
2023-05-04	NG Operator	Yes	1589	9048083	5	3	80	NR	4410	5	73
2023-05-05	NG Operator	Yes	1592	9068781	5	3	79	NR	4390	5	71.8
2023-05-08	NG Operator	Yes	1591	9138088	5	3	80	NR	4370	5	72.3
2023-05-09	NG Operator	Yes	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-05-10	NG Operator	Yes	1590	9182835	5	3	80	NR	4340	5	71.8
2023-05-11	NG Operator	Yes	1578	9205987	5.2	3.6	82	NR	4380	4.8	70
2023-05-12	NG Operator	Yes	1594	9226874	5	3	80	NR	4410	5	72.1
2023-05-15	NG Operator	Yes	1594	9296566	5	3	80	NR	4410	5	72.5
2023-05-16	NG Operator	Yes	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-05-17	NG Operator	Yes	1591	9343612	5	3	78	NR	4410	5	71.3
2023-05-18	NG Operator	Yes	1588	9364183	5.4	3	80	NR	4420	5	72.2
2023-05-19	NG Operator	Yes	1590	9386682	5	4	80	NR	4370	5	71.1
2023-05-22	NG Operator	Yes	1592	9454409	5	3	80	NR	4390	5	73
2023-05-23	NG Operator	Yes	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-05-24	NG Operator	Yes	1591	9603346	5	3	80	NR	4410	5	72.5
2023-05-25	NG Operator	Yes	1585	9522964	5.2	3	80	NR	4400	5	72.6
2023-05-26	NG Operator	Yes	1586	9544637	5	3	79	NR	4400	5	71.7
2023-05-30	NG Operator	Yes	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-05-31	NG Operator	Yes	1584	9659348	5	3	80	NR	4370	5	72.5
2023-06-01	NG Operator	Yes	1592	9681783	5	3	80	NR	4390	5	72.1
2023-06-02	NG Operator	Yes	1587	9702729	5	3	79	NR	4380	5	74.1
2023-06-05	NG Operator	Yes	1588	9771363	5	3	80	NR	4410	5	75.6
2023-06-06	NG Operator	Yes	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-06-07	NG Operator	Yes	1586	9815987	5	3	78	NR	4390	5	76
2023-06-08	NG Operator	Yes	1589	1570	5	4	80	NR	4410	5	74.5
2023-06-12	NG Operator	Yes	1588	9929330	5	3	80	NR	4400	5	74.5
2023-06-13	NG Operator	Yes	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-06-14	NG Operator	Yes	1593	9975391	5	4	80	NR	4420	5	75.4
2023-06-15	NG Operator	Yes	1592	9998044	5.5	4	80	NR	4410	5	71.8
2023-06-16	NG Operator	Yes	1590	10019548	5	3	78	NR	4400	5	75.5
2023-06-19	NG Operator	Yes	1592	10087477	5	4	80	NR	4410	5	76
2023-06-20	NG Operator	Yes	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-06-21	NG Operator	Yes	1585	10133526	5	3	80	NR	4410	5	75.7
2023-06-22	NG Operator	Yes	1587	10156052	5	3	80	NR	4410	5	76
2023-06-23	NG Operator	Yes	1587	10176943	5	3	80	NR	4420	5	75.9
2023-06-26	NG Operator	Yes	1590	10246332	5	3	80	NR	4390	5	73.6
2023-06-27	NG Operator	Yes	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-06-28	NG Operator	Yes	1587	10289350	5	4	80	NR	4400	5	69.3
2023-06-29	NG Operator	Yes	1588	10310543	5	4	80	NR	4390	5	66.7
2023-06-30	NG Operator	Yes	1590	10332136	5	4	80	NR	4410	5	70.8
2023-07-03	NG Operator	Yes	818	10399763	5	3	80	NR	4430	5	70.8
2023-07-05	NG Operator	No	0	10420838	NR	NR	NR	NR	NR	NR	NR
2023-07-06	NG Operator	Yes	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-07-07	NG Operator	Yes	1585	10441205	5	3	80	NR	4380	5	69.1
2023-07-10	NG Operator	Yes	1593	10509807	6	4	80	NR	4410	5	72.6
2023-07-11	NG Operator	Yes	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-07-12	NG Operator	Yes	1588	10555631	6	4	80	NR	4390	5	70.3
2023-07-13	NG Operator	Yes	1589	10570007	5	4	80	NR	4420	5	72.4
2023-07-14	NG Operator	Yes	1588	10591670	5	4	80	NR	4380	5	69.2
2023-07-17	NG Operator	Yes	1590	10659151	5	4		NR	4400	5	73
2023-07-18	NG Operator	Yes	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-07-19	NG Operator	Yes	1591	10705544	5	3.5	79	NR	4380	5	73
2023-07-20	NG Operator	Yes	1592	10730333	6	4	83	NR	4410	5	73.4
2023-07-21	NG Operator	Yes	1590	10749155	5	4	80	NR	4390	5	73.4
2023-07-25	NG Operator	Yes	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-07-26	NG Operator	Yes	1575	10861925	5.4	3.6	86	NR	4678	5	72
2023-07-27	NG Operator	Yes	1591	10887606	5	4	83	NR	4400	5	69.8
2023-07-28	NG Operator	Yes	1592	10908356	6	4	80	NR	4440	5	70.1
2023-07-31	NG Operator	Yes	1592	10975462	6	4	79	NR	4390	5	73.2
2023-08-01	NG Operator	Yes	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-08-02	NG Operator	Yes	1593	11025766	5	4	83	NR	4390	5	72.5
2023-08-03	NG Operator	Yes	1593	11044466	6	4	80	NR	4400	5	73
2023-08-04	NG Operator	Yes	1592	11066876	5.5	4	79	NR	4370	5	71.1
2023-08-08	NG Operator	Yes	1593	11158444	5	4	80	NR	4390	5	70.4
2023-08-09	NG Operator	Yes	1595	11179215	5	4	80	NR	4420	5	72
2023-08-10	NG Operator	Yes	1589	11203732	5	4	80	NR	4400	5	72.3
2023-08-11	NG Operator	Yes	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-08-14	NG Operator	Yes	1591	11292785	5	4	80	NR	4400	5	71.4
2023-08-15	NG Operator	Yes	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-08-16	NG Operator	Yes	1587	11338602	5	3.5	80	NR	4390	5	72
2023-08-17	NG Operator	Yes	1592	11361192	6	4	80	NR	4380	5	71.8
2023-08-18	NG Operator	Yes	1591	11383456	6	4	80	NR	4380	5	71.4
2023-08-21	NG Operator	Yes	1590	11453503	6	4	80	NR	4380	5	73.2
2023-08-22	NG Operator	Yes	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-08-23	NG Operator	Yes	1594	11498692	6	4	80	NR	4380	5	73
2023-08-24	NG Operator	Yes	1587	11519137	6	4	80	NR	4380	5	74
2023-08-25	NG Operator	Yes	1590	11541535	6	4	80	NR	4400	5	73.7
2023-08-28	NG Operator	Yes	1592	11609846	6	4	90	NR	4390	5	73.2

**Appendix B-1: Tower 96 Daily Inspection Forms
2023 Electronic iForm Data**

Date and Time	Technician	T96 System Operating?	AS Influent Flow Recorder (gpm) (Typical: 1,500, max: 1,800)	AS Influent Flow Recorder Totalizer (x100 gal)	Blower Influent Pressure (iwc) (Typical -5 to -6)	Blower Effluent Pressure (iwc) (Typical 2-4)	Blower Effluent Temperature (F) (Typical 80-100)	Steam Header Pressure (psi) (Typical 12-20)	Air Flow Rate (x10 acfm) (Typical 4800)	Oxy Effluent Pressure (iwc) (Typical 4.5-5)	Clear Well Discharge Pressure (psi) (Typical 60)
2023-08-29	NG Operator	Yes	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-08-30	NG Operator	Yes	1591	11655002	6	4	78	NR	4360	5	71.7
2023-08-31	NG Operator	Yes	1586	11678307	6	4	80	NR	4390	5	73.3
2023-09-01	NG Operator	Yes	1587	11700983	6	4	80	NR	4360	5	73.39
2023-09-05	NG Operator	Yes	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-09-06	NG Operator	Yes	1590	11812986	5	4	80	NR	4380	5	72.1
2023-09-07	NG Operator	Yes	1587	11835535	5	4	80	NR	4360	5	71.5
2023-09-08	NG Operator	Yes	1595	11858376	5	4	80	NR	4370	5	71.2
2023-09-11	NG Operator	Yes	1593	11925965	5	4	80	NR	4380	5	72.3
2023-09-13	NG Operator	Yes	1585	11963685	5	3	80	NR	4380	5	72.4
2023-09-14	NG Operator	Yes	1588	11987767	5	4	80	NR	NR	5	75.1
2023-09-15	NG Operator	Yes	1590	12009667	6	4	80	NR	4410	5	75
2023-09-18	NG Operator	Yes	1588	12077905	6	4	80	NR	4420	5	75.1
2023-09-20	NG Operator	Yes	1591	12122545	6	4	79	NR	4400	5	74
2023-09-21	NG Operator	Yes	1585	12144851	6	4	80	NR	4420	5	73.4
2023-09-22	NG Operator	Yes	1589	12167475	6	4	80	NR	4420	5	73.8
2023-09-25	NG Operator	Yes	1590	12235855	6	4	80	NR	4400	NR	73.6
2023-09-26	NG Operator	Yes	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-09-27	NG Operator	Yes	1586	12281194	6	4	80	NR	4410	5	72.5
2023-09-28	NG Operator	Yes	1590	12303334	5.5	3	78	NR	4410	5	74.7
2023-09-29	NG Operator	Yes	1584	12326840	5	4	80	NR	4410	5	73.6
2023-10-02	NG Operator	Yes	1587	12393558	6	4	80	NR	4400	5	72.5
2023-10-03	NG Operator	Yes	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-10-04	NG Operator	Yes	1589	12439425	6	4	80	NR	4410	5	72
2023-10-05	NG Operator	Yes	1589	12461629	5	4	80	NR	4390	5	74.2
2023-10-06	NG Operator	Yes	1583	12483738	6	4	80	NR	4410	5	72.5
2023-10-09	NG Operator	Yes	1589	12551515	6	4	80	NR	4410	5	75.1
2023-10-10	NG Operator	Yes	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-10-11	NG Operator	Yes	1581	12597485	5	4	80	NR	4430	5	75
2023-10-12	NG Operator	Yes	1585	12619508	5	4	80	NR	4410	5	74.6
2023-10-13	NG Operator	Yes	1583	12641414	5	3.5	78	NR	4410	5	74
2023-10-16	NG Operator	Yes	1587	12709536	6	4	80	NR	4410	5	74.2
2023-10-17	NG Operator	Yes	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-10-18	NG Operator	Yes	1585	12753700	5	4	78	NR	4420	5	74
2023-10-19	NG Operator	Yes	1563	12780657	5.1	3.4	86	NR	4670	5	74
2023-10-20	NG Operator	Yes	1581	12799685	5	4	80	NR	4420	5	73.4
2023-10-23	NG Operator	Yes	1584	12867665	5.5	4	78	NR	4420	5	73.3
2023-10-25	NG Operator	Yes	1584	12913896	5	5	78	NR	4410	5	72.3

Building 102

Daily Inspection

January through December 2023

**Appendix B-3: Tower 102 Daily Inspection Form
2023 Electronic iForm Data**

Date and Time	Technician	T102 System Operating?	AS Inflow Recorder (Typical 2,300)	AS Inflow Recorder Totalizer (x1000gal)	Blower Inflow Pressure (iwc) (Typical-6 to -8)	Blower Effluent Pressure (iwc) (Typical 18-22)	Blower Effluent Temperature (F) (Typical 80-100)	Steam Header Pressure (psi) (Typical 15-20)
2023-01-03	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-01-04	NG Operator	Yes	2434	104580491	8	22	80	22
2023-01-05	NG Operator	Yes	2427	104614429	8	22	80	NR
2023-01-06	NG Operator	Yes	2426	104648757	8	22	80	38
2023-01-09	NG Operator	Yes	2434	104755615	8	22	80	39
2023-01-10	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-01-11	NG Operator	Yes	2332	104824000	8	22	80	18
2023-01-12	NG Operator	Yes	2429	104862261	8	22	80	16
2023-01-13	NG Operator	Yes	2438	104897302	8	22	80	36
2023-01-16	NG Operator	Yes	2421	104998891	8	22	80	20
2023-01-17	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-01-18	NG Operator	Yes	2413	105061291	8	22	80	22
2023-01-19	NG Operator	Yes	2425	105096167	8	22	80	31
2023-01-20	NG Operator	Yes	2010	105127307	7	21	89	20
2023-01-23	NG Operator	Yes	2001	105214469	8	22	80	23
2023-01-24	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-01-25	NG Operator	Yes	2428	105277995	8	22	80	14
2023-01-26	NG Operator	Yes	2429	105315217	8	22	80	36
2023-01-27	NG Operator	Yes	2424	105347552	8	22	80	36
2023-01-30	NG Operator	Yes	2424	105452085	8	22	80	16
2023-01-31	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-02-01	NG Operator	Yes	2420	105526373	8	22	80	33
2023-02-02	NG Operator	Yes	2424	105557609	8	22	80	24
2023-02-03	NG Operator	Yes	2431	105591707	8	22	80	18
2023-02-06	NG Operator	Yes	2430	105696015	8	22	80	18
2023-02-07	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-02-08	NG Operator	Yes	2440	105774569	8	22	80	23
2023-02-09	NG Operator	Yes	2428	105801495	8	22	80	19
2023-02-10	NG Operator	Yes	2440	105838095	8	22	80	19
2023-02-13	NG Operator	Yes	2441	105941768	8	22	80	18
2023-02-14	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-02-15	NG Operator	Yes	2425	106012270	8	22	80	18
2023-02-16	NG Operator	Yes	2438	106048762	8	22	80	26
2023-02-17	NG Operator	Yes	2442	106081942	8	22	80	20
2023-02-20	NG Operator	Yes	2440	106189567	8	22	80	20
2023-02-21	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-02-22	NG Operator	Yes	2439	10626828	8	22	80	18
2023-02-23	NG Operator	Yes	2441	106296915	9	22	80	17
2023-02-24	NG Operator	Yes	2434	106330307	8	22	80	18
2023-02-27	NG Operator	Yes	2440	106435492	8	21	89	20
2023-02-28	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-03-01	NG Operator	Yes	2426	106503547	8	22	80	17
2023-03-02	NG Operator	Yes	2432	106540094	8	22	80	16
2023-03-03	NG Operator	Yes	2437	106579818	8	22	80	16
2023-03-06	NG Operator	Yes	2426	106679942	8	22	80	16
2023-03-07	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-03-08	NG Operator	Yes	2658	106748583	8	22	80	16
2023-03-09	NG Operator	Yes	2416	106785712	8	22	80	17
2023-03-10	NG Operator	Yes	2424	106820617	8	22	80	18
2023-03-13	NG Operator	Yes	2422	106913468	8	22	80	16
2023-03-14	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-03-15	NG Operator	Yes	2426	106993374	8	22	80	18
2023-03-16	NG Operator	Yes	2441	107026940	8	22	80	18
2023-03-17	NG Operator	Yes	2430	107058662	8	22	80	16
2023-03-20	NG Operator	Yes	2426	107170532	8	22	80	16
2023-03-21	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-03-22	NG Operator	Yes	2431	107237322	8	22	80	16
2023-03-23	NG Operator	Yes	2429	107270413	8	22	80	18
2023-03-24	NG Operator	Yes	2426	107305063	8	22	80	18
2023-03-27	NG Operator	Yes	2442	107410639	8	22	80	46
2023-03-28	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-03-29	NG Operator	Yes	2432	107481205	8	22	80	36
2023-03-30	NG Operator	Yes	2430	107517392	8	22	80	16
2023-03-31	NG Operator	Yes	2431	107551635	8	22	80	18
2023-04-03	NG Operator	Yes	2426	107655784	8	22	80	16
2023-04-04	NG Operator	Yes	NR	NR	NR	NR	NR	NR

**Appendix B-3: Tower 102 Daily Inspection Form
2023 Electronic iForm Data**

Date and Time	Steam Pressure into Bed (psi) (Typical 3-4; desorb)	VPGAC Influent Steam Temperature (F) (Typical 215-275; Desorb)	VPGAC Effluent Steam Temperature (F) (Typical 180-250; Desorb)	Cooling Water Flow rate (gpm) (Typical 85-125)	Cooling Water Influent Temperature (F) (Typical 50-60)	Separator Vent Temperature (F) (Typical 90-100) (Desorb only)	Air Flow Rate (x10 acfm) (Typical 8,000-10,000)	Weir Flow Meter Totalizer (x1000 gal)	Clear Well Discharge Pressure (psi) (Typical 50-60)
2023-01-03	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-01-04	3.5	251	200	150	59	93	8040	NR	70.1
2023-01-05	3.5	248	201	151	59	94	8270	NR	71.1
2023-01-06	3.5	253	201	151	59	95	8070	NR	70.9
2023-01-09	3.5	253	200	148	59	94	8060	NR	68.2
2023-01-10	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-01-11	3.4	246	200	147	59	92	8210	10816	67.6
2023-01-12	3.4	246	200	147	59	93	7700	10857	67.7
2023-01-13	3.5	251	201	148	59	93	7600	10894	67.3
2023-01-16	3.5	245	200	150	59	94	8050	11002	70.6
2023-01-17	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-01-18	3.4	232	200	149	59	92	8200	11070	69.6
2023-01-19	3.5	244	200	149	59	94	7550	11107	69.1
2023-01-20	3.3	244	202	132	59	96	8135	NR	71
2023-01-23	3.4	222	201	151	59	93	8320	11237	70.9
2023-01-24	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-01-25	3.4	234	200	150	59	93	8240	11307	70.5
2023-01-26	3.5	229	200	150	59	94	8080	11347	70
2023-01-27	3.4	234	200	149	59	93	8130	11381	69.5
2023-01-30	3.4	246	200	151	59	94	8120	11493	71
2023-01-31	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-02-01	3.3	227	200	148	59	94	7670	2558	68.3
2023-02-02	3.4	246	201	148	59	93	8040	11606	68.4
2023-02-03	3.4	229	200	149	59	92	8130	11643	69.2
2023-02-06	3.4	245	201	151	59	94	8160	11754	71.4
2023-02-07	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-02-08	3.5	249	200	149	59	94	8170	11838	69.8
2023-02-09	3.4	238	200	150	59	92	8120	11867	70.7
2023-02-10	3.4	239	200	150	59	93	7640	11906	70.8
2023-02-13	3.4	237	200	151	59	92	8200	12017	71
2023-02-14	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-02-15	3.4	236	200	151	59	93	7760	12092	71.3
2023-02-16	3.4	241	200	149	59	93	7930	12131	68.8
2023-02-17	3.5	231	200	151	59	92	7480	12166	71.1
2023-02-20	4	229	200	151	59	93	7940	12281	70.8
2023-02-21	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-02-22	3.5	233	200	151	69	93	7840	12359	70.9
2023-02-23	3.3	242	200	150	59	93	7940	12395	70.3
2023-02-24	3.4	239	200	148	59	93	8220	12430	67.7
2023-02-27	3.1	240	202	132	59	96	7369	NR	66.8
2023-02-28	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-03-01	3.4	245	200	147	59	92	8150	12613	67.3
2023-03-02	3.4	242	200	150	59	93	7930	12649	70.2
2023-03-03	3.4	244	201	151	59	92	7680	12691	70.8
2023-03-06	3.4	239	200	NR	59	92	8210	12798	71.1
2023-03-07	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-03-08	3.4	243	201	150	59	93	7730	12871	70.6
2023-03-09	3.4	239	200	150	59	92	8180	12911	69.8
2023-03-10	3.4	248	200	149	59	93	8140	12948	69
2023-03-13	3.5	237	200	68.5	59	93	8220	13058	68.2
2023-03-14	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-03-15	3.5	235	200	147	59	92	8110	13132.91	66.9
2023-03-16	3.4	235	200	150	59	94	7750	13168	70.1
2023-03-17	3.4	244	201	150	59	92	8080	13202	70
2023-03-20	3.5	247	200	150	59	93	7850	13322	70
2023-03-21	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-03-22	3.3	241	200	150	59	92	8000	13393	70.6
2023-03-23	3.4	NR	200	150	59	93	8020	13428	70.4
2023-03-24	3.4	244	200	151	59	92	8310	13465	70.9
2023-03-27	3.5	238	200	151	59	93	8090	13578.49	71.3
2023-03-28	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-03-29	3.4	239	200	149	59	93	8260	13647	69.8
2023-03-30	3.4	231	200	152	59	93	7950	13682	72.3
2023-03-31	3.5	239	200	72.4	59	94	8160	13716	72.5
2023-04-03	3.5	239	200	151	59	93	8230	13819	72
2023-04-04	NR	NR	NR	NR	NR	NR	NR	NR	NR

**Appendix B-3: Tower 102 Daily Inspection Form
2023 Electronic iForm Data**

Date and Time	Technician	T102 System Operating?	AS Inflow Recorder (Typical 2,300)	AS Inflow Recorder Totalizer (x1000gal)	Blower Inflow Pressure (iwc) (Typical-6 to -8)	Blower Effluent Pressure (iwc) (Typical 18-22)	Blower Effluent Temperature (F) (Typical 80-100)	Steam Header Pressure (psi) (Typical 15-20)
2023-04-05	NG Operator	Yes	2441	107728869	8	22	80	19
2023-04-06	NG Operator	Yes	2309	107754550	80	22	80	18
2023-04-07	NG Operator	Yes	2429	107783090	8	22	80	22
2023-04-10	NG Operator	Yes	2433	107868438	8	22	80	16
2023-04-11	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-04-12	NG Operator	Yes	2429	107941729	8	22	80	31
2023-04-13	NG Operator	Yes	2436	107967074	8	22	80	28
2023-04-14	NG Operator	Yes	2441	108001223	8	22	80	18
2023-04-17	NG Operator	Yes	2439	108108140	8	22	80	20
2023-04-18	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-04-19	NG Operator	Yes	2427	108177396	8	22	80	20
2023-04-20	NG Operator	Yes	2430	108212505	8	22	80	16
2023-04-21	NG Operator	Yes	2433	108246857	8	22	80	18
2023-04-24	NG Operator	Yes	2433	108351461	8	22	80	18
2023-04-25	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-04-26	NG Operator	Yes	2427	108421733	8	22	80	18
2023-04-27	NG Operator	Yes	2450	108456717	8	22	80	20
2023-04-28	NG Operator	Yes	2431	108492195	8	22	80	18
2023-05-01	NG Operator	Yes	2428	108596867	8	22	80	
2023-05-02	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-05-03	NG Operator	Yes	2434	108667843	8	22	80	16
2023-05-04	NG Operator	Yes	2440	108705239	8	22	80	18
2023-05-05	NG Operator	Yes	2442	108737151	8	22	80	18
2023-05-08	NG Operator	Yes	2439	108841975	8	22	80	16
2023-05-09	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-05-10	NG Operator	Yes	2442	108907612	8	22	80	17
2023-05-11	NG Operator	Yes	1396	108927904	7	21	88	20
2023-05-12	NG Operator	Yes	1390	108948008	8	22	80	18
2023-05-15	NG Operator	Yes	1400	109008525	8	22	80	18
2023-05-16	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-05-17	NG Operator	Yes	1444	109049388	8	22	80	18
2023-05-18	NG Operator	Yes	2472	109084460	8	22	80	20
2023-05-19	NG Operator	Yes	2470	109119250	8	22	80	22
2023-05-22	NG Operator	Yes	2465	109225282	8	22	80	22
2023-05-23	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-05-24	NG Operator	Yes	2440	109296315	8	22	80	22
2023-05-25	NG Operator	Yes	2437	109331351	8	22	80	18
2023-05-30	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-05-26	NG Operator	Yes	2441	2429	8	22	80	22
2023-05-31	NG Operator	Yes	2432	109540514	8	22	80	17
2023-06-01	NG Operator	Yes	2412	109576778	8	22	80	17
2023-06-02	NG Operator	Yes	2425	109609762	8	22	80	17
2023-06-05	NG Operator	Yes	2431	109714152	8	22	80	16
2023-06-06	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-06-07	NG Operator	Yes	2427	109784382	8	22	80	17
2023-06-08	NG Operator	Yes	2424	109820526	8	22	80	16
2023-06-12	NG Operator	Yes	2416	109946782	8	22	80	17
2023-06-13	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-06-14	NG Operator	Yes	2409	110016843	8	22	80	17
2023-06-15	NG Operator	Yes	2418	110051309	8	22	80	17
2023-06-16	NG Operator	Yes	2419	110086037	8	22	80	16
2023-06-19	NG Operator	Yes	2414	110190643	8	22	80	17
2023-06-20	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-06-21	NG Operator	Yes	2428	110261035	8	22	80	17
2023-06-22	NG Operator	Yes	2418	110294826	8	22	80	16
2023-06-23	NG Operator	Yes	2416	110329553	8	22	80	18
2023-06-26	NG Operator	Yes	2412	110433760	8	22	80	16
2023-06-27	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-06-28	NG Operator	Yes	2405	110504069	8	22	80	16
2023-06-29	NG Operator	Yes	2408	110538694	8	22	80	17
2023-06-30	NG Operator	Yes	2424	110573276	8	22	80	16
2023-07-03	NG Operator	Yes	2418	110677376	8	22	80	16
2023-07-05	NG Operator	Yes	2411	110747047	8	21	89	18
2023-07-06	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-07-07	NG Operator	Yes	2414	110817000	8	22	80	16
2023-07-10	NG Operator	Yes	2422	110922897	8	22	80	16
2023-07-11	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-07-12	NG Operator	Yes	2413	110990950	8	22	80	16
2023-07-13	NG Operator	Yes	2415	111025293	8	22	80	17
2023-07-14	NG Operator	Yes	2413	111059723	8	22	80	22
2023-07-17	NG Operator	Yes	2407	111163727	8	22	80	17
2023-07-18	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-07-19	NG Operator	Yes	2412	111234948	8	22	80	16
2023-07-20	NG Operator	Yes	2416	111269906	8	22	80	16
2023-07-21	NG Operator	Yes	2414	111302812	8	22	80	16
2023-07-24	NG Operator	Yes	2412	111406904	8	22	80	28
2023-07-25	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-07-26	NG Operator	Yes	2411	111476729	8	21	88	18
2023-07-27	NG Operator	Yes	2412	111511403	8	22	81	18
2023-07-28	NG Operator	Yes	2421	111546389	8	22	80	18
2023-07-31	NG Operator	Yes	2416	111650363	8	22	80	18
2023-08-01	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-08-02	NG Operator	Yes	2415	1117200106	8	22	80	16
2023-08-03	NG Operator	Yes	2424	111755028	8	22	80	0

**Appendix B-3: Tower 102 Daily Inspection Form
2023 Electronic iForm Data**

Date and Time	Steam Pressure into Bed (psi) (Typical 3-4; Desorb)	VPGAC Influent Steam Temperature (F) (Typical 215-275; Desorb)	VPGAC Effluent Steam Temperature (F) (Typical 180-250; Desorb)	Cooling Water Flow rate (gpm) (Typical 85-125)	Cooling Water Influent Temperature (F) (Typical 50-60)	Separator Vent Temperature (F) (Typical 90-100) (Desorb only)	Air Flow Rate (x10 acfm) (Typical 8,000-10,000)	Weir Flow Meter Totalizer (x1000 gal)	Clear Well Discharge Pressure (psi) (Typical 50-60)
2023-04-05	3.5	242	200	151	59	92	8160	13891.63	71.2
2023-04-06	3.5	249	200	153	59	92	8130	13916	72.8
2023-04-07	3.5	233	200	152	59	93	8220	13944.59	72
2023-04-10	3.5	242	200	151	59	93	7670	14025	71.6
2023-04-11	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-04-12	3.5	249	200	152	59	93	7810	14096.6	72.2
2023-04-13	3.5	245	200	151	59	92	8100	141121	71.2
2023-04-14	3.4	246	201	150	59	91	7940	14154.19	70.5
2023-04-17	3.5	245	200	150	59	93	8010	14258	70.3
2023-04-18	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-04-19	3.4	243	200	151	59	92	7930	14325	71
2023-04-20	3.3	235	200	149	59	94	8020	14359	69.6
2023-04-21	3.5	239	199	148	59	92	8050	14393	68.6
2023-04-24	3.4	235	200	152	59	92	7540	14494	72.6
2023-04-25	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-04-26	3.4	237	200	152	59	93	8010	14563	72.3
2023-04-27	3.4	239	200	152	59	92	7890	14597	73.2
2023-04-28	3.4	244	200	152	59	93	7860	14631	73.2
2023-05-01	3.5	237	200	153	59	92	8050	14734	72.8
2023-05-02	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-05-03	3.4	241	200	150	59	92	8280	14803.46	70.2
2023-05-04	3.4	242	200	151	59	93	7870	14839	70.3
2023-05-05	3.5	245	201	149	59	91	7670	14870	69.4
2023-05-08	3.4	249	199	150	59	92	7980	14972	70.5
2023-05-09	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-05-10	3.4	239	200	150	59	92	7750	15036	69.6
2023-05-11	3.2	242	202	135	59	97	7689	NR	68
2023-05-12	3.4	245	200	150	59	92	8090	15077	70.2
2023-05-15	3.4	241	200	149	59	93	7800	15140	69.1
2023-05-16	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-05-17	3.5	251	200	149	59	92	8140	15182	69.7
2023-05-18	3.5	243	200	150	59	92	8120	15216	69.8
2023-05-19	3.4	238	200	148	59	91	8190	15250	68.9
2023-05-22	3.5	232	200	150	59	90	8280	15353.85	70.2
2023-05-23	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-05-24	3.5	243	200	150	59	93	7820	15422.9	70
2023-05-25	NR	231	200	150	59	90	7760	15445.94	70.2
2023-05-30	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-05-26	3.4	247	199	150	59	92	7910	NR	70.1
2023-05-31	3.4	226	200	150	59	93	7540	15660.67	70.4
2023-06-01	3.4	237	200	149	59	90	7860	15696	69.3
2023-06-02	3.4	246	200	152	59	92	8100	15728.04	72.5
2023-06-05	3.5	237	199	152	59	92	7740	15830.59	72.5
2023-06-06	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-06-07	3.4	239	201	152	59	92	8130	15899.76	73
2023-06-08	3.4	243	200	152	59	92	8070	15935.33	72.7
2023-06-12	3.4	239	200	151	59	92	7630	16059.53	71.4
2023-06-13	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-06-14	3.5	241	200	152	59	91	7500	16129.07	72.1
2023-06-15	3.5	243	200	152	59	91	7590	16163.45	73
2023-06-16	3.5	245	200	152	59	92	8130	16197.33	72.8
2023-06-19	3.4	244	200	153	59	91	8080	16301.49	73.2
2023-06-20	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-06-21	3.4	234	200	151	59	92	8060	16371.16	73
2023-06-22	3.4	235	200	152	59	91	7840	16405.02	73.1
2023-06-23	3.4	233	199	152	59	93	7450	16439.74	72.9
2023-06-26	3.5	249	200	151	59	92	8060	16540.97	71.6
2023-06-27	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-06-28	3.5	239	200	147	59	92	7840	16608.39	67.9
2023-06-29	3.4	243	200	148	59	91	7730	16641.72	64.4
2023-06-30	3.5	251	200	148	59	93	7780	16675.05	68.3
2023-07-03	3.4	245	200	147	59	92	7760	16775.13	66.9
2023-07-05	3.1	242	202	135	NR	97	7590	1656	76
2023-07-06	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-07-07	3.5	238	200	145	59	92	7740	16895.65	65.9
2023-07-10	3.4	247	200	150	59	92	8040	16997.38	70
2023-07-11	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-07-12	3.4	241	200	147	59	92	7650	170630.1	67.2
2023-07-13	3.4	245	200	148	59	92	7430	17096.28	68.1
2023-07-14	3.5	237	200	148	59	92	7540	17129.38	68.1
2023-07-17	3.5	239	200	150	59	91	7440	17230.15	70.3
2023-07-18	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-07-19	3.4	242	200	150	59	92	8060	17299.45	70.6
2023-07-20	3.5	239	200	150	59	92	8200	17333.49	70.5
2023-07-21	3.4	234	200	149	59	93	7940	17365.57	70.4
2023-07-24	3.5	245	200	149	59	92	7850	17466.97	69.4
2023-07-25	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-07-26	3.1	238	202	132	59	96	7448	17534	70
2023-07-27	3.5	245	200	147	59	92	7730	17568.51	68.5
2023-07-28	3.4	248	200	148	59	91	7460	17602.26	68
2023-07-31	3.5	249	200	151	59	91	7930	17702.84	71.8
2023-08-01	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-08-02	3.4	157	100	150	59	91	7640	17770.61	70.3
2023-08-03	0	70	70	150	59	90	7540	17804.5	70.3

**Appendix B-3: Tower 102 Daily Inspection Form
2023 Electronic iForm Data**

Date and Time	Technician	T102 System Operating?	AS Inluent Flow Recorder (Typical 2,300)	AS Inluent Flow Recorder Totalizer (x1000gal)	Blower Inluent Pressure (iwc) (Typical-6 to -8)	Blower Effluent Pressure (iwc) (Typical 18-22)	Blower Effluent Temperature (F) (Typical 80-100)	Steam Header Pressure (psi) (Typical 15-20)
2023-08-04	NG Operator	Yes	2412	111789179	8	22	80	0
2023-08-07	NG Operator	Yes	2416	111895938	8	22	80	0
2023-08-08	NG Operator	Yes	2411	111928250	8	22	80	0
2023-08-09	NG Operator	Yes	2421	111963309	8	22	80	0
2023-08-10	NG Operator	Yes	2418	111997476	8	22	80	0
2023-08-11	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-08-14	NG Operator	Yes	2413	112136737	8	22	80	0
2023-08-15	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-08-16	NG Operator	Yes	2412	112206352	8	22	80	16
2023-08-17	NG Operator	Yes	2414	112240773	8	22	80	18
2023-08-18	NG Operator	Yes	2409	112275966	8	22	80	18
2023-08-21	NG Operator	Yes	2408	112376672	8	22	80	16
2023-08-22	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-08-23	NG Operator	Yes	2421	112446609	8	22	80	30
2023-08-24	NG Operator	Yes	2415	112486321	8	22	80	30
2023-08-25	NG Operator	Yes	2414	112515844	8	22	80	30
2023-08-28	NG Operator	Yes	2408	112619813	8	22	80	30
2023-08-29	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-08-30	NG Operator	Yes	2409	112689464	8	22	80	31
2023-08-31	NG Operator	Yes	2412	112724289	8	22	80	31
2023-09-01	NG Operator	Yes	2414	112761038	8	22	80	30
2023-09-05	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-09-06	NG Operator	Yes	2408	112933140	8	22	80	22
2023-09-07	NG Operator	Yes	2418	112967901	8	22	80	20
2023-09-08	NG Operator	Yes	2413	113003168	8	22	80	20
2023-09-11	NG Operator	Yes	2424	113106702	8	22	80	17
2023-09-12	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-09-13	NG Operator	Yes	2420	113176468	8	22	80	18
2023-09-14	NG Operator	Yes	2411	113210741	8	22	80	18
2023-09-15	NG Operator	Yes	2406	113245435	8	22	80	18
2023-09-18	NG Operator	Yes	2395	113350112	8	22	80	18
2023-09-19	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-09-19	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-09-20	NG Operator	Yes	2404	113422455	8	22	80	17
2023-09-21	NG Operator	Yes	2412	113454048	8	22	80	19
2023-09-22	NG Operator	Yes	2404	113488676	8	22	80	20
2023-09-25	NG Operator	Yes	2412	113593093	8	22	80	30
2023-09-26	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-09-27	NG Operator	Yes	2412	113663365	8	22	80	30
2023-09-28	NG Operator	Yes	2414	113697279	8	22	80	28
2023-09-29	NG Operator	Yes	2420	113732103	8	22	80	31
2023-10-02	NG Operator	Yes	2409	113835780	8	22	80	32
2023-10-03	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-10-04	NG Operator	Yes	2408	113905128	8	22	80	30
2023-10-05	NG Operator	Yes	2409	113941081	8	22	80	30
2023-10-06	NG Operator	Yes	2408	113974740	8	22	80	28
2023-10-09	NG Operator	Yes	2400	114079026	8	22	80	26
2023-10-10	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-10-11	NG Operator	Yes	2414	114149218	8	22	80	30
2023-10-12	NG Operator	Yes	2409	114183459	8	22	80	38
2023-10-13	NG Operator	Yes	2417	114218093	8	22	80	38
2023-10-16	NG Operator	Yes	2414	114321737	8	22	80	31
2023-10-17	NG Operator	Yes	NR	NR	NR	NR	NR	NR
2023-10-18	NG Operator	Yes	2402	114397686	8	22	80	39
2023-10-19	NG Operator	Yes	2417	114430525	7	21	88	16
2023-10-20	NG Operator	Yes	2416	114460729	8	22	80	42
2023-10-23	NG Operator	No	NR	NR	NR	NR	NR	NR
2023-10-25	NG Operator	No	NR	114541439	NR	NR	NR	NR
2023-10-26	NG Operator	No	NR	114541448	NR	NR	NR	NR
2023-10-27	NG Operator	No	NR	114541455	NR	NR	NR	NR

**Appendix B-3: Tower 102 Daily Inspection Form
2023 Electronic iForm Data**

Date and Time	Steam Pressure into Bed (psi) (Typical 3-4; desorb)	VPGAC Influent Steam Temperature (F) (Typical 215-275; Desorb)	VPGAC Effluent Steam Temperature (F) (Typical 180-250; Desorb)	Cooling Water Flow rate (gpm) (Typical 85-125)	Cooling Water Influent Temperature (F) (Typical 50-60)	Separator Vent Temperature (F) (Typical 90-100) (Desorb only)	Air Flow Rate (x10 acfm) (Typical 8,000-10,000)	Weir Flow Meter Totalizer (x1000 gal)	Clear Well Discharge Pressure (psi) (Typical 50-60)
2023-08-04	0	0	0	148	59	90	7640	17837.35	68.1
2023-08-07	0	0	0	149	59	89	7480	17940.72	69.1
2023-08-08	0	0	0	148	59	90	7530	17971.82	68.3
2023-08-09	0	0	0	69.1	59	90	7460	18005.74	
2023-08-10	0	0	0	150	59	91	8060	18038.79	70.1
2023-08-11	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-08-14	0	0	0	148	59	90	7500	18173.4	68.6
2023-08-15	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-08-16	3.4	241	200	68.9	59	91	8080	18240.62	69
2023-08-17	3.5	235	200	149	59	92	8100	18273.95	69.3
2023-08-18	3.5	243	200	149	59	90	7930	18308.45	69.2
2023-08-21	3.4	237	200	150	59	91	8050	18406.82	70.4
2023-08-22	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-08-23	3.4	237	201	151	59	92	8020	18474.72	70.9
2023-08-24	3.5	241	200	149	59	91	7840	18513.45	70.1
2023-08-25	3.5	239	200	150	59	92	7730	18542.17	70.8
2023-08-28		232	200	151	59	90	8010	18643.32	71.3
2023-08-29	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-08-30	3.4	239	200	149	59	92	7690	18710.91	69
2023-08-31	3.4	240	201	151	59	92	8090	18744.72	70.7
2023-09-01	3.5	235	200	150	59	90	8070	18790.53	70.7
2023-09-05	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-09-06	3.4	232	200	148	59	92	8050	18948.12	68.4
2023-09-07	3.4	233	200	148	59	91	8140	18981.85	68.8
2023-09-08	3.4	239	200	147	59	90	8180	19015.94	68
2023-09-11	3.4	241	200	149	59	90	8100	19116.07	69.7
2023-09-12	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-09-13	3.4	236	200	150	59	91	7870	19180.71	70
2023-09-14	3.4	235	200	151	59	90	7810	19214.11	71.9
2023-09-15	3.5	236	200	152	59	90	8040	19248.08	72
2023-09-18	3.5	233	200	151	59	90	7740	19350.94	72
2023-09-19	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-09-19	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-09-20	3.4	233	199	151	59	92	8080	19421.83	71.8
2023-09-21	3.4	239	200	151	59	91	8160	19452.79	70.9
2023-09-22	3.5	231	200	150	59	90	8110	19486.65	70
2023-09-25	3.5	239	200	70.9	59	92	8160	19588.88	
2023-09-26	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-09-27	3.5	232	200	149	60	92	8190	19657.68	69.8
2023-09-28		241	200	151	60	91	7690	19690.58	71.7
2023-09-29	3.5	236	199	151	60	92	7730	19724.56	71.1
2023-10-02	3.5	232	200	149	59	91	8090	19826.18	69.4
2023-10-03	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-10-04	3.4	230	199	148	59	92	7850	19893.79	68.6
2023-10-05	3.5	233	200	151	59	91	8140	19928.72	71.3
2023-10-06	3.3	232	200	149	59	92	7730	19961.63	69.6
2023-10-09	3.4	233	200	151	60	91	7720	20063.41	72.1
2023-10-10	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-10-11	3.4	230	200	151	59	92	8240	20132.17	71.7
2023-10-12	3.5	234	200	151	59	92	8100	20165.71	71.6
2023-10-13	3.5	237	200	151	59	92	7890	20199.66	
2023-10-16	3.5	235	200	151	59	90	7650	20301.54	72
2023-10-17	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-10-18	3.5	230	200	150	59	91	7740	20376.12	70.7
2023-10-19	3.3	240	201	110	59	98	7560	20408	71
2023-10-20	3.5	233	200	150	59	91	7580	20437.85	70.9
2023-10-23	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-10-25	NR	NR	NR	NR	NR	NR	NR	20517.06	
2023-10-26	NR	NR	NR	NR	NR	NR	NR	NR	NR
2023-10-27	NR	NR	NR	NR	NR	NR	NR	20517.06	

Building 96

Monthly Inspection

January through December 2023

Appendix B-2: Tower 96 Monthly Inspection Forms 2023 Electronic iForm Data

Date/Time	Technician	Checked well piping for excessive noise and vibration and VFD for excessive heat, dust or noise.	Checked well piping, valves, joints and seals for leakage.	Checked well control panel indicator lights for alarms.	Checked well piping for excessive noise and vibration and VFD for excessive heat, dust or noise.	Checked well piping, valves, joints and seals for leakage.	Checked well control panel indicator lights for alarms.	Checked influent piping for leaks, checked exterior surface, manway and seams for signs of wear/corrosion or leaks.
2023-01-17	NG Operator	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
2023-02-24	NG Operator	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
2023-03-14	NG Operator	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
2023-03-21	NG Operator	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
2023-04-18	NG Operator	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
2023-05-31	NG Operator	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
2023-06-13	NG Operator	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
2023-07-18	NG Operator	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
2023-08-15	NG Operator	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
2023-09-05	NG Operator	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
2023-10-10	NG Operator	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
2023-11-06	NG Operator	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
2023-11-14	NG Operator	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
2023-12-05	NG Operator	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
2023-12-19	NG Operator	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
Note:								
Additional Action items and Comment fields were removed for presentation, as no comments or actions were recorded by the Operator.								
Abbreviations:								
NG	Northrop Grumman							
NR	Not Recorded							

Appendix B-2: Tower 96 Monthly Inspection Forms 2023 Electronic iForm Data

Date/Time	Checked air intake screen for obstructions	Cleaned blower motor housing	Visually checked for leaks on above-grade duct work, flexible boot and blower unit.	Checked motor bearing lubrication and lubricate as needed	Checked blower and fan/belt for excessive vibration, temperature or noise	Cleaned Oxy blower motor housing	Visually checked for leaks on above-grade duct work, flexible boot and Oxy blower unit.	Checked Oxy motor bearing lubrication and lubricate as needed
1/13/2022	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
1/18/2022	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
2/2/2022	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
3/3/2022	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
3/29/2022	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
5/17/2022	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
6/28/2022	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
7/29/2022	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
8/3/2022	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
9/26/2022	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
10/25/2022	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
11/8/2022	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
11/21/2022	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
11/21/2022	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
11/30/2022	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
Note:								
Additional Action items and Comment fields were removed for presentation, as no comments or actions were recorded by the Operator.								
Abbreviations:								
NG	Northrop Grumman							
NR	Not Recorded							

Appendix B-2: Tower 96 Monthly Inspection Forms 2023 Electronic iForm Data

Date/Time	Checked Oxy blower and fan/belt for excessive vibration, temperature or noise	Bearing Temperature from top of pillow block (Motor Side) (F)	Bearing Temperature from top of pillow block (Belt Side) (F)	Checked pneumatic lines for leaks or breaks	Inspected valves for proper positioning/seating	Inspected damper housing during a desorb cycle for steam vapors and leaks	Manually checked alarm conditions at well house and treatment system building	Checked and drained condensate traps. If condensate trap filters are saturated, replace filters
1/17/2023	Yes - OK	73.5	99.4	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
2/24/2023	Yes - OK	80	70	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
3/14/2023	Yes - OK	65.1	76.3	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
3/21/2023	Yes - OK	80.6	89.3	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
4/18/2023	Yes - OK	80	87.2	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
5/31/2023	Yes - OK	94.2	101.2	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
6/13/2023	Yes - OK	102.3	106.8	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
7/18/2023	Yes - OK	106.1	107	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
8/15/2023	Yes - OK	103.6	99.2	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
9/5/2023	Yes - OK	104.1	107.4	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
10/10/2023	Yes - OK	86.2	93.4	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
11/6/2023	Yes - OK	78.5	89.6	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
11/14/2023	Yes - OK	77.8	87.6	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
12/5/2023	Yes - OK	71.9	85.7	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
12/19/2023	Yes - OK	73.1	86	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
Note:								
Additional Action items and Comment fields were removed for presentation, as no comments or actions were recorded by the Operator.								
Abbreviations:								
NG	Northrop Grumman							
NR	Not Recorded							

Appendix B-2: Tower 96 Monthly Inspection Forms 2023 Electronic iForm Data

Date/Time	Checked clearwell pumps and pump motors for excessive noise and vibration	Check clearwell piping and packing glands for leaks or too much overspray	Checked clearwell control panel indicator lights for alarms					
1/17/2023	Yes - OK	Yes - OK	Yes - OK					
2/24/2023	Yes - OK	Yes - OK	Yes - OK					
3/14/2023	Yes - OK	Yes - OK	Yes - OK					
3/21/2023	Yes - OK	Yes - OK	Yes - OK					
4/18/2023	Yes - OK	Yes - OK	Yes - OK					
5/31/2023	Yes - OK	Yes - OK	Yes - OK					
6/13/2023	Yes - OK	Yes - OK	Yes - OK					
7/18/2023	Yes - OK	Yes - OK	Yes - OK					
8/15/2023	Yes - OK	Yes - OK	Yes - OK					
9/5/2023	Yes - OK	Yes - OK	Yes - OK					
10/10/2023	Yes - OK	Yes - OK	Yes - OK					
11/6/2023	Yes - OK	Yes - OK	Yes - OK					
11/14/2023	Yes - OK	Yes - OK	Yes - OK					
12/5/2023	Yes - OK	Yes - OK	Yes - OK					
12/19/2023	Yes - OK	Yes - OK	Yes - OK					
Note:	Additional Action items and Comment fields were removed for presentation, as no comments or actions were recorded by the Operator.							
Abbreviations:								
NG	Northrop Grumman							
NR	Not Recorded							

6 i]`X]b[` '%\$&'

A c b h ` m = b g d Y W] c b `

> U b i U f m i h f c i [\ ` 8 Y W a V Y f ` & \$ & '

Appendix B-4: Tower 102 Monthly Inspection Forms 2023 Electronic iForm Data

Date/Time	Technician	Checked well piping for excessive noise and vibration and VFD for excessive heat, dust or noise.	Checked well piping, valves, joints and seals for leakage.	Checked well control panel indicator lights for alarms.	Checked well piping for excessive noise and vibration and VFD for excessive heat, dust or noise.	Checked well piping, valves, joints and seals for leakage.	Checked well control panel indicator lights for alarms.	Checked well piping for excessive noise and vibration and VFD for excessive heat, dust or noise.
1/17/2023	NG Operator	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
2/24/2023	NG Operator	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
3/14/2023	NG Operator	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
3/21/2023	NG Operator	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
4/18/2023	NG Operator	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
5/31/2023	NG Operator	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
6/13/2023	NG Operator	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
7/18/2023	NG Operator	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
8/15/2023	NG Operator	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
9/5/2023	NG Operator	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
10/10/2023	NG Operator	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
11/6/2023	NG Operator	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
11/14/2023	NG Operator	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
12/5/2023	NG Operator	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
12/19/2023	NG Operator	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK	Yes - OK
Note:								
Additional Action items and Comment fields were removed for presentation, as no comments or actions were recorded by the Operator.								
Abbreviations:								
NG	Northrop Grumman							

Appendix C

Hazardous Waste Manifests

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number	
5. Generator's Name and Mailing Address			Generator's Site Address (if different than mailing address)			
Generator's Phone:						
6. Transporter 1 Company Name				U.S. EPA ID Number		
7. Transporter 2 Company Name				U.S. EPA ID Number		
8. Designated Facility Name and Site Address				U.S. EPA ID Number		
Facility's Phone:						
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
		No.	Type			
1.						
2.						
3.						
4.						
14. Special Handling Instructions and Additional Information						
<p>15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.</p>						
Generator's/Offeror's Printed/Typed Name			Signature		Month Day Year	
<p>16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____</p> <p>Transporter signature (for exports only): _____</p>						
17. Transporter Acknowledgment of Receipt of Materials						
Transporter 1 Printed/Typed Name			Signature		Month Day Year	
Transporter 2 Printed/Typed Name			Signature		Month Day Year	
18. Discrepancy						
<p>18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection</p> <p style="text-align:right;">Manifest Reference Number: _____</p>						
18b. Alternate Facility (or Generator)				U.S. EPA ID Number		
Facility's Phone:						
18c. Signature of Alternate Facility (or Generator)					Month Day Year	
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)						
1.	2.	3.	4.			
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a						
Printed/Typed Name			Signature		Month Day Year	

Appendix D

SPDES Discharge Monitoring Reports

January 2023

Northrop Grumman
925 South Oyster Bay Road
Bethpage, NY 11714

northropgrumman.com

ESH&M-005L-23
March 1, 2023

Jason Pelton
N.Y.S. Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-3506

RE: NYSDEC No. 1-30-003A

Subject: Additional Sampling Constituents for Report Period:
January 1, 2023 – January 31, 2023

Mr. Pelton:

Below please find the 1,4 – Dioxane sampling results for Outfalls 1, 5 and 6 for this reporting period.

Outfall 1 – 0.92 ug/L
Outfall 5 – 3.9 ug/L
Outfall 6 – 5.7 ug/L

If you have any questions, please call me at 516-575-2333
Very truly yours,



Edward J. Hannon
Environmental, Safety, Health & Medical Director
516-575-2333
M/S: 02/BP15

cc: Regional Water Engineer - Region 1
NYS Department of Environmental Conservation
SUNY @ Stony Brook
50 Circle Road
Stony Brook, NY 11790-3409

bcc: D. Stern (AG&M)

Northrop Grumman
925 South Oyster Bay Road
Bethpage, NY 11714

northropgrumman.com

ESH&M-006L-23
March 1, 2023

Jason Pelton
N.Y.S. Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-3506

Subject: **Report for SPDES Permit Equivalent, NYSDEC Site No. 1-30-003A
Northrop Grumman Corporation - Bethpage, New York Facility**

Mr. Pelton:

Enclosed please find the subject SPDES Permit Equivalent summary tables for the month of January 2023 as per additional condition requirements outlined in the SPDES Permit Equivalent (Northrop Grumman, NYSDEC No. 1-30-003A) dated July 30, 2018.

If you have any questions, please call me at 516-575-2333

Very truly yours,



Edward J. Hannon
Environmental, Safety, Health & Medical Director
516-575-2333
M/S: 02/BP15

cc: Regional Water Engineer - Region 1
NYS Department of Environmental Conservation
SUNY @ Stony Brook
50 Circle Road
Stony Brook, NY 11790-3409

bcc: D. Stern (AG&M)

DISCHARGE MONITORING REPORT (DMR)

OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (include Facility Name/Location if
 NAME: NORTROP GRUMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S- W16- 035
 BETHPAGE, NY 11714
 FACILITY: NORTROP GRUMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S- W16- 035
 BETHPAGE, NY 11714
 ATTN: JOHN COFMAN

NY0096792	005- C
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
01/01/2023	01/31/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SUBR 01)
 NC COOLING & STORM WATER TO GW
 External Outfall
 No Discharge

PARAMETER	QUANTITY OR LOADING		QUANTITY OR CONCENTRATION		NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	UNITS			
pH	*****	*****	*****	*****	0	1/31 Monthly	Grab
0040010 Effluent Gross	*****	*****	5.4 Req. Mon. MINIMUM	5.4 Req. Mon. MAXIMUM	0	1/31 Monthly	Grab
pH	*****	*****	*****	*****	0	1/31 Monthly	Grab
0040010 Intake from Well	*****	*****	6.3 Req. Mon. MINIMUM	6.3 Req. Mon. MAXIMUM	0	1/31 Monthly	Grab
Nitrogen, total [as N]	*****	*****	*****	*****	0	1/31 Monthly	Grab
0060010 Effluent Gross	*****	*****	*****	3.7 mg/L 10 DAILY MX	0	1/31 Monthly	Grab
Methylene chloride	*****	*****	*****	*****	0	1/31 Monthly	Grab
3442310 Effluent Gross	*****	*****	*****	<0.5 ug/L 5 DAILY MX	0	1/31 Monthly	Grab
Tetrachloroethylene	*****	*****	*****	*****	0	1/31 Monthly	Grab
3447510 Effluent Gross	*****	*****	*****	<0.5 ug/L 5 DAILY MX	0	1/31 Monthly	Grab
1,1-Dichloroethylene	*****	*****	*****	*****	0	1/31 Monthly	Grab
3450110 Effluent Gross	*****	*****	*****	<0.5 ug/L 5 DAILY MX	0	1/31 Monthly	Grab
1,1,1-Trichloroethane	*****	*****	*****	*****	0	1/31 Monthly	Grab
3450610 Effluent Gross	*****	*****	*****	<0.5 ug/L 5 DAILY MX	0	1/31 Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	TELEPHONE	DATE
Edward J. Hannan, ESH Director	516-515-2333	03/01/2023
TYPED OR PRINTED	AREA Code	MM/DD/YYYY
SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	NUMBER	

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
 WHEN NATURAL GW HAS PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

DISCHARGE MONITORING REPORT (DMR)

FORM APPROVED
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if
NAME: NORTHPOL GRUMMAN SYSTEMS CORP
ADDRESS: 925 SO. OYSTER BAY RD M/S- W16- 035
BETHPAGE, NY 11714

FACILITY: NORTHPOL GRUMMAN SYSTEMS CORP
LOCATION: 925 SO. OYSTER BAY RD M/S- W16- 035
BETHPAGE, NY 11714

ATTN: JOHN COFMAN

NY0096792	005- C
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
01/01/2023	01/31/2023

DMR Mailing ZIP CODE: 11714
MINOR (SUBR 01)
NC COOLING & STORM WATER TO GW
External Outfall

No Discharge

PARAMETER	QUANTITY OR LOADING		QUALITY OR CONCENTRATION			NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	UNITS	VALUE			
Vinyl chloride	*****	*****	*****	*****	*****	0	1/31 Monthly	Grab
39175 10 Effluent Gross	*****	*****	*****	*****	*****	0	1/31 Monthly	Grab
Trichloroethylene	*****	*****	*****	*****	*****	0	1/31 Monthly	Grab
39180 10 Effluent Gross	*****	*****	*****	*****	*****	0	1/31 Monthly	Grab
Flow, in conduit or thru treatment plant	*****	*****	*****	*****	*****	0	1/31 Monthly	Measured
50050 10 Effluent Gross	*****	*****	*****	*****	*****	0	1/31 Monthly	Measured
Calculated limit	*****	*****	*****	*****	*****	0	1/31 Monthly	Calculated
74013 10 Effluent Gross	*****	*****	*****	*****	*****	0	1/31 Monthly	Calculated
cis- 1,2- Dichloroethylene	*****	*****	*****	*****	*****	0	1/31 Monthly	Grab
77093 10 Effluent Gross	*****	*****	*****	*****	*****	0	1/31 Monthly	Grab
Trichlorotrifluoroethane	*****	*****	*****	*****	*****	0	1/31 Monthly	Grab
81611 10 Effluent Gross	*****	*****	*****	*****	*****	0	1/31 Monthly	Grab
trans- 1,2- Dichloroethylene	*****	*****	*****	*****	*****	0	1/31 Monthly	Grab
85810 10 Effluent Gross	*****	*****	*****	*****	*****	0	1/31 Monthly	Grab

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information, and that I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	TELEPHONE	DATE
Edward J Hannon / ESH Director	516-515-2333	01/01/2023
TYPED OR PRINTED	AREA Code	MM/DD/YYYY
SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	NUMBER	
	516-515-2333	

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

WHEN NATURAL GW HAS PFI OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL, PFI MONTHLY & REPORT PFI COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0001

PERMITTEE: NAME/ADDRESS (Include Facility Name/Location if
NAME: NORTHROP GRUMMAN SYSTEMS CORP
ADDRESS: 925 SO. OYSTER BAY RD M/S- W16- 035
BETHPAGE, NY 11714
FACILITY: NORTHROP GRUMMAN SYSTEMS CORP
LOCATION: 925 SO. OYSTER BAY RD M/S- W16- 035
BETHPAGE, NY 11714
ATTN: JOHN COFMAN

NY0096792	006- C
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
01/31/2023	01/31/2023

DMR Mailing ZIP CODE: 11714
MINOR (SUBR 01)
NC COOLING & STORM WATER TO GW
External Outfall

No Discharge

PARAMETER	QUANTITY OR LOADING			QUALITY OR CONCENTRATION			NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	VALUE	UNITS	VALUE			
pH	*****	*****	*****	*****	SU	5.6	0	1/31	Grab
00400 1 0 Effluent Gross	*****	*****	*****	*****	SU	5.6	0	Monthly	Grab
pH	*****	*****	*****	*****	SU	5.4	0	1/31	Grab
00400 1 0 Intake from Well	*****	*****	*****	*****	SU	5.4	0	Monthly	Grab
Nitrogen, total [as N]	*****	*****	*****	*****	mg/L	4.0	0	1/31	Grab
00600 1 0 Effluent Gross	*****	*****	*****	*****	mg/L	10	0	Monthly	Grab
Methylene chloride	*****	*****	*****	*****	ug/L	<0.5	0	1/31	Grab
34423 1 0 Effluent Gross	*****	*****	*****	*****	ug/L	5	0	Monthly	Grab
Tetrachloroethylene	*****	*****	*****	*****	ug/L	<0.5	0	1/31	Grab
34475 1 0 Effluent-Gross	*****	*****	*****	*****	ug/L	5	0	Monthly	Grab
1,1-Dichloroethylene	*****	*****	*****	*****	ug/L	<0.5	0	1/31	Grab
34501 1 0 Effluent Gross	*****	*****	*****	*****	ug/L	5	0	Monthly	Grab
1,1,1-Trichloroethane	*****	*****	*****	*****	ug/L	<0.5	0	1/31	Grab
34506 1 0 Effluent Gross	*****	*****	*****	*****	ug/L	5	0	Monthly	Grab

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	TELEPHONE	DATE
Edward J. Hanrahan, Director	516-515-2333	03/01/2023
TYPED OR PRINTED	AREA Code	MM/DD/YYYY
	NUMBER	
SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT		

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

WHEN NATURAL GWS HAVE PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS & REQUIREMENTS

DISCHARGE MONITORING REPORT (DMR)

OMB No. 2040-0004

PERMITTEE: NAME/ADDRESS (include Facility Name/Location if
 NAME: NORTROP GRUMMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S- W16- 035
 BETHPAGE, NY 11714

FACILITY: NORTROP GRUMMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S- W16- 035
 BETHPAGE, NY 11714

ATTN: JOHN COFMAN

NY0096792
 PERMIT NUMBER

006- C
 DISCHARGE NUMBER

MM/DD/YYYY
 01/01/2023

MONITORING PERIOD
 MM/DD/YYYY
 01/31/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SUBR 01)

NC COOLING & STORM WATER TO GW
 External Outfall

No Discharge

PARAMETER	QUANTITY OR LOADING		QUALITY OR CONCENTRATION			UNITS	NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	VALUE	VALUE				
Vinyl chloride	*****	*****	*****	*****	<1.0	ug/L	0	1/31 Monthly	Grab
39175 1 0 Effluent Gross	*****	*****	*****	*****	5 DAILY MX	ug/L	0	1/31 Monthly	Grab
Trichloroethylene	*****	*****	*****	*****	<0.5	ug/L	0	1/31 Monthly	Grab
39180 1 0 Effluent Gross	*****	*****	*****	*****	5 DAILY MX	ug/L	0	1/31 Monthly	Grab
Flow, in conduit or thru treatment plant	*****	*****	*****	*****	*****	*****	0	1/31 Monthly	Measured
50050 1 0 Effluent Gross	*****	*****	*****	*****	*****	*****	0	1/31 Monthly	Measured
Calculated limit	*****	*****	*****	*****	*****	*****	0	1/31 Monthly	Calculated
74013-1 0 Effluent Gross	*****	*****	*****	*****	*****	*****	0	1/31 Monthly	Calculated
cis- 1,2- Dichloroethylene	*****	*****	*****	*****	<0.5	ug/L	0	1/31 Monthly	Grab
77093 1 0 Effluent Gross	*****	*****	*****	*****	5 DAILY MX	ug/L	0	1/31 Monthly	Grab
Trichlorotrifluoroethane	*****	*****	*****	*****	<1.0	ug/L	0	1/31 Monthly	Grab
81611 1 0 Effluent Gross	*****	*****	*****	*****	5 DAILY MX	ug/L	0	1/31 Monthly	Grab
trans- 1,2- Dichloroethylene	*****	*****	*****	*****	<0.5	ug/L	0	1/31 Monthly	Grab
85810 1 0 Effluent Gross	*****	*****	*****	*****	5 DAILY MX	ug/L	0	1/31 Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER *Edward J. Honnan*
 Edward J. Honnan, ESH Director
 TYPED OR PRINTED

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT
Edward J. Honnan

TELEPHONE DATE
 ALBA Code NUMBER
 516-515-2333 03/01/2023

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
 WHEN NATURAL GWS HAVE PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS & REQUIREMENTS

DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if NAME)
 NORTHIROP GRUMMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S- W16-035
 BEHIPPAGE, NY 11714

FACILITY: NORTHIROP GRUMMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S- W16-035
 BEHIPPAGE, NY 11714

ATTN: JOHN COFMAN

NY0096792
 PERMIT NUMBER

001-WSP-7
 DISCHARGE NUMBER

MONITORING PERIOD

MM/DD/YYYY
 01/01/2023

MM/DD/YYYY
 01/31/2023

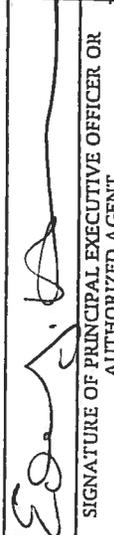
DMR Mailing ZIP CODE: 11714
 MINOR (SUHR 01)

NC COOLING & STORM WATER TO GW
 External Outfall

No Discharge

PARAMETER	SAMPLE MEASUREMENT	QUANTITY OR LOADING		QUALITY OR CONCENTRATION			NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	UNITS	VALUE	VALUE	UNITS			
pH	PERMIT REQUIREMENT	*****	*****	6.0	Req. Mon. MINIMUM	*****	0	1/31 Monthly	Grab
0040010 Effluent Gross pH	SAMPLE MEASUREMENT	*****	*****	6.0	Req. Mon. MINIMUM	*****	0	1/31 Monthly	Grab
0040010 Intake from Well Nitrogen, total [as N]	PERMIT REQUIREMENT	*****	*****	6.0	Req. Mon. MINIMUM	*****	0	1/31 Monthly	Grab
0060010 Effluent Gross Methylene chloride	SAMPLE MEASUREMENT	*****	*****	6.0	Req. Mon. MINIMUM	*****	0	1/31 Monthly	Grab
3442310 Effluent Gross Tetrachloroethylene	PERMIT REQUIREMENT	*****	*****	<0.30	10 DAILY MX	*****	0	1/31 Monthly	Grab
3442310 Effluent Gross 1,1-Dichloroethylene	SAMPLE MEASUREMENT	*****	*****	<2.0	5 DAILY MX	*****	0	1/31 Monthly	Grab
3450110 Effluent Gross 1,1,1-Trichloroethane	PERMIT REQUIREMENT	*****	*****	<1.0	5 DAILY MX	*****	0	1/31 Monthly	Grab
3450110 Effluent Gross 1,1,1-Trichloroethane	SAMPLE MEASUREMENT	*****	*****	<1.0	5 DAILY MX	*****	0	1/31 Monthly	Grab
3450610 Effluent Gross	PERMIT REQUIREMENT	*****	*****	<1.0	5 DAILY MX	*****	0	1/31 Monthly	Grab

NAME/TITLE: PRINCIPAL EXECUTIVE OFFICER
 Edward J. Hannon, JESH Director
 TYPED OR PRINTED

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT


TELEPHONE: _____ DATE: _____
 ALEA Code: 516-515-2333 NUMBER: 03/01/2023
 MM/DD/YYYY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
 WHEN NATURAL GW HAS PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY & REPORT P11 COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME/ ADDRESS (include Facility Name/Location if applicable)
 NAME: NORTHROP GRUMMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S- W16-035
 BETHPAGE, NY 11714
 FACILITY: NORTHROP GRUMMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S- W16-035
 BETHPAGE, NY 11714
 ATTN: JOHN COPIAN

NY0096792
 PERMIT NUMBER
 MONITORING PERIOD
 MM/DD/YYYY
 01/01/2023

061-WSP-7
 DISCHARGE NUMBER
 MM/DD/YYYY
 01/31/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SUFR 01)
 NC COOLING & STORM WATER TO CW
 External Outfall
 No Discharge

PARAMETER	QUANTITY OR LOADING		QUALITY OR CONCENTRATION		NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	UNITS			
Vinyl chloride	*****	*****	*****	*****	0	1/31 Monthly	Grab
3917510 Effluent Gross	*****	*****	*****	*****	0	1/31 Monthly	Grab
Trichloroethylene	*****	*****	*****	*****	0	1/31 Monthly	Grab
3918010 Effluent Gross	*****	*****	*****	*****	0	1/31 Monthly	Grab
Flow, in conduit or thru treatment plant	*****	*****	*****	*****	0	1/31 Monthly	Measured
5005010 Effluent Gross	*****	*****	*****	*****	0	1/31 Monthly	Measured
Calculated limit	*****	*****	*****	*****	0	1/31 Monthly	Calculated
7401310 Effluent Gross	*****	*****	*****	*****	0	1/31 Monthly	Calculated
cis-1,2-Dichloroethylene	*****	*****	*****	*****	0	1/31 Monthly	Grab
7709310 Effluent Gross	*****	*****	*****	*****	0	1/31 Monthly	Grab
Trichloro-trifluoroethylene	*****	*****	*****	*****	0	1/31 Monthly	Grab
816110 Effluent Gross	*****	*****	*****	*****	0	1/31 Monthly	Grab
trans-1,2-Dichloroethylene	*****	*****	*****	*****	0	1/31 Monthly	Grab
8581010 Effluent Gross	*****	*****	*****	*****	0	1/31 Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
 Edward J. Hanrahan, Director
 TYPED OR PRINTED

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT
 [Signature]

TELEPHONE
 DATE
 AREA CODE NUMBER
 516-515-2333
 03/01/2023

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
 WHEN NATURAL CW HAS PIH OFFSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORTS SUPPLY WELL & OUTFALL PIH MONTHLY & REPORT PIH COMPLIANCE STATES YES/NO) IN CALCULATED LIMIT AREA. SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

Monitoring Period:
January 2023
 1/1/23 12:00 AM 1/31/23 12:00 AM
 31 Days

OU2 South Basins: Outfall 005

OU2 Groundwater Remedy Tower 102 Treatment System - Treated Air Stripper Discharge and Storm Water Runoff

Parameter ⁽¹⁾	CAS Number	OUTFALL 005 1/10/2023	Discharge Limit ⁽²⁾	Units	Monitoring Frequency	Sample Type	Average Mass Loading ^(5,7)	Units
Daily Average Flow ⁽⁴⁾	—	3.88	Monitor	MGD	Continuous	SCADA	—	—
Daily Maximum Flow ⁽⁴⁾	—	3.81	Monitor	MGD	Continuous	SCADA	—	—
Influent pH ⁽³⁾	—	6.3	NS	SU	Monthly (1/31) Days	Grab	—	—
Effluent pH ⁽³⁾	—	5.4	Range 5.0-8.5	SU	Monthly (1/31) Days	Grab	—	—
Total Nitrogen (as N)	—	3.7	10.0	mg/L	Monthly (1/31) Days	Grab	113.58	lbs/day
Total Iron	7439-89-6	< 100	600	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
Total Manganese	7439-98-5	< 15	600	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
Sum of Total Iron and Manganese ⁽⁸⁾	—	ND	1,000	µg/L	Monthly (1/31) Days	Calculated	—	lbs/day
1,1-Dichloroethylene	75-35-4	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
Methylene Chloride	75-09-2	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
Tetrachloroethylene	127-18-4	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
1,1,1-Trichloroethane	71-55-6	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
Trichloroethylene	79-01-6	1.1	5.0	µg/L	Monthly (1/31) Days	Grab	0.03	lbs/day
Vinyl Chloride	75-01-4	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
trans-1,2-Dichloroethylene	156-60-5	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
cis-1,2-Dichloroethylene	158-59-2	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
Chloroform	67-66-3	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
Trichlorotrifluoroethane (Freon 113)	76-13-1	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
1,4-Dioxane	123-91-1	3.9	Monitor	µg/L	Monthly (1/31) Days	Grab	0.12	lbs/day

Notes and abbreviations on last page

OU2 West Basins: Outfall 006
OU2 Groundwater Remedy Tower 96 Treatment System - Treated Air Stripper Discharge and Storm Water Runoff

Parameter ⁽¹⁾	CAS Number	OUTFALL 006 1/10/2023	Discharge Limit ⁽²⁾	Units	Monitoring Frequency	Sample Type	Average Mass Loading ^(6,7)	Units
Daily Average Flow ⁽⁴⁾	—	1.79	Monitor	MGD	Continuous	SCADA	—	—
Daily Maximum Flow ⁽⁴⁾	—	2.09	Monitor	MGD	Continuous	SCADA	—	—
Influent pH ⁽⁵⁾	—	5.4	NS	SU	Monthly (1/31) Days	Grab	—	—
Effluent pH ⁽⁵⁾	—	5.6	Range 5.0-8.5	SU	Monthly (1/31) Days	Grab	—	—
Total Nitrogen (as N)	—	4.0	10.0	mg/L	Monthly (1/31) Days	Grab	69.78	lbs/day
Total Iron	7439-89-6	<100	800	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
Total Manganese	7439-98-5	<15	800	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
Sum of Total Iron and Manganese ⁽⁸⁾	—	ND	1,000	µg/L	Monthly (1/31) Days	Calculated	—	lbs/day
1,1-Dichloroethylene	75-35-4	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
Methylene Chloride	75-09-2	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
Tetrachloroethylene	127-18-4	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
1,1,1-Trichloroethane	71-55-6	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
Trichloroethylene	79-01-6	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
Vinyl Chloride	75-01-4	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
trans-1,2-Dichloroethylene	156-60-5	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
cis-1,2-Dichloroethylene	156-59-2	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
Chloroform	67-66-3	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
Trichlorotrifluoroethane (Freon 113)	78-13-1	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
1,4-Dioxane	123-91-1	5.7	Monitor	µg/L	Monthly (1/31) Days	Grab	0.10	lbs/day

Notes and abbreviations on last page

OU3 Effluent: Outfall 001 (WSP-7)

OU3 Groundwater Remedy Treatment System - Treated Air Stripper and Soil Gas Containment Condensate Discharge to Nassau County Recharge Basins

Parameter ⁽¹⁾	CAS Number	OUTFALL 001 (WSP-7) 1/10/2023	Discharge Limit ⁽²⁾	Units	Monitoring Frequency	Sample Type	Average Mass Loading ^(3,7)	Units
Daily Average Flow ⁽⁴⁾	—	0.28	Monitor	MGD	Continuous	SCADA	—	—
Daily Maximum Flow ⁽⁴⁾	—	0.30	Monitor	MGD	Continuous	SCADA	—	—
Influent pH ⁽⁵⁾	—	6.0	NS	SU	Monthly (1/31) Days	Grab	—	—
Affluent pH ⁽⁵⁾	—	6.0	Range: 5.0-8.5	SU	Monthly (1/31) Days	Grab	—	—
Total Nitrogen (as N)	—	< 0.30	10.0	mg/L	Monthly (1/31) Days	Grab	—	lbs/day
Total Iron	7439-89-6	178	800	µg/L	Monthly (1/31) Days	Grab	0.42	lbs/day
Total Manganese	7439-98-5	83.0	800	µg/L	Monthly (1/31) Days	Grab	0.15	lbs/day
Sum of Total Iron and Manganese	—	241.0	1,000	µg/L	Monthly (1/31) Days	Calculated	0.56	lbs/day
1,1-Dichloroethylene	75-35-4	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
Methylene Chloride	75-09-2	< 2.0	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
Tetrachloroethylene	127-18-4	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
1,1,1-Trichloroethane	71-55-6	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
Trichloroethylene	79-01-6	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
Vinyl Chloride	75-01-4	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
1,2 (trans)-Dichloroethylene	156-80-5	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
1,2-(cis)-Dichloroethylene	156-59-2	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
Chloroform	67-66-3	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
Trichlorotrifluoroethane (Freon 113)	76-13-1	< 5.0	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
Benzene	71-43-2	< 0.50	1.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
1,1-Dichloroethane	75-34-3	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
Ethylbenzene	100-41-4	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
Toluene	108-88-3	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
Xylene, Ortho	95-47-6	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
Xylene, Meta	108-38-3	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
Xylene, Para	106-42-3	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
1,4-Dioxane	123-91-1	0.92	Monitor	µg/L	Monthly (1/31) Days	Grab	2.15E-03	lbs/day

Notes and Abbreviations:

- XX Bold value indicates the constituent was detected at or above its laboratory quantification limit.
- < Compound is not detected above laboratory quantification limit
- Not Applicable
- µg/L micrograms per liter
- lbs/day pounds per day
- lb/kg pounds per kilogram
- MGD million gallons per day
- mg/L milligrams per liter
- min minutes
- SU Standard Units
- CAS Chemical Abstracts Service
- ND Non Detect
- NS None Specified
- NYSDEC New York State Department of Environmental Conservation
- SCADA Supervisory Control and Data Acquisition
- SPDES State Pollution Discharge Elimination System
- TKN Total Kjeldahl Nitrogen

1. Samples were analyzed for permit equivalency Volatile Organic Compounds (VOCs) using USEPA Method 624 at OU2 system, and USEPA Method 8260 at OU3 system, 1,4-Dioxane using USEPA Method 8270D-SIM-CLE; Total Nitrogen is calculated as the sum of Nitrogen, (Nitrate+Nitrite) and Total Kjeldahl Nitrogen (TKN), (CAS number: 14797-55-8, 14797-65-0, and 7727-37-9, respectively) by USEPA Methods 353.2 and 351.2, respectively. Total Iron and Manganese using USEPA Method 200.7.

2. Discharge limits are per the SPDES permit equivalency, dated October 12, 2017, amended on September 15, 2022 and transmitted by the NYSDEC to Northrop Grumman on September 19, 2022.

3. Mass Loading Calculation.

$$Mass\ Loading\ \left(\frac{lb}{day}\right) = Flow\ \left(\frac{gal}{min}\right) \cdot 1440\ \left(\frac{min}{day}\right) \cdot concentration\ \left(\frac{\mu g}{liter}\right) \cdot 10^9\ \left(\frac{\mu g}{kg}\right) \cdot 3.785\ \left(\frac{liter}{gal}\right) \cdot 2.2046\ \left(\frac{lb}{kg}\right)$$

- 4. Average and daily maximum flow calculated from SCADA reports for the month indicated.
- 5. Field measurement of pH taken by hand held meter on sample date.
- 6. When Total Iron and Total Manganese are below their respective detection limits the Sum Total of Iron and Manganese is reported as "ND".
- 7. Average Mass Loading calculations are based on actual flow rates unless otherwise noted.

Report of Analysis

Client Sample ID: OUTFALL 005		Date Sampled: 01/10/23
Lab Sample ID: JD58485-2		Date Received: 01/10/23
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: EPA 624.1		
Project: Northrop Grumman, OU2 System, Bethpage, NY		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4D125083.D	1	01/13/23 03:22	TS	n/a	n/a	V4D5551
Run #2							

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

VOA OU2 SPDES List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform ^a	ND	0.50	0.36	ug/l	
75-35-4	1,1-Dichloroethene	ND	0.50	0.45	ug/l	
156-59-2	cis-1,2-Dichloroethene ^a	ND	0.50	0.33	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	0.46	ug/l	
76-13-1	Freon 113 ^a	ND	1.0	0.53	ug/l	
75-09-2	Methylene chloride	ND	0.50	0.41	ug/l	
127-18-4	Tetrachloroethene	ND	0.50	0.41	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.43	ug/l	
79-01-6	Trichloroethene	1.1	0.50	0.43	ug/l	
75-01-4	Vinyl chloride ^a	ND	1.0	0.56	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4 (SUR)	114%		80-128%
2037-26-5	Toluene-D8 (SUR)	97%		82-113%
460-00-4	4-Bromofluorobenzene (SUR)	104%		79-117%
1868-53-7	Dibromofluoromethane (S)	103%		84-121%

(a) MDL from current instrument.

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: OUTFALL 005	Date Sampled: 01/10/23
Lab Sample ID: JD58485-2	Date Received: 01/10/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Northrop Grumman, OU2 System, Bethpage, NY	

4.2
4

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	< 100	100	ug/l	1	01/12/23	01/13/23 ND	EPA 200.7 ¹	EPA 200.7 ²
Manganese	< 15	15	ug/l	1	01/12/23	01/13/23 ND	EPA 200.7 ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA53590

(2) Prep QC Batch: MP37399

RL = Reporting Limit

Report of Analysis

Client Sample ID: OUTFALL 005	Date Sampled: 01/10/23
Lab Sample ID: JD58485-2	Date Received: 01/10/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Northrop Grumman, OU2 System, Bethpage, NY	

4.2
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By Method
Nitrogen, Nitrate + Nitrite	3.7	0.10	0.090	mg/l	1	01/13/23 13:25 MM	EPA 353.2/LACHAT
Nitrogen, Total ^a	3.7	0.30	0.23	mg/l	1	01/16/23 15:52 JD	SM4500 A-11
Nitrogen, Total Kjeldahl	0.14 U	0.20	0.14	mg/l	1	01/16/23 15:52 JD	EPA 351.2/LACHAT

(a) Calculated as: (Nitrogen, Total Kjeldahl) + (Nitrogen, Nitrate + Nitrite)

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: OUTFALL 006		Date Sampled: 01/10/23
Lab Sample ID: JD58485-3		Date Received: 01/10/23
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: EPA 624.1		
Project: Northrop Grumman, OU2 System, Bethpage, NY		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4D125084.D	1	01/13/23 03:51	TS	n/a	n/a	V4D5551
Run #2							

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

VOA OU2 SPDES List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform ^a	ND	0.50	0.36	ug/l	
75-35-4	1,1-Dichloroethene	ND	0.50	0.45	ug/l	
156-59-2	cis-1,2-Dichloroethene ^a	ND	0.50	0.33	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	0.46	ug/l	
76-13-1	Freon 113 ^a	ND	1.0	0.53	ug/l	
75-09-2	Methylene chloride	ND	0.50	0.41	ug/l	
127-18-4	Tetrachloroethene	ND	0.50	0.41	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.43	ug/l	
79-01-6	Trichloroethene	ND	0.50	0.43	ug/l	
75-01-4	Vinyl chloride ^a	ND	1.0	0.56	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4 (SUR)	114%		80-128%
2037-26-5	Toluene-D8 (SUR)	98%		82-113%
460-00-4	4-Bromofluorobenzene (SUR)	104%		79-117%
1868-53-7	Dibromofluoromethane (S)	103%		84-121%

(a) MDL from current instrument.

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: OUTFALL 006	Date Sampled: 01/10/23
Lab Sample ID: JD58485-3	Date Received: 01/10/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Northrop Grumman, OU2 System, Bethpage, NY	

4.3
4

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	< 100	100	ug/l	1	01/12/23	01/13/23 ND	EPA 200.7 ¹	EPA 200.7 ²
Manganese	< 15	15	ug/l	1	01/12/23	01/13/23 ND	EPA 200.7 ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA53590

(2) Prep QC Batch: MP37399

RL = Reporting Limit

Report of Analysis

Client Sample ID: OUTFALL 006	Date Sampled: 01/10/23
Lab Sample ID: JD58485-3	Date Received: 01/10/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Northrop Grumman, OU2 System, Bethpage, NY	

4.3
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By Method
Nitrogen, Nitrate + Nitrite	4.0	0.10	0.090	mg/l	1	01/13/23 13:26 MM	EPA 353.2/LCHAT
Nitrogen, Total ^a	4.0	0.30	0.23	mg/l	1	01/16/23 15:53 JD	SM4500 A-11
Nitrogen, Total Kjeldahl	0.14 U	0.20	0.14	mg/l	1	01/16/23 15:53 JD	EPA 351.2/LCHAT

(a) Calculated as: (Nitrogen, Total Kjeldahl) + (Nitrogen, Nitrate + Nitrite)

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result >= MDL but < RL

Report of Analytical Results

SDG: SQ0148
Lab ID: SQ0148-1
Client ID: OUTFALL 005
Matrix: AQ
Lab File ID: U9042.D

Sample Date: 10-JAN-23
Extract Date: 12-JAN-23
Extracted By: CMW/SR
Extraction Method: SW846 3520C
Lab Prep Batch: WG331003

Report Date: 20-JAN-23
Analysis Date: 16-JAN-23
Analyst: CO/DT
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		3.9	ug/L	1	.25	0.23	0.079
1,4-Dioxane-D8		114.	%				

Report of Analytical Results

SDG: SQ0148
Lab ID: SQ0148-2
Client ID: OUTFALL 006
Matrix: AQ
Lab File ID: U9043.D

Sample Date: 10-JAN-23
Extract Date: 12-JAN-23
Extracted By: CMW/SR
Extraction Method: SW846 3520C
Lab Prep Batch: WG331003

Report Date: 20-JAN-23
Analysis Date: 16-JAN-23
Analyst: CO/DT
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		5.7	ug/L	1	.25	0.23	0.079
1,4-Dioxane-D8		56.1	%				

Report of Analysis

Client Sample ID: WSP-7		Date Sampled: 01/10/23
Lab Sample ID: JD58486-1		Date Received: 01/10/23
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260D		
Project: Northrop Grumman, OU3 BPGWCS System, Bethpage, NY		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	L351780.D	1	01/13/23 17:26	NW	n/a	n/a	VL10660
Run #2							

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

VOA OU3 BPGWVS List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone ^a	ND	10	3.1	ug/l	
71-43-2	Benzene	ND	0.50	0.43	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.45	ug/l	
75-25-2	Bromoform	ND	1.0	0.63	ug/l	
74-83-9	Bromomethane	ND	2.0	1.6	ug/l	
78-93-3	2-Butanone (MEK) ^a	ND	10	2.7	ug/l	
106-99-0	1,3-Butadiene	ND	5.0	0.62	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.46	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	
75-45-6	Chlorodifluoromethane	ND	5.0	0.49	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	
75-71-8	Dichlorodifluoromethane	ND	2.0	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	0.58	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.51	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	0.49	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.65	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: WSP-7		
Lab Sample ID: JD58486-1		
Matrix: AQ - Ground Water	Date Sampled: 01/10/23	
Method: SW846 8260D	Date Received: 01/10/23	
Project: Northrop Grumman, OU3 BPGWCS System, Bethpage, NY	Percent Solids: n/a	

4.1
4

VOA OU3 BPGWVS List

CAS No.	Compound	Result	RL	MDL	Units	Q
127-18-4	Tetrachloroethene	ND	1.0	0.56	ug/l	
108-88-3	Toluene	ND	1.0	0.49	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	
79-01-6	Trichloroethene	ND	1.0	0.53	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.40	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.52	ug/l	
75-68-3	1-chloro-1,1-difluoroethane	ND	5.0	0.33	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	109%		80-120%
17060-07-0	1,2-Dichloroethane-D4	105%		80-120%
2037-26-5	Toluene-D8	105%		80-120%
460-00-4	4-Bromofluorobenzene	97%		82-114%

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

Report of Analysis

Client Sample ID: WSP-7	
Lab Sample ID: JD58486-1	Date Sampled: 01/10/23
Matrix: AQ - Ground Water	Date Received: 01/10/23
	Percent Solids: n/a
Project: Northrop Grumman, OU3 BPGWCS System, Bethpage, NY	

4.1
4

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	178	100	ug/l	1	01/12/23	01/13/23 ND	EPA 200.7 ¹	EPA 200.7 ²
Manganese	63.0	15	ug/l	1	01/12/23	01/13/23 ND	EPA 200.7 ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA53590

(2) Prep QC Batch: MP37399

RL = Reporting Limit

Report of Analysis

Client Sample ID: WSP-7	Date Sampled: 01/10/23
Lab Sample ID: JD58486-1	Date Received: 01/10/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Northrop Grumman, OU3 BPGWCS System, Bethpage, NY	

4.1
4

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	01/13/23 13:27	MM	EPA 353.2/LACHAT
Nitrogen, Total ^a	< 0.30	0.30	mg/l	1	01/16/23 15:53	JD	SM4500 A-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	01/16/23 15:53	JD	EPA 351.2/LACHAT

(a) Calculated as: (Nitrogen, Total Kjeldahl) + (Nitrogen, Nitrate + Nitrite)

RL = Reporting Limit

Report of Analytical Results

SDG: SQ0149
Lab ID: SQ0149-1RA
Client ID: WSP-7
Matrix: AQ
Lab File ID: U9235.D

Sample Date: 10-JAN-23
Extract Date: 12-JAN-23
Extracted By: CMW/SR
Extraction Method: SW846 3520C
Lab Prep Batch: WG331003

Report Date: 09-FEB-23
Analysis Date: 08-FEB-23
Analyst: CO/DT
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		0.92	ug/L	1	.25	0.23	0.079
1,4-Dioxane-D8		102.	%				

February 2023

Northrop Grumman
925 South Oyster Bay Road
Bethpage, NY 11714

northropgrumman.com

ESH&M-008L-23
March 29, 2023

Jason Pelton
N.Y.S. Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-3506

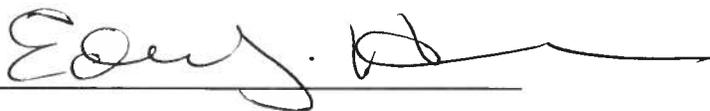
Subject: **Report for SPDES Permit Equivalent, NYSDEC Site No. 1-30-003A
Northrop Grumman Corporation - Bethpage, New York Facility**

Mr. Pelton:

Enclosed please find the subject SPDES Permit Equivalent summary tables for the month of February 2023, as per additional condition requirements outlined in the SPDES Permit Equivalent (Northrop Grumman, NYSDEC No. 1-30-003A) dated July 30, 2018.

If you have any questions, please call me at 516-575-2333

Very truly yours,



Edward J. Hannon
Environmental, Safety, Health & Medical Director
516-575-2333
M/S: 02/BP15

cc: Regional Water Engineer - Region 1
NYS Department of Environmental Conservation
SUNY @ Stony Brook
50 Circle Road
Stony Brook, NY 11790-3409

Northrop Grumman
925 South Oyster Bay Road
Bethpage, NY 11714

northropgrumman.com

ESH&M-009L-23
March 29, 2023

Jason Pelton
N.Y.S. Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-3506

RE: NYSDEC No. 1-30-003A

Subject: Additional Sampling Constituents for Report Period:
February 1, 2023 – February 28, 2023

Mr. Pelton:

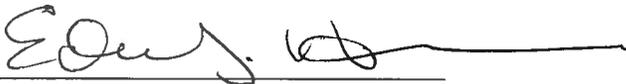
Below please find the 1,4 – Dioxane sampling results for Outfalls 1, 5 and 6 for this reporting period.

Outfall 1 – 1.0 ug/L
Outfall 5 – 1.9 ug/L
Outfall 6 – 9.6 ug/L

Sampling results for Outfall 1 for the following:

Ethylbenzene - <1.0
Toluene - <1.0
Benzene - <0.5
Xylene, Ortho - <1.0
Xylene, Meta - <1.0
Xylene, Para - <1.0

If you have any questions, please call me at 516-575-2333
Very truly yours,



Edward J. Hannon
Environmental, Safety, Health & Medical Director
516-575-2333
M/S: 02/BP15

cc: Regional Water Engineer - Region 1
NYS Department of Environmental Conservation
SUNY @ Stony Brook
50 Circle Road
Stony Brook, NY 11790-3409

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (include Facility Name/Location if NAME)
NORTHROP GRUMMAN SYSTEMS CORP
ADDRESS: 925 SO. OYSTER BAY RD M/S- W16- 035
BETHPAGE, NY 11714

FACILITY: NORTHROP GRUMMAN SYSTEMS CORP
LOCATION: 925 SO. OYSTER BAY RD M/S- W16- 035
BETHPAGE, NY 11714

ATTN: JOHN COFMAN

NY0096792	005- C
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
02/01/2023	02/28/2023

DMR Mailing ZIP CODE: 11714
MINOR (SUBR 01)
NC COOLING & STORM WATER TO GW
External Outfall

No Discharge

PARAMETER	QUANTITY OR LOADING		QUALITY OR CONCENTRATION		NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	UNITS			
pH	*****	*****	*****	*****	0	1/28 Monthly	Grab
00400 1 0 Effluent Gross	*****	*****	6.2	SU	0	1/28 Monthly	Grab
pH	*****	*****	*****	*****	0	1/28 Monthly	Grab
00400 1 0 Intake from Well	*****	*****	5.6	SU	0	1/28 Monthly	Grab
Nitrogen, total [as N]	*****	*****	*****	*****	0	1/28 Monthly	Grab
00600 1 0 Effluent Gross	*****	*****	4.4	mg/L	0	1/28 Monthly	Grab
Methylene chloride	*****	*****	*****	*****	0	1/28 Monthly	Grab
3-4-23 1 0 Effluent Gross	*****	*****	<0.5	ug/L	0	1/28 Monthly	Grab
Tetrachloroethylene	*****	*****	*****	*****	0	1/28 Monthly	Grab
3-4-75 1 0 Effluent Gross	*****	*****	<0.5	ug/L	0	1/28 Monthly	Grab
1,1-Dichloroethylene	*****	*****	*****	*****	0	1/28 Monthly	Grab
3-4-50 1 0 Effluent Gross	*****	*****	<0.5	ug/L	0	1/28 Monthly	Grab
1,1,1-Trichloroethane	*****	*****	*****	*****	0	1/28 Monthly	Grab
3-4-50 1 0 Effluent Gross	*****	*****	<0.5	ug/L	0	1/28 Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	TELEPHONE	DATE
Edward J Hancock / ESH Director	516-515-2333	02/28/2023
TYPED OR PRINTED	AREA Code	NUMBER
	516	515-2333
SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT		
<i>Edward J Hancock</i>		

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
WHEN NATURAL GW HAS PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

DISCHARGE MONITORING REPORT (DMR)

OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if
 NAME: NORTHROP GRUMMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S- W16- 035
 BETHPAGE, NY 11714
 FACILITY: NORTHROP GRUMMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S- W16- 035
 BETHPAGE, NY 11714
 ATTN: JOHN COFMAN

NY0096792	005- C
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
02/01/2023	02/28/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SUBR 01)

NC COOLING & STORM WATER TO GW
 External Outfall

No Discharge

PARAMETER	QUANTITY OR LOADING		QUALITY OR CONCENTRATION		NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	UNITS			
Vinyl chloride	*****	*****	*****	*****	0	1/28 Monthly	Grab
39175 1 0 Effluent Gross	*****	*****	*****	*****	0	1/28 Monthly	Grab
Trichloroethylene	*****	*****	*****	*****	0	1/28 Monthly	Grab
39180 1 0 Effluent Gross	*****	*****	*****	*****	0	1/28 Monthly	Grab
Flow, in conduit or thru treatment plant	*****	*****	*****	*****	0	1/28 Monthly	Measured
50050 1 0 Effluent Gross	*****	*****	*****	*****	0	1/28 Monthly	Measured
Calculated limit	*****	*****	*****	*****	0	1/28 Monthly	Calculated
74013 1 0 Effluent Gross	*****	*****	*****	*****	0	1/28 Monthly	Calculated
cis- 1,2- Dichloroethylene	*****	*****	*****	*****	0	1/28 Monthly	Calculated
77093 1 0 Effluent Gross	*****	*****	*****	*****	0	1/28 Monthly	Grab
Trichlorotrifluoroethane	*****	*****	*****	*****	0	1/28 Monthly	Grab
81611 1 0 Effluent Gross	*****	*****	*****	*****	0	1/28 Monthly	Grab
trans- 1,2- Dichloroethylene	*****	*****	*****	*****	0	1/28 Monthly	Grab
85810 1 0 Effluent Gross	*****	*****	*****	*****	0	1/28 Monthly	Grab

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	TELEPHONE	DATE
Edward J. Hanrahan, Director	516-575-2333	02/21/2023
TYPED OR PRINTED	AREA Code	NUMBER
	516-575-2333	0821/2023
SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT		MM/DD/YYYY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

WHEN NATURAL GW HAS PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

FORM APPROVED
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if
NAME: NORTROP GRUMMAN SYSTEMS CORP
ADDRESS: 925 SO. OYSTER BAY RD M/S- W16- 035
BETHPAGE, NY 11714
FACILITY: NORTROP GRUMMAN SYSTEMS CORP
LOCATION: 925 SO. OYSTER BAY RD M/S- W16- 035
BETHPAGE, NY 11714
ATTN: JOHN COFMAN

DMR Mailing ZIP CODE: 11714
MINOR (SUBR 01)
NC COOLING & STORM WATER TO GW
External Outfall

NY0096792	006- C
PERMIT NUMBER	DISCHARGE NUMBER
MM/DD/YYYY	MM/DD/YYYY
02/01/2023	02/28/2023

MONITORING PERIOD

No Discharge

PARAMETER	QUANTITY OR LOADING			QUALITY OR CONCENTRATION			NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	VALUE	UNITS	VALUE			
pH	*****	*****	*****	*****	SU	6.1	0	1/28 Monthly	Grab
00400 1 0 Effluent Gross	*****	*****	*****	*****	SU	Req. Mon. MINIMUM 6.1	0	1/28 Monthly	Grab
pH	*****	*****	*****	*****	SU	5.7	0	1/28 Monthly	Grab
00400 1 0 Intake from Well	*****	*****	*****	*****	SU	Req. Mon. MINIMUM 5.7	0	1/28 Monthly	Grab
Nitrogen, total [as N]	*****	*****	*****	*****	mg/L	4.9	0	1/28 Monthly	Grab
00600 1 0 Effluent Gross	*****	*****	*****	*****	mg/L	10 DAILY MX	0	1/28 Monthly	Grab
Methylene chloride	*****	*****	*****	*****	ug/L	<0.5	0	1/28 Monthly	Grab
34423 1 0 Effluent Gross	*****	*****	*****	*****	ug/L	5 DAILY MX	0	1/28 Monthly	Grab
Tetrachloroethylene	*****	*****	*****	*****	ug/L	<0.5	0	1/28 Monthly	Grab
34475 1 0 Effluent Gross	*****	*****	*****	*****	ug/L	5 DAILY MX	0	1/28 Monthly	Grab
1,1-Dichloroethylene	*****	*****	*****	*****	ug/L	<0.5	0	1/28 Monthly	Grab
34501 1 0 Effluent Gross	*****	*****	*****	*****	ug/L	5 DAILY MX	0	1/28 Monthly	Grab
1,1,1-Trichloroethane	*****	*****	*****	*****	ug/L	<0.5	0	1/28 Monthly	Grab
34506 1 0 Effluent Gross	*****	*****	*****	*****	ug/L	5 DAILY MX	0	1/28 Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	TELEPHONE	DATE
Edward J. Hannaford, Esq. Director	516-575-2333	03/04/2023
TYPED OR PRINTED	AREA Code	NUMBER
	516-575-2333	MM/DD/YYYY
SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT		
<i>Edward J. Hannaford</i>		

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
WHEN NATURAL GWS HAVE PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS & REQUIREMENTS

DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if
 NAME: NORTROP GRUMMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S- W16- 035
 BETHPAGE, NY 11714
 FACILITY: NORTROP GRUMMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S- W16- 035
 BETHPAGE, NY 11714
 ATTN: JOHN COFMAN

NY0096792	006- C
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
02/01/2023	02/28/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SUBR 01)
 NC COOLING & STORM WATER TO GW
 External Outfall
 No Discharge

PARAMETER	SAMPLE MEASUREMENT	QUANTITY OR LOADING			QUALITY OR CONCENTRATION			NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	UNITS	VALUE	VALUE	UNITS	VALUE			
Vinyl chloride	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	1/28	Monthly	Grab
39175 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	1/28	Monthly	Grab
Trichloroethylene	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	1/28	Monthly	Grab
39180 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	1/28	Monthly	Grab
Flow, in conduit or thru treatment plant	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	1/28	Monthly	Measured
50050 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	1/28	Monthly	Measured
Calculated limit	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	1/28	Monthly	Calculated
74013 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	1/28	Monthly	Calculated
cis- 1,2- Dichloroethylene	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	1/28	Monthly	Grab
77093 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	1/28	Monthly	Grab
Trichlorotrifluoroethane	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	1/28	Monthly	Grab
81611 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	1/28	Monthly	Grab
trans- 1,2- Dichloroethylene	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	1/28	Monthly	Grab
85810 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	1/28	Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	TELEPHONE	DATE
Edward J. Hannafesh Director	516-515-2333	03/21/2023
TYPED OR PRINTED	AREA Code	NUMBER
	516-515-2333	03/21/2023
SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT		

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
 WHEN NATURAL GWS HAVE PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORTS) SUPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA. SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS & REQUIREMENTS

DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if NAME: NORTHROP GRUMMAN SYSTEMS CORP ADDRESS: 925 SO. OYSTER BAY RD M/S- WIG-035 BETHPAGE, NY 11714

DMR Mailing ZIP CODE: 11714 MINOR (SUHR 01) NC COOLING & STORM WATER TO GW External Outfall

FACILITY: NORTHROP GRUMMAN SYSTEMS CORP LOCATION: 925 SO. OYSTER BAY RD M/S- WIG-035 BETHPAGE, NY 11714

ATTN: JOHN COFMAN

NY0096792	001-WSP-7
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
02/01/2023	02/28/2023

No Discharge

PARAMETER	QUANTITY OR LOADING			QUALITY OR CONCENTRATION			NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	VALUE	UNITS	VALUE			
pH	*****	*****	*****	*****	SU	6.2	0	1/28 Monthly	Grab
0040010 Effluent Gross	*****	*****	*****	*****	SU	6.2	0	1/28 Monthly	Grab
pH	*****	*****	*****	*****	SU	6.2	0	1/28 Monthly	Grab
0040010 Intake from Well	*****	*****	*****	*****	SU	6.2	0	1/28 Monthly	Grab
Nitrogen, total [as N]	*****	*****	*****	*****	mg/L	3.0	0	1/28 Monthly	Grab
0060010 Effluent Gross	*****	*****	*****	*****	ug/L	<2.0	0	1/28 Monthly	Grab
Methylene chloride	*****	*****	*****	*****	ug/L	<1.0	0	1/28 Monthly	Grab
3442310 Effluent Gross	*****	*****	*****	*****	ug/L	<1.0	0	1/28 Monthly	Grab
Tetrachloroethylene	*****	*****	*****	*****	ug/L	<1.0	0	1/28 Monthly	Grab
3447510 Effluent Gross	*****	*****	*****	*****	ug/L	<1.0	0	1/28 Monthly	Grab
1,1-Dichloroethylene	*****	*****	*****	*****	ug/L	<1.0	0	1/28 Monthly	Grab
3450110 Effluent Gross	*****	*****	*****	*****	ug/L	<1.0	0	1/28 Monthly	Grab
1,1,1-Trichloroethane	*****	*****	*****	*****	ug/L	<1.0	0	1/28 Monthly	Grab
3450610 Effluent Gross	*****	*****	*****	*****	ug/L	<1.0	0	1/28 Monthly	Grab

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted in this document. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

NAME/TITLE: PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT
 Edward J. Hanon, Lesh Manager
 TYPED OR PRINTED

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT


TELEPHONE NUMBER: 516-515-2333
 DATE: 03/29/2023

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

WHEN NATURAL GW HAS PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY & REPORT #1)

DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME: ADDRESS (include Facility Name/Location if
 NAME: NORTHROP GRUMMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S- W16-035
 BETHPAGE, NY 11714
 FACILITY: NORTHROP GRUMMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S- W16-035
 BETHPAGE, NY 11714
 ATTN: JOHN COFFMAN

NY0096792	001-WSP-7
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
02/01/2023	02/28/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SUJR 01)
 NC COOLING & STORM WATER TO GW
 External Outfall
 No Discharge

PARAMETER	QUANTITY OR LOADING		QUALITY OR CONCENTRATION		NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	UNITS			
Vinyl chloride	*****	*****	*****	*****	0	1/28 Monthly	Grab
39175 1 0 Effluent Gross	*****	*****	<1.0	ug/L	0	1/28 Monthly	Grab
Trichloroethylene	*****	*****	*****	DAILY MX	0	1/28 Monthly	Grab
39180 1 0 Effluent Gross	*****	*****	<1.0	ug/L	0	1/28 Monthly	Grab
Flow, in conduit or thru treatment plant	*****	*****	*****	ug/L	0	1/28 Monthly	Grab
50050 1 0 Effluent Gross	*****	*****	*****	*****	0	1/28 Monthly	Measured
Calculated limit	*****	*****	*****	*****	0	1/28 Monthly	Measured
74013 1 0 Effluent Gross	*****	*****	*****	*****	0	1/28 Monthly	Calculated
cis-1,2-Dichloroethylene	*****	*****	*****	*****	0	1/28 Monthly	Calculated
77093 1 0 Effluent Gross	*****	*****	<1.0	ug/L	0	1/28 Monthly	Grab
Trichlorotrifluoroethane	*****	*****	*****	ug/L	0	1/28 Monthly	Grab
81611 0 Effluent Gross	*****	*****	<5.0	ug/L	0	1/28 Monthly	Grab
trans-1,2-Dichloroethylene	*****	*****	*****	ug/L	0	1/28 Monthly	Grab
85810 1 0 Effluent Gross	*****	*****	<1.0	ug/L	0	1/28 Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER: *Edward J. Hancock*
 I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted, based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT: *Edward J. Hancock*

TELEPHONE: _____ DATE: _____

AREA CODE: 516-575-2333 NUMBER: 028512023

MM/DD/YYYY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
 WHEN NATURAL GW HAS PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

Monitoring Period:
February 2023
 2/1/23 12:00 AM 2/28/23 12:00 AM
 28 Days

OU2 South Basins: Outfall 005
OU2 Groundwater Remedy Tower 102 Treatment System - Treated Air Stripper Discharge and Storm Water Runoff

Parameter ⁽¹⁾	CAS Number	OUTFALL 005 2/7/2023	Discharge Limit ⁽²⁾	Units	Monitoring Frequency	Sample Type	Average Mass Loading ^(3,7)	Units
Daily Average Flow ⁽⁴⁾	—	3.81	Monitor	MGD	Continuous	SCADA	—	—
Daily Maximum Flow ⁽⁴⁾	—	3.81	Monitor	MGD	Continuous	SCADA	—	—
Influent pH ⁽⁵⁾	—	5.8	NS	SU	Monthly (1/28) Days	Grab	—	—
Effluent pH ⁽⁵⁾	—	6.2	Range 5.0-8.5	SU	Monthly (1/28) Days	Grab	—	—
Total Nitrogen (as N)	—	4.4	10.0	mg/L	Monthly (1/28) Days	Grab	139.89	lbs/day
Total Iron	7439-89-8	< 100	600	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
Total Manganese	7439-86-5	< 15	600	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
Sum of Total Iron and Manganese ⁽⁶⁾	—	ND	1,000	µg/L	Monthly (1/28) Days	Calculated	—	lbs/day
1,1-Dichloroethylene	75-35-4	< 0.50	5.0	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
Methylene Chloride	75-09-2	< 0.50	5.0	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
Tetrachloroethylene	127-18-4	< 0.50	5.0	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
1,1,1-Trichloroethane	71-55-6	< 0.50	5.0	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
Trichloroethylene	79-01-6	1.1	5.0	µg/L	Monthly (1/28) Days	Grab	0.03	lbs/day
Vinyl Chloride	75-01-4	< 1.0	5.0	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
trans-1,2-Dichloroethylene	156-60-5	< 0.50	5.0	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
cis-1,2-Dichloroethylene	156-59-2	< 0.50	5.0	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
Chloroform	67-66-3	< 0.50	5.0	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
Trichlorotrifluoroethane (Freon 113)	76-13-1	< 1.0	5.0	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
1,4-Dioxane	123-91-1	1.9	Monitor	µg/L	Monthly (1/28) Days	Grab	0.08	lbs/day

Notes and abbreviations on last page.

Table 1
SPDES Permit Equivalency Monthly Report
OU2 and OU3 On-Site Containment Systems
Northrop Grumman Bethpage Facility Site
NYSDEC Site No. 130003A



OU2 West Basins: Outfall 006

OU2 Groundwater Remedy Tower 96 Treatment System - Treated Air Stripper Discharge and Storm Water Runoff

Parameter ⁽¹⁾	CAS Number	OUTFALL 006 2/7/2023	Discharge Limit ⁽²⁾	Units	Monitoring Frequency	Sample Type	Average Mass Loading ^(4,7)	Units
Daily Average Flow ⁽⁴⁾	—	1.78	Monitor	MGD	Continuous	SCADA	—	—
Daily Maximum Flow ⁽⁴⁾	—	2.12	Monitor	MGD	Continuous	SCADA	—	—
Influent pH ⁽⁵⁾	—	5.7	NS	SU	Monthly (1/28) Days	Grab	—	—
Effluent pH ⁽⁵⁾	—	6.1	Range: 5.0-6.5	SU	Monthly (1/28) Days	Grab	—	—
Total Nitrogen (as N)	—	4.9	10.0	mg/L	Monthly (1/28) Days	Grab	88.81	lbs/day
Total Iron	7439-89-8	<100	600	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
Total Manganese	7439-98-5	<15	600	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
Sum of Total Iron and Manganese ⁽⁶⁾	—	ND	1,000	µg/L	Monthly (1/28) Days	Calculated	—	lbs/day
1,1-Dichloroethylene	75-35-4	< 0.50	5.0	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
Methylene Chloride	75-09-2	< 0.50	5.0	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
Tetrachloroethylene	127-18-4	< 0.50	5.0	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
1,1,1-Trichloroethane	71-55-6	< 0.50	5.0	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
Trichloroethylene	79-01-6	< 0.50	5.0	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
Vinyl Chloride	75-01-4	< 1.0	5.0	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
trans-1,2-Dichloroethylene	156-80-5	< 0.50	5.0	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
cis-1,2-Dichloroethylene	156-59-2	< 0.50	5.0	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
Chloroform	67-66-3	< 0.50	5.0	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
Trichlorotrifluoroethane (Freon 113)	76-13-1	< 1.0	5.0	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
1,4-Dioxane	123-91-1	9.8	Monitor	µg/L	Monthly (1/28) Days	Grab	0.17	lbs/day

Notes and abbreviations on last page.

Table 1
SPDES Permit Equivalency Monthly Report
OU2 and OU3 On-Site Containment Systems
Northrop Grumman Bethpage Facility Site
NYSDEC Site No. 130003A



OU3 Effluent: Outfall 001 (WSP-7)

OU3 Groundwater Remedy Treatment System - Treated Air Stripper and Soil Gas Containment Condensate Discharge to Nassau County Recharge Basins

Parameter ⁽¹⁾	CAS Number	OUTFALL 001 (WSP-7) 2/4/2023	Discharge Limit ⁽²⁾	Units	Monitoring Frequency	Sample Type	Average Mass Loading ⁽³⁾	Units
Daily Average Flow ⁽⁴⁾	—	0.29	Monitor	MGD	Continuous	SCADA	—	—
Daily Maximum Flow ⁽⁴⁾	—	0.30	Monitor	MGD	Continuous	SCADA	—	—
Influent pH ⁽⁵⁾	—	6.2	NS	SU	Monthly (1/28) Days	Grab	—	—
Effluent pH ⁽⁵⁾	—	6.2	Range 5.0-8.5	SU	Monthly (1/28) Days	Grab	—	—
Total Nitrogen (as N)	—	3.0	10.0	mg/L	Monthly (1/28) Days	Grab	7.26	lbs/day
Total Iron	7439-89-6	142	600	µg/L	Monthly (1/28) Days	Grab	0.34	lbs/day
Total Manganese	7439-96-6	54.0	600	µg/L	Monthly (1/28) Days	Grab	0.13	lbs/day
Sum of Total Iron and Manganese	—	196.0	1,000	µg/L	Monthly (1/28) Days	Calculated	0.47	lbs/day
1,1-Dichloroethylene	75-35-4	< 1.0	5.0	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
Methylene Chloride	75-09-2	< 2.0	5.0	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
Tetrachloroethylene	127-18-4	< 1.0	5.0	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
1,1,1-Trichloroethane	71-55-8	< 1.0	5.0	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
Trichloroethylene	79-01-6	< 1.0	5.0	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
Vinyl Chloride	75-01-4	< 1.0	5.0	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
1,2 (trans)-Dichloroethylene	156-80-5	< 1.0	5.0	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
1,2 (cis)-Dichloroethylene	156-59-2	< 1.0	5.0	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
Chloroform	67-66-3	< 1.0	5.0	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
Trichlorotrifluoroethane (Freon 113)	76-13-1	< 5.0	5.0	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
Benzene	71-43-2	< 0.50	1.0	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
1,1-Dichloroethane	75-34-3	< 1.0	5.0	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
Ethylbenzene	100-41-4	< 1.0	5.0	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
Toluene	108-88-3	< 1.0	5.0	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
o-Xylene	95-47-6	< 1.0	5.0	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
m,p-Xylene	—	< 1.0	5.0	µg/L	Monthly (1/28) Days	Grab	—	lbs/day
1,4-Dioxane	123-91-1	1.0	Monitor	µg/L	Monthly (1/28) Days	Grab	2.42E-03	lbs/day

Notes and Abbreviations:

- XX Bold value indicates the constituent was detected at or above its laboratory quantification limit.
- < Compound is not detected above laboratory quantification limit
- Not Applicable
- µg/L micrograms per liter
- lbs/day pounds per day
- lb/kg pounds per kilogram
- MGD million gallons per day
- mg/L milligrams per liter
- min minutes
- SU Standard Units
- CAS Chemical Abstracts Service
- ND Non Detect
- NS None Specified
- NYSDEC New York State Department of Environmental Conservation
- SCADA Supervisory Control and Data Acquisition
- SPDES State Pollution Discharge Elimination System
- TKN Total Kjeldahl Nitrogen

1. Samples were analyzed for permit equivalency Volatile Organic Compounds (VOCs) using USEPA Method 624 at OU2 system, and USEPA Method 8260 at OU3 system, 1,4-Dioxane using USEPA Method 8270D-SIM-CLLE; Total Nitrogen is calculated as the sum of Nitrogen, (Nitrate+Nitrite) and Total Kjeldahl Nitrogen (TKN), (CAS number: 14797-55-8, 14797-65-0, and 7727-37-9, respectively) by USEPA Methods 353.2 and 351.2, respectively; Total Iron and Manganese using USEPA Method 200.7.

2. Discharge limits are per the SPDES permit equivalency, dated October 12, 2017, amended on September 15, 2022 and transmitted by the NYSDEC to Northrop Grumman on September 19, 2022.

3. Mass Loading Calculation:

$$Mass\ Loading\ \left(\frac{lb}{day}\right) = Flow\ \left(\frac{gal}{min}\right) \cdot 1440\ \left(\frac{min}{day}\right) \cdot concentration\ \left(\frac{\mu g}{liter}\right) \div 10^9\ \left(\frac{\mu g}{kg}\right) \cdot 3.785\ \left(\frac{liter}{gal}\right) \cdot 2.2046\ \left(\frac{lb}{kg}\right)$$

- 4. Average and daily maximum flow calculated from SCADA reports for the month indicated.
- 5. Field measurement of pH taken by hand held meter on sample date.
- 6. When Total Iron and Total Manganese are below their respective detection limits the Sum Total of Iron and Manganese is reported as "ND".
- 7. Average Mass Loading calculations are based on actual flow rates unless otherwise noted.
- 8. Although samples WSP-1, WSP-2, WSP-3, WSP-4, and WSP-5 are included on the Chain of Custody for the SPDES sampling report, analytical results have not been included in this report since these samples were collected as part of the quarterly groundwater treatment system performance evaluation and analytical data associated with WSP-1, WSP-2, WSP-3, WSP-4, and WSP-5 will be included in a separate report.

Report of Analysis

Client Sample ID: OUTFALL 005		Date Sampled: 02/07/23
Lab Sample ID: JD59858-2		Date Received: 02/07/23
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: EPA 624.1		
Project: Northrop Grumman, OU2 System, Bethpage, NY		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2D208443.D	1	02/09/23 18:28	ED	n/a	n/a	V2D9071
Run #2							

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

VOA OU2 SPDES List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform ^a	ND	0.50	0.36	ug/l	
75-35-4	1,1-Dichloroethene	ND	0.50	0.45	ug/l	
156-59-2	cis-1,2-Dichloroethene ^a	ND	0.50	0.33	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	0.46	ug/l	
76-13-1	Freon 113 ^a	ND	1.0	0.53	ug/l	
75-09-2	Methylene chloride	ND	0.50	0.41	ug/l	
127-18-4	Tetrachloroethene	ND	0.50	0.41	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.43	ug/l	
79-01-6	Trichloroethene	1.1	0.50	0.43	ug/l	
75-01-4	Vinyl chloride ^a	ND	1.0	0.56	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4 (SUR)	101%		80-128%
2037-26-5	Toluene-D8 (SUR)	102%		82-113%
460-00-4	4-Bromofluorobenzene (SUR)	98%		79-117%
1868-53-7	Dibromofluoromethane (S)	95%		84-121%

(a) MDL from current instrument.

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: OUTFALL 005	Date Sampled: 02/07/23
Lab Sample ID: JD59858-2	Date Received: 02/07/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Northrop Grumman, OU2 System, Bethpage, NY	

4.2
4

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	< 100	100	ug/l	1	02/09/23	02/14/23 ND	EPA 200.7 ¹	EPA 200.7 ²
Manganese	< 15	15	ug/l	1	02/09/23	02/14/23 ND	EPA 200.7 ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA53737

(2) Prep QC Batch: MP37817

RL = Reporting Limit

Report of Analysis

Client Sample ID: OUTFALL 005	Date Sampled: 02/07/23
Lab Sample ID: JD59858-2	Date Received: 02/07/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Northrop Grumman, OU2 System, Bethpage, NY	

4.2
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By Method
Nitrogen, Nitrate + Nitrite	4.4	0.10	0.090	mg/l	1	02/10/23 18:10 MM	EPA 353.2/LACHAT
Nitrogen, Total ^a	4.4	0.30	0.23	mg/l	1	02/10/23 20:45 MM	SM4500 A-11
Nitrogen, Total Kjeldahl	0.14 U	0.20	0.14	mg/l	1	02/10/23 20:45 MM	EPA 351.2/LACHAT

(a) Calculated as: (Nitrogen, Total Kjeldahl) + (Nitrogen, Nitrate + Nitrite)

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result >= MDL but < RL

Report of Analysis

Client Sample ID: OUTFALL 006		Date Sampled: 02/07/23
Lab Sample ID: JD59858-3		Date Received: 02/07/23
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: EPA 624.1		
Project: Northrop Grumman, OU2 System, Bethpage, NY		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2D208444.D	1	02/09/23 18:58	ED	n/a	n/a	V2D9071
Run #2							

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

VOA OU2 SPDES List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform ^a	ND	0.50	0.36	ug/l	
75-35-4	1,1-Dichloroethene	ND	0.50	0.45	ug/l	
156-59-2	cis-1,2-Dichloroethene ^a	ND	0.50	0.33	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	0.46	ug/l	
76-13-1	Freon 113 ^a	ND	1.0	0.53	ug/l	
75-09-2	Methylene chloride	ND	0.50	0.41	ug/l	
127-18-4	Tetrachloroethene	ND	0.50	0.41	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.43	ug/l	
79-01-6	Trichloroethene	ND	0.50	0.43	ug/l	
75-01-4	Vinyl chloride ^a	ND	1.0	0.56	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4 (SUR)	100%		80-128%
2037-26-5	Toluene-D8 (SUR)	103%		82-113%
460-00-4	4-Bromofluorobenzene (SUR)	99%		79-117%
1868-53-7	Dibromofluoromethane (S)	94%		84-121%

(a) MDL from current instrument.

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

4.3
4

Report of Analysis

Client Sample ID: OUTFALL 006	Date Sampled: 02/07/23
Lab Sample ID: JD59858-3	Date Received: 02/07/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Northrop Grumman, OU2 System, Bethpage, NY	

4.3
4

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	< 100	100	ug/l	1	02/09/23	02/14/23 ND	EPA 200.7 ¹	EPA 200.7 ²
Manganese	< 15	15	ug/l	1	02/09/23	02/14/23 ND	EPA 200.7 ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA53737

(2) Prep QC Batch: MP37817

RL = Reporting Limit

Report of Analysis

Client Sample ID: OUTFALL 006	Date Sampled: 02/07/23
Lab Sample ID: JD59858-3	Date Received: 02/07/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Northrop Grumman, OU2 System, Bethpage, NY	

4.3
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By Method
Nitrogen, Nitrate + Nitrite	4.9	0.10	0.090	mg/l	1	02/10/23 18:11 MM	EPA 353.2/LACHAT
Nitrogen, Total ^a	4.9	0.30	0.23	mg/l	1	02/10/23 20:46 MM	SM4500 A-11
Nitrogen, Total Kjeldahl	0.14 U	0.20	0.14	mg/l	1	02/10/23 20:46 MM	EPA 351.2/LACHAT

(a) Calculated as: (Nitrogen, Total Kjeldahl) + (Nitrogen, Nitrate + Nitrite)

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analytical Results

SDG: SQ0639
Lab ID: SQ0639-1
Client ID: OUTFALL 005
Matrix: AQ
Lab File ID: G5960.D

Sample Date: 07-FEB-23
Extract Date: 14-FEB-23
Extracted By: CMW/SR
Extraction Method: SW846 3520C
Lab Prep Batch: WG332437

Report Date: 20-MAR-23
Analysis Date: 22-FEB-23
Analyst: DT/EP
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		1.9	ug/L	1	.25	0.23	0.079
1,4-Dioxane-D8	*	24.6	%				

Report of Analytical Results

SDG: SQ0639
Lab ID: SQ0639-2
Client ID: OUTFALL 006
Matrix: AQ
Lab File ID: G5961.D

Sample Date: 07-FEB-23
Extract Date: 14-FEB-23
Extracted By: CMW/SR
Extraction Method: SW846 3520C
Lab Prep Batch: WG332437

Report Date: 20-MAR-23
Analysis Date: 22-FEB-23
Analyst: DT/EP
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		9.6	ug/L	1	.25	0.23	0.079
1,4-Dioxane-D8		89.2	%				

TB
GW

Client / Reporting Information Company Name: Arcadia Street Address: 2 Huntington Quad, Suite 1810 City: Melville NY State: NY Zip: 11747 Project Contact: Sal Tedesco, sal.tedesco@arcadia.com Phone #: 631-249-7600 Representative(s) Name(s): Patrick Pellegrino 631-311-2591		Project Information Project Name: AGMNYM62233 // OU2 System - GW Program 3 OU2.2-ONCT-OMM/SPDES Street: _____ City: Bethpage NY State: NY Zip: _____ Billing Information (if different from Report to): Arcadia, U.S., Inc. Street Address: _____ City: Highlands Ranch, CO State: CO Zip: 80129 Client Purchase Order #: 30130784.OMMIS Work Authorization #: NY081480_2015 10 30 Project Manager: Carlo San Giovanni Account: Accounts Payable		Requested Analysis [see TEST CODE] VC82602NG36GW+40 (40 mL Clear Glass VOA's) V6242NG8SPDS+Chloroform (40 mL Clear Glass VOA's) XTNIT - EPA 353.2 & EPA 351.2 w/Total N Calc (250 mL Plastic) Iron + Manganese EPA 200.7 (500 mL Plastic)		Matrix Codes DW - Drinking Water GW - Ground Water WW - Waste Water SW - Surface Water SO - Soil SL - Sludge ED - Endicott LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Waste FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank
Collection Field ID / Point of Collection: TB-020723 - PD - 2 Date: 7/23 Time: 1345 Sampled by: TB Matrix: GW # of bottles: 2 Date: 7/23 Time: 0940 Sampled by: GW Matrix: GW # of bottles: 3		Number of preserved bottles VC82602NG36GW+40: 2 V6242NG8SPDS+Chloroform: 3 XTNIT - EPA 353.2 & EPA 351.2 w/Total N Calc: 3 Iron + Manganese EPA 200.7 (500 mL Plastic): 3		LAB USE ONLY A29 C30 V395		
Turnaround Time (Business days) <input type="checkbox"/> Std. 18 Business Days <input checked="" type="checkbox"/> Std. 18 Business Days (by Contract only) <input type="checkbox"/> 18 Day RUSH <input type="checkbox"/> 8 Day RUSH <input type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY Emergency & Rush TIA data available via Labfax		Approved By (Accounting POC) / Date: _____		Date Deliverable Information <input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> FULLY (Level 3-4) <input type="checkbox"/> NJ Reduced <input type="checkbox"/> Commercial "C" Commercial "A" = Results Only Commercial "B" = Results + OC Summary NJ Reduced = Results + OC Summary + Partial Raw data		
Comments / Special Instructions SGS COURIER		Sample Custody must be documented below each time sample change possession, including courier delivery				
Subsampled by Sampler: Patrick Pellegrino Date Time: 7/23/1502		Received By: TB Date Time: 7/23/1730		Subsampled by: Patrick Pellegrino Date Time: 7/23/1730		
Subsampled by: _____ Date Time: _____		Received By: _____ Date Time: _____		Subsampled by: _____ Date Time: _____		
Subsampled by: _____ Date Time: _____		Received By: _____ Date Time: _____		Subsampled by: _____ Date Time: _____		

© WPROJECT\Workshop\Grammar Bethpage\OU2.2 ONCT\08 Notes and Data\System Sampling\Febuary (Q.M)\COCs_SGS\PAR_OU2_COCs_mlp\62233_62235_RevDec2017

SGS COURIER

4.3

Report of Analysis

Client Sample ID: WSP-7		Date Sampled: 02/08/23
Lab Sample ID: JD59906-6		Date Received: 02/08/23
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260D		
Project: Northrop Grumman, OU3 BPGWCS System, Bethpage, NY		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	L352772.D	1	02/09/23 19:49	MS	n/a	n/a	VL10697
Run #2							

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

VOA OU3 BPGWVS List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone ^a	ND	10	3.1	ug/l	
71-43-2	Benzene	ND	0.50	0.43	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.45	ug/l	
75-25-2	Bromoform	ND	1.0	0.63	ug/l	
74-83-9	Bromomethane	ND	2.0	1.6	ug/l	
78-93-3	2-Butanone (MEK) ^a	ND	10	2.7	ug/l	
106-99-0	1,3-Butadiene ^b	ND	5.0	0.62	ug/l	
75-15-0.	Carbon disulfide	ND	2.0	0.46	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	
75-45-6	Chlorodifluoromethane	ND	5.0	0.49	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	
75-71-8	Dichlorodifluoromethane	ND	2.0	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	0.58	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.51	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	0.49	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.65	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

4.6
4

Report of Analysis

Client Sample ID: WSP-7	
Lab Sample ID: JD59906-6	Date Sampled: 02/08/23
Matrix: AQ - Ground Water	Date Received: 02/08/23
Method: SW846 8260D	Percent Solids: n/a
Project: Northrop Grumman, OU3 BPGWCS System, Bethpage, NY	

4.6
4

VOA OU3 BPGWVS List

CAS No.	Compound	Result	RL	MDL	Units	Q
127-18-4	Tetrachloroethene	ND	1.0	0.56	ug/l	
108-88-3	Toluene	ND	1.0	0.49	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	
79-01-6	Trichloroethene	ND	1.0	0.53	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.40	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.52	ug/l	
75-68-3	1-chloro-1,1-difluoroethane	ND	5.0	0.33	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	97%		80-120%
17060-07-0	1,2-Dichloroethane-D4	95%		80-120%
2037-26-5	Toluene-D8	102%		80-120%
460-00-4	4-Bromofluorobenzene	93%		82-114%

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

- (a) Associated CCV outside of control limits low. A sensitivity check was analyzed to demonstrate system suitability to detect affected analyte. Sample was ND.
- (b) This compound in the associated CCV is outside the method criteria of 30%. 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

Report of Analysis

Client Sample ID: WSP-7	Date Sampled: 02/08/23
Lab Sample ID: JD59906-6	Date Received: 02/08/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Northrop Grumman, OU3 BPGWCS System, Bethpage, NY	

4.6
4

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	142	100	ug/l	1	02/09/23	02/10/23 ND	EPA 200.7 ¹	EPA 200.7 ²
Manganese	54.0	15	ug/l	1	02/09/23	02/10/23 ND	EPA 200.7 ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA53719

(2) Prep QC Batch: MP37826

RL = Reporting Limit

Report of Analysis

Client Sample ID: WSP-7	Date Sampled: 02/08/23
Lab Sample ID: JD59906-6	Date Received: 02/08/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Northrop Grumman, OU3 BPGWCS System, Bethpage, NY	

4.6
4

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Nitrogen, Nitrate + Nitrite	2.6	0.10	mg/l	1	02/10/23 18:13	MM	EPA 353.2/LACHAT
Nitrogen, Total ^a	3.0	0.30	mg/l	1	02/10/23 20:51	MM	SM4500 A-11
Nitrogen, Total Kjeldahl	0.43	0.20	mg/l	1	02/10/23 20:51	MM	EPA 351.2/LACHAT

(a) Calculated as: (Nitrogen, Total Kjeldahl) + (Nitrogen, Nitrate + Nitrite)

RL = Reporting Limit

Report of Analytical Results

SDG: SQ0663
Lab ID: SQ0663-6
Client ID: WSP-7
Matrix: AQ
Lab File ID: G6044.D

Sample Date: 08-FEB-23
Extract Date: 15-FEB-23
Extracted By: CMW/SR
Extraction Method: SW846 3520C
Lab Prep Batch: WG332492

Report Date: 28-FEB-23
Analysis Date: 27-FEB-23
Analyst: DT/EP
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		1.0	ug/L	1	.25	0.24	0.080
1,4-Dioxane-D8		85.3	%				



ID#: SQ0663

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Lab Work Order # **MSA 3601**

Page 1 of 1

Contact & Company Name: Armas Nemickas-Task Manager Address: Two Huntington Quad-Suite 1S10 City: Melville NY 11747 State: NY Zip: 11747 Project Name/Location (City, State): Program 4A - OUS2 - ONCT - OMAW/SPDES Sender's Printed Name: Patrick Delcave	Telephone: 631-391-5212 cell Fax: E-mail Address: Armas.Nemickas@arcadis.com Project #: 30123958.OMM12 Field Signature: 	Preservatives Filtered (✓) # of Containers 14 Container Information 2	E
--	---	--	---------------

Sample ID	Collection Date	Time	Type (✓)		Matrix	REMARKS
			Comp	Grab		
WSP-1	2/23/09	0900		X	GW	1,4-dioxane 8270D SIM
WSP-2	2/23/09	0905		X	GW	
WSP-3	2/23/09	0911		X	GW	
WSP-4	2/23/09	0917		X	GW	
WSP-5	2/23/09	0923		X	GW	
WSP-6	2/23/09	0928		X	GW	
WSP-7	2/23/09	0938		X	GW	
REP-020663-PD-1						

Special Instructions/Comments:
SVOC extracted by CCLE
EDD-ARCADIS_EQUIS (EQUIS6-4 file format)

Special QA/QC Instructions (✓):

Lab Name: Katahdin Analytical Labs <input checked="" type="checkbox"/> Cooler packed with ice (✓)	Laboratory Information and Receipt Cooler Custody Seal (✓) <input type="checkbox"/> Intact <input type="checkbox"/> Not Intact Sample Receipt: Condition/ Cooler Temp: _____	Received By Printed Name: Jacob Bryce Signature: Firm/Counter: KAS Date/Time: 2/09/09 1040	Relinquished By Printed Name: Patrick Delcave Signature: Firm/Counter: Date/Time: 	Laboratory Received By Printed Name: Signature: Firm: Date/Time:
--	--	--	---	--

2073025 CERC AR Form 06.27.2015
 G:\A\PROJECT\Workshop\Grueman\Bathpage\Program\Wdse04\Project Management\Contracts and PostLab\Katahdin Analytical\O2 Navy Wells COC Master

Distribution: **WHITE** - Laboratory returns with results
YELLOW - Lab copy
PINK - Retained by Arcadis

March 2023

Northrop Grumman
925 South Oyster Bay Road
Bethpage, NY 11714

northropgrumman.com

ESH&M-013L-23
May 3, 2023

Jason Pelton
N.Y.S. Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-3506

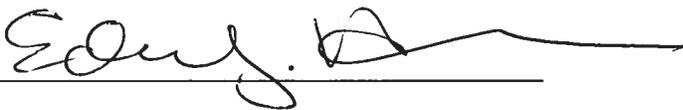
Subject: **Report for SPDES Permit Equivalent, NYSDEC Site No. 1-30-003A
Northrop Grumman Corporation - Bethpage, New York Facility**

Mr. Pelton:

Enclosed please find the subject SPDES Permit Equivalent summary tables for the month of March 2023, as per additional condition requirements outlined in the SPDES Permit Equivalent (Northrop Grumman, NYSDEC No. 1-30-003A) dated July 30, 2018.

If you have any questions, please call me at 516-575-2333

Very truly yours,



Edward J. Hannon
Environmental, Safety, Health & Medical Director
516-575-2333
M/S: 02/BP15

cc: Regional Water Engineer - Region 1
NYS Department of Environmental Conservation
SUNY @ Stony Brook
50 Circle Road
Stony Brook, NY 11790-3409

Northrop Grumman
925 South Oyster Bay Road
Bethpage, NY 11714

northropgrumman.com

ESH&M-011L-23
May 3, 2023

Jason Pelton
N.Y.S. Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-3506

RE: NYSDEC No. 1-30-003A

Subject: Additional Sampling Constituents for Report Period:
March 1, 2023 – March 31, 2023

Mr. Pelton:

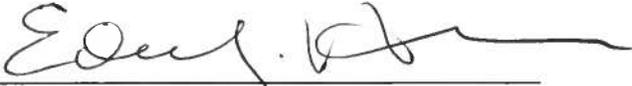
Below please find the 1,4 – Dioxane sampling results for Outfalls 1, 5 and 6 for this reporting period.

Outfall 1 – 0.61 ug/L
Outfall 5 – 5.9 ug/L
Outfall 6 – 6.3 ug/L

Sampling results for Outfall 1 for the following:

Ethylbenzene - <1.0
Toluene - <1.0
Benzene - <0.5
Xylene, Ortho - <1.0
Xylene, Meta - <1.0
Xylene, Para - <1.0

If you have any questions, please call me at 516-575-2333
Very truly yours,



Edward J. Hannon

Environmental, Safety, Health & Medical Director
516-575-2333
M/S: 02/BP15

cc: Regional Water Engineer - Region 1
NYS Department of Environmental Conservation
SUNY @ Stony Brook
50 Circle Road
Stony Brook, NY 11790-3409

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form approved
OMB No. 2040-0061

PERMITTEE NAME: ADDRESS: *include Facility Name, Location if*
 NAME: NORTHERN GERMANIAN SYSTEMS CORP
 ADDRESS: 925 SO. OXYSTER BAY RD W/S W16-035
 BETHPAGE, NY 11714
 FACILITY: NORTHERN GERMANIAN SYSTEMS CORP
 LOCATION: 925 SO. OXYSTER BAY RD W/S W16-035
 BETHPAGE, NY 11714
 ATTN: JOHN COEMAN

NY0096792	00, 0
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
03/01/2023	03/31/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SICR 01)
 NC COOLING & STORM WATER TO CAN
 External Outfall
 No Discharge

PARAMETER	SAMPLE MEASUREMENT	QUANTITY OR LOADING			QUALITY OR CONCENTRATION			UNITS	NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE				
P11	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
00400 1 0	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
P11	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
00400 1 0	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
Intake from Well	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
Nitrogen, total (as N)	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
00600 1 0	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
Methylene chloride	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
34424 1 0	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
Tetrachloroethylene	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
34475 1 0	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1,1 Dichloroethylene	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
34501 1 0	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1,1,1 Trichloroethane	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
34706 1 0	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****

NAME/TITLE: PRINCIPAL EXECUTIVE OFFICER	(certify under penalty of law that this document and all attachments were prepared under my direct supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted based on the instructions of persons who manage the system or those persons direct its operation; that I am the individual who is ultimately responsible for gathering the information, and that I am a duly licensed professional engineer or a duly licensed professional chemist; and that I certify that the information and supporting data are true and accurate; and that I understand that anyone who furnishes false or misleading information on this report or who omits material or information requested on the report may be subject to criminal sanctions (including, but not limited to, fines and imprisonment) and/or civil sanctions (including, but not limited to, civil penalties).	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE:	DATE:
Edward J Hancock/ESHM Director			516-575-2333	05/03/2023
TYPED OR PRINTED			AREA CODE	NUMBER
			516-575-2333	05/03/2023

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here):
 WHEN NATURAL GAS HAS PI OFFSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORTS SUPPLY WELL & OUTFALL PI MONTHLY SAREPORT P11 COMPLIANCE WITH 615/NOI IN CALCULATED LIMIT AREA)SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 20-10-1004

PERMITTEE NAME: ADDRESS (include facility name/location if applicable)
 NAME: NORTRROP GREENMAN SYSTEMS CORP
 ADDRESS: 925 SO. OXYSTER BAY RD N/S W16-035
 BETHPAGE, NY 11714
 FACILITY: NORTRROP GREENMAN SYSTEMS CORP
 LOCATION: 925 SO. OXYSTER BAY RD N/S W16-035
 BETHPAGE, NY 11714
 ATTN: JOHN COLEMAN

NY0096792	005-C
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
03/01/2023	03/31/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SICR 01)
 NO. COOLING & STORM WATER TO GW
 External Outfall
 No Discharge

PARAMETER	SAMPLE MEASUREMENT	QUANTITY OR LOADING			QUALITY OR CONCENTRATION			NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	UNITS			
Vinyl chloride	SAMPLE MEASUREMENT									
39175-1-0 Effluent Gross	PERMIT REQUIREMENT								1/31	Grab
Trichloroethylene	SAMPLE MEASUREMENT								1/31	Grab
39180-1-0 Effluent Gross	PERMIT REQUIREMENT								Monthly	Grab
Flows, in conduit or thru treatment plant	SAMPLE MEASUREMENT								1/31	Measured
50050-1-0 Effluent Gross	PERMIT REQUIREMENT								Monthly	Measured
Calculated limit	SAMPLE MEASUREMENT								1/31	Calculated
74013-1-0 Effluent Gross	PERMIT REQUIREMENT								Monthly	Calculated
cis 1,2 Dichloroethylene	SAMPLE MEASUREMENT								1/31	Grab
77093-1-0 Effluent Gross	PERMIT REQUIREMENT								Monthly	Grab
Trichlorotrifluoroethane	SAMPLE MEASUREMENT								1/31	Grab
81611-1-0 Effluent Gross	PERMIT REQUIREMENT								Monthly	Grab
Trans 1,2 Dichloroethylene	SAMPLE MEASUREMENT								1/31	Grab
83810-1-0 Effluent Gross	PERMIT REQUIREMENT								Monthly	Grab

NAME/TITLE: PRINCIPAL EXECUTIVE OFFICER	EDUCARD J HANNON/ESHM Director	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE	DATE
TYPED OR PRINTED			516-575-2333	05/03/2023

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here):
 WHEN NATURAL GW HAS PI OUTSIDE RANGE, IT MAY BE ONE EXTERIORITY OF THE ALLOWABLE RANGE (SAMPLE & REPORTS SUPPLY WELL & OFF-FALL PI MONTHLY & REPORT PI COMPLIANT STATHS 015/NOI IN CALCULATED LIMIT ARIAS/SLI PERMIT FOR ADDITIONAL NOTES, COMMENTS, AND REQUIREMENTS.

PERMITTEE NAME: ADDRESS: *dundade Facility* Location of
 NAME: NORTHERN GRIFFINMAN SYSTEMS CORP
 ADDRESS: 925 SO. OSTER BAY RD N/S W16-035
 BETHPAGE, NY 11714
 FACILITY: NORTHERN GRIFFINMAN SYSTEMS CORP
 LOCATION: 925 SO. OSTER BAY RD N/S W16-035
 BETHPAGE, NY 11714
 ATTN: JOHN COLEMAN

NY0096792	0016 C
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
03/01/2023	03/31/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SUBR 01)
 NO COOLING & STORED WATER TO C/W
 External Outfall
 No Discharge

PARAMETER	SAMPLE MEASUREMENT	QUANTITY OR LOADING			QUALITY OR CONCENTRATION			NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE			
Vinyl chloride	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	1/31	Grab
Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	Monthly	Grab
Trichloroethylene	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	1/31	Grab
Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	Monthly	Grab
Flow in conduit or thru treatment plant	SAMPLE MEASUREMENT	*****	2.09	MGD	*****	*****	*****	*****	1/31	Measured
Effluent Gross	PERMIT REQUIREMENT	*****	4.25 DAILY MIN	*****	*****	*****	*****	*****	Monthly	Measured
Calculated limit	SAMPLE MEASUREMENT	*****	1	*****	*****	*****	*****	*****	1/31	Calculated
Effluent Gross	PERMIT REQUIREMENT	*****	Req. Mon. Simple Rdp	N=0, Y=1	*****	*****	*****	*****	Monthly	Calculated
1,2-Dichloroethylene	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	1/31	Grab
Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	Monthly	Grab
Trichlorofluoromethane	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	1/31	Grab
Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	Monthly	Grab
1,1,1-Trichloroethylene	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	1/31	Grab
Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	Monthly	Grab
1,1,1-Trichloroethylene	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	1/31	Grab
Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	Monthly	Grab

NAME/TITLE: PRINCIPAL EXECUTIVE OFFICER	EDWARD J HAMON/ESH Director	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE	DATE
Comments and explanation of any violations (reference all attachments here)	All data were verified as true and correct and all violations were reported under the provisions of the permit. The permittee is in compliance with all conditions of the permit. The data were collected and analyzed in accordance with the permit conditions and the permittee is in compliance with all conditions of the permit. The data were collected and analyzed in accordance with the permit conditions and the permittee is in compliance with all conditions of the permit.			
Comments and explanation of any violations (reference all attachments here)	All data were verified as true and correct and all violations were reported under the provisions of the permit. The permittee is in compliance with all conditions of the permit. The data were collected and analyzed in accordance with the permit conditions and the permittee is in compliance with all conditions of the permit.			

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (reference all attachments here)
 WHEN NATURAL GAS HAVE PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORTS SUPPLY WELL & OUTFALL PH MONTHLY REPORT PH COMPLIANT STATUS YES/NO IN CALCULATED LIMIT AREA) SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS & REQUIREMENTS

DISCHARGE MONITORING REPORT (DMR)

DMR No. 2010-0000

PLANT/UNIT NAME ADDRESS *Northrop Grumman Systems Corp*
 NAME NORTHROP GRUMMAN SYSTEMS CORP
 ADDRESS 925 SOUTH STRAYBAY RD A/S 116 015
 PHILIPAC, NY 11714
 FACILITY: NORTHROP GRUMMAN SYSTEMS CORP
 LOCATION: 925 SOUTH STRAYBAY RD A/S 116 015
 PHILIPAC, NY 11714
 ATTN: JOHN COVIAN

NY 0096-92	001-WSP-7
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
03/01/2023	03/31/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SPR 01)
 NO COOLING & STORM WATER FLOW
 External Outfall
 No Discharge

PARAMETER	SAMPLING MEASUREMENT	QUANTITY OR LOADING			QUALITY OR CONCENTRATION			UNITS	NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE				
pH	SAMPLE MEASUREMENT										
0040010	PERMIT REQUIREMENT				6.6		6.6	54	0	1/31	Grab
Effluent Gross	SAMPLE MEASUREMENT				5.9		5.9	54	0	1/31	Grab
0040010	PERMIT REQUIREMENT				5.9		5.9	54	0	1/31	Grab
Drake from Well	SAMPLE MEASUREMENT				2.3		2.3	mg/L	0	1/31	Grab
0060010	PERMIT REQUIREMENT				10		10	mg/L	0	1/31	Grab
Effluent Gross	SAMPLE MEASUREMENT				22.0		22.0	ug/L	0	1/31	Grab
0447510	PERMIT REQUIREMENT				1.0		1.0	ug/L	0	1/31	Grab
Tetraethoxyethane	SAMPLE MEASUREMENT				1.0		1.0	ug/L	0	1/31	Grab
0447510	PERMIT REQUIREMENT				1.0		1.0	ug/L	0	1/31	Grab
Effluent Gross	SAMPLE MEASUREMENT				1.0		1.0	ug/L	0	1/31	Grab
0447510	PERMIT REQUIREMENT				1.0		1.0	ug/L	0	1/31	Grab
Effluent Gross	SAMPLE MEASUREMENT				1.0		1.0	ug/L	0	1/31	Grab
0447510	PERMIT REQUIREMENT				1.0		1.0	ug/L	0	1/31	Grab
Effluent Gross	SAMPLE MEASUREMENT				1.0		1.0	ug/L	0	1/31	Grab
0447510	PERMIT REQUIREMENT				1.0		1.0	ug/L	0	1/31	Grab

NAME/TITLE PRINT/PAT EXECUTIVE OFFICER: **Edward J Stannon / Esq. Director**

SIGNATURE OF PERMITAL EXECUTIVE OFFICER OR AUTHORIZED AGENT: *[Signature]*

TELEPHONE: 516-575-2333

DATE: 05/03/2023

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (reference all attachments here):

WHEN NATURAL GAS HAS BEEN DETECTED IN RANGE, IT MAY BE ON EXTERNALITY OF THE ALLOWABLE RANGE (SAMPLE & REPORTS ONLY WILL & OBTAIN PH MONTHLY AIRPORT PH COMPLIANCE STATUS ONLY) NO IN COMPLIANCE LIMIT MEASURE PERMIT FOR ADDITIONAL NOTES, COMMENTS, AND REQUIREMENTS.

Monitoring Period:

March 2023

3/1/23 12:00 AM 3/31/23 12:00 AM

31 Days

OU2 South Basins: Outfall 005

OU2 Groundwater Remedy Tower 102 Treatment System - Treated Air Stripper Discharge and Storm Water Runoff

Parameter ⁽¹⁾	CAS Number	OUTFALL 005 3/7/2023	Discharge Limit ⁽²⁾	Units	Monitoring Frequency	Sample Type	Average Mass Loading ^(3,7)	Units
Daily Average Flow ⁽⁴⁾	--	3.77	Monitor	MGD	Continuous	SCADA	--	--
Daily Maximum Flow ⁽⁴⁾	--	3.81	Monitor	MGD	Continuous	SCADA	--	--
Influent pH ⁽⁵⁾	--	5.1	NS	SU	Monthly (1/31) Days	Grab	--	--
Effluent pH ⁽⁵⁾	--	5.6	Range 5.0-8.5	SU	Monthly (1/31) Days	Grab	--	--
Total Nitrogen (as N)	--	4.6	10.0	mg/L	Monthly (1/31) Days	Grab	144.75	lbs/day
Total Iron	7439-89-6	< 100	600	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Total Manganese	7439-96-5	< 15	600	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Sum of Total Iron and Manganese ⁽⁶⁾	--	ND	1,000	µg/L	Monthly (1/31) Days	Calculated	--	lbs/day
1,1-Dichloroethylene	75-35-4	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Methylene Chloride	75-09-2	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Tetrachloroethylene	127-18-4	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,1,1-Trichloroethane	71-55-6	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Trichloroethylene	79-01-5	0.99	5.0	µg/L	Monthly (1/31) Days	Grab	0.03	lbs/day
Vinyl Chloride	75-01-4	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
trans-1,2-Dichloroethylene	156-60-5	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
cis-1,2-Dichloroethylene	156-59-2	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Chloroform	67-68-3	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Trichlorotrifluoroethane (Freon 113)	76-13-1	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,4-Dioxane	123-91-1	5.9	Monitor	µg/L	Monthly (1/31) Days	Grab	0.19	lbs/day

Notes and abbreviations on last page.

OU2 West Basins: Outfall 006

OU2 Groundwater Remedy Tower 96 Treatment System - Treated Air Stripper Discharge and Storm Water Runoff

Parameter ⁽¹⁾	CAS Number	OUTFALL 006 3/7/2023	Discharge Limit ⁽²⁾	Units	Monitoring Frequency	Sample Type	Average Mass Loading ^(3,7)	Units
Daily Average Flow ⁽⁴⁾	--	1.82	Monitor	MGD	Continuous	SCADA	--	--
Daily Maximum Flow ⁽⁴⁾	--	2.09	Monitor	MGD	Continuous	SCADA	--	--
Influent pH ⁽⁵⁾	--	5.8	NS	SU	Monthly (1/31) Days	Grab	--	--
Effluent pH ⁽⁵⁾	--	6.4	Range 5.0-8.5	SU	Monthly (1/31) Days	Grab	--	--
Total Nitrogen (as N)	--	5.1	10.0	mg/L	Monthly (1/31) Days	Grab	88.77	lbs/day
Total Iron	7439-89-6	216	600	µg/L	Monthly (1/31) Days	Grab	3.76	lbs/day
Total Manganese	7439-96-5	22.0	600	µg/L	Monthly (1/31) Days	Grab	0.38	lbs/day
Sum of Total Iron and Manganese ⁽⁶⁾	--	238.0	1,000	µg/L	Monthly (1/31) Days	Calculated	4.14	lbs/day
1,1-Dichloroethylene	75-35-4	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Methylene Chloride	75-09-2	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Tetrachloroethylene	127-18-4	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,1,1-Trichloroethane	71-55-6	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Trichloroethylene	79-01-6	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Vinyl Chloride	75-01-4	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
trans-1,2-Dichloroethylene	156-60-5	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
cis-1,2-Dichloroethylene	156-59-2	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Chloroform	67-66-3	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Trichlorofluoroethane (Freon 113)	76-13-1	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,4-Dioxane	123-91-1	6.3	Monitor	µg/L	Monthly (1/31) Days	Grab	0.11	lbs/day

Notes and abbreviations on last page

Table 1
 SPDES Permit Equivalency Monthly Report
 OU2 and OU3 On-Site Containment Systems
 Northrop Grumman Bethpage Facility Site
 NYSDEC Site No. 130003A



OU3 Effluent Outfall 001 (WSP-7)

OU3 Groundwater Remedy Treatment System - Treated Air Stripper and Soil Gas Containment Condensate Discharge to Nassau County Recharge Basins

Parameter ⁽¹⁾	CAS Number	OUTFALL 001 (WSP-7) 3/7/2023	Discharge Limit ⁽²⁾	Units	Monitoring Frequency	Sample Type	Average Mass Loading ^(3,7)	Units
Daily Average Flow ⁽⁴⁾	--	0.29	Monitor	MGD	Continuous	SCADA	--	--
Daily Maximum Flow ⁽⁴⁾	--	0.30	Monitor	MGD	Continuous	SCADA	--	--
Influent pH ⁽⁵⁾	--	5.9	NS	SU	Monthly (1/31) Days	Grab	--	--
Effluent pH ⁽⁵⁾	--	6.6	Range: 5.0-8.5	SU	Monthly (1/31) Days	Grab	--	--
Total Nitrogen (as N)	--	2.3	10.0	mg/L	Monthly (1/31) Days	Grab	5.57	lbs/day
Total Iron	7439-89-6	519	600	µg/L	Monthly (1/31) Days	Grab	1.26	lbs/day
Total Manganese	7439-96-5	49.5	600	µg/L	Monthly (1/31) Days	Grab	0.12	lbs/day
Sum of Total Iron and Manganese	--	568.5	1,000	µg/L	Monthly (1/31) Days	Calculated	1.38	lbs/day
1,1-Dichloroethylene	75-35-4	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Methylene Chloride	75-09-2	< 2.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Tetrachloroethylene	127-18-4	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,1,1-Trichloroethane	71-55-6	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Trichloroethylene	79-01-6	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Vinyl Chloride	75-01-4	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,2 (trans)-Dichloroethylene	156-60-5	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,2-(cis)-Dichloroethylene	156-59-2	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Chloroform	67-66-3	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Trichlorotrifluoroethane (Freon 113)	76-13-1	< 5.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Benzene	71-43-2	< 0.50	1.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,1,1-Dichloroethane	75-34-3	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Ethylbenzene	100-41-4	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Toluene	108-88-3	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
o-Xylene	95-47-6	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
m,p-Xylene	--	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,4-Dioxane	123-91-1	0.61	Monitor	µg/L	Monthly (1/31) Days	Grab	1.48E-03	lbs/day

Notes and Abbreviations:

- XX Bold value indicates the constituent was detected at or above its laboratory quantification limit.
- < Compound is not detected above laboratory quantification limit
- Not Applicable
- µg/L micrograms per liter
- lbs/day pounds per day
- lb/kg pounds per kilogram
- MGD million gallons per day
- mg/L milligrams per liter
- min minutes
- SU Standard Units
- CAS Chemical Abstracts Service
- ND Non Detect
- NS None Specified
- NYSDEC New York State Department of Environmental Conservation
- SCADA Supervisory Control and Data Acquisition
- SPDES State Pollution Discharge Elimination System
- TKN Total Kjeldahl Nitrogen

1. Samples were analyzed for permit equivalency Volatile Organic Compounds (VOCs) using USEPA Method 624 at OU2 system, and USEPA Method 8260 at OU3 system. 1,4-Dioxane using USEPA Method 8270D-SIM-CLE. Total Nitrogen is calculated as the sum of Nitrogen, (Nitrate+Nitrite) and Total Kjeldahl Nitrogen (TKN) (CAS number: 14797-55-8, 14797-65-0, and 7727-37-9, respectively) by USEPA Methods 353.2 and 351.2, respectively. Total Iron and Manganese using USEPA Method 200.7

2. Discharge limits are per the SPDES permit equivalency, dated October 12, 2017, amended on September 15, 2022 and transmitted by the NYSDEC to Northrop Grumman on September 19, 2022

3. Mass Loading Calculation

$$Mass\ Loading\ \left(\frac{lb}{day}\right) = Flow\ \left(\frac{gal}{min}\right) \cdot 1440\ \left(\frac{min}{day}\right) \cdot concentration\ \left(\frac{\mu g}{liter}\right) : 10^6\ \left(\frac{\mu g}{kg}\right) \cdot 3.785\ \left(\frac{liter}{gal}\right) \cdot 2.2046\ \left(\frac{lb}{kg}\right)$$

4. Average and daily maximum flow calculated from SCADA reports for the month indicated

5. Field measurement of pH taken by hand held meter on sample date

6. When Total Iron and Total Manganese are below their respective detection limits the Sum Total of Iron and Manganese is reported as "ND"

7. Average Mass Loading calculations are based on actual flow rates unless otherwise noted

Report of Analysis

Client Sample ID: OUTFALL 005	Date Sampled: 03/07/23
Lab Sample ID: JD61550-2	Date Received: 03/07/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: EPA 624.1	
Project: Northrop Grumman, OU2 System, Bethpage, NY	

4.2
4

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1J1273.D	1	03/14/23 17:55	ED	n/a	n/a	V1J39
Run #2							

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

VOA OU2 SPDES List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	ND	0.50	0.50	ug/l	
75-35-4	1,1-Dichloroethene	ND	0.50	0.45	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	0.50	0.51	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	0.46	ug/l	
76-13-1	Freon 113	ND	0.50	0.87	ug/l	
75-09-2	Methylene chloride	ND	0.50	0.41	ug/l	
127-18-4	Tetrachloroethene	ND	0.50	0.41	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.43	ug/l	
79-01-6	Trichloroethene	0.99	0.50	0.43	ug/l	
75-01-4	Vinyl chloride	ND	0.50	0.79	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4 (SUR)	86%		80-128%
2037-26-5	Toluene-D8 (SUR)	100%		82-113%
460-00-4	4-Bromofluorobenzene (SUR)	100%		79-117%
1868-53-7	Dibromofluoromethane (S)	99%		84-121%

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:	OUTFALL 005	Date Sampled:	03/07/23
Lab Sample ID:	JD61550-2	Date Received:	03/07/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	Northrop Grumman, OU2 System, Bethpage, NY		

4.2
4

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	< 100	100	ug/l	1	03/13/23	03/15/23 ND	EPA 200.7 ¹	EPA 200.7 ²
Manganese	< 15	15	ug/l	1	03/13/23	03/15/23 ND	EPA 200.7 ¹	EPA 200.7 ²

- (1) Instrument QC Batch: MA53863
- (2) Prep QC Batch: MP38350

RL = Reporting Limit

Report of Analysis

Client Sample ID: OUTFALL 005	Date Sampled: 03/07/23
Lab Sample ID: JD61550-2	Date Received: 03/07/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Northrop Grumman, OU2 System, Bethpage, NY	

4.2
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By Method
Nitrogen, Nitrate + Nitrite	4.6	0.10	0.090	mg/l	1	03/10/23 12:02 MM	EPA 353.2/LACHAT
Nitrogen, Total ^a	4.6	0.30	0.23	mg/l	1	03/14/23 16:08 MM	SM4500 A-11
Nitrogen, Total Kjeldahl	0.14 U	0.20	0.14	mg/l	1	03/14/23 16:08 MM	EPA 351.2/LACHAT

(a) Calculated as: (Nitrogen, Total Kjeldahl) + (Nitrogen, Nitrate + Nitrite)

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: OUTFALL 006	Date Sampled: 03/07/23
Lab Sample ID: JD61550-3	Date Received: 03/07/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: EPA 624.1	
Project: Northrop Grumman, OU2 System, Bethpage, NY	

4.3
4

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1J1274.D	1	03/14/23 18:19	ED	n/a	n/a	V1J39
Run #2							

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

VOA OU2 SPDES List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	ND	0.50	0.50	ug/l	
75-35-4	1,1-Dichloroethene	ND	0.50	0.45	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	0.50	0.51	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	0.46	ug/l	
76-13-1	Freon 113	ND	0.50	0.87	ug/l	
75-09-2	Methylene chloride	ND	0.50	0.41	ug/l	
127-18-4	Tetrachloroethene	ND	0.50	0.41	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.43	ug/l	
79-01-6	Trichloroethene	ND	0.50	0.43	ug/l	
75-01-4	Vinyl chloride	ND	0.50	0.79	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4 (SUR)	85%		80-128%
2037-26-5	Toluene-D8 (SUR)	102%		82-113%
460-00-4	4-Bromofluorobenzene (SUR)	101%		79-117%
1868-53-7	Dibromofluoromethane (S)	98%		84-121%

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: OUTFALL 006 Lab Sample ID: JD61550-3 Matrix: AQ - Ground Water Project: Northrop Grumman, OU2 System, Bethpage, NY	Date Sampled: 03/07/23 Date Received: 03/07/23 Percent Solids: n/a
---	---

4.3
4

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	216	100	ug/l	1	03/13/23	03/15/23 ND	EPA 200.7 ¹	EPA 200.7 ²
Manganese	22.0	15	ug/l	1	03/13/23	03/15/23 ND	EPA 200.7 ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA53863
 (2) Prep QC Batch: MP38350

RL = Reporting Limit

Report of Analysis

Client Sample ID:	OUTFALL 006	Date Sampled:	03/07/23
Lab Sample ID:	JD61550-3	Date Received:	03/07/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	Northrop Grumman, OU2 System, Bethpage, NY		

4.3
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By Method
Nitrogen, Nitrate + Nitrite	5.1	0.20	0.18	mg/l	2	03/10/23 12:58 MM	EPA 353.2/LACHAT
Nitrogen, Total ^a	5.1	0.40	0.32	mg/l	1	03/14/23 16:09 MM	SM4500 A-11
Nitrogen, Total Kjeldahl	0.14 U	0.20	0.14	mg/l	1	03/14/23 16:09 MM	EPA 351.2/LACHAT

(a) Calculated as: (Nitrogen, Total Kjeldahl) + (Nitrogen, Nitrate + Nitrite)

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analytical Results

SDG: SQ1153
Lab ID: SQ1153-1
Client ID: OUTFALL 005
Matrix: AQ
Lab File ID: G6268.D

Sample Date: 07-MAR-23
Extract Date: 15-MAR-23
Extracted By: SR
Extraction Method: SW846 3520C
Lab Prep Batch: WG333866

Report Date: 28-MAR-23
Analysis Date: 22-MAR-23
Analyst: DT/EP
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		5.9	ug/L-	1	.25	0.23	0.079
1,4-Dioxane-D8		76.0	%				

Report of Analytical Results

SDG: SQ1153
Lab ID: SQ1153-2
Client ID: OUTFALL 006
Matrix: AQ
Lab File ID: G6269.D

Sample Date: 07-MAR-23
Extract Date: 15-MAR-23
Extracted By: SR
Extraction Method: SW846 3520C
Lab Prep Batch: WG333866

Report Date: 28-MAR-23
Analysis Date: 22-MAR-23
Analyst: DT/EP
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		6.3	ug/L	1	.25	0.24	0.081
1,4-Dioxane-D8		56.0	%				

Report of Analysis

Client Sample ID:	WSP-7	Date Sampled:	03/07/23
Lab Sample ID:	JD61532-1	Date Received:	03/07/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260D		
Project:	Northrop Grumman, OU3 BPGWCS System, Bethpage, NY		

4.1
4

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2J1478.D	1	03/17/23 21:38	ED	n/a	n/a	V2J45
Run #2							

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

VOA OU3 BPGWVS List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone ^a	ND	10	3.1	ug/l	
71-43-2	Benzene	ND	0.50	0.43	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.45	ug/l	
75-25-2	Bromoform	ND	1.0	0.63	ug/l	
74-83-9	Bromomethane ^a	ND	2.0	1.6	ug/l	
78-93-3	2-Butanone (MEK) ^a	ND	10	2.7	ug/l	
106-99-0	1,3-Butadiene ^b	ND	5.0	0.62	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.46	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	
75-45-6	Chlorodifluoromethane	ND	5.0	0.49	ug/l	
75-00-3	Chloroethane ^a	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	
75-71-8	Dichlorodifluoromethane	ND	2.0	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	0.58	ug/l	
591-78-6	2-Hexanone ^a	ND	5.0	2.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.51	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK) ^a	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	0.49	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane ^a	ND	1.0	0.65	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:	WSP-7	Date Sampled:	03/07/23
Lab Sample ID:	JD61532-1	Date Received:	03/07/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260D		
Project:	Northrop Grumman, OU3 BPGWCS System, Bethpage, NY		

4.1
4

VOA OU3 BPGWVS List

CAS No.	Compound	Result	RL	MDL	Units	Q
127-18-4	Tetrachloroethene	ND	1.0	0.56	ug/l	
108-88-3	Toluene	ND	1.0	0.49	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	
79-01-6	Trichloroethene	ND	1.0	0.53	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.40	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.52	ug/l	
75-68-3	1-chloro-1,1-difluoroethane	ND	5.0	0.33	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	102%		80-120%
17060-07-0	1,2-Dichloroethane-D4	86%		80-120%
2037-26-5	Toluene-D8	101%		80-120%
460-00-4	4-Bromofluorobenzene	100%		82-114%

CAS No.	Tentatively Identified Compounds	R. T.	Est. Conc.	Units	Q
	system artifact	1.63	18	ug/l	J
	Total TIC, Volatile		0	ug/l	

- (a) Associated CCV outside of control limits high, sample was ND.
- (b) This compound in the associated ICV is outside the method criteria of 30%, biased high. 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

Report of Analysis

Client Sample ID:	WSP-7	Date Sampled:	03/07/23
Lab Sample ID:	JD61532-1	Date Received:	03/07/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	Northrop Grumman, OU3 BPGWCS System, Bethpage, NY		

4.1
4

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	519	100	ug/l	1	03/13/23	03/15/23 ND	EPA 200.7 ¹	EPA 200.7 ²
Manganese	49.5	15	ug/l	1	03/13/23	03/15/23 ND	EPA 200.7 ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA53863

(2) Prep QC Batch: MP38350

RL = Reporting Limit

Report of Analysis

Client Sample ID:	WSP-7	Date Sampled:	03/07/23
Lab Sample ID:	JD61532-1	Date Received:	03/07/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	Northrop Grumman, OU3 BPGWCS System, Bethpage, NY		

4.1
4

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Nitrogen, Nitrate + Nitrite	2.3	0.10	mg/l	1	03/09/23 16:02	MM	EPA 353.2/LACHAT
Nitrogen, Total ^a	2.3	0.30	mg/l	1	03/14/23 16:05	MM	SM4500 A-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	03/14/23 16:05	MM	EPA 351.2/LACHAT

(a) Calculated as: (Nitrogen, Total Kjeldahl) + (Nitrogen, Nitrate + Nitrite)

RL = Reporting Limit

Report of Analytical Results

SDG: SQ1152
Lab ID: SQ1152-1
Client ID: WSP-7
Matrix: AQ
Lab File ID: G6267.D

Sample Date: 07-MAR-23
Extract Date: 15-MAR-23
Extracted By: SR
Extraction Method: SW846 3520C
Lab Prep Batch: WG333866

Report Date: 28-MAR-23
Analysis Date: 22-MAR-23
Analyst: DT/EP
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		0.61	ug/L	1	.25	0.23	0.079
1,4-Dioxane-D8		68.6	%				



ID#: SQ1152

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 1 of 1

Lab Work Order # MSA 3601

Contact & Company Name: Amas Nemickas-Project Manager Address: Two Huntington Quad-Suite 1510 City: <u>Melville</u> State: <u>NY</u> Zip: <u>11747</u> E-mail Address: <u>Amas.Nemickas@arcadis.com</u>		Telephone: 631-391-5212 cell		Preservative: E								Keys Preservation Key: A. H ₂ O ₂ B. HCl C. HNO ₃ D. NaOH E. None F. Other _____ G. Other _____ H. Other _____ Matrix Key: SO - Soil W - Water T - Tissue SE - Sediment SL - Sludge A - Air NL - NAPL/OU SW - Sample Wipe Other: <u>EFF</u>	
Send Results to: Project Name/Location (City, State): Prog 4A OJ2 2-ONCT-OMM/SPOES Shipper's Contact Name: <u>Patrick Delleave</u>		Project #: 30123958 OMMI3 Shipper's Contact Name: <u>Patrick Delleave</u>		# of Containers: 2 Container Information: 2		PARAMETER ANALYSIS & METHOD							
Sample ID WSP-7		Collection Date: <u>3/23/08</u> Time: <u>0800</u>		Type (*) Comp: <input type="checkbox"/> Grab: <input checked="" type="checkbox"/>		Matrix GW		1,4-dioxane 8270D SIM				REMARKS	
Special Instructions/Comments: SVOC extracted by CCLE EDD-ARCADIS_EQUIS (EQUIS8-4 file format)												<input type="checkbox"/> Special QA/QC Instructions (*)	
Laboratory Information and Receipt													
Lab Name: Katahdin Analytical Labs		Cooler Custody Seal (*) <input type="checkbox"/> Intact <input type="checkbox"/> Not Intact		Relinquished By: Printed Name: <u>Patrick Delleave</u> Signature: <u>[Signature]</u>		Received By: Printed Name: <u>Dylan Benoit</u> Signature: <u>[Signature]</u>		Relinquished By: Printed Name: _____ Signature: _____		Laboratory Received By: Printed Name: _____ Signature: _____			
Specify Turnaround Requirements: Normal TAT-10 business days		Sample Receipt: Condition/Cooler Temp: _____		File: Date/Time: _____		Print/Counter: Date/Time: _____		File/Counter: Date/Time: _____		Date/Time: _____			

Katahdin Analytical Services SQ1152 page 0000008 of 0000010

20728636: C:\GAR\Farms 03 27 2015

G:\A PROJECT\Worshop\Grunman\Batchpage1_Program Wide\04 Project Management\Contracts and POs\Lab\Katahdin Analytical\OU2 Navy Yella COC Master

Distribution: WHITE - Laboratory returns with results

YELLOW - Lab copy

PINK - Retained by Arcadis

170
M

April'&\$&'

Northrop Grumman
925 South Oyster Bay Road
Bethpage, NY 11714

northropgrumman.com

ESH&M-014L-23
June 5, 2023

Jason Pelton
N.Y.S. Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-3506

Subject: **Report for SPDES Permit Equivalent, NYSDEC Site No. 1-30-003A
Northrop Grumman Corporation - Bethpage, New York Facility**

Mr. Pelton:

Enclosed please find the subject SPDES Permit Equivalent summary tables for the month of April 2023, as per additional condition requirements outlined in the SPDES Permit Equivalent (Northrop Grumman, NYSDEC No. 1-30-003A) dated July 30, 2018.

If you have any questions, please call me at 516-575-2333

Very truly yours,



Edward J. Hannon
Environmental, Safety, Health & Medical Director
516-575-2333
M/S: 02/BP15

cc: Regional Water Engineer - Region 1
NYS Department of Environmental Conservation
SUNY @ Stony Brook
50 Circle Road
Stony Brook, NY 11790-3409

Northrop Grumman
925 South Oyster Bay Road
Bethpage, NY 11714

northropgrumman.com

ESH&M-15L-23
June 5, 2023

Jason Pelton
N.Y.S. Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-3506

RE: NYSDEC No. 1-30-003A

Subject: Additional Sampling Constituents for Report Period:
April 1, 2023 – April 30, 2023

Mr. Pelton:

Below please find the 1,4 – Dioxane sampling results for Outfalls 1, 5 and 6 for this reporting period.

Outfall 1 – 0.29 ug/L
Outfall 5 – 3.0 ug/L
Outfall 6 – 6.0 ug/L

Sampling results for Outfall 1 for the following:

Ethylbenzene - <1.0
Toluene - <1.0
Benzene - <0.50
Xylene, Ortho - <1.0
Xylene, Meta - <1.0
Xylene, Para - <1.0

If you have any questions, please call me at 516-575-2333
Very truly yours,



Edward J. Hannon
Environmental, Safety, Health & Medical Director
516-575-2333
M/S: 02/BP15

cc: Regional Water Engineer - Region 1
NYS Department of Environmental Conservation
SUNY @ Stony Brook
50 Circle Road
Stony Brook, NY 11790-3409

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

OMB No. 2040-0001

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if
NAME: NORTHROP GRUMAN SYSTEMS CORP
ADDRESS: 925 SO. OYSTER BAY RD M/S- W16- 035
BETHPAGE, NY 11714

NY0096792
PERMIT NUMBER

005- C
DISCHARGE NUMBER

MM/DD/YYYY
04/30/2023

MONITORING PERIOD

MM/DD/YYYY
04/30/2023

DMR Mailing ZIP CODE: 11714
MINOR (SUBR 01)

NC COOLING & STORM WATER TO GW
External Outfall

No Discharge

FACILITY: NORTHROP GRUMAN SYSTEMS CORP
LOCATION: 925 SO. OYSTER BAY RD M/S- W16- 035
BETHPAGE, NY 11714

ATTN: JOHN COFMAN

PARAMETER	QUANTITY OR LOADING		QUALITY OR CONCENTRATION		NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	UNITS			
pH	*****	*****	*****	*****	0	1/30 Monthly	Grab
00400 1 0 Effluent Gross	*****	*****	6.1 Req. Mon. MINIMUM	6.1 Req. Mon. MAXIMUM	0	1/30 Monthly	Grab
pH	*****	*****	*****	*****	0	1/30 Monthly	Grab
00400 1 0 Intake from Well	*****	*****	5.2 Req. Mon. MINIMUM	5.2 Req. Mon. MAXIMUM	0	1/30 Monthly	Grab
Nitrogen, total [as N]	*****	*****	*****	*****	0	1/30 Monthly	Grab
00600 1 0 Effluent Gross	*****	*****	*****	*****	0	1/30 Monthly	Grab
Methylene chloride	*****	*****	*****	*****	0	1/30 Monthly	Grab
34423 1 0 Effluent Gross	*****	*****	*****	*****	0	1/30 Monthly	Grab
Tetrachloroethylene	*****	*****	*****	*****	0	1/30 Monthly	Grab
34475 1 0 Effluent Gross	*****	*****	*****	*****	0	1/30 Monthly	Grab
1,1-Dichloroethylene	*****	*****	*****	*****	0	1/30 Monthly	Grab
34501 1 0 Effluent Gross	*****	*****	*****	*****	0	1/30 Monthly	Grab
1,1,1-Trichloroethane	*****	*****	*****	*****	0	1/30 Monthly	Grab
34506 1 0 Effluent Gross	*****	*****	*****	*****	0	1/30 Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information reported. I am aware that there are significant penalties for knowing violations, including the possibility of fine and imprisonment for knowing violations.

Edward J Hannon EHS Director
TYPED OR PRINTED

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE

DATE

516-575-2333
AREA Code NUMBER

06/05/2023
MM/DD/YYYY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
WHEN NATURAL GW HAS PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if
 NAME: NORTHROP GRUMMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S- W16- 035
 BETHPAGE, NY 11714

FACILITY: NORTHROP GRUMMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S- W16- 035
 BETHPAGE, NY 11714

ATTN: JOHN COFMAN

NY00906792
 PERMIT NUMBER

005- C
 DISCHARGE NUMBER

DMR Mailing ZIP CODE: 11714
 MINOR (SUBR 01)

NC COOLING & STORM WATER TO GW
 External Outfall

No Discharge

PARAMETER	QUANTITY OR LOADING		QUALITY OR CONCENTRATION		NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	UNITS			
Vinyl chloride	*****	*****	*****	*****	0	1/30 Monthly	Grab
39175 1 0 Effluent Gross Trichloroethylene	*****	*****	<0.5	ug/L	0	1/30 Monthly	Grab
39180 1 0 Effluent Gross Flow, in conduit or thru treatment plant	*****	*****	1.0	ug/L	0	1/30 Monthly	Grab
50050 1 0 Effluent Gross Calculated limit	*****	*****	*****	*****	0	1/30 Monthly	Measured
74013 1 0 Effluent Gross cis- 1,2- Dichloroethylene	*****	*****	*****	*****	0	1/30 Monthly	Calculated
77093 1 0 Effluent Gross Trichlorotrifluoroethane	*****	*****	<0.5	ug/L	0	1/30 Monthly	Grab
81611 1 0 Effluent Gross trans- 1,2- Dichloroethylene	*****	*****	<0.5	ug/L	0	1/30 Monthly	Grab
85810 1 0 Effluent Gross	*****	*****	<0.5	ug/L	0	1/30 Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
 I certify under penalty of law that this document and all attachments were prepared under my direct supervision and that I am a duly licensed professional engineer in the State of New York. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Edward J. Hannan
 SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE DATE
 AREA Code NUMBER MM/DD/YYYY
 516-575-2332 06/05/2023

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
 WHEN NATURAL GW HAS PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

PERMITTEE: NAME/ADDRESS (Include Facility Name/Location if
 NAME: NORTHRUP GRUMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S- W1G- 035
 BETHPAGE, NY 11714
 FACILITY: NORTHRUP GRUMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S- W1G- 035
 BETHPAGE, NY 11714
 ATTN: JOHN COFMAN

NY0096792	00G- C
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
04/01/2023	04/30/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SUBR 01)
 NC COOLING & STORM WATER TO GW
 External Outfall

No Discharge

PARAMETER	QUANTITY OR LOADING		QUALITY OR CONCENTRATION		UNITS	NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	VALUE				
pH	*****	*****	*****	*****	SU	0	1/30 Monthly	Grab
00400 1 0 Effluent Gross	*****	*****	6.2	Req. Mon. MINIMUM	SU	0	1/30 Monthly	Grab
pH	*****	*****	*****	*****	SU	0	1/30 Monthly	Grab
00400 1 0 Intake from well	*****	*****	5.1	Req. Mon. MINIMUM	SU	0	1/30 Monthly	Grab
Nitrogen, total [as N]	*****	*****	*****	*****	mg/L	0	1/30 Monthly	Grab
00600 1 0 Effluent Gross	*****	*****	14.4	10 DAILY MX	mg/L	0	1/30 Monthly	Grab
Methylene chloride	*****	*****	*****	*****	ug/L	0	1/30 Monthly	Grab
34423 1 0 Effluent Gross	*****	*****	<0.5	5 DAILY MX	ug/L	0	1/30 Monthly	Grab
Tetrachloroethylene	*****	*****	*****	*****	ug/L	0	1/30 Monthly	Grab
34475 1 0 Effluent Gross	*****	*****	<0.5	5 DAILY MX	ug/L	0	1/30 Monthly	Grab
1,1-Dichloroethylene	*****	*****	*****	*****	ug/L	0	1/30 Monthly	Grab
34501 1 0 Effluent Gross	*****	*****	<0.5	5 DAILY MX	ug/L	0	1/30 Monthly	Grab
1,1,1-Trichloroethane	*****	*****	*****	*****	ug/L	0	1/30 Monthly	Grab
34506 1 0 Effluent Gross	*****	*****	<0.5	5 DAILY MX	ug/L	0	1/30 Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
 I certify under penalty of law that this document and all attachments were prepared under my direction or supervision with a system designed to assure that qualified personnel properly gather and evaluate the information submitted, based on my inquiry of the person or persons who manage the data or the persons directly responsible for gathering the information. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Edward J. Harmon
 SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE	DATE
516-575-2333	04/05/2023
AREA Code NUMBER	MM/DD/YYYY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

WHEN NATURAL GWS HAVE PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORTS SUPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS & REQUIREMENTS

DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME/ADDRESS (include Facility Name/Location if NAME: NORTHROP GRUMMAN SYSTEMS CORP ADDRESS: 925 SO. OYSTER BAY RD M/S- W16-035 BETHPAGE, NY 11714

FACILITY: NORTHROP GRUMMAN SYSTEMS CORP LOCATION: 925 SO. OYSTER BAY RD M/S- W16-035 BETHPAGE, NY 11714

ATTN: JOHN COFMAN

NY0096792 PERMIT NUMBER 006-C DISCHARGE NUMBER

MONITORING PERIOD MM/DD/YYYY 04/30/2023

DMR Mailing ZIP CODE: 11714 MINOR (SUBR 01) NC COOLING & STORM WATER TO GW External Outfall

No Discharge

PARAMETER	QUANTITY OR LOADING		QUALITY OR CONCENTRATION		NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	UNITS			
Vinyl chloride	*****	*****	*****	*****	0	1/30 Monthly	Grab
3917510 Effluent Gross Trichloroethylene	*****	*****	<0.5	ug/L	0	1/30 Monthly	Grab
3918010 Effluent Gross Flow, in conduit or thru treatment plant	*****	*****	<0.5	ug/L	0	1/30 Monthly	Grab
5005010 Effluent Gross Calculated limit	*****	*****	*****	*****	0	1/30 Monthly	Measured
7401310 Effluent Gross cis-1,2-Dichloroethylene	*****	*****	*****	*****	0	1/30 Monthly	Calculated
7709310 Effluent Gross Trichlorotrifluoroethane	*****	*****	<0.5	ug/L	0	1/30 Monthly	Grab
8161110 Effluent Gross trans-1,2-Dichloroethylene	*****	*****	<0.5	ug/L	0	1/30 Monthly	Grab
9581010 Effluent Gross	*****	*****	<0.5	ug/L	0	1/30 Monthly	Grab

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: *Edward J. Hannan*
 SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE: 516-515-2333
 DATE: 06/05/2023
 AREA Code NUMBER MM/DD/YYYY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here) WHEN NATURAL GWS HAVE PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS & REQUIREMENTS

DISCHARGE MONITORING REPORT (DMR)

OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (include Facility Name/Location if NAME)
 NORTROP GRUIMMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S- W16-035
 BEHPPAGE, NY 11714
 FACILITY: NORTROP GRUIMMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S- W16-035
 BEHPPAGE, NY 11714
 ATTN: JOHN COFMAN

PERMIT NUMBER
 NY0096792

DISCHARGE NUMBER
 001-WSP-7

DMR Mailing ZIP CODE: 11714
 MINOR (SUJR 01)
 NC COOLING & STORM WATER TO GW
 External Outfall

No Discharge

PARAMETER	QUANTITY OR LOADING		QUALITY OR CONCENTRATION		NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	UNITS			
pH	*****	*****	*****	*****	0	1/30 Monthly	Grab
0040010 Effluent Gross	*****	*****	7.0	SU	0	1/30 Monthly	Grab
pH	*****	*****	Req. Mon. MINIMUM	SU	0	1/30 Monthly	Grab
0040010 Intake from Well	*****	*****	*****	SU	0	1/30 Monthly	Grab
Nitrogen, total (as N)	*****	*****	5.8	mg/L	0	1/30 Monthly	Grab
0060010 Effluent Gross	*****	*****	Req. Mon. MINIMUM	mg/L	0	1/30 Monthly	Grab
Methylene chloride	*****	*****	*****	mg/L	0	1/30 Monthly	Grab
3442310 Effluent Gross	*****	*****	164	ug/L	0	1/30 Monthly	Grab
Tetrachloroethylene	*****	*****	*****	ug/L	0	1/30 Monthly	Grab
3447510 Effluent Gross	*****	*****	<2.0	ug/L	0	1/30 Monthly	Grab
1,1-Dichloroethylene	*****	*****	*****	ug/L	0	1/30 Monthly	Grab
3450110 Effluent Gross	*****	*****	<1.0	ug/L	0	1/30 Monthly	Grab
1,1,1-Trichloroethane	*****	*****	*****	ug/L	0	1/30 Monthly	Grab
1450610 Effluent Gross	*****	*****	<1.0	ug/L	0	1/30 Monthly	Grab

NAME/TITLE: PRINCIPAL EXECUTIVE OFFICER
 Edward J Hannon, ESH Director
 TYPED OR PRINTED

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT
 [Signature]

TELEPHONE: 516-515-2333
 NUMBER: 516-515-2333
 DATE: 06/05/2023
 MM/DD/YYYY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
 LIEN NATURAL GW HAS PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORTS SUPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA) SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

DISCHARGE MONITORING REPORT (DMR)

OMB No. 2010-0004

PERMITTEE NAME/ADDRESS (include Facility Name/Location if applicable)
 NAME: NORTHROP GRUMMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S- W16-035
 BEHAPPAGE, NY 11714

FACILITY: NORTHROP GRUMMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S- W16-035
 BEHAPPAGE, NY 11714

ACTN: JOHN COHMAN

NY0096792
 PERMIT NUMBER

061-WSP-7
 DISCHARGE NUMBER

MONITORING PERIOD
 MM/DD/YYYY
 04/30/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SUBR 01)

NC COOLING & STORM WATER '10 CW
 External Outfall

No Discharge

PARAMETER	SAMPLE MEASUREMENT	QUANTITY OR LOADING			QUALITY OR CONCENTRATION			NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	UNITS	VALUE	VALUE	UNITS				
Vinyl chloride	39175 10 Effluent Gross	*****	*****	*****	*****	<1.0	ug/L	0	1/30 Monthly	Grab
Trichloroethylene	39180 10 Effluent Gross	*****	*****	*****	*****	<1.0	ug/L	0	1/30 Monthly	Grab
Flow, in conduit or thru treatment plant	50050 10 Effluent Gross	*****	*****	*****	*****	*****	*****	0	1/30 Monthly	Measured
Calculated limit	74013 10 Effluent Gross	*****	*****	*****	*****	*****	*****	0	1/30 Monthly	Calculated
cis-1,2-Dichloroethylene	77093 10 Effluent Gross	*****	*****	*****	*****	<1.0	ug/L	0	1/30 Monthly	Grab
Trichlorotrifluoroethane	81611 10 Effluent Gross	*****	*****	*****	*****	<5.0	ug/L	0	1/30 Monthly	Grab
trans-1,2-Dichloroethylene	85810 10 Effluent Gross	*****	*****	*****	*****	<1.0	ug/L	0	1/30 Monthly	Grab

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, and on my independent knowledge and belief, I am aware and no one else is aware that there are significant omissions or misstatements of information, including the possibility of their not representing for knowing violations.

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
 Edward J. Hannan / ESH Director
 TYPED OR PRINTED

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT
 [Signature]

TELEPHONE
 NUMBER
 AREA CODE
 DATE
 516-575-2333
 06/05/2023

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
 WHEN NATURAL GW HAS PIU OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORTS SUPPLY WELL & OUTFALL PIU MONTHLY & REPORT PIU COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

Table 1
 SPDES Permit Equivalency Monthly Report
 OU2 and OU3 On-Site Containment Systems
 Northrop Grumman Bethpage Facility Site
 NYSDEC Site No. 130003A



Monitoring Period:

April 2023
 4/1/23 12:00 AM 4/30/23 12:00 AM
 30 Days

OU2 South Basins: Outfall 005

OU2 Groundwater Remedy Tower 102 Treatment System - Treated Air Stripper Discharge and Storm Water Runoff

Parameter ⁽¹⁾	CAS Number	OUTFALL 005 4/1/2023	Discharge Limit ⁽²⁾	Units	Monitoring Frequency	Sample Type	Average Mass Loading ^(3,7)	Units
Daily Average Flow ⁽⁴⁾	--	3.66	Monitor	MGD	Continuous	SCADA	--	--
Daily Maximum Flow ⁽⁴⁾	--	3.81	Monitor	MGD	Continuous	SCADA	--	--
Influent pH ⁽⁵⁾	--	5.2	NS	SU	Monthly (1/30) Days	Grab	--	--
Effluent pH ⁽⁵⁾	--	6.1	Range 5.0-8.5	SU	Monthly (1/30) Days	Grab	--	--
Total Nitrogen (as N)	--	7.3	10.0	mg/L	Monthly (1/30) Days	Grab	222.70	lbs/day
Total Iron	7439-89-6	120	600	µg/L	Monthly (1/30) Days	Grab	3.66	lbs/day
Total Manganese	7439-96-5	< 15	600	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Sum of Total Iron and Manganese ⁽⁶⁾	--	120	1,000	µg/L	Monthly (1/30) Days	Calculated	3.66	lbs/day
1,1-Dichloroethylene	75-35-4	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Methylene Chloride	75-09-2	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Tetrachloroethylene	127-18-4	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
1,1,1-Trichloroethane	71-55-6	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Trichloroethylene	79-01-6	1.0	5.0	µg/L	Monthly (1/30) Days	Grab	0.03	lbs/day
Vinyl Chloride	75-01-4	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
trans-1,2-Dichloroethylene	156-60-5	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
cis-1,2-Dichloroethylene	156-59-2	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Chloroform	67-66-3	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Trichlorotrifluoroethane (Freon 113)	76-13-1	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
1,4-Dioxane	123-91-1	3.0	Monitor	µg/L	Monthly (1/30) Days	Grab	0.09	lbs/day

Notes and abbreviations on last page

Table 1
 SPDES Permit Equivalency Monthly Report
 OU2 and OU3 On Site Containment Systems
 Northrop Grumman Bethpage Facility Site
 NYSDEC Site No 130003A



OU2 West Basins, Outfall 006

OU2 Groundwater Remedy Tower 96 Treatment System - Treated Air Stripper Discharge and Storm Water Runoff

Parameter ⁽¹⁾	CAS Number	OUTFALL 906 4/11/2023	Discharge Limit ⁽²⁾	Units	Monitoring Frequency	Sample Type	Average Mass Loading ^(3,7)	Units
Daily Average Flow ⁽⁴⁾	--	1.79	Monitor	MGD	Continuous	SCADA	--	--
Daily Maximum Flow ⁽⁴⁾	--	2.16	Monitor	MGD	Continuous	SCADA	--	--
Influent pH ⁽⁵⁾	--	5.1	NS	SU	Monthly (1/30) Days	Grab	--	--
Effluent pH ⁽⁵⁾	--	6.2	Range 5.0-8.5	SU	Monthly (1/30) Days	Grab	--	--
Total Nitrogen (as N)	--	14.4 ⁽⁶⁾	10.0	mg/L	Monthly (1/30) Days	Grab	--	lbs/day
Total Iron	7439-89-6	< 100	600	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Total Manganese	7439-96-5	< 15	600	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Sum of Total Iron and Manganese ⁽⁸⁾	--	ND	1,000	µg/L	Monthly (1/30) Days	Calculated	--	lbs/day
1,1-Dichloroethylene	75-35-4	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Methylene Chloride	75-09-2	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Tetrachloroethylene	127-18-4	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
1,1,1-Trichloroethane	71-55-6	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Trichloroethylene	79-01-6	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Vinyl Chloride	75-01-4	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
trans-1,2-Dichloroethylene	156-60-5	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
cis-1,2-Dichloroethylene	156-59-2	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Chloroform	67-66-3	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Trichlorotrifluoroethane (Freon 113)	76-13-1	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
1,4-Dioxane	123-91-1	6.0	Monitor	µg/L	Monthly (1/30) Days	Grab	0.11	lbs/day

Notes and abbreviations on last page

Table 1
 SPDES Permit Equivalency Monthly Report
 OU2 and OU3 On-Site Containment Systems
 Northrop Grumman Bethpage Facility Site
 NYSDEC Site No. 130003A



OU3 Effluent, Outfall 001 (WSP-7)

OU3 Groundwater Remedy Treatment System - Treated Air Stripper and Soil Gas Containment Condensate Discharge to Nassau County Recharge Basins

Parameter ⁽¹⁾	CAS Number	OUTFALL 001 (WSP-7) 4/11/2023	Discharge Limit ⁽²⁾	Units	Monitoring Frequency	Sample Type	Average Mass Loading ^(3,7)	Units
Daily Average Flow ⁽⁴⁾	--	0.28	Monitor	MGD	Continuous	SCADA	--	--
Daily Maximum Flow ⁽⁴⁾	--	0.29	Monitor	MGD	Continuous	SCADA	--	--
Influent pH ⁽⁵⁾	--	5.8	NS	SU	Monthly (1/30) Days	Grab	--	--
Effluent pH ⁽⁵⁾	--	7.0	Range 5.0-8.5	SU	Monthly (1/30) Days	Grab	--	--
Total Nitrogen (as N)	--	164 ⁽⁸⁾	10.0	mg/L	Monthly (1/30) Days	Grab	--	lbs/day
Total Iron	7439-89-6	< 100	600	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Total Manganese	7439-96-5	37.4	600	µg/L	Monthly (1/30) Days	Grab	0.09	lbs/day
Sum of Total Iron and Manganese	--	37.4	1,000	µg/L	Monthly (1/30) Days	Calculated	0.09	lbs/day
1,1-Dichloroethylene	75-35-1	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Methylene Chloride	75-09-2	< 2.0	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Tetrachloroethylene	127-18-4	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
1,1,1-Trichloroethane	71-55-6	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Trichloroethylene	79-01-6	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Vinyl Chloride	75-01-4	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
1,2-(trans)-Dichloroethylene	156-60-5	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
1,2-(cis)-Dichloroethylene	156-59-2	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Chloroform	67-66-3	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Trichlorofluoroethane (Freon 113)	76-13-1	< 5.0	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Benzene	71-43-2	< 0.50	1.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
1,1-Dichloroethane	75-34-3	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Ethylbenzene	100-41-4	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Toluene	108-88-3	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
o-Xylene	95-47-6	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
m,p-Xylene	--	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
1,4-Dioxane	123-91-1	0.29	Monitor	µg/L	Monthly (1/30) Days	Grab	6.78E-04	lbs/day

Notes and Abbreviations:

- XX Bold value indicates the constituent was detected at or above its laboratory quantification limit
- < Compound is not detected above laboratory quantification limit
- Not Applicable
- µg/L micrograms per liter
- lbs/day pounds per day
- lb/kg pounds per kilogram
- MGD million gallons per day
- mg/L milligrams per liter
- min minutes
- SU Standard Units
- CAS Chemical Abstracts Service
- ND Non Detect
- NS None Specified
- NYSDEC New York State Department of Environmental Conservation
- SCADA Supervisory Control and Data Acquisition
- SPDES State Pollution Discharge Elimination System
- TKN Total Kjeldahl Nitrogen

1. Samples were analyzed for permit equivalency Volatile Organic Compounds (VOCs) using USEPA Method 824 at OU2 system, and USEPA Method 8260 at OU3 system, 1,4-Dioxane using USEPA Method 8270D-SIM-CLE. Total Nitrogen is calculated as the sum of Nitrogen, (Nitrate+Nitrite) and Total Kjeldahl Nitrogen (TKN). (CAS number: 14797-55-8, 14797-65-0, and 7727-37-9, respectively) by USEPA Methods 353.2 and 351.2, respectively. Total Iron and Manganese using USEPA Method 200.7

2. Discharge limits are per the SPDES permit equivalency, dated October 12, 2017, amended on September 15, 2022 and transmitted by the NYSDEC to Northrop Grumman on September 19, 2022

3. Mass Loading Calculation

$$Mass\ Loading\ \left(\frac{lb}{day}\right) = Flow\ \left(\frac{gal}{min}\right) \cdot 1440\ \left(\frac{min}{day}\right) \cdot concentration\ \left(\frac{\mu g}{liter}\right) : 10^3\ \left(\frac{\mu g}{kg}\right) \cdot 3.785\ \left(\frac{liter}{gal}\right) \cdot 2.2046\ \left(\frac{lb}{kg}\right)$$

- 4. Average and daily maximum flow calculated from SCADA reports for the month indicated.
- 5. Field measurement of pH taken by hand held meter on sample date
- 6. When Total Iron and Total Manganese are below their respective detection limits the Sum Total of Iron and Manganese is reported as "ND"
- 7. Average Mass Loading calculations are based on actual flow rates unless otherwise noted
- 8. The Nitrogen sample result exceeds the SPDES discharge limit. The elevated concentration is suspect based on historical sampling results. Resampling was conducted on 5/10/23 (original laboratory) and 5/18/23 (secondary laboratory). The 5/10/23 sample result from the original laboratory was still elevated. The 5/18/23 sample result from secondary laboratory was below discharge limits and in line with historical concentrations. The April and May elevated results were either transitory or an issue with the original laboratory's analysis. Monitoring will continue as per the SPDES permit equivalency

Report of Analysis

Client Sample ID: OUTFALL 005	Date Sampled: 04/11/23
Lab Sample ID: JD63809-2	Date Received: 04/11/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: EPA 624.1	
Project: Northrop Grumman, OU2 System, Bethpage, NY	

4.2
4

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4D127238.D	1	04/22/23 13:56	TS	n/a	n/a	V4D5648
Run #2							

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

VOA OU2 SPDES List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	ND	0.50	0.50	ug/l	
75-35-4	1,1-Dichloroethene	ND	0.50	0.45	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	0.50	0.51	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	0.46	ug/l	
76-13-1	Freon 113	ND	0.50	0.87	ug/l	
75-09-2	Methylene chloride	ND	0.50	0.41	ug/l	
127-18-4	Tetrachloroethene	ND	0.50	0.41	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.43	ug/l	
79-01-6	Trichloroethene	1.0	0.50	0.43	ug/l	
75-01-4	Vinyl chloride	ND	0.50	0.79	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4 (SUR)	103%		80-128%
2037-26-5	Toluene-D8 (SUR)	98%		82-113%
460-00-4	4-Bromofluorobenzene (SUR)	98%		79-117%
1868-53-7	Dibromofluoromethane (S)	102%		84-121%

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: OUTFALL 005 Lab Sample ID: JD63809-2 Matrix: AQ - Ground Water Project: Northrop Grumman, OU2 System, Bethpage, NY	Date Sampled: 04/11/23 Date Received: 04/11/23 Percent Solids: n/a
---	---

4.2
4

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	120	100	ug/l	1	04/17/23	04/18/23 ND	EPA 200.7 ¹	EPA 200.7 ²
Manganese	< 15	15	ug/l	1	04/17/23	04/18/23 ND	EPA 200.7 ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA54030
 (2) Prep QC Batch: MP39055

RL = Reporting Limit

Report of Analysis

Client Sample ID: OUTFALL 005	Date Sampled: 04/11/23
Lab Sample ID: JD63809-2	Date Received: 04/11/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Northrop Grumman, OU2 System, Bethpage, NY	

4.2
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By Method
Nitrogen, Nitrate + Nitrite	4.4	0.10	0.090	mg/l	1	04/17/23 14:49 JD	EPA 353.2/LACHAT
Nitrogen, Total ^a	7.3	0.30	0.23	mg/l	1	04/18/23 12:14 MM	SM4500 A-11
Nitrogen, Total Kjeldahl	2.9	0.20	0.14	mg/l	1	04/18/23 12:14 MM	EPA 351.2/LACHAT

(a) Calculated as: (Nitrogen, Total Kjeldahl) + (Nitrogen, Nitrate + Nitrite)

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: OUTFALL 006	Date Sampled: 04/11/23
Lab Sample ID: JD63809-3	Date Received: 04/11/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: EPA 624.1	
Project: Northrop Grumman, OU2 System, Bethpage, NY	

4.3
4

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4D127239.D	1	04/22/23 14:25	TS	n/a	n/a	V4D5648
Run #2							

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

VOA OU2 SPDES List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	ND	0.50	0.50	ug/l	
75-35-4	1,1-Dichloroethene	ND	0.50	0.45	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	0.50	0.51	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	0.46	ug/l	
76-13-1	Freon 113	ND	0.50	0.87	ug/l	
75-09-2	Methylene chloride	ND	0.50	0.41	ug/l	
127-18-4	Tetrachloroethene	ND	0.50	0.41	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.43	ug/l	
79-01-6	Trichloroethene	ND	0.50	0.43	ug/l	
75-01-4	Vinyl chloride	ND	0.50	0.79	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4 (SUR)	102%		80-128%
2037-26-5	Toluene-D8 (SUR)	98%		82-113%
460-00-4	4-Bromofluorobenzene (SUR)	98%		79-117%
1868-53-7	Dibromofluoromethane (S)	101%		84-121%

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:	OUTFALL 006	Date Sampled:	04/11/23
Lab Sample ID:	JD63809-3	Date Received:	04/11/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	Northrop Grumman, OU2 System, Bethpage, NY		

4.3
4

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	< 100	100	ug/l	1	04/17/23	04/18/23 ND	EPA 200.7 ¹	EPA 200.7 ²
Manganese	< 15	15	ug/l	1	04/17/23	04/18/23 ND	EPA 200.7 ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA54030

(2) Prep QC Batch: MP39055

RL = Reporting Limit

Report of Analysis

Client Sample ID: OUTFALL 006	Date Sampled: 04/11/23
Lab Sample ID: JD63809-3	Date Received: 04/11/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Northrop Grumman, OU2 System, Bethpage, NY	

4.3
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By Method
Nitrogen, Nitrate + Nitrite	4.7	0.10	0.090	mg/l	1	04/17/23 15:14 JD	EPA 353.2/LACHAT
Nitrogen, Total ^a	14.4	0.70	0.52	mg/l	1	04/18/23 12:32 MM	SM4500 A-11
Nitrogen, Total Kjeldahl	9.7	0.60	0.43	mg/l	3	04/18/23 12:32 MM	EPA 351.2/LACHAT

(a) Calculated as: (Nitrogen, Total Kjeldahl) + (Nitrogen, Nitrate + Nitrite)

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analytical Results

SDG: SQ1719
Lab ID: SQ1719-1
Client ID: OUTFALL 005
Matrix: AQ
Lab File ID: G6545.D

Sample Date: 11-APR-23
Extract Date: 17-APR-23
Extracted By: SR
Extraction Method: SW846 3520C
Lab Prep Batch: WG335174

Report Date: 01-MAY-23
Analysis Date: 28-APR-23
Analyst: DT/EP
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL
1,4-Dioxane		3.0	ug/L	1	.25	0.24
1,4-Dioxane-D8		39.7	%			

Report of Analytical Results

SDG: SQ1719
Lab ID: SQ1719-2
Client ID: OUTFALL 006
Matrix: AQ
Lab File ID: G6546.D

Sample Date: 11-APR-23
Extract Date: 17-APR-23
Extracted By: SR
Extraction Method: SW846 3520C
Lab Prep Batch: WG335174

Report Date: 01-MAY-23
Analysis Date: 28-APR-23
Analyst: DT/EP
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL
1,4-Dioxane		6.0	ug/L	1	.25	0.24
1,4-Dioxane-D8		53.4	%			

GW
TB

CHAIN OF CUSTODY

SGS Accutest New Jersey - Dayton
2235 Route 130, Dayton, NJ 08810
TEL 732-329-0200 FAX 732-329-3499/3480
www.sgs.com

FED# Training # Sample Order Control # MM-04523-142
Account Order # Account Job # JD63809

Client / Reporting Information		Project Information		Requested Analysis (see TEST CODE)		Matrix Codes	
Company Name Arcadia		Project Name AGMNYM62233 // OU2 System - GW Prog 3 OU2.2-ONCT-OMM/SPDES		Requested Analysis (see TEST CODE)		Matrix Codes	
Street Address 2 Huntington Quad, Suite 1810		Street Bethpage		Company Name Arcadia, U.S., Inc.		DW - Drinking Water GW - Ground Water WW - Waste Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LOI - Other Liquid AIR - Air SOL - Other Solid WP - Wastewater FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank	
City Melville NY 11747		City Bethpage NY		Street Address 630 Plaza Drive, Suite 600			
Project Contact Kevin Czarwinski, Kevin.Czarwinski@arcadia.com		Project # 38169301.OMM13		City Highlands Ranch, CO 80129			
Phone # 631-248-8710		Client Purchase Order # 38169301		State CO			
Sample(s) Name(s) Patrick Dellecane 681-359-25		Work Authorization # NY901499_2015 10 30		Number Accounts Payable			
Field ID / Point of Collection		Collection		Number of preserved bottles			
1	TB-071123 - PD	MECH-40 Vol #	Date 4/11/13	Time 10:30	Sampled by PD	Matrix TB	# of bottles 2
2	Outfall 005				GW		2
3	Outfall 006				GW		2
Turnaround Time (Business days)		Data Deliverable Information		Comments / Special Instructions			
<input type="checkbox"/> Std. 16 Business Days <input checked="" type="checkbox"/> Std. 18 Business Days (by Contract only) <input type="checkbox"/> 18 Day RUSH <input type="checkbox"/> 8 Day RUSH <input type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY Emergency & Rush TA data available via Lablink		Approved By Manual PIV: 1 Date: _____ Approved By _____ Date: _____ Approved By _____ Date: _____ Approved By _____ Date: _____ Approved By _____ Date: _____		<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> FULLT1 (Level 3-4) <input type="checkbox"/> NJ Reduced <input type="checkbox"/> Commercial "C" Commercial "A" + Results Only Commercial "B" + Results + QC Summary NJ Reduced + Results + QC Summary - Partial Raw data		Initial Assessment 3A JH Label Verification _____ 1915	
Sample Custody must be documented below each time samples change possession, including courier delivery							
Substituted by Sampler Patrick Dellecane		Date Time 4/11/13		Received By Raymond Orr		Received By Raymond Orr	
Substituted by Sampler 3		Date Time		Received By 3		Received By 4	
Substituted by 5		Date Time		Received By 5		Custody Seal # <input type="checkbox"/> Present <input type="checkbox"/> Not Present	

5.2
5

G:\PROJECT\Workshop\Gummen\Bethpage\OU2.2 ONCT\06 Notes and Data\System Benchmark\February (C:\MPCOCs_808\PAR OU2 COCA JobPte_82233_82235_RevDec2011

IR-40

Report of Analysis

Client Sample ID:	WSP-7	Date Sampled:	04/11/23
Lab Sample ID:	JD63810-1	Date Received:	04/11/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260D		
Project:	Northrop Grumman, OU3 BPGWCS System, Bethpage, NY		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2T1173.D	1	04/25/23 19:20	ED	n/a	n/a	V2T39
Run #2							

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

VOA OU3 BPGWVS List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	3.1	ug/l	
71-43-2	Benzene	ND	0.50	0.43	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.45	ug/l	
75-25-2	Bromoform ^a	ND	1.0	0.63	ug/l	
74-83-9	Bromomethane ^b	ND	2.0	1.6	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	2.7	ug/l	
106-99-0	1,3-Butadiene	ND	5.0	0.62	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.46	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	
75-45-6	Chlorodifluoromethane	ND	5.0	0.49	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 ^a	ND	1.0	0.56	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	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	0.58	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.51	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	0.49	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.65	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 Analysis

Client Sample ID:	WSP-7	Date Sampled:	04/11/23
Lab Sample ID:	JD63810-1	Date Received:	04/11/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260D		
Project:	Northrop Grumman, OU3 BPGWCS System, Bethpage, NY		

4.1
4

VOA OU3 BPGWVS List

CAS No.	Compound	Result	RL	MDL	Units	Q
127-18-4	Tetrachloroethene	ND	1.0	0.56	ug/l	
108-88-3	Toluene	ND	1.0	0.49	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	
79-01-6	Trichloroethene	ND	1.0	0.53	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.40	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.52	ug/l	
75-68-3	1-chloro-1,1-difluoroethane	ND	5.0	0.33	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	105%		80-120%
17060-07-0	1,2-Dichloroethane-D4	113%		80-120%
2037-26-5	Toluene-D8	100%		80-120%
460-00-4	4-Bromofluorobenzene	100%		82-114%

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

- (a) Associated CCV outside of control limits low. A sensitivity check was analyzed to demonstrate system suitability to detect affected analyte. Sample was ND.
- (b) 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

Report of Analysis

Client Sample ID:	WSP-7	Date Sampled:	04/11/23
Lab Sample ID:	JD63810-1	Date Received:	04/11/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	Northrop Grumman, OU3 BPGWCS System, Bethpage, NY		

4.1
4

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	< 100	100	ug/l	1	04/17/23	04/18/23 ND	EPA 200.7 ¹	EPA 200.7 ²
Manganese	37.4	15	ug/l	1	04/17/23	04/18/23 ND	EPA 200.7 ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA54030

(2) Prep QC Batch: MP39055

RL = Reporting Limit

Report of Analysis

Client Sample ID:	WSP-7	Date Sampled:	04/11/23
Lab Sample ID:	JD63810-1	Date Received:	04/11/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	Northrop Grumman, OU3 BPGWCS System, Bethpage, NY		

4.1
4

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Nitrogen, Nitrate + Nitrite	164	4.0	mg/l	40	04/17/23 15:21	JD	EPA 353.2/LACHAT
Nitrogen, Total ^a	164	4.2	mg/l	1	04/18/23 12:07	MM	SM4500 A-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	04/18/23 12:07	MM	EPA 351.2/LACHAT

(a) Calculated as: (Nitrogen, Total Kjeldahl) + (Nitrogen, Nitrate + Nitrite)

RL = Reporting Limit

Report of Analytical Results

SDG: SQ1720
Lab ID: SQ1720-1
Client ID: WSP-7
Matrix: AQ
Lab File ID: G6547.D

Sample Date: 11-APR-23
Extract Date: 17-APR-23
Extracted By: SR
Extraction Method: SW846 3520C
Lab Prep Batch: WG335174

Report Date: 01-MAY-23
Analysis Date: 28-APR-23
Analyst: DT/EP
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL
1,4-Dioxane		0.29	ug/L	1	.25	0.23
1,4-Dioxane-D8		50.1	%			

May' &\$&'

Northrop Grumman
925 South Oyster Bay Road
Bethpage, NY 11714

northropgrumman.com

ESH&M-016L-23
July 5, 2023

Jason Pelton
N.Y.S. Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-3506

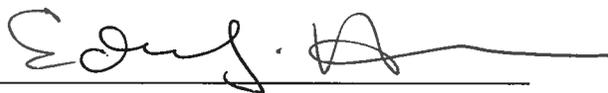
Subject: **Report for SPDES Permit Equivalent, NYSDEC Site No. 1-30-003A
Northrop Grumman Corporation - Bethpage, New York Facility**

Mr. Pelton:

Enclosed please find the subject SPDES Permit Equivalent summary tables for the month of May 2023, as per additional condition requirements outlined in the SPDES Permit Equivalent (Northrop Grumman, NYSDEC No. 1-30-003A) dated July 30, 2018.

If you have any questions, please call me at 516-575-2333

Very truly yours,



Edward J. Hannon
Environmental, Safety, Health & Medical Director
516-575-2333
M/S: 02/BP15

cc: Regional Water Engineer - Region 1
NYS Department of Environmental Conservation
SUNY @ Stony Brook
50 Circle Road
Stony Brook, NY 11790-3409

Northrop Grumman
925 South Oyster Bay Road
Bethpage, NY 11714

northropgrumman.com

ESH&M-17L-23
July 5, 2023

Jason Pelton
N.Y.S. Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-3506

RE: NYSDEC No. 1-30-003A

Subject: Additional Sampling Constituents for Report Period:
May 1, 2023 – May 31.

Mr. Pelton:

Below please find the 1,4 – Dioxane sampling results for Outfalls 1, 5 and 6 for this reporting period.

Outfall 1 – 0.33 ug/L
Outfall 5 – 3.6 ug/L
Outfall 6 – 5.6 ug/L

Sampling results for Outfall 1 for the following:

Ethylbenzene - <1.0
Toluene - <1.0
Benzene - <0.5
m,p-Xylene - <1.00

If you have any questions, please call me at 516-575-2333
Very truly yours,



Edward J. Hannon
Environmental, Safety, Health & Medical Director
516-575-2333
M/S: 02/BP15

cc: Regional Water Engineer - Region 1
NYS Department of Environmental Conservation
SUNY @ Stony Brook
50 Circle Road
Stony Brook, NY 11790-3409

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (include Facility Name/Location if
 NAME: NORTHROP GRUMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S- W16- 035
 BETHPAGE, NY 11714
 FACILITY: NORTHROP GRUMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S- W16- 035
 BETHPAGE, NY 11714
 ATTN: JOHN COFMAN

NY0096792	005-C
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
05/01/2023	05/31/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SUBR 01)
 NC COOLING & STORM WATER TO GW
 External Outfall
 No Discharge

PARAMETER	SAMPLE MEASUREMENT	QUANTITY OR LOADING			QUALITY OR CONCENTRATION			NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE			
pH	MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****
00400 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	5.9	Reg. Mon. MINIMUM	*****	*****	1/31	Grab
pH	SAMPLE MEASUREMENT	*****	*****	*****	5.2	Reg. Mon. MAXIMUM	*****	*****	1/31	Grab
00400 1 0 Nitrogen, total (as N)	PERMIT REQUIREMENT	*****	*****	*****	3.9	Reg. Mon. MAXIMUM	*****	*****	1/31	Grab
00600 1 0 Methylene chloride	PERMIT REQUIREMENT	*****	*****	*****	10	DAILY MX	*****	*****	1/31	Grab
34423 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	<0.5	DAILY MX	*****	*****	1/31	Grab
Tetrachloroethylene	SAMPLE MEASUREMENT	*****	*****	*****	<0.5	DAILY MX	*****	*****	1/31	Grab
34475 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	<0.5	DAILY MX	*****	*****	1/31	Grab
1,1-Dichloroethylene	SAMPLE MEASUREMENT	*****	*****	*****	<0.5	DAILY MX	*****	*****	1/31	Grab
34501 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	<0.5	DAILY MX	*****	*****	1/31	Grab
1,1,1-Trichloroethane	SAMPLE MEASUREMENT	*****	*****	*****	<0.5	DAILY MX	*****	*****	1/31	Grab
34506 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	<0.5	DAILY MX	*****	*****	1/31	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	Identify number, name of law that this document and all attachments were prepared under any direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted, based on the inquiry of the person immediately supervising the gathering of the information. Identify the person or persons directly responsible for gathering the information, and complete a statement that there are significant findings for which the information is not complete, including the possibility of false and misstatement for knowing violations.	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE	DATE
Edward J. Hannon, Director			516/515-2333	07/05/2023
TYPED OR PRINTED			AREA CODE NUMBER	MM/DD/YYYY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
 WHEN NATURAL GW HAS PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA) SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

FORM APPROVED
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (include Facility Name/Location if
NAME: NORTROP GRUMAN SYSTEMS CORP
ADDRESS: 925 SO. OYSTER BAY RD M/S- W16- 035
BETHPAGE, NY 11714
FACILITY: NORTROP GRUMAN SYSTEMS CORP
LOCATION: 925 SO. OYSTER BAY RD M/S- W16- 035
BETHPAGE, NY 11714
ATTN: JOHN COFMAN

NY0096792	005-C
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
05/01/2023	05/31/2023

DMR Mailing ZIP CODE: 11714
MINOR (SUBR 01)
NC COOLING & STORM WATER TO GW
External Outfall
No Discharge

PARAMETER	SAMPLE MEASUREMENT	QUANTITY OR LOADING			QUALITY OR CONCENTRATION		UNITS	NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE				
Vinyl chloride	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	ug/L	0	1/31	Grab
39175 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	ug/L	0	Monthly	Grab
Trichloroethylene	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	ug/L	0	1/31	Grab
39180 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	ug/L	0	Monthly	Grab
Flow, in conduit or thru treatment plant	SAMPLE MEASUREMENT	*****	3.84	MGD	*****	*****	*****	0	1/31	Measured
50050 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	0	Monthly	Measured
Calculated limit	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	0	1/31	Calculated
74013 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	N=0, Y=1	*****	*****	*****	0	Monthly	Calculated
cis- 1,2- Dichloroethylene	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	ug/L	0	1/31	Grab
77093 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	ug/L	0	Monthly	Grab
Trichlorofluorocthane	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	ug/L	0	1/31	Grab
81611 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	ug/L	0	Monthly	Grab
trans- 1,2- Dichloroethylene	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	ug/L	0	1/31	Grab
85810 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	ug/L	0	Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	TELEPHONE	DATE
Edward J. Hannon, EHS Director		516-515-2333	07/05/2023
TYPED OR PRINTED		AREA Code	MM/DD/YYYY
		NUMBER	
SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT			

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
WHEN NATURAL GW HAS PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (include Facility Name/Location if
NAME: NORTROP GRUUMAN SYSTEMS CORP
ADDRESS: 925 SO. OYSTER BAY RD M/S- W1G- 035
BETHPAGE, NY 11714
FACILITY: NORTROP GRUUMAN SYSTEMS CORP
LOCATION: 925 SO. OYSTER BAY RD M/S- W1G- 035
BETHPAGE, NY 11714
ATTN: JOHN COEMAN

NY0096792	006- C
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
05/01/2023	05/31/2023

DMR Mailing ZIP CODE: 11714
MINOR (SUBR 01)
NC COOLING & STORM WATER TO GW
External Outfall
No Discharge

PARAMETER	SAMPLE MEASUREMENT	QUANTITY OR LOADING			QUALITY OR CONCENTRATION			NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE			
pH	MEASUREMENT	*****	*****	*****	*****	*****	*****	0	1/31	Grab
00400 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	6.9	Req. Mon. MINIMUM	*****	0	Monthly	Grab
pH	SAMPLE MEASUREMENT	*****	*****	*****	6.7	Req. Mon. MINIMUM	*****	0	1/31	Grab
00400 1 0 Intake from Well	PERMIT REQUIREMENT	*****	*****	*****	6.7	Req. Mon. MAXIMUM	*****	0	Monthly	Grab
Nitrogen, total [as N]	SAMPLE MEASUREMENT	*****	*****	*****	4.5	mg/L	*****	0	1/31	Grab
00600 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	10	DAILY MX	*****	0	Monthly	Grab
Methylene chloride	SAMPLE MEASUREMENT	*****	*****	*****	<0.5	ug/L	*****	0	1/31	Grab
34423 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	5	DAILY MX	*****	0	Monthly	Grab
Tetrachloroethylene	SAMPLE MEASUREMENT	*****	*****	*****	<0.5	ug/L	*****	0	1/31	Grab
34475 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	5	DAILY MX	*****	0	Monthly	Grab
1,1-Dichloroethylene	SAMPLE MEASUREMENT	*****	*****	*****	<0.5	ug/L	*****	0	1/31	Grab
34501 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	5	DAILY MX	*****	0	Monthly	Grab
1,1,1-Trichloroethane	SAMPLE MEASUREMENT	*****	*****	*****	<0.5	ug/L	*****	0	1/31	Grab
34506 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	5	DAILY MX	*****	0	Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted, based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete, I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE	DATE
Edward J. Hannan, EHS Director			516-515-2333	07/05/2023
TYPED OR PRINTED			AREA Code NUMBER	MM/DD/YYYY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
WHEN NATURAL GWS HAVE PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORTS SUPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS & REQUIREMENTS

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (include Facility Name/Location if
 NAME: NORTHRUP GRUMMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S- W1G- 035
 BETHPAGE, NY 11714
 FACILITY: NORTHRUP GRUMMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S- W1G- 035
 BETHPAGE, NY 11714
 ATTN: JOHN COFMAN

NY0096792	006- C
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
05 01 2023	05 31 2023

DMR Mailing ZIP CODE: 11714
 MINOR (SUBR 01)
 NC COOLING & STORM WATER TO GW
 External Outfall

No Discharge

PARAMETER	SAMPLE MEASUREMENT	QUANTITY OR LOADING			QUALITY OR CONCENTRATION			NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE			
Vinyl chloride	PERMIT MEASUREMENT	*****	*****	*****	*****	*****	*****	0	1/31	Grab
39175 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	0	Monthly	Grab
Trichloroethylene	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	0	1/31	Grab
39180 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	0	Monthly	Grab
Flow, in conduit or thru treatment plant	SAMPLE MEASUREMENT	*****	2.24	*****	*****	*****	*****	0	1/31	Measured
50050 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	4.25 DAILY MX	*****	*****	*****	*****	0	Monthly	Measured
Calculated limit	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	0	1/31	Calculated
74013 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	0	Monthly	Calculated
cis- 1,2- Dichloroethylene	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	0	1/31	Grab
77093 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	0	Monthly	Grab
Trichlorofluoroethane	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	0	1/31	Grab
81611 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	0	Monthly	Grab
trans- 1,2- Dichloroethylene	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	0	1/31	Grab
85810 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	0	Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	Edmond J. Hennrichs Director	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE	DATE
COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)	When natural GWs have pH outside range, it may be one extremity of the allowable range (sample & reports supply well & outfall pH monthly & report pH compliance status (yes/no) in calculated limit area) see permit for additional notes, comments & requirements			
PERMIT NUMBER	NY0096792	DISCHARGE NUMBER	006- C	
MONITORING PERIOD	05 01 2023	DISCHARGE NUMBER	05 31 2023	
DMR Mailing ZIP CODE:	11714	MINOR (SUBR 01)		
NC COOLING & STORM WATER TO GW		External Outfall		
No Discharge	<input type="checkbox"/>			

DISCHARGE MONITORING REPORT (DMR)

DMR No. 20-00-0004

PERMITTEE NAME/ADDRESS *include Facility Name/Location if known*
 NAME: NORTRROP GRIMMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S- W16-035
 BETHPAGE, NY 11714
 FACILITY: NORTRROP GRIMMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S- W16-035
 BETHPAGE, NY 11714
 ATTN: JOHN COHMAN

NY0096792	001-WSP-7
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
05/01/2023	05/31/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SUHR 01)
 NC COOLING & STORM WATER TO GW
 External Outfall
 No Discharge

PARAMETER	SAMPLE MEASUREMENT	QUANTITY OR LOADING			QUALITY OR CONCENTRATION			NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE			
pH	MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****
00400 1 0 EFFLUENT GROSS	PERMIT REQUIREMENT	*****	*****	*****	6.2	*****	*****	*****	*****	*****
	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****
00400 1 0 Intake from Well	PERMIT REQUIREMENT	*****	*****	*****	5.7	*****	*****	*****	*****	*****
	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****
00600 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****
	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****
Methylene chloride	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****
	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****
34423 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****
	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****
Tetrachloroethylene	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****
	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****
34475 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****
	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****
1,1-Dichloroethylene	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****
	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****
34501 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****
	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****
1,1,1-Trichloroethane	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****
	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****
34506 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****
	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
 I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person(s) who prepared the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, complete, and not misleading. I understand that anyone who furnishes false or misleading information on this report or who omits material or information requested on the report may be subject to criminal sanctions (including fines and imprisonment) and/or civil sanctions (including civil penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations).

Edward J. Hanson / EHS Director
 TYPED OR PRINTED

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT
 516-515-2333
 AREA CODE NUMBER

TELEPHONE DATE
 07/05/2023
 MM/DD/YYYY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
 WHEN NATURAL GW HAS PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORTS SUPPLY WELL & OUTFALL PH MONTHLY AIRPORT PH)
 COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA, SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

NATIONAL POLLUTANT DISCHARGE LIMITATION REPORT
DISCHARGE MONITORING REPORT (DMR)

DMR No. 2040-0004

PERMITTEE NAME/ADDRESS (include Facility Name/Location if
NAME: NORTRIKOP GRUMMAN SYSTEMS CORP
ADDRESS: 925 SO. OYSTER BAY RD M/S- WIG-035
REHPAC, NY 11714
FACILITY: NORTRIKOP GRUMMAN SYSTEMS CORP
LOCATION: 925 SO. OYSTER BAY RD M/S- WIG-035
REHPAC, NY 11714
ACTN: JOHN COHMAN

NY0096792	D01-WSP-1
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
05/01/2023	05/31/2023

DMR Mailing ZIP CODE: 11714
MINOR (SUSR 01)
NC COOLING & STORM WATER TO GW
External Outfall
No Discharge

PARAMETER	SAMPLE MEASUREMENT	QUANTITY OR LOADING			QUALITY OR CONCENTRATION			NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE			
Vinyl chloride	PERMIT MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****
39175 1 0	PERMIT MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****
Trichloroethylene	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****
39180 1 0	PERMIT MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****
Flow, in conduit or thru treatment plant	SAMPLE MEASUREMENT	*****	0.28	*****	*****	*****	*****	*****	*****	*****
50050 1 0	PERMIT MEASUREMENT	*****	5	MG/D	*****	*****	*****	*****	*****	*****
Calculated limit	SAMPLE MEASUREMENT	*****	1	*****	*****	*****	*****	*****	*****	*****
74013 1 0	PERMIT MEASUREMENT	*****	*****	Req. Mon. Single Rdg	*****	*****	*****	*****	*****	*****
cis-1,2-Dichloroethylene	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****
77093 1 0	PERMIT MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****
Trichlorotrifluoroethane	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****
81611 1 0	PERMIT MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****
Effluent Gross	PERMIT MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****
Trans-1,2-Dichloroethylene	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****
85810 1 0	PERMIT MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****
Effluent Gross	PERMIT MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER: *Edmond Johnson EHS Director*

TELEPHONE: 516-575-2333 DATE: 07/28/23

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT: *[Signature]*

DATE: MM/DD/YYYY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
WHEN NATURAL GW HAS PI OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORTS) WELLS & OUTFALL PER MONTHLY REPORT PI COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA. SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

EPA Form 3320-1 (Rev. 01/06) Previous editions may be used.

10/19/2018 Page 2

Report of Analysis

4.2
4

Client Sample ID:	OUTFALL 005	Date Sampled:	05/18/23
Lab Sample ID:	JD65945-2	Date Received:	05/18/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	EPA 624.1		
Project:	Northrop Grumman, OU2 System, Bethpage, NY		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1J2574.D	1	05/23/23 10:38	ED	n/a	n/a	V1J85
Run #2							

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

VOA OU2 SPDES List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.34	ug/l	
67-66-3	Chloroform	ND	0.50	0.50	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.42	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.39	ug/l	
75-35-4	1,1-Dichloroethene	ND	0.50	0.45	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	0.50	0.51	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	0.46	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.42	ug/l	
76-13-1	Freon 113	ND	0.50	0.87	ug/l	
75-09-2	Methylene chloride	ND	0.50	0.41	ug/l	
127-18-4	Tetrachloroethene	ND	0.50	0.41	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.43	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.41	ug/l	
79-01-6	Trichloroethene	1.2	1.0	0.43	ug/l	
75-01-4	Vinyl chloride ^a	ND	1.0	0.79	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4 (SUR)	86%		80-128%
2037-26-5	Toluene-D8 (SUR)	110%		82-113%
460-00-4	4-Bromofluorobenzene (SUR)	93%		79-117%
1868-53-7	Dibromofluoromethane (S)	101%		84-121%

(a) This compound in blank spike is outside in house QC limits bias high.

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:	OUTFALL 005	Date Sampled:	05/18/23
Lab Sample ID:	JD65945-2	Date Received:	05/18/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	Northrop Grumman, OU2 System, Bethpage, NY		

4.2
4

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	< 100	100	ug/l	1	05/23/23	05/24/23 EAL	SW846 6010D ¹	EPA 200.7 ²
Manganese	< 15	15	ug/l	1	05/23/23	05/24/23 EAL	SW846 6010D ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA54206

(2) Prep QC Batch: MP39722

RL = Reporting Limit

Report of Analysis

Client Sample ID: OUTFALL 006	Date Sampled: 05/10/23
Lab Sample ID: JD65368-2A	Date Received: 05/10/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: EPA 624.1	
Project: Northrop Grumman, OU2 System, Bethpage, NY	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1T1795.D	1	05/11/23 21:06	ED	n/a	n/a	V1T59
Run #2							

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

VOA OU2 SPDES List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	ND	0.50	0.50	ug/l	
75-35-4	1,1-Dichloroethene	ND	0.50	0.45	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	0.50	0.51	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	0.46	ug/l	
76-13-1	Freon 113	ND	0.50	0.87	ug/l	
75-09-2	Methylene chloride	ND	0.50	0.41	ug/l	
127-18-4	Tetrachloroethene	ND	0.50	0.41	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.43	ug/l	
79-01-6	Trichloroethene	ND	0.50	0.43	ug/l	
75-01-4	Vinyl chloride	ND	0.50	0.79	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4 (SUR)	110%		80-128%
2037-26-5	Toluene-D8 (SUR)	98%		82-113%
460-00-4	4-Bromofluorobenzene (SUR)	97%		79-117%
1868-53-7	Dibromofluoromethane (S)	109%		84-121%

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: OUTFALL 006	Date Sampled: 05/10/23
Lab Sample ID: JD65368-2A	Date Received: 05/10/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Northrop Grumman, OU2 System, Bethpage, NY	

4.3
4

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	< 100	100	ug/l	1	05/11/23	05/12/23 ND	EPA 200.7 ¹	EPA 200.7 ²
Manganese	< 15	15	ug/l	1	05/11/23	05/12/23 ND	EPA 200.7 ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA54160

(2) Prep QC Batch: MP39522

RL = Reporting Limit

Report of Analytical Results

SDG: SQ2485
Lab ID: SQ2485-1
Client ID: OUTFALL 005
Matrix: AQ
Lab File ID: G6953.D

Sample Date: 18-MAY-23
Extract Date: 24-MAY-23
Extracted By: BRK/CMW
Extraction Method: SW846 3520C
Lab Prep Batch: WG336986

Report Date: 28-JUN-23
Analysis Date: 22-JUN-23
Analyst: JML
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane	B	3.6	ug/L	1	.25	0.23	0.079
1,4-Dioxane-D8	*	0.00	%				

Report of Analytical Results

SDG: SQ2286
Lab ID: SQ2286-1
Client ID: OUTFALL 006
Matrix: AQ
Lab File ID: G6708.D

Sample Date: 10-MAY-23
Extract Date: 19-MAY-23
Extracted By: AL/SR
Extraction Method: SW846 3520C
Lab Prep Batch: WG336724

Report Date: 14-JUN-23
Analysis Date: 10-JUN-23
Analyst: DT
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane	B	5.6	ug/L	1	.25	0.24	0.080
1,4-Dioxane-D8		44.0	%				

ANALYTICAL RESULTS

Project: PROGRAMS 3- OU2 2 ONCT SPDES
Pace Project No.: 70256908

Sample: OUTFALL 005		Lab ID: 70256908001	Collected: 05/18/23 09:50	Received: 05/18/23 15:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Total Nitrogen Calculation		Analytical Method: SM22 4500-N Pace Analytical Services - Melville						
Total Nitrogen	3.9	mg/L	0.10	1		05/24/23 09:41		
351.2 Total Kjeldahl Nitrogen		Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - Melville						
Nitrogen, Kjeldahl, Total	<0.10	mg/L	0.10	1	05/22/23 04:40	05/22/23 14:30	7727-37-9	
353.2 Nitrogen, NO2/NO3 unpres		Analytical Method: EPA 353.2 Pace Analytical Services - Melville						
Nitrate as N	3.9	mg/L	0.25	5		05/18/23 23:11	14797-55-8	
Nitrate-Nitrite (as N)	3.9	mg/L	0.25	5		05/18/23 23:11	7727-37-9	
353.2 Nitrogen, NO2		Analytical Method: EPA 353.2 Pace Analytical Services - Melville						
Nitrite as N	<0.050	mg/L	0.050	1		05/18/23 21:25	14797-65-0	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

ANALYTICAL RESULTS

Project: PROGRAMS 3- OU2.2 ONCT SPDES

Pace Project No.: 70256908

Sample: OUTFALL 006	Lab ID: 70256908002	Collected: 05/18/23 09:05	Received: 05/18/23 15:30	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Total Nitrogen Calculation	Analytical Method: SM22 4500-N Pace Analytical Services - Melville							
Total Nitrogen	4.5	mg/L	0.10	1		05/24/23 09:41		
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - Melville							
Nitrogen, Kjeldahl, Total	<0.10	mg/L	0.10	1	05/22/23 04:40	05/22/23 14:10	7727-37-9	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2 Pace Analytical Services - Melville							
Nitrate as N	4.5	mg/L	0.25	5		05/18/23 23:10	14797-55-8	
Nitrate-Nitrite (as N)	4.5	mg/L	0.25	5		05/18/23 23:10	7727-37-9	
353.2 Nitrogen, NO2	Analytical Method: EPA 353.2 Pace Analytical Services - Melville							
Nitrite as N	<0.050	mg/L	0.050	1		05/18/23 21:14	14797-65-0	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



ID# **SQ2485**

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page **1** of **1**

Lab Work Order # **MSA 3601**

Contact & Company Name Kevin Czerwinski - Task Manager		Telephone 631-245-0710 cell		Preservative 1																
Address Two Huntington Quad Suite 1510		Fax 		Filtered (+) 																
City State Zip Methuene NY 11747		E-mail Address Kevin.Czerwinski@arcadis.com		# of Containers 1																
Project Name / Database Key / State Prog 3 O&U 2-ONCT-OMM-SPDE-5		Project # 30169331 O&U/2/3		PARAMETER ANALYSIS & METHOD																
Sample ID Outfall 005		Collection 5/18/23 0950		Type (*) X GW		Matrix X		1,4-Dioxane 8270D SIM-CLE												
Special Instructions / Comments: <input type="checkbox"/> Special QA/QC Instructions: () SVOC extracted by EDD-ARCADIS, EQUIS (EQUIS6-4 file)																				

- Preservation Key**
- A H₂O
 - B HCL
 - C HNO₃
 - D NaOH
 - E None
 - F Other
 - G Other
 - H Other
- Keys**
- 1 40 ml Vial
 - 2 1 L Acetate
 - 3 250 ml Plastic
 - 4 500 ml Plastic
 - 5 Enzyme
 - 6 2 oz Glass
 - 7 4 oz Glass
 - 8 8 oz Glass
 - 9 Other
 - 10 Other
- Matrix Key**
- SO Soil
 - W Water
 - T Tissue
 - SE Sediment
 - SL Sludge
 - A Air
 - NL NAPL/G
 - SW Sample Waste
 - Other GW Groundwater

REMARKS

Katahdin Analytical Services SQ2485 Page 13 of 15

Laboratory Information and Receipt		Relinquished By		Received By		Relinquished By		Laboratory Received By	
Company Katahdin Analytical	Cooler Custody Seal (*) <input type="checkbox"/> Intact <input type="checkbox"/> Not Intact	Signature <i>Kevin Czerwinski</i>	Signature <i>Jacob Bruce</i>	Date/Time 5/18/23 1530	Date/Time 5/20/23 1030	Project Name 	Sample # 	Matrix 	Labeling
Special Instructions to Laboratory Normal TAT-10 business	Sample Receipt 	Company Arcadis	Signature <i>KAS</i>	Date/Time 	Date/Time 	Project Name 	Sample # 	Matrix 	Labeling
Special Instructions to Lab 	Condition/Carrier Temp 	Project # 	Signature 	Date/Time 	Date/Time 	Project Name 	Sample # 	Matrix 	Labeling

23120826 C&C AIR Form 08 27 2015 Distribution: **WHITE - Laboratory returns with results** **YELLOW - Lab copy** **PINK - Retained by Arcadis**



ID#

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 1 of 1

Lab Work Order #

Send Results to:	Contact & Company Name Kevin Czerwinski	Telephone 631-245-0710	Preservative Filtered (✓)	A	E
	Address 2 Huntington Blvd Suite 1510 Melville NY 11747	City	# of Containers 3	2	9
Project Name & Location (City, State)	Project #	E-mail Address Kevin.czerwinski@arcadis.com	PARAMETER ANALYSIS & METHOD		
3 - 0.2.2 OUT SPDS	3019301 - CMA13				
Client's Project Name Kevin Czerwinski	Sample's Signature <i>[Signature]</i>		TKN - Method 3512 Total Nitrogen Nitrate + Nitrite Method 35.2		
Sample ID	Collection Date Time	Type (✓) Comp Grab			
Outfall 005	5/18/23 0950	✓ GW	X X		
Outfall 006	↓ 0905	✓ GW	X X		

- Preservation Key:**
 A H₂SO₄
 B HCl
 C HNO₃
 D NaOH
 E None
 F Other
 G Other
 H Other
- Container Information Key:**
 1 40 ml Vial
 2 1 L Amber
 3 250 ml Plastic
 4 500 ml Plastic
 5 Encore
 6 2 oz Glass
 7 4 oz Glass
 8 8 oz Glass
 9 Other 125ml Plastic
 10 Other
- Matrix Key:**
 SD - Soil SE - Sediment NL - NAPL/Oil
 W - Water SL - Sludge SW - Sample Waste
 T - Tissue A - Air Other:

REMARKS

WO#: 70256908



Special Instructions/Comments

Lab Name Pace	✓ Cooler packed with ice (✓)	Intact	Not Intact	Relinquished By Kevin Czerwinski	Received By Tara Went	Relinquished By [Signature]	Laboratory Received By
	Sample Receipt	Condition/Cooler Temp	Date/Time 5/18/23 1530	Signature Arcadis	Signature [Signature]	Signature	Signature

Distribution WHITE - Laboratory returns with results YELLOW - Lab copy PINK - Retained by Arcadis

Report of Analysis

Client Sample ID:	WSP-7	Date Sampled:	05/18/23
Lab Sample ID:	JD65942-6	Date Received:	05/18/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260D		
Project:	Northrop Grumman, OU3 BPGWCS System, Bethpage, NY		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2R03755.D	1	05/24/23 11:36	ED	n/a	n/a	V2R127
Run #2							

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

VOA OU3 BPGWVS List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	3.1	ug/l	
71-43-2	Benzene	ND	0.50	0.43	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.45	ug/l	
75-25-2	Bromoform	ND	1.0	0.63	ug/l	
74-83-9	Bromomethane ^a	ND	2.0	1.6	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	2.7	ug/l	
106-99-0	1,3-Butadiene	ND	5.0	0.62	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.46	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	
75-45-6	Chlorodifluoromethane ^b	ND	5.0	0.49	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 ^b	ND	1.0	0.76	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.56	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	0.56	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.57	ug/l	
107-06-2	1,2-Dichloroethane ^b	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	0.58	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.51	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	0.49	ug/l	
79-34-5	1,1,1,2-Tetrachloroethane	ND	1.0	0.65	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:	WSP-7	Date Sampled:	05/18/23
Lab Sample ID:	JD65942-6	Date Received:	05/18/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260D		
Project:	Northrop Grumman, OU3 BPGWCS System, Bethpage, NY		

4.6
4

VOA OU3 BPGWVS List

CAS No.	Compound	Result	RL	MDL	Units	Q
127-18-4	Tetrachloroethene	ND	1.0	0.56	ug/l	
108-88-3	Toluene	ND	1.0	0.49	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	
79-01-6	Trichloroethene	ND	1.0	0.53	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.40	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.52	ug/l	
75-68-3	1-chloro-1,1-difluoroethane	ND	5.0	0.33	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	109%		80-120%
17060-07-0	1,2-Dichloroethane-D4	91%		80-120%
2037-26-5	Toluene-D8	102%		80-120%
460-00-4	4-Bromofluorobenzene	102%		82-114%

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.
- (b) Associated CCV outside of control limits low. A sensitivity check was analyzed to demonstrate system suitability to detect affected analyte. 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

Report of Analysis

Client Sample ID:	WSP-7		Date Sampled:	05/18/23
Lab Sample ID:	JD65942-6	Date Received:	05/18/23	
Matrix:	AQ - Ground Water		Percent Solids:	n/a
Method:	EPA 608.3 EPA 608			
Project:	Northrop Grumman, OU3 BPGWCS System, Bethpage, NY			

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5G131091.D	1	05/25/23 02:54	TP	05/24/23 08:30	OP46706A	G5G3346
Run #2							

Run #1	Initial Volume	Final Volume
Run #1	990 ml	1.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016 ^a	ND	0.051	0.034	ug/l	
11104-28-2	Aroclor 1221	ND	0.051	0.029	ug/l	
11141-16-5	Aroclor 1232	ND	0.051	0.020	ug/l	
53469-21-9	Aroclor 1242	ND	0.051	0.027	ug/l	
12672-29-6	Aroclor 1248	ND	0.051	0.025	ug/l	
11097-69-1	Aroclor 1254	ND	0.051	0.034	ug/l	
11096-82-5	Aroclor 1260 ^a	ND	0.051	0.027	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	49%		10-156%
877-09-8	Tetrachloro-m-xylene	65%		10-156%
2051-24-3	Decachlorobiphenyl	30%		10-143%
2051-24-3	Decachlorobiphenyl	46%		10-143%

(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:	WSP-7	Date Sampled:	05/18/23
Lab Sample ID:	JD65942-6	Date Received:	05/18/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	Northrop Grumman, OU3 BPGWCS System, Bethpage, NY		

4.6
4

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	249	100	ug/l	1	05/23/23	05/24/23 EAL	SW846 6010D ¹	EPA 200.7 ²
Manganese	36.5	15	ug/l	1	05/23/23	05/24/23 EAL	SW846 6010D ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA54206

(2) Prep QC Batch: MP39722

RL = Reporting Limit

Report of Analytical Results

SDG: SQ2457
Lab ID: SQ2457-6
Client ID: WSP-7
Matrix: AQ
Lab File ID: G6747.D

Sample Date: 18-MAY-23
Extract Date: 25-MAY-23
Extracted By: SR
Extraction Method: SW846 3520C
Lab Prep Batch: WG337041

Report Date: 21-JUN-23
Analysis Date: 13-JUN-23
Analyst: DT
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		0.33	ug/L	1	.25	0.24	0.080
1,4-Dioxane-D8		44.9	%				

ANALYTICAL RESULTS

Project: PROGRAMS 3- OU3 TS/SPDES 5/18

Pace Project No.: 70256906

Sample: WSP-7	Lab ID: 70256906001	Collected: 05/18/23 11:40	Received: 05/18/23 15:30	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Total Nitrogen Calculation	Analytical Method: SM22 4500-N Pace Analytical Services - Melville							
Total Nitrogen	2.2	mg/L	0.10	1		05/24/23 09:41		
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - Melville							
Nitrogen, Kjeldahl, Total	<0.10	mg/L	0.10	1	05/22/23 04:40	05/22/23 14:09	7727-37-9	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2 Pace Analytical Services - Melville							
Nitrate as N	2.2	mg/L	0.050	1		05/18/23 22:59	14797-55-8	
Nitrate-Nitrite (as N)	2.2	mg/L	0.050	1		05/18/23 22:59	7727-37-9	
353.2 Nitrogen, NO2	Analytical Method: EPA 353.2 Pace Analytical Services - Melville							
Nitrite as N	<0.050	mg/L	0.050	1		05/18/23 21:30	14797-65-0	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



ID# **SQ2457**

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 2 of 2

Lab Work Order # **MSA 3601**

Send Results To:	Contact & Company Name Arnas Nemickas-Task Manager	Telephone 631-391-5212 cell	Preservation E	
	Address Two Huntington Quad-Suite 1S10	Fax	Pillared (✓)	
	City Meiville	State NY	Zip 11747	# of Containers 14
	E-mail Address Arnas.Nemickas@arcadis.com			Container Information 2

- Keys**
- Preservation Key:**
 A - H₂SO₄
 B - HCL
 C - HNO₃
 D - NaOH
 E - None
 F - Other: _____
 G - Other: _____
 H - Other: _____
- Container Information Key:**
 1 - 40 ml Vial
 2 - 1 L Amber
 3 - 250 ml Plastic
 4 - 500 ml Plastic
 5 - Encore
 6 - 2 oz. Glass
 7 - 4 oz. Glass
 8 - 8 oz. Glass
 9 - Other: _____
 10 - Other: _____
- Matrix Key:**
 SO - Soil
 W - Water
 T - Tissue
 SE - Sediment
 SL - Sludge
 A - Air
 NL - NAPL/OL
 SW - Sampling Wipe
 Other: **EFF**

PARAMETER ANALYSIS & METHOD

*1,4-dioxane
8270D SIM*

Sample ID	Collection		Type (-)		Matrix
	Date	Time	Comp	Grab	
WSP-1	5/18/23	1105	X	GW	X
WSP-2		1110	X	GW	X
WSP-3		1115	X	GW	X
WSP-4		1120	X	GW	X
WSP-5		1130	X	GW	X
WSP-7		1140	X	GW	X
RFP-051823-KC-1	✓	✓	X	GW	X

REMARKS

Special Instructions/Comments: **SVOC extracted by CCLE**
EDD-ARCADIS_EQUIS (EQUIS6-4 file format)

Laboratory Information and Receipt		Relinquished By		Received By		Relinquished By		Laboratory Received By	
Katahdin Analytical Labs		<i>Kevin Czerninski</i>		<i>Jacob Bruce</i>					
Cooler/Custody Seal (✓)		Printed Name		Printed Name		Printed Name		Printed Name	
<input checked="" type="checkbox"/> Intact <input type="checkbox"/> Not Intact		Signature		Signature		Signature		Signature	
Sample Receipt:		Name		Name		Name		Name	
Condition/Cooler Temp:		Date/Time		Date/Time		Date/Time		Date/Time	
		5/18/23 1530		5/19/23 0940					

Distribution: **WHITE - Laboratory returns with results** **YELLOW - Lab copy** **PINK - Retained by Arcadis**

Katahdin Analytical Services SQ2457 page 0000017 of 0000019

img



ID#

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 1 of 1

Lab Work Order #

Send Results to:	Name of Company/Name Kevin Czerwinski		Telephone 431-245-0710		Preservative	A	E																														
	Address 2 Hunting for Quad - Suite 3510		City/State/Zip Metairie LA 70001		Filtered (✓)																																
Project Name/Location (City/State) Program 3 - 043 TSPDES		Project # 30123958-DMH13		PARAMETER ANALYSIS & METHOD																																	
Sample & Field Name Kevin Czerwinski		Sampler's Signature <i>[Signature]</i>																																			
Sample ID	Collection	Type (✓)	Matrix	<div style="border: 1px solid black; padding: 5px; transform: rotate(-45deg); display: inline-block;"> TEN - Method 351.2 Total Nitrogen Nitrate & Nitrite Method 353.2 </div>																																	
WSP-7	5/18/23 1140	✓	GW																																		
Special Instructions/Comments:																			<input type="checkbox"/> Special QA/QC Instructions (✓)																		

- Keys**
- Preservation Key:**
 A - H₂SO₄
 B - HCl
 C - HNO₃
 D - NaOH
 E - None
 F - Other
 G - Other
 H - Other
- Container Information Key:**
 1 - 40 ml Vial
 2 - 1 L Amber
 3 - 250 ml Plastic
 4 - 500 ml Plastic
 5 - Encore
 6 - 2 oz Glass
 7 - 4 oz Glass
 8 - 8 oz Glass
 9 - Other 125 ml Plastic
 10 - Other
- Matrix Key:**
 SO - Soil
 W - Water
 T - Tissue
 SE - Sediment
 SL - Sludge
 A - Air
 NL - NAPL/ON
 SW - Sample Waste
 Other

REMARKS

WO#: 70256906

Laboratory Information and Receipt		Relinquished By		Received By		Relinquished By		Laboratory Received By	
Lab Name Pace	Cooler Custody Seal (✓) <input type="checkbox"/> Intact <input type="checkbox"/> Not Intact	Printed Name Kevin Czerwinski	Printed Name John Hibel	Printed Name LRLI	Printed Name	Printed Name	Printed Name	Printed Name	Printed Name
✓ Cool or Packaged with Ice (✓)		Signature <i>[Signature]</i>	Signature <i>[Signature]</i>	Signature OS	Signature	Signature	Signature	Signature	Signature
Chain of Custody Requirements 3 Day TAT	Sample Receipt	Firm Arcadis	Firm/Contractor	Firm/Contractor	Firm/Contractor	Firm/Contractor	Firm/Contractor	Firm/Contractor	Firm/Contractor
Shipping Tracking #	Condition/Cooler Temp	Date/Time 5/18/23 1530	Date/Time	Date/Time 5:20 PM	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

Distribution: WHITE - Laboratory returns with results YELLOW - Lab copy PINK - Retained by Arcadis

June '&\$&'

Northrop Grumman
925 South Oyster Bay Road
Bethpage, NY 11714

northropgrumman.com

ESH&M-018L-23
August 7, 2023

Jason Pelton
N.Y.S. Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-3506

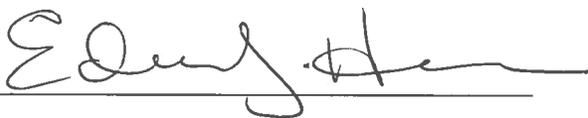
**Subject: Report for SPDES Permit Equivalent, NYSDEC Site No. 1-30-003A
Northrop Grumman Corporation - Bethpage, New York Facility**

Mr. Pelton:

Enclosed please find the subject SPDES Permit Equivalent summary tables for the month of June 2023, as per additional condition requirements outlined in the SPDES Permit Equivalent (Northrop Grumman, NYSDEC No. 1-30-003A) dated July 30, 2018.

If you have any questions, please call me at 516-575-2333

Very truly yours,



Edward J. Hannon
Environmental, Safety, Health & Medical Director
516-575-2333
M/S: 02/BP15

cc: Regional Water Engineer - Region 1
NYS Department of Environmental Conservation
SUNY @ Stony Brook
50 Circle Road
Stony Brook, NY 11790-3409

Northrop Grumman
925 South Oyster Bay Road
Bethpage, NY 11714

northropgrumman.com

ESH&M-019L-23
August 7, 2023

Jason Pelton
N.Y.S. Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-3506

RE: NYSDEC No. 1-30-003A

Subject: Additional Sampling Constituents for Report Period:
June 1, 2023 – June 30, 2023.

Mr. Pelton:

Below please find the 1,4 – Dioxane sampling results for Outfalls 1, 5 and 6 for this reporting period.

Outfall 1 – 0.39 ug/L
Outfall 5 – 1.7 ug/L
Outfall 6 – 4.9 ug/L

Sampling results for Outfall 1 for the following:

Ethylbenzene - <1.0
Toluene - <1.0
Benzene - <0.5
m,p-Xylene - <1.00

If you have any questions, please call me at 516-575-2333
Very truly yours,



Edward J. Hannon
Environmental, Safety, Health & Medical Director
516-575-2333
M/S: 02/BP15

cc: Regional Water Engineer - Region 1
NYS Department of Environmental Conservation
SUNY @ Stony Brook
50 Circle Road
Stony Brook, NY 11790-3409

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if
NAME: NORTROP GRUMAN SYSTEMS CORP
ADDRESS: 925 SO. OYSTER BAY RD M/S- W16- 035
BETHPAGE, NY 11714
FACILITY: NORTROP GRUMAN SYSTEMS CORP
LOCATION: 925 SO. OYSTER BAY RD M/S- W16- 035
BETHPAGE, NY 11714
ATTN: JOHN COFMAN

NY0096792	005- C
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
06/01/2023	06/30/2023

DMR Mailing ZIP CODE: 11714
MINOR (SUBR 01)
NC COOLING & STORM WATER TO GW
External Outfall

No Discharge

PARAMETER	QUANTITY OR LOADING		QUALITY OR CONCENTRATION		UNITS	NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	VALUE				
pH	*****	*****	7.0	*****	SU	0	1/30 Monthly	Grab
00400 1 0 Effluent Gross	*****	*****	Req. Mon. MINIMUM	*****	SU	0	1/30 Monthly	Grab
pH	*****	*****	4.9	*****	SU	0	1/30 Monthly	Grab
00400 1 0 Intake from Well	*****	*****	Req. Mon. MINIMUM	*****	SU	0	1/30 Monthly	Grab
Nitrogen, total [as N]	*****	*****	*****	*****	mg/L	0	1/30 Monthly	Grab
00600 1 0 Effluent Gross	*****	*****	*****	*****	mg/L	0	1/30 Monthly	Grab
Methylene chloride	*****	*****	*****	*****	ug/L	0	1/30 Monthly	Grab
34423 1 0 Effluent Gross	*****	*****	*****	*****	ug/L	0	1/30 Monthly	Grab
Tetrachloroethylene	*****	*****	*****	*****	ug/L	0	1/30 Monthly	Grab
34475 1 0 Effluent Gross	*****	*****	*****	*****	ug/L	0	1/30 Monthly	Grab
1,1-Dichloroethylene	*****	*****	*****	*****	ug/L	0	1/30 Monthly	Grab
34501 1 0 Effluent Gross	*****	*****	*****	*****	ug/L	0	1/30 Monthly	Grab
1,1,1-Trichloroethane	*****	*****	*****	*****	ug/L	0	1/30 Monthly	Grab
34506 1 0 Effluent Gross	*****	*****	*****	*****	ug/L	0	1/30 Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
Edward J. Hannan, EHS Director
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT
Edward J. Hannan

TELEPHONE	DATE
516-515-2333	08/07/2023
AREA Code	NUMBER
516	515-2333
MM/DD/YYYY	

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

WHEN NATURAL GW HAS PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

DISCHARGE MONITORING REPORT (DMR)

FORM APPROVED
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if
NAME: NORTHROP GRUMMAN SYSTEMS CORP
ADDRESS: 925 SO. OYSTER BAY RD M/S- W16- 035
BETHPAGE, NY 11714
FACILITY: NORTHROP GRUMMAN SYSTEMS CORP
LOCATION: 925 SO. OYSTER BAY RD M/S- W16- 035
BETHPAGE, NY 11714
ATTN: JOHN COFMAN

NY0096792 PERMIT NUMBER	005- C DISCHARGE NUMBER
MM/DD/YYYY 06/01/2023	MONITORING PERIOD MM/DD/YYYY 06/30/2023

DMR Mailing ZIP CODE: 11714
MINOR (SUBR 01)
NC COOLING & STORM WATER TO GW
External Outfall
No Discharge

PARAMETER	QUANTITY OR LOADING		QUALITY OR CONCENTRATION			NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	VALUE	UNITS			
Vinyl chloride	*****	*****	*****	<1.0	ug/L	0	1/30 Monthly	Grab
39175 1 0 Effluent Gross	*****	*****	*****	DAILY MX	ug/L	0	1/30 Monthly	Grab
Trichloroethylene	*****	*****	*****	*****	ug/L	0	1/30 Monthly	Grab
39180 1 0 Effluent Gross	*****	*****	*****	DAILY MX	ug/L	0	1/30 Monthly	Grab
Flow, in conduit or thru treatment plant	*****	*****	*****	*****	*****	0	1/30 Monthly	Measured
50050 1 0 Effluent Gross	*****	*****	*****	*****	*****	0	1/30 Monthly	Measured
Calculated limit	*****	*****	*****	*****	*****	0	1/30 Monthly	Measured
74013 1 0 Effluent Gross	*****	*****	*****	*****	*****	0	1/30 Monthly	Calculated
cis- 1,2- Dichloroethylene	*****	*****	*****	*****	ug/L	0	1/30 Monthly	Grab
77093 1 0 Effluent Gross	*****	*****	*****	DAILY MX	ug/L	0	1/30 Monthly	Grab
Trichlorotrifluoroethylene	*****	*****	*****	*****	ug/L	0	1/30 Monthly	Grab
81611 1 0 Effluent Gross	*****	*****	*****	DAILY MX	ug/L	0	1/30 Monthly	Grab
trans- 1,2- Dichloroethylene	*****	*****	*****	*****	ug/L	0	1/30 Monthly	Grab
85810 1 0 Effluent Gross	*****	*****	*****	DAILY MX	ug/L	0	1/30 Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
Edward S. Hannan/EHS Director
TYPED OR PRINTED

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT
Edward S. Hannan

TELEPHONE	DATE
516- 515- 2333	08/01/2023
AREA Code	NUMBER
516- 515- 2333	08/01/2023
MM/DD/YYYY	MM/DD/YYYY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
WHEN NATURAL GW HAS PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

run Approved
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if
NAME: NORTHROP GRUMAN SYSTEMS CORP
ADDRESS: 925 SO. OYSTER BAY RD M/S- W16-035
BETHPAGE, NY 11714
FACILITY: NORTHROP GRUMAN SYSTEMS CORP
LOCATION: 925 SO. OYSTER BAY RD M/S- W16-035
BETHPAGE, NY 11714
ATTN: JOHN COFMAN

NY0096792 PERMIT NUMBER	006-C DISCHARGE NUMBER
MM/DD/YYYY 06/01/2023	MONITORING PERIOD MM/DD/YYYY 06/30/2023

DMR Mailing ZIP CODE: 11714
MINOR (SUBR 01)
NC COOLING & STORM WATER TO GW
External Outfall

No Discharge

PARAMETER	QUANTITY OR LOADING			QUALITY OR CONCENTRATION			NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	VALUE	UNITS	VALUE			
pH	*****	*****	*****	*****	SU	6.9	0	1/30 Monthly	Grab
0040010 Effluent Gross	*****	*****	*****	*****	SU	6.9	0	1/30 Monthly	Grab
pH	*****	*****	*****	*****	SU	5.0	0	1/30 Monthly	Grab
0040010 Intake from Well	*****	*****	*****	*****	SU	5.0	0	1/30 Monthly	Grab
Nitrogen, total (as N)	*****	*****	*****	*****	mg/L	5.3	0	1/30 Monthly	Grab
0060010 Effluent Gross	*****	*****	*****	*****	ug/L	<0.5	0	1/30 Monthly	Grab
Methylene chloride	*****	*****	*****	*****	ug/L	<0.5	0	1/30 Monthly	Grab
3442310 Effluent Gross	*****	*****	*****	*****	ug/L	<0.5	0	1/30 Monthly	Grab
Tetrachloroethylene	*****	*****	*****	*****	ug/L	<0.5	0	1/30 Monthly	Grab
3447510 Effluent Gross	*****	*****	*****	*****	ug/L	<0.5	0	1/30 Monthly	Grab
1,1-Dichloroethylene	*****	*****	*****	*****	ug/L	<0.5	0	1/30 Monthly	Grab
3450110 Effluent Gross	*****	*****	*****	*****	ug/L	<0.5	0	1/30 Monthly	Grab
1,1,1-Trichloroethane	*****	*****	*****	*****	ug/L	<0.5	0	1/30 Monthly	Grab
3450610 Effluent Gross	*****	*****	*****	*****	ug/L	<0.5	0	1/30 Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
Edward J. Hannon, EHS Director
TYPED OR PRINTED

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT
Edward J. Hannon

TELEPHONE NUMBER
516-575-2333

DATE
08/07/2023

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
WHEN NATURAL GWS HAVE PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA) SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS & REQUIREMENTS

EPA Form 3320-1 (Rev.01/06) Previous editions may be used. Page 1

DISCHARGE MONITORING REPORT (DMR)

OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if
 NAME: NORTHTROP GRUMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S- W1G- 035
 BETHPAGE, NY 11714

FACILITY: NORTHTROP GRUMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S- W1G- 035
 BETHPAGE, NY 11714

ATTN: JOHN COFMAN

NY0096792
 PERMIT NUMBER

006- C
 DISCHARGE NUMBER

MONITORING PERIOD
 MM/DD/YYYY

06/01/2023
 06/30/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SUBR 01)

NC COOLING & STORM WATER TO GW
 External Outfall

No Discharge

PARAMETER	QUANTITY OR LOADING		QUALITY OR CONCENTRATION		NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	UNITS			
Vinyl chloride	*****	*****	*****	*****	0	1/30 Monthly	Grab
39175 1 0 Effluent Gross	*****	*****	*****	*****	0	1/30 Monthly	Grab
Trichloroethylene	*****	*****	*****	*****	0	1/30 Monthly	Grab
39180 1 0 Effluent Gross	*****	*****	*****	*****	0	1/30 Monthly	Grab
Flow, in conduit or thru treatment plant	*****	*****	*****	*****	0	1/30 Monthly	Measured
50050 1 0 Effluent Gross	*****	*****	*****	*****	0	1/30 Monthly	Measured
Calculated limit	*****	*****	*****	*****	0	1/30 Monthly	Calculated
74013-1 0 Effluent Gross	*****	*****	*****	*****	0	1/30 Monthly	Calculated
cis- 1,2- Dichloroethylene	*****	*****	*****	*****	0	1/30 Monthly	Grab
77093 1 0 Effluent Gross	*****	*****	*****	*****	0	1/30 Monthly	Grab
Trichlorotrifluoroethane	*****	*****	*****	*****	0	1/30 Monthly	Grab
81611 1 0 Effluent Gross	*****	*****	*****	*****	0	1/30 Monthly	Grab
trans- 1,2- Dichloroethylene	*****	*****	*****	*****	0	1/30 Monthly	Grab
85810 1 0 Effluent Gross	*****	*****	*****	*****	0	1/30 Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
 Edward J. Honan, Director
 TYPED OR PRINTED

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT
 [Signature]
 TELEPHONE NUMBER: 516-515-2333
 DATE: 08/07/2023

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

WHEN NATURAL GWS HAVE PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS & REQUIREMENTS

DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME/ADDRESS (include Facility Name/Location if
 NAME: NORTROP GRUMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S- W16- 035
 BETHPAGE, NY 11714

FACILITY: NORTROP GRUMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S- W16- 035
 BETHPAGE, NY 11714

ATTN: JOHN COFFMAN

NY0096792
 PERMIT NUMBER

001-WSP-7
 DISCHARGE NUMBER

MONITORING PERIOD
 MM/DD/YYYY
 06/01/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SUBR 01)

NC COOLING & STORM WATER TO GW
 External Outfall

No Discharge

PARAMETER	SAMPLE MEASUREMENT PERMIT REQUIREMENT	QUANTITY OR LOADING		QUALITY OR CONCENTRATION		UNITS	NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	UNITS	VALUE	UNITS				
pH		*****	*****	8.5	Req. Mon. MINIMUM	*****	0	1/30 Monthly	Grab
0040010 Effluent Gross		*****	*****	8.5	Req. Mon. MINIMUM	*****	0	1/30 Monthly	Grab
pH		*****	*****	7.2	Req. Mon. MINIMUM	*****	0	1/30 Monthly	Grab
0040010 Intake from Well		*****	*****	7.2	Req. Mon. MINIMUM	*****	0	1/30 Monthly	Grab
Nitrogen, total (as N)		*****	*****	2.2	10 DAILY MX	*****	0	1/30 Monthly	Grab
0060010 Effluent Gross		*****	*****	2.2	10 DAILY MX	*****	0	1/30 Monthly	Grab
Methylene chloride		*****	*****	<2.0	5 DAILY MX	*****	0	1/30 Monthly	Grab
3442310 Effluent Gross		*****	*****	<2.0	5 DAILY MX	*****	0	1/30 Monthly	Grab
Tetrachloroethylene		*****	*****	<1.0	5 DAILY MX	*****	0	1/30 Monthly	Grab
3447510 Effluent Gross		*****	*****	<1.0	5 DAILY MX	*****	0	1/30 Monthly	Grab
1,1-Dichloroethylene		*****	*****	<1.0	5 DAILY MX	*****	0	1/30 Monthly	Grab
3450110 Effluent Gross		*****	*****	<1.0	5 DAILY MX	*****	0	1/30 Monthly	Grab
1,1,1-Trichloroethane		*****	*****	<1.0	5 DAILY MX	*****	0	1/30 Monthly	Grab
3450610 Effluent Gross		*****	*****	<1.0	5 DAILY MX	*****	0	1/30 Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
 Edward J Hannon / EHS Director
 TYPED OR PRINTED

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE
 DATE
 AREA Code NUMBER
 516-515-2333
 08/07/2023

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

WHEN NATURAL GW HAS PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY REPORT #11 COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME/ ADDRESS (Include Facility Name/ Location if available)
 NAME: NORTROP GRUMMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S- W16- 035
 BEHPAGE, NY 11714
 FACILITY: NORTROP GRUMMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S- W16- 035
 BEHPAGE, NY 11714

ATTN: JOHN COFMAN

NY0096792	061-WSP-7
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
06/01/2023	06/30/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SUBR 01)
 NC COOLING & STORM WATER TO GW
 External Outfall

No Discharge

PARAMETER	SAMPLE MEASUREMENT	QUANTITY OR LOADING		QUALITY OR CONCENTRATION		NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	UNITS	VALUE	UNITS			
Vinyl chloride	PERMIT REQUIREMENT	*****	*****	*****	*****	0	1/30 Monthly	Grab
39175 1 0 Effluent Gross Trichloroethylene	SAMPLE MEASUREMENT	*****	*****	*****	*****	0	1/30 Monthly	Grab
39180 1 0 Effluent-Gross Flow, in conduit or thru treatment plant	PERMIT REQUIREMENT	*****	*****	*****	*****	0	1/30 Monthly	Grab
50050 1 0 Effluent Gross Calculated limit	SAMPLE MEASUREMENT	0.31	MGID	*****	*****	0	1/30 Monthly	Measured
74013 1 0 Effluent Gross cis-1,2-Dichloroethylene	PERMIT REQUIREMENT	1	Req. Mon. Single Rdg	*****	*****	0	1/30 Monthly	Calculated
77093 1 0 Effluent Gross Trichlorotrifluoroethane	SAMPLE MEASUREMENT	*****	*****	*****	*****	0	1/30 Monthly	Grab
81611 1 0 Effluent Gross trans-1,2-Dichloroethylene	PERMIT REQUIREMENT	*****	*****	*****	*****	0	1/30 Monthly	Grab
85810 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	0	1/30 Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
 Edward J Hannon | EHS Director
 TYPED OR PRINTED

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT


TELEPHONE DATE
 AREA Code NUMBER
 516-515-2333 06/07/2023

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
 WHEN NATURAL GW HAS PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

Monitoring Period:
 June 2023
 6/1/23 12:00 AM 6/30/23 12:00 AM
 30 Days

OU2 South Basins, Outfall 005
OU2 Groundwater Remedy Tower 102 Treatment System - Treated Air Stripper Discharge and Storm Water Runoff

Parameter ⁽¹⁾	CAS Number	OUTFALL 005 6/7/2023	Discharge Limit ⁽²⁾	Units	Monitoring Frequency	Sample Type	Average Mass Loading ⁽³⁾	Units
Daily Average Flow ⁽⁴⁾	--	3.77	Monitor	MGD	Continuous	SCADA	--	--
Daily Maximum Flow ⁽⁴⁾	--	3.81	Monitor	MGD	Continuous	SCADA	--	--
Influent pH ⁽⁵⁾	--	4.9	NS	SU	Monthly (1/30) Days	Grab	--	--
Effluent pH ⁽⁵⁾	--	7.0	Range 5.0-8.5	SU	Monthly (1/30) Days	Grab	--	--
Total Nitrogen (as N)	--	4.8	10.0	mg/L	Monthly (1/30) Days	Grab	151.01	lbs/day
Total Iron	7439-89-6	< 100	600	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Total Manganese	7439-96-5	< 15	600	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Sum of Total Iron and Manganese ⁽⁶⁾	--	ND	1,000	µg/L	Monthly (1/30) Days	Calculated	--	lbs/day
1,1-Dichloroethylene	75-35-4	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Methylene Chloride	75-09-2	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Tetrachloroethylene	127-18-4	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
1,1,1-Trichloroethane	71-55-6	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Trichloroethylene	79-01-6	0.91	5.0	µg/L	Monthly (1/30) Days	Grab	0.03	lbs/day
Vinyl Chloride	75-01-4	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
trans-1,2-Dichloroethylene	156-60-5	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
cis-1,2-Dichloroethylene	156-59-2	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Chloroform	67-66-3	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Trichlorofluoroethane (Freon 113)	76-13-1	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
1,4-Dioxane	123-91-1	1.7	Monitor	µg/L	Monthly (1/30) Days	Grab	0.05	lbs/day

Notes and abbreviations on last page.

Table 1
 SPDES Permit Equivalency Monthly Report
 OU2 and OU3 On-Site Containment Systems
 Northrop Grumman Bethpage Facility Site
 NYSDEC Site No. 130003A

OU2 West Basins, Outfall 006

OU2 Groundwater Remedy Tower 96 Treatment System - Treated Air Stripper Discharge and Storm Water Runoff

Parameter ⁽³⁾	CAS Number	OUTFALL 006 6/7/2023	Discharge Limit ⁽¹⁾	Units	Monitoring Frequency	Sample Type	Average Mass Loading ^(2,7)	Units
Daily Average Flow ⁽⁴⁾	--	1.86	Monitor	MGD	Continuous	SCADA	--	--
Daily Maximum Flow ⁽⁴⁾	--	2.10	Monitor	MGD	Continuous	SCADA	--	--
Influent pH ⁽⁵⁾	--	5.0	NS	SU	Monthly (1/30) Days	Grab	--	--
Effluent pH ⁽⁵⁾	--	6.9	Range: 5.0-8.5	SU	Monthly (1/30) Days	Grab	--	--
Total Nitrogen (as N)	--	5.3	10.0	mg/L	Monthly (1/30) Days	Grab	92.94	lbs/day
Total Iron	7439-89-6	< 100	600	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Total Manganese	7439-96-5	< 15	600	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Sum of Total Iron and Manganese ⁽⁶⁾	--	ND	1,000	µg/L	Monthly (1/30) Days	Calculated	--	lbs/day
1,1-Dichloroethylene	75-35-4	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Methylene Chloride	75-09-2	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Tetrachloroethylene	127-18-4	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
1,1,1-Trichloroethane	71-55-6	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Trichloroethylene	79-01-6	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Vinyl Chloride	75-01-4	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
trans-1,2-Dichloroethylene	156-60-5	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
cis-1,2-Dichloroethylene	156-59-2	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Chloroform	67-66-3	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Trichlorotrifluoroethane (Freon 113)	76-13-1	< 0.50	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
1,4-Dioxane	123-91-1	4.9	Monitor	µg/L	Monthly (1/30) Days	Grab	0.09	lbs/day

Notes and abbreviations on last page.

Table 1
 SPDES Permit Equivalency Monthly Report
 OU2 and OU3 On-Site Containment Systems
 Northrop Grumman Bethpage Facility Site
 NYSDEC Site No. 130003A



OU3 Effluent, Outfall 001 (WSP-7)
OU3 Groundwater Remedy Treatment System - Treated Air Stripper and Soil Gas Containment Condensate Discharge to Nassau County Recharge Basins

Parameter ⁽¹⁾	CAS Number	OUTFALL 001 (WSP-7) 6/23/2023	Discharge Limit ⁽²⁾	Units	Monitoring Frequency	Sample Type	Average Mass Loading ^(3,7)	Units
Daily Average Flow ⁽⁴⁾	--	0.20	Monitor	MGD	Continuous	SCADA	--	--
Daily Maximum Flow ⁽⁴⁾	--	0.31	Monitor	MGD	Continuous	SCADA	--	--
Influent pH ⁽⁵⁾	--	7.2	NS	SU	Monthly (1/30) Days	Grab	--	--
Effluent pH ⁽⁵⁾	--	8.5	Range 5.0-8.5	SU	Monthly (1/30) Days	Grab	--	--
Total Nitrogen (as N)	--	2.2	10.0	mg/L	Monthly (1/30) Days	Grab	3.67	lbs/day
Total Iron	7439-89-6	149	600	µg/L	Monthly (1/30) Days	Grab	0.25	lbs/day
Total Manganese	7439-96-5	38.6	600	µg/L	Monthly (1/30) Days	Grab	0.06	lbs/day
Sum of Total Iron and Manganese	--	185.6	1,000	µg/L	Monthly (1/30) Days	Calculated	0.31	lbs/day
1,1-Dichloroethylene	75-35-4	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Methylene Chloride	75-09-2	< 2.0	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Tetrachloroethylene	127-18-4	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
1,1,1-Trichloroethane	71-55-6	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Trichloroethylene	79-01-6	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Vinyl Chloride	75-01-4	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
1,2 (trans)-Dichloroethylene	156-60-5	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
1,2 (cis)-Dichloroethylene	156-59-2	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Chloroform	67-66-3	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Trichlorotrifluoroethane (Freon 113)	76-13-1	< 5.0	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Benzene	71-43-2	< 0.050 ⁽⁸⁾	1.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
1,1-Dichloroethane	75-34-3	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Ethylbenzene	100-41-4	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Toluene	108-88-3	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
o-Xylene	95-47-6	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
m-p-Xylene	--	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Aroclor 1016	12674-11-2	< 0.050 ⁽⁸⁾	0.095	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Aroclor 1221	11104-28-2	< 0.050 ⁽⁸⁾	0.095	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Aroclor 1232	11141-16-5	< 0.050 ⁽⁸⁾	0.095	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Aroclor 1242	53469-21-9	< 0.050 ⁽⁸⁾	0.095	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Aroclor 1248	12672-29-6	< 0.050 ⁽⁸⁾	0.095	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Aroclor 1254	11097-69-1	< 0.050 ⁽⁸⁾	0.095	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
Aroclor 1260	11096-82-5	< 0.050 ⁽⁸⁾	0.095	µg/L	Monthly (1/30) Days	Grab	--	lbs/day
1,4-Dioxane	123-91-1	0.39 ⁽⁸⁾	Monitor	µg/L	Monthly (1/30) Days	Grab	--	lbs/day

Notes and Abbreviations:

- XX Bold value indicates the constituent was detected at or above its laboratory quantification limit
- < Compound is not detected above laboratory quantification limit
- Not Applicable
- µg/L micrograms per liter
- lbs/day pounds per day
- lb/kg pounds per kilogram
- MGD million gallons per day
- mg/L milligrams per liter
- min minutes
- SU Standard Units
- B Detected in method blank as reported by laboratory
- CAS Chemical Abstracts Service
- ND Non-Detect
- NS None Specified
- NYSDEC New York State Department of Environmental Conservation
- SCADA Supervisory Control and Data Acquisition
- SPDES State Pollution Discharge Elimination System
- TKN Total Kjeldahl Nitrogen

1. Samples were analyzed for permit equivalency Volatile Organic Compounds (VOCs) using USEPA Method 624 at OU2 system, and USEPA Method 8260 at OU3 system. Polychlorinated Biphenyls (PCBs) using USEPA Method 608. 1,4-Dioxane using USEPA Method 8270D-SIM-CLLE. Total Nitrogen is calculated as the sum of Nitrogen (Nitrate+Nitrite) and Total Kjeldahl Nitrogen (TKN). (CAS number 14797-55-8, 14797-65-0 and 7727-37-9, respectively) by USEPA Methods 353.2 and 351.2, respectively. Total Iron and Manganese using USEPA Method 200.7

2. Discharge limits are per the SPDES permit equivalency, dated October 12, 2017, amended on March 23, 2023 and transmitted by the NYSDEC to Northrop Grumman on April 18, 2023

3. Mass Loading Calculation

$$Mass\ Loading\ \left(\frac{lb}{day}\right) = Flow\ \left(\frac{gpm}{min}\right) \times 1440\ \left(\frac{min}{day}\right) \times concentration\ \left(\frac{mg}{liter}\right) \times 10^{-6}\ \left(\frac{kg}{g}\right) \times 3785\ \left(\frac{liter}{gallon}\right) \times 2.2046\ \left(\frac{lb}{kg}\right)$$

4. Average and daily maximum flow calculated from SCADA reports for the month indicated

5. Field measurement of pH taken by hand held meter on sample date

6. When Total Iron and Total Manganese are below their respective detection limits the Sum Total of Iron and Manganese is reported as "ND"

7. Average Mass Loading calculations are based on actual flow rates unless otherwise noted

8. PCB samples were collected on 6/29/23

Report of Analysis

Client Sample ID: OUTFALL 005	Date Sampled: 06/07/23
Lab Sample ID: JD67241-2	Date Received: 06/07/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: EPA 624.1	
Project: Northrop Grumman, OU2 System, Bethpage, NY	

4.2
4

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	L356603.D	1	06/10/23 03:19	ED	n/a	n/a	VL10834
Run #2							

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

VOA OU2 SPDES List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	ND	0.50	0.50	ug/l	
75-35-4	1,1-Dichloroethene	ND	0.50	0.45	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	0.50	0.51	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	0.46	ug/l	
76-13-1	Freon 113 ^a	ND	0.50	0.36	ug/l	
75-09-2	Methylene chloride	ND	0.50	0.41	ug/l	
127-18-4	Tetrachloroethene ^a	ND	0.50	0.48	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.43	ug/l	
79-01-6	Trichloroethene	0.91	0.50	0.43	ug/l	
75-01-4	Vinyl chloride ^a	ND	0.50	0.42	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4 (SUR)	97%		80-128%
2037-26-5	Toluene-D8 (SUR)	109%		82-113%
460-00-4	4-Bromofluorobenzene (SUR)	106%		79-117%
1868-53-7	Dibromofluoromethane (S)	105%		84-121%

(a) MDL from current instrument.

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:	OUTFALL 005	Date Sampled:	06/07/23
Lab Sample ID:	JD67241-2	Date Received:	06/07/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	Northrop Grumman, OU2 System, Bethpage, NY		

4.2
4

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	< 100	100	ug/l	1	06/12/23	06/12/23 ND	EPA 200.7 ¹	EPA 200.7 ²
Manganese	< 15	15	ug/l	1	06/12/23	06/12/23 ND	EPA 200.7 ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA54290

(2) Prep QC Batch: MP40101

RL = Reporting Limit

Report of Analysis

Client Sample ID: OUTFALL 006 Lab Sample ID: JD67241-3 Matrix: AQ - Ground Water Method: EPA 624.1 Project: Northrop Grumman, OU2 System, Bethpage, NY	Date Sampled: 06/07/23 Date Received: 06/07/23 Percent Solids: n/a
--	--

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	L356604.D	1	06/10/23 03:42	ED	n/a -	n/a	VL10834
Run #2							

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

VOA OU2 SPDES List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	ND	0.50	0.50	ug/l	
75-35-4	1,1-Dichloroethene	ND	0.50	0.45	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	0.50	0.51	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	0.46	ug/l	
76-13-1	Freon 113 ^a	ND	0.50	0.36	ug/l	
75-09-2	Methylene chloride	ND	0.50	0.41	ug/l	
127-18-4	Tetrachloroethene ^a	ND	0.50	0.48	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.43	ug/l	
79-01-6	Trichloroethene	ND	0.50	0.43	ug/l	
75-01-4	Vinyl chloride ^a	ND	0.50	0.42	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4 (SUR)	98%		80-128%
2037-26-5	Toluene-D8 (SUR)	108%		82-113%
460-00-4	4-Bromofluorobenzene (SUR)	106%		79-117%
1868-53-7	Dibromofluoromethane (S)	103%		84-121%

(a) MDL from current instrument.

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

4.3
4

Report of Analysis

Client Sample ID:	OUTFALL 006	Date Sampled:	06/07/23
Lab Sample ID:	JD67241-3	Date Received:	06/07/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	Northrop Grumman, OU2 System, Bethpage, NY		

4.3
4

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	< 100	100	ug/l	1	06/12/23	06/12/23 ND	EPA 200.7 ¹	EPA 200.7 ²
Manganese	< 15	15	ug/l	1	06/12/23	06/12/23 ND	EPA 200.7 ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA54290

(2) Prep QC Batch: MP40101

RL = Reporting Limit

Report of Analytical Results

SDG: SQ2864
Lab ID: SQ2864-1
Client ID: OUTFALL 005
Matrix: AQ
Lab File ID: G6976.D

Sample Date: 07-JUN-23
Extract Date: 12-JUN-23
Extracted By: CMW
Extraction Method: SW846 3520C
Lab Prep Batch: WG337869

Report Date: 29-JUN-23
Analysis Date: 22-JUN-23
Analyst: JML
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		1.7	ug/L	1	.25	0.23	0.079
1,4-Dioxane-D8	*	21.5	%				

Report of Analytical Results

SDG: SQ2864
Lab ID: SQ2864-2
Client ID: OUTFALL 006
Matrix: AQ
Lab File ID: G6977.D

Sample Date: 07-JUN-23
Extract Date: 12-JUN-23
Extracted By: CMW
Extraction Method: SW846 3520C
Lab Prep Batch: WG337869

Report Date: 29-JUN-23
Analysis Date: 22-JUN-23
Analyst: JML
Analysis Method: SW846 8270D SIM
% Solids: N/A

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		44.0	%				

ANALYTICAL RESULTS

Project: PROG 3 OU2.2-ONCT-OMM/SPDES
Pace Project No.: 70259039

Sample: OUTFALL 005	Lab ID: 70259039001	Collected: 06/07/23 10:30	Received: 06/07/23 14:51	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Total Nitrogen Calculation	Analytical Method: SM22 4500-N Pace Analytical Services - Melville							
Total Nitrogen	4.8	mg/L	0.10	1		06/22/23 09:07		
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - Melville							
Nitrogen, Kjeldahl, Total	<0.10	mg/L	0.10	1	06/13/23 04:34	06/13/23 14:18	7727-37-9	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Melville							
Nitrate-Nitrite (as N)	4.8	mg/L	0.25	5		06/20/23 17:19	7727-37-9	
353.2 Nitrogen, NO2	Analytical Method: EPA 353.2 Pace Analytical Services - Melville							
Nitrite as N	<0.050	mg/L	0.050	1		06/08/23 00:27	14797-65-0	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC



ANALYTICAL RESULTS

Project: PROG 3 OU2.2-ONCT-OMM/SPDES
 Pace Project No.: 70259039

Sample: OUTFALL 006	Lab ID: 70259039002	Collected: 06/07/23 12:15	Received: 06/07/23 14:51	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Total Nitrogen Calculation	Analytical Method: SM22 4500-N Pace Analytical Services - Melville							
Total Nitrogen	5.3	mg/L	0.10	1		06/22/23 09:07		
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - Melville							
Nitrogen, Kjeldahl, Total	<0.10	mg/L	0.10	1	06/13/23 04:34	06/13/23 14:19	7727-37-9	
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2 Pace Analytical Services - Melville							
Nitrate-Nitrite (as N)	5.3	mg/L	0.25	5		06/20/23 17:20	7727-37-9	
353.2 Nitrogen, NO2	Analytical Method: EPA 353.2 Pace Analytical Services - Melville							
Nitrite as N	<0.050	mg/L	0.050	1		06/08/23 00:28	14797-65-0	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, LLC

aw TB

CHAIN OF CUSTODY

SGS Accutest New Jersey - Dayton
 2215 Route 130, Dayton, NJ 08810
 TEL: 732-129-0200 FAX: 732-329-3499/3480
 www.sgs.com

Client / Reporting Information		Project Information		Requested Analysis (see TEST CODE)		Matrix Codes	
Company Name Arcadis		Project Name AGMNYM82233 // OU2 System - GW		Requested Analysis (see TEST CODE)		Matrix Codes	
Street Address 2 Huntington Quad, Suite 1910		Billing Information (if different from Report to)		Requested Analysis (see TEST CODE)		Matrix Codes	
City Melville NY	State NY	City Bethpage NY	State NY	Requested Analysis (see TEST CODE)		Matrix Codes	
Project Contact Kevin Czarwinski, Kevin.Czarwinski@arcadis.com	Project # 30180301.OMM13	Street Address 630 Plaza Drive, Suite 600		Requested Analysis (see TEST CODE)		Matrix Codes	
Phone # 631-245-0710	Work Authorization # NY021406_2015 10 30	City Highlands Ranch, CO 80129		Requested Analysis (see TEST CODE)		Matrix Codes	
Sample(s) Name(s) Patrick DeLecave 1671839-2591	Phone # 1671839-2591	Project Manager Carlo San Giovanni		Requested Analysis (see TEST CODE)		Matrix Codes	
Field ID / Point of Collection		Collection		Number of preserved bottles		LAB USE ONLY	
1 TB-060723 - PD -1		Date 6/7/23		Sample by TB		Matrix Codes	
2 Outfall 005		Date 10/30		Sample by GW		Matrix Codes	
3 Outfall 006		Date 12/5		Sample by GW		Matrix Codes	
Turnaround Time (Business days)		Date Deliverable Information		Comments / Special Instructions		LAB USE ONLY	
<input type="checkbox"/> Std. 18 Business Days <input checked="" type="checkbox"/> Std. 18 Business Days 1 (by Contract only) <input type="checkbox"/> 18 Day RUSH <input type="checkbox"/> 8 Day RUSH <input type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY Emergency & Rush T/A data available via Laskin.		Approved By (Name and Title) / Date _____ _____		<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> PLUAT1 (Level 3-4) <input type="checkbox"/> All Reduced <input type="checkbox"/> Commercial "C" Comment: "A" = Results Only Comment: "B" = Results + QC Summary All Reduced = Results + QC Summary + Part of Raw data		Initial Assessment 3A Label Verification _____	
Sample Custody must be documented below each time samples change possession, including courier delivery							
1	Date/Time 6/7/23 15:00	Received By [Signature]	2	Date/Time 6-7-23 18:15	Received By [Signature]	Cooler Temp	
3	Date/Time	Received By	4	Date/Time	Received By	Cooler Temp	
5	Date/Time	Received By	6	Date/Time	Received By	Cooler Temp	

0:\PROJECT\Northap\Comm\Bethpage\OU2\CHC\08 Notes and Data\System Sampling\Library\ID MFCOC\03\PAR_OU2_COCs\JasPh\82232,82235_RevDv1217

4-3

5.1
5

SQ 2864



ID#

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page ___ of ___

Lab Work Order #
MSA 3601

Contact & Company Name: Kevin Czerwinski - Task Manager
 Telephone: 631-245-0710 cell
 Address: Two Huntington Quad Suite 1S10
 City: Metairie State: NY Zip: 11747
 E-mail Address: Kevin.Czerwinski@arcadis.com

Preservative: F
 Filtered (-): -
 # of Containers: 4
 Container Information: 2

- Preservation Key:
 A H₂O₂
 B HCL
 C HNO₃
 D NaOH
 E None
 F Other
 G Other
 H Other
- Container Information Key:
 1 40 ml Vial
 2 1 L Amber
 3 250 ml Plastic
 4 500 ml Plastic
 5 Encore
 6 2 oz Glass
 7 4 oz Glass
 8 8 oz Glass
 9 Other
 10 Other
- Matrix Key:
 SO - Soil SE - Sediment NL - NAPL/Oil
 W - Water SL - Sludge SW - Sample Wipe
 T - Tissue A - Air Otho - GW-Grout

PARAMETER ANALYSIS & METHOD

Project Name and Location (City, State): Prog 3 OJ2 2-ONCT-OMMSPHUB
 Sample's Project: Patrick Dellecave
 Project #: 30189301 OMMI3
 Date: 6/7/23

Sample ID	Collection		Type (-)		Matrix	1,4-Dioxane 8270D-SIM-CLE
	Date	Time	Comp	Grab		
Outfall 005	6/7/23	14:30		X	GW	X
Outfall 006	6/7/23	14:15		X	GW	X

REMARKS

Special Instructions/Comments: SVOC extracted by EDD-ARCADIS_EQUIS (EQUIS6-4 file) Special QA/QC Instructions (-)

Laboratory Information and Receipt		Relinquished By	Received By	Relinquished By	Laboratory Received By
Lab Name: Katahdin Analytical	Cooler Custody Seal (-) <input type="checkbox"/> Intact <input type="checkbox"/> Not Intact	Printed Name: Patrick Dellecave Signature: Patrick Dellecave	Printed Name: Evan Price Signature: Evan Price	Printed Name: [Blank] Signature: [Blank]	Printed Name: [Blank] Signature: [Blank]
Specify Turnaround Requirements: Normal TAT-10 business	Sample Receipt	Firm: Arcadis Date/Time: 6/7/23 14:30	Firm: Katahdin Date/Time: 6/8/23 09:10	Firm: [Blank] Date/Time: [Blank]	Firm: [Blank] Date/Time: [Blank]
Shipping Tracking #: [Blank]	Condition/Cooler Temp: [Blank]				

18726828 calC AR Form 88 27 2015 Distribution: WHITE - Laboratory returns with results YELLOW - Lab copy PINK - Retained by Arcadis
 G:\PROJECT\Northrop Grumman Behrpage\Program W 0664 Project Management\Contract and POs\Lab-Katahdin Analytical\OJ2 Navy Wells COC Master

Katahdin Analytical Services SQ2864 page 0000010 of 0000012

Report of Analysis

Client Sample ID:	WSP-7	Date Sampled:	06/23/23
Lab Sample ID:	JD68239-1	Date Received:	06/23/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260D		
Project:	Northrop Grumman, OU3 BPGWCS System, Bethpage, NY		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2R05097.D	1	06/29/23 18:03	BK	n/a	n/a	V2R175
Run #2							

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

VOA OU3 BPGWVS List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	3.1	ug/l	
71-43-2	Benzene	ND	0.50	0.43	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.45	ug/l	
75-25-2	Bromoform	ND	1.0	0.63	ug/l	
74-83-9	Bromomethane ^a	ND	2.0	1.6	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	2.7	ug/l	
106-99-0	1,3-Butadiene	ND	5.0	0.62	ug/l	
75-15-0	Carbon disulfide ^a	ND	2.0	0.46	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	
75-45-6	Chlorodifluoromethane	ND	5.0	0.49	ug/l	
75-00-3	Chloroethane	ND	1.0	0.73	ug/l	
67-66-3	Chloroform ^a	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	
75-71-8	Dichlorodifluoromethane	ND	2.0	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	0.58	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether ^a	ND	1.0	0.51	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	0.49	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.65	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 Analysis

Client Sample ID:	WSP-7	Date Sampled:	06/23/23
Lab Sample ID:	JD68239-1	Date Received:	06/23/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260D		
Project:	Northrop Grumman, OU3 BPGWCS System, Bethpage, NY		

4.1
4

VOA OU3 BPGWVS List

CAS No.	Compound	Result	RL	MDL	Units	Q
127-18-4	Tetrachloroethene	ND	1.0	0.56	ug/l	
108-88-3	Toluene	ND	1.0	0.49	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	
79-01-6	Trichloroethene	ND	1.0	0.53	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.40	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.52	ug/l	
75-68-3	1-chloro-1,1-difluoroethane	ND	5.0	0.33	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	95%		80-120%
17060-07-0	1,2-Dichloroethane-D4	96%		80-120%
2037-26-5	Toluene-D8	89%		80-120%
460-00-4	4-Bromofluorobenzene	104%		82-114%

CAS No.	Tentatively Identified Compounds	R. T.	Est. Conc.	Units	Q
	system artifact	1.47	7.7	ug/l	J
	Total TIC, Volatile		0	ug/l	

(a) Associated CCV outside of control limits low. A sensitivity check was analyzed to demonstrate system suitability to detect affected analyte. 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

Report of Analysis

Client Sample ID:	WSP-7	Date Sampled:	06/23/23
Lab Sample ID:	JD68239-1	Date Received:	06/23/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	Northrop Grumman, OU3 BPGWCS System, Bethpage, NY		

4.1
4

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	149	100	ug/l	1	06/28/23	06/29/23 ND	EPA 200.7 ¹	EPA 200.7 ²
Manganese	36.6	15	ug/l	1	06/28/23	06/29/23 ND	EPA 200.7 ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA54383

(2) Prep QC Batch: MP40459

RL = Reporting Limit

Report of Analysis

Client Sample ID: WSP-7		Date Sampled: 06/29/23
Lab Sample ID: JD68614-1		Date Received: 06/29/23
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: EPA 608.3 SW846 3510C		
Project: Northrop Grumman, OU3 BPGWCS System, Bethpage, NY		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	XX2503695.D	1	07/07/23 05:55	RK	07/06/23 08:00	OP47604A	GXX8235
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.050	0.034	ug/l	
11104-28-2	Aroclor 1221	ND	0.050	0.029	ug/l	
11141-16-5	Aroclor 1232	ND	0.050	0.020	ug/l	
53469-21-9	Aroclor 1242	ND	0.050	0.027	ug/l	
12672-29-6	Aroclor 1248	ND	0.050	0.025	ug/l	
11097-69-1	Aroclor 1254	ND	0.050	0.034	ug/l	
11096-82-5	Aroclor 1260	ND	0.050	0.027	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	63%		10-156%
877-09-8	Tetrachloro-m-xylene	61%		10-156%
2051-24-3	Decachlorobiphenyl	45%		10-143%
2051-24-3	Decachlorobiphenyl	44%		10-143%

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 Analytical Results

SDG: SQ3339
 Lab ID: SQ3339-1
 Client ID: WSP-7
 Matrix: AQ
 Lab File ID: G7180.D

Sample Date: 29-JUN-23
 Extract Date: 05-JUL-23
 Extracted By: SR
 Extraction Method: SW846 3520C
 Lab Prep Batch: WG339002

Report Date: 24-JUL-23
 Analysis Date: 07-JUL-23
 Analyst: DT
 Analysis Method: SW846 8270D SIM
 % Solids: N/A

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,4-Dioxane		0.39	ug/L	1	.25	0.23	0.079	0.17
1,4-Dioxane-D8		75.2	%					



ANALYTICAL RESULTS

Project: PROG 4A OU3.2-ONCT-OMM/SPDES
 Pace Project No.: 70260872

Sample: WSP-7	Lab ID: 70260872001	Collected: 06/23/23 09:15	Received: 06/23/23 11:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Total Nitrogen Calculation	Analytical Method: SM22 4500-N Pace Analytical Services - Melville							
Total Nitrogen	2.2	mg/L	0.10	1		07/05/23 12:49		
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - Melville							
Nitrogen, Kjeldahl, Total	<0.10	mg/L	0.10	1	06/29/23 04:42	06/29/23 15:22	7727-37-9	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2 Pace Analytical Services - Melville							
Nitrate as N	2.1	mg/L	0.050	1		06/24/23 01:57	14797-55-8	
Nitrate-Nitrite (as N)	2.2	mg/L	0.050	1		06/24/23 01:57	7727-37-9	
353.2 Nitrogen, NO2	Analytical Method: EPA 353.2 Pace Analytical Services - Melville							
Nitrite as N	<0.050	mg/L	0.050	1		06/24/23 00:50	14797-65-0	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, LLC.



ID#:

SQ 3339

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 1 of 1

Lab Work Order #
MSA 3601

Contact & Company Name Arnas Nemickas-Project Manager Telephone: 631-391-5212 cell		Preservation: E																																																	
Address Two Huntington Quad-Suite 1S10		Fax:		Filtered (-):		# of Containers: 2		Container Information: 2		Keys Preservation Key: A H ₂ SO ₄ B HCL C HNO ₃ D NaOH E None F Other G Other H Other																																									
City State Zip Melville NY 11747		E-mail Address Arnas.Nemickas@arcadis.com		PARAMETER ANALYSIS & METHOD																																															
Project Number (City, State): Prog 4A OUS 2 ONCT OMWSPDES		Project #: 30123958 OMM/3		<i>1,4-dioxane 8270D SIM</i>																																															
Station Printed Name: <i>Kevin Czerninski</i>		Station Signature: 																																																	
Sample ID		Collection Date Time		Type (✓) Comp Grab		Matrix																																													
WSP-7		6/29/23 0920		X GW		X																																													
REMARKS																																																			
Special Instructions/Comments: SVOC extracted by CCLE EDD-ARCADIS_EQUIS (EQUIS6-4 file format)										<input type="checkbox"/> Special QA/QC Instructions(✓)																																									
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2">Laboratory Information and Receipt</th> <th colspan="2">Relinquished By</th> <th colspan="2">Received By</th> <th colspan="2">Relinquished By</th> <th colspan="2">Laboratory Received By</th> </tr> <tr> <td>Lab Name Katahdin Analytical Labs</td> <td>Cooler Custody Seal (✓) <input type="checkbox"/> Intact <input type="checkbox"/> Not Intact</td> <td>Printed Name <i>Kevin Czerninski</i></td> <td>Signature </td> <td>Printed Name <i>Michelle...</i></td> <td>Signature </td> <td>Printed Name</td> <td>Signature</td> <td>Printed Name</td> <td>Signature</td> </tr> <tr> <td>Specify Turnaround Requirements Normal TAT-10 business days</td> <td>Sample Receipt:</td> <td>Firm Arcadis</td> <td>Date/Time 6/29/23 1015</td> <td>Firm/Courier KIAS</td> <td>Date/Time 6/30/23 915</td> <td>Firm/Courier</td> <td>Date/Time</td> <td>Firm</td> <td>Date/Time</td> </tr> <tr> <td>Shipping Tracking #:</td> <td>Condition/Cooler Temp: _____</td> <td colspan="2"></td> <td colspan="2"></td> <td colspan="2"></td> <td colspan="2"></td> </tr> </table>												Laboratory Information and Receipt		Relinquished By		Received By		Relinquished By		Laboratory Received By		Lab Name Katahdin Analytical Labs	Cooler Custody Seal (✓) <input type="checkbox"/> Intact <input type="checkbox"/> Not Intact	Printed Name <i>Kevin Czerninski</i>	Signature 	Printed Name <i>Michelle...</i>	Signature 	Printed Name	Signature	Printed Name	Signature	Specify Turnaround Requirements Normal TAT-10 business days	Sample Receipt:	Firm Arcadis	Date/Time 6/29/23 1015	Firm/Courier KIAS	Date/Time 6/30/23 915	Firm/Courier	Date/Time	Firm	Date/Time	Shipping Tracking #:	Condition/Cooler Temp: _____								
Laboratory Information and Receipt		Relinquished By		Received By		Relinquished By		Laboratory Received By																																											
Lab Name Katahdin Analytical Labs	Cooler Custody Seal (✓) <input type="checkbox"/> Intact <input type="checkbox"/> Not Intact	Printed Name <i>Kevin Czerninski</i>	Signature 	Printed Name <i>Michelle...</i>	Signature 	Printed Name	Signature	Printed Name	Signature																																										
Specify Turnaround Requirements Normal TAT-10 business days	Sample Receipt:	Firm Arcadis	Date/Time 6/29/23 1015	Firm/Courier KIAS	Date/Time 6/30/23 915	Firm/Courier	Date/Time	Firm	Date/Time																																										
Shipping Tracking #:	Condition/Cooler Temp: _____																																																		

20735825 CoC AR Form 08.27.2015
 Distribution: **WHITE** - Laboratory returns with results **YELLOW** - Lab copy **PINK** - Retained by Arcadis
 G:\PROJECT\Northrop Grumman Bethpage\Program Wids124 Project Management\Contracts and PCs\Lab\Katahdin Analytical\OU2 Navy Walls COC Master

Katahdin Analytical Services SQ3339 page 0000008 of 0000010

1/1

> i ly' &\$&'

Northrop Grumman
925 South Oyster Bay Road
Bethpage, NY 11714

northropgrumman.com

ESH&M-020L-23
September 6, 2023

Jason Pelton
N.Y.S. Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-3506

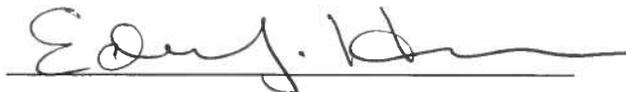
Subject: **Report for SPDES Permit Equivalent, NYSDEC Site No. 1-30-003A
Northrop Grumman Corporation - Bethpage, New York Facility**

Mr. Pelton:

Enclosed please find the subject SPDES Permit Equivalent summary tables for the month of July 2023, as per additional condition requirements outlined in the SPDES Permit Equivalent (Northrop Grumman, NYSDEC No. 1-30-003A) dated July 30, 2018.

If you have any questions, please call me at 516-575-2333

Very truly yours,



Edward J. Hannon
Environmental, Safety, Health & Medical Director
516-575-2333
M/S: 02/BP15

cc: Regional Water Engineer - Region 1
NYS Department of Environmental Conservation
SUNY @ Stony Brook
50 Circle Road
Stony Brook, NY 11790-3409

bcc: D. Stern (AG&M)

Northrop Grumman
925 South Oyster Bay Road
Bethpage, NY 11714

northropgrumman.com

ESH&M-021L-23
September 6, 2023

Jason Pelton
N.Y.S. Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-3506

RE: NYSDEC No. 1-30-003A

Subject: Additional Sampling Constituents for Report Period:
July 1, 2023 – July 31, 2023.

Mr. Pelton:

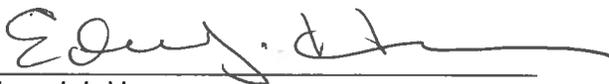
Below please find the 1,4 – Dioxane sampling results for Outfalls 1, 5 and 6 for this reporting period.

Outfall 1 – 0.80 ug/L
Outfall 5 – 4.8 ug/L
Outfall 6 – 5.1 ug/L

Sampling results for Outfall 1 for the following:

Ethylbenzene - <1.0
Toluene - <1.0
Benzene - <0.5
m,p-Xylene - <1.00

If you have any questions, please call me at 516-575-2333
Very truly yours,



Edward J. Hannon
Environmental, Safety, Health & Medical Director
516-575-2333
M/S: 02/BP15

cc: Regional Water Engineer - Region 1
NYS Department of Environmental Conservation
SUNY @ Stony Brook
50 Circle Road
Stony Brook, NY 11790-3409

bcc: D. Stern (AG&M)

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

FORM APPROVED
DMR No. 2049 (08/94)

PERMIT NAME: ADDRESS *(include Facility Name/Location if applicable)*
NORTHTROP GRUMMAN SYSTEMS CORP
925 SO. OYSTER BAY RD M/S W16 015
BETHPAGE, NY 11714
FACILITY: NORTHTROP GRUMMAN SYSTEMS CORP
LOCATION: 925 SO. OYSTER BAY RD M/S W16 015
BETHPAGE, NY 11714
ATTN: JOHN COLEMAN

NY0096792	005 C
PERMIT NUMBER	DISCHARGE NUMBER
MM/DD/YYYY	MM/DD/YYYY
07/01/2023	07/31/2023

MONITORING PERIOD

DMR Mailing ZIP CODE: 11714
MINOR (SICR 01)
NC COOLING & STORM WATER TO GW
External Outfall
No Discharge

PARAMETER	SAMPLE MEASUREMENT PERMIT REQUIREMENT	QUANTITY OR LOADING			QUALITY OR CONCENTRATION			NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	UNITS	VALUE	VALUE	UNITS	VALUE			
pH										
0040010 Effluent Gross				7.0	Req. Min. MINIMUM	7.0	Req. Mon. MAXIMUM	SU	1/31	Monthly Grab
pH										
0040010 Intake from Well				5.1	Req. Min. MINIMUM	5.1	Req. Mon. MAXIMUM	SU	1/31	Monthly Grab
Nitrogen, total (as N)										
0040010 Effluent Gross						4.0	10 DAILY MX	mg/L	1/31	Monthly Grab
Methylene chloride										
0442110 Effluent Gross						<1.0	DAILY MX	ug/L	1/31	Monthly Grab
Tetrachloroethylene										
0442110 Effluent Gross						<1.0	DAILY MX	ug/L	1/31	Monthly Grab
1,1-Dichloroethylene										
0440110 Effluent Gross						<1.0	DAILY MX	ug/L	1/31	Monthly Grab
1,1,1-Trichloroethane										
0440110 Effluent Gross						<1.0	DAILY MX	ug/L	1/31	Monthly Grab

SAMPLE TITLE	PRINCIPAL EXECUTIVE OFFICER	TELEPHONE	DATE
Edward J Hannan		516-576-2333	09/06/2023
SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT		AREA CODE	NUMBER
TYPIED OR PRINTED			

Comments and explanation of any violations (reference all attachments here)
WHEN NATURAL GAS HAS PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY REPORT THE COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SET PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

Influent pH is the average of Building 102 and Building 109 treatment streams

DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME/ ADDRESS (Include Facility Name/Location if applicable)
 NAME: NORTHIROP GRUMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S- W16- 035
 BETHPAGE, NY 11714
 FACILITY: NORTHIROP GRUMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S- W16- 035
 BETHPAGE, NY 11714
 ATTN: JOHN COFMAN

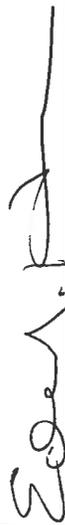
NY0096792
 PERMIT NUMBER
 MONITORING PERIOD
 MM/DD/YYYY
07/01/2023

005- C
 DISCHARGE NUMBER
 MM/DD/YYYY
07/31/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SUBR 01)
 NC COOLING & STORM WATER TO GW
 External Outfall
 No Discharge

PARAMETER	SAMPLE MEASUREMENT	QUANTITY OR LOADING		QUALITY OR CONCENTRATION		NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	UNITS	VALUE	UNITS			
Vinyl chloride	SAMPLE MEASUREMENT	*****	*****	*****	*****	0	1/31 Monthly	Grab
39175 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	0	1/31 Monthly	Grab
Trichloroethylene	SAMPLE MEASUREMENT	*****	*****	*****	*****	0	1/31 Monthly	Grab
39180 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	0	1/31 Monthly	Grab
Flow, in conduit or thru treatment plant	SAMPLE MEASUREMENT	*****	*****	*****	*****	0	1/31 Monthly	Measured
50050 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	0	1/31 Monthly	Measured
Calculated limit	SAMPLE MEASUREMENT	*****	*****	*****	*****	0	1/31 Monthly	Calculated
74013 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	0	1/31 Monthly	Calculated
cis-1,2-Dichloroethylene	SAMPLE MEASUREMENT	*****	*****	*****	*****	0	1/31 Monthly	Grab
77093 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	0	1/31 Monthly	Grab
Trichlorotrifluoroethane	SAMPLE MEASUREMENT	*****	*****	*****	*****	0	1/31 Monthly	Grab
81611 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	0	1/31 Monthly	Grab
trans-1,2-Dichloroethylene	SAMPLE MEASUREMENT	*****	*****	*****	*****	0	1/31 Monthly	Grab
85810 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	0	1/31 Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
Edward J Hannon - Manager
 TYPED OR PRINTED

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT


TELEPHONE NUMBER
 516-575-2333

DATE
 09/06/2023

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
 WHEN NATURAL GW HAS PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORTS SUPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if
 NAME: NORTROP GRUMMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S- W16- 035
 BETHPAGE, NY 11714
 FACILITY: NORTROP GRUMMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S- W16- 035
 BETHPAGE, NY 11714
 ATTN: JOHN COFMAN

DMR Mailing ZIP CODE: 11714
 MINOR (SUBR 01)
 NC COOLING & STORM WATER TO GW
 External Outfall
 No Discharge

NY0096792	006- C
PERMIT NUMBER	DISCHARGE NUMBER
MM/DD/YYYY	MM/DD/YYYY
07/01/2023	07/31/2023

PARAMETER	QUANTITY OR LOADING		QUALITY OR CONCENTRATION		NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	UNITS			
pH	*****	*****	*****	*****	0	1/31 Monthly	Grab
0040010 Effluent Gross	*****	*****	6.8	SU	0	1/31 Monthly	Grab
pH	*****	*****	*****	*****	0	1/31 Monthly	Grab
0040010 Intake from Well	*****	*****	5.6	SU	0	1/31 Monthly	Grab
Nitrogen, total [as N]	*****	*****	*****	*****	0	1/31 Monthly	Grab
0060010 Effluent Gross	*****	*****	4.7	mg/L	0	1/31 Monthly	Grab
Methylene chloride	*****	*****	*****	*****	0	1/31 Monthly	Grab
3442310 Effluent Gross	*****	*****	40.5	ug/L	0	1/31 Monthly	Grab
Tetrachloroethylene	*****	*****	*****	*****	0	1/31 Monthly	Grab
3447510 Effluent Gross	*****	*****	<0.5	ug/L	0	1/31 Monthly	Grab
1,1-Dichloroethylene	*****	*****	*****	*****	0	1/31 Monthly	Grab
3450110 Effluent Gross	*****	*****	<0.5	ug/L	0	1/31 Monthly	Grab
1,1,1-Trichloroethane	*****	*****	*****	*****	0	1/31 Monthly	Grab
3450610 Effluent Gross	*****	*****	<0.5	ug/L	0	1/31 Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	TELEPHONE	DATE
<i>Edward J. Hammon</i>		
SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA Code	NUMBER
	516-575-2333	09/06/2023
TYPED OR PRINTED		MM/DD/YYYY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
 WHEN NATURAL GWS HAVE PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS & REQUIREMENTS

EPA Form 3320-1 (Rev.01/06) Previous editions may be used.

10/19/2018 Page 1

PERMITTEE NAME/ADDRESS (include Facility Name/Location if
 NAME: NORTHIROP GRUIMMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S- W16-035
 BETHPAGE, NY 11714
 FACILITY: NORTHIROP GRUIMMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S- W16-035
 BETHPAGE, NY 11714
 ATTN: JOHN COFMAN

NY0006792	006- C
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
07/01/2023	07/31/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SUBR 01)
 NC COOLING & STORM WATER TO GW
 External Outfall
 No Discharge

PARAMETER	QUANTITY OR LOADING		QUALITY OR CONCENTRATION			NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	VALUE	UNITS			
Vinyl chloride	*****	*****	*****	<1.0	ug/L	0	1/31	Grab
39175 1 0 Effluent Gross	*****	*****	*****	5 DAILY MX	ug/L	0	Monthly	Grab
Trichloroethylene	*****	*****	*****	<0.5	ug/L	0	1/31	Grab
39180 1 0 Effluent Gross	*****	*****	*****	5 DAILY MX	ug/L	0	Monthly	Grab
Flow, in conduit or thru treatment plant	*****	*****	*****	*****	*****	0	1/31	Measured
50050 1 0 Effluent Gross	*****	*****	*****	*****	*****	0	Monthly	Measured
Calculated limit	*****	*****	*****	*****	*****	0	1/31	Calculated
74013 1 0 Effluent Gross	*****	*****	*****	*****	*****	0	Monthly	Calculated
cis- 1,2- Dichloroethylene	*****	*****	*****	<1.0	ug/L	0	1/31	Grab
77093 1 0 Effluent Gross	*****	*****	*****	5 DAILY MX	ug/L	0	Monthly	Grab
Trichlorotrifluoroethane	*****	*****	*****	<1.0	ug/L	0	1/31	Grab
81611 1 0 Effluent Gross	*****	*****	*****	5 DAILY MX	ug/L	0	Monthly	Grab
trans- 1,2- Dichloroethylene	*****	*****	*****	<0.5	ug/L	0	1/31	Grab
85810 1 0 Effluent Gross	*****	*****	*****	5 DAILY MX	ug/L	0	Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	TELEPHONE	DATE
<i>Edward J. Hannan - Manager</i>		
SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA Code	NUMBER
<i>Edward J. Hannan</i>	516-515-2333	09/06/2023
TYPED OR PRINTED		MM/DD/YYYY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
 WHEN NATURAL GWS HAVE PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY) & REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA. SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS & REQUIREMENTS

DISCHARGE MONITORING REPORT (DMR)

PERMIT THE NAME/ADDRESS (include Facility Name/Location if
 NAME: NORTHIOP GRUMMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S- W16- 035
 BETHPAGE, NY 11714
 FACILITY: NORTHIOP GRUMMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S- W16- 035
 BETHPAGE, NY 11714
 ATTN: JOHN COFMAN

NY0096792
 PERMIT NUMBER
 MM/DD/YYYY
 07/01/2023

001-WSP-7
 DISCHARGE NUMBER
 MM/DD/YYYY
 07/31/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SUBR 01)
 NC COOLING & STORM WATER TO GW
 External Outfall

No Discharge

PARAMETER	QUANTITY OR LOADING			QUALITY OR CONCENTRATION			NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	VALUE	UNITS	VALUE			
pH	*****	*****	*****	*****	SU	7.2	0	1/31	Grab
0040010 Effluent Gross	*****	*****	*****	*****	SU	Req. Mon. MAXIMUM	0	Monthly	Grab
pH	*****	*****	*****	*****	SU	5.7	0	1/31	Grab
0040010 Intake from Well	*****	*****	*****	*****	SU	Req. Mon. MINIMUM	0	Monthly	Grab
Nitrogen, total (as N)	*****	*****	*****	*****	mg/L	2.1	0	1/31	Grab
0060010 Effluent Gross	*****	*****	*****	*****	mg/L	10 DAILY MX	0	Monthly	Grab
Methylene chloride	*****	*****	*****	*****	ug/L	<2.0	0	1/31	Grab
3442310 Effluent Gross	*****	*****	*****	*****	ug/L	5 DAILY MX	0	Monthly	Grab
Tetrachloroethylene	*****	*****	*****	*****	ug/L	<1.0	0	1/31	Grab
3447510 Effluent Gross	*****	*****	*****	*****	ug/L	5 DAILY MX	0	Monthly	Grab
1,1-Dichloroethylene	*****	*****	*****	*****	ug/L	<1.0	0	1/31	Grab
3450110 Effluent Gross	*****	*****	*****	*****	ug/L	5 DAILY MX	0	Monthly	Grab
1,1,1-Trichloroethane	*****	*****	*****	*****	ug/L	<1.0	0	1/31	Grab
3450610 Effluent Gross	*****	*****	*****	*****	ug/L	5 DAILY MX	0	Monthly	Grab

NAME/TITLE: PRINCIPAL EXECUTIVE OFFICER
 Edward J. Hannon-Manager
 TYPED OR PRINTED

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT


TELEPHONE: _____ DATE: _____
 AREA Code: 516-575-7333 NUMBER: 09/06/2023
 MM/DD/YYYY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

WHEN NATURAL GW HAS PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

DISCHARGE MONITORING REPORT (DMR)

DMR Mailing ZIP CODE: 11714
 MINOR (SUFR 01)
 NC COOLING & STORM WATER TO GW
 External Outfall
 No Discharge

NY0096792	001-WSP-1
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
07/01/2023	07/31/2023

PERMITTEE NAME: ADDRESS (include Facility Name/Location if NAME)
 NAME: NORTROP GRUMMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S- WIG- 035
 BETHPAGE, NY 11714
 FACILITY: NORTROP GRUMMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S- WIG- 035
 BETHPAGE, NY 11714
 ATTN: JOHN COFMAN

PARAMETER	QUANTITY OR LOADING		QUALITY OR CONCENTRATION		NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	UNITS			
Vinyl chloride	*****	*****	<1.0	ug/L	0	1/31 Monthly	Grab
39175 1 0 Effluent Gross	*****	*****	5	ug/L			Grab
Trichloroethylene	*****	*****	<1.0	ug/L	0	1/31 Monthly	Grab
39180 1 0 Effluent Gross	*****	*****	5	ug/L			Grab
Flow, in conduit or thru treatment plant	*****	*****	DAILY MX	*****	0	1/31 Monthly	Measured
50050 1 0 Effluent Gross	*****	*****	5	*****	0	1/31 Monthly	Measured
Calculated limit	*****	*****	*****	*****	0	1/31 Monthly	Calculated
74013 1 0 Effluent Gross	*****	*****	<1.0	ug/L	0	1/31 Monthly	Grab
cis-1,2-Dichloroethylene	*****	*****	5	ug/L			Grab
77093 1 0 Effluent Gross	*****	*****	DAILY MX	*****	0	1/31 Monthly	Grab
Trichlorotrifluoroethane	*****	*****	<5.0	ug/L	0	1/31 Monthly	Grab
81611 1 0 Effluent Gross	*****	*****	5	ug/L			Grab
trans-1,2-Dichloroethylene	*****	*****	DAILY MX	*****	0	1/31 Monthly	Grab
85810 1 0 Effluent Gross	*****	*****	<1.0	ug/L	0	1/31 Monthly	Grab
	*****	*****	5	ug/L			Grab

NAME/TITLE: PRINCIPAL EXECUTIVE OFFICER	TELEPHONE:	DATE:
Edward J Hannon-Manager		
TYPED OR PRINTED	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA Code NUMBER
		516-575-2333
		MM/DD/YYYY
		07/06/2023

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
 WHEN NATURAL GW HAS PII OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PII MONTHLY & REPORT PII COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

Table 1
 SPDES Permit Equivalency Monthly Report
 OU2 and OU3 On-Site Containment Systems
 Northrop Grumman Bathpage Facility Site
 NYSDEC Site No. 130003A



OU3 Effluent Outfall 001 (WSP-7)

OU3 Groundwater Remedy Treatment System - Treated Air Stripper and Soil Gas Containment Condensate Discharge to Nassau County Recharge Basins

Parameter ⁽¹⁾	CAS Number	OUTFALL 001 (WSP-7) 7/14/2023	Discharge Limit ⁽¹⁾	Units	Monitoring Frequency	Sample Type	Average Mass Loading ^(2, 7)	Units
Daily Average Flow ⁽⁴⁾	--	0.31	Monitor	MGD	Continuous	SCADA	--	--
Daily Maximum Flow ⁽⁴⁾	--	0.32	Monitor	MGD	Continuous	SCADA	--	--
Influent pH ⁽⁵⁾	--	5.7	NS	SU	Monthly (1/31) Days	Grab	--	--
Effluent pH ⁽⁵⁾	--	7.2	Range 5.0-8.5	SU	Monthly (1/31) Days	Grab	--	--
Total Nitrogen (as N)	--	2.1	10.0	mg/L	Monthly (1/31) Days	Grab	5.43	lbs/day
Total Iron	7439-89-6	< 100	600	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Total Manganese	7439-96-5	37.6	600	µg/L	Monthly (1/31) Days	Grab	0.10	lbs/day
Sum of Total Iron and Manganese	--	37.6	1,000	µg/L	Monthly (1/31) Days	Calculated	0.10	lbs/day
1,1-Dichloroethylene	75-35-4	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Methylene Chloride	75-09-2	< 2.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Tetrachloroethylene	127-18-4	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,1,1-Trichloroethane	71-55-5	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Trichloroethylene	79-01-6	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Vinyl Chloride	75-01-4	< 1.0	2.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,2 (trans)-Dichloroethylene	156-60-5	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,2 (cis)-Dichloroethylene	156-59-2	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Chloroform	67-66-3	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Trichlorofluoroethane (Freon 113)	76-13-1	< 5.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Benzene	71-43-2	< 0.50	1.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,1-Dichloroethane	75-34-3	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Ethylbenzene	100-41-4	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Toluene	108-88-3	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
o-Xylene	95-47-6	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
m,p-Xylene	--	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Aroclor 1016	12674-11-2	< 0.050	0.095	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Aroclor 1221	11104-28-2	< 0.050	0.095	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Aroclor 1232	11141-16-5	< 0.050	0.095	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Aroclor 1242	53469-21-9	< 0.050	0.095	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Aroclor 1248	12672-29-6	< 0.050	0.095	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Aroclor 1254	11097-69-1	< 0.050	0.095	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Aroclor 1260	11096-82-5	< 0.050	0.095	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,4-Dioxane	123-91-1	0.80	Monitor	µg/L	Monthly (1/31) Days	Grab	2.07E-03	lbs/day

Notes and Abbreviations:

- XX Bold value indicates the constituent was detected at or above its laboratory quantification limit
- < Compound is not detected above laboratory quantification limit
- Not Applicable
- µg/L micrograms per liter
- lbs/day pounds per day
- lb/kg pounds per kilogram
- MGD million gallons per day
- mg/L milligrams per liter
- min minutes
- SU Standard Units
- B Detected in method blank as reported by laboratory
- na not available
- NA Not Applicable
- CAS Chemical Abstracts Service
- ND Non Detect
- NS None Specified
- NYSDEC New York State Department of Environmental Conservation
- SCADA Supervisory Control and Data Acquisition
- SPDES State Pollution Discharge Elimination System
- TKN Total Kjeldahl Nitrogen

¹ Samples were analyzed for permit equivalency Volatile Organic Compounds (VOCs) using USEPA Method 624 at OU2 system, and USEPA Method 8260 at OU3 system. Polychlorinated Biphenyls (PCBs) using USEPA Method 608, 1,4-Dioxane using USEPA Method 8270D-SIM-CLLE, Total Nitrogen is calculated as the sum of Nitrogen (Nitrate+Nitrite) and Total Kjeldahl Nitrogen (TKN). (CAS number 14797-55-8, 14797-65-0, and 7727-37-9, respectively) by USEPA Methods 353.2 and 351.2, respectively. Total Iron and Manganese using USEPA Method 200.7

² Discharge limits are per the SPDES permit equivalency, dated October 12, 2017, amended on March 23, 2023 and transmitted by the NYSDEC to Northrop Grumman on April 18, 2023

³ Mass Loading Calculation

$$Mass\ Loading\ \left(\frac{lb}{day}\right) = Flow\ \left(\frac{gal}{min}\right) \times 1440\ \left(\frac{min}{day}\right) \times concentration\ \left(\frac{µg}{liter}\right) \times 10^6\ \left(\frac{µg}{kg}\right) \times 3.785\ \left(\frac{liter}{gal}\right) \times 2.2046\ \left(\frac{lb}{kg}\right)$$

⁴ Average and daily maximum flow calculated from SCADA reports for the month indicated

⁵ Field measurement of pH taken by hand held meter on sample date

⁶ When Total Iron and Total Manganese are below their respective detection limits the Sum Total of Iron and Manganese is reported as "ND"

⁷ Average Mass Loading calculations are based on actual flow rates unless otherwise noted

⁸ At the time of Outfall 005 SPDES sample collection on July 14, 2023, Building 109 AOP Treatment System was online during Start-Up phase and remedial well known as RW22 was operating at an average flow rate of 552 gpm and contributing to SPDES discharge

⁹ Building 109 AOP Treatment System Influent and Effluent samples were collected and analyzed for 1,4-Dioxane as per footnote (1) of the SPDES permit equivalency for Outfall 005 Post (AOP) 1,4-Dioxane treatment sample was not collected during SPDES sample event and was otherwise collected during Stage 2 Start-up performance sampling events

Report of Analysis

Client Sample ID: OUTFALL 005	Date Sampled: 07/14/23
Lab Sample ID: JD69400-2	Date Received: 07/14/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: EPA 624.1	
Project: RW-21 SPDES-Northrup Grumman, Bethpage, NY	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1V99764.D	1	07/18/23 17:55	ED	n/a	n/a	V1V3993
Run #2							

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

VOA OU2 SPDES List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.71	ug/l	
67-66-3	Chloroform	0.72	1.0	0.50	ug/l	J
75-34-3	1,1-Dichloroethane	ND	1.0	0.42	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.96	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.45	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	0.46	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.96	ug/l	
76-13-1	Freon 113	ND	2.0	0.87	ug/l	
75-09-2	Methylene chloride	ND	1.0	0.41	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.41	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.43	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.41	ug/l	
79-01-6	Trichloroethene	0.68	1.0	0.43	ug/l	J
75-01-4	Vinyl chloride	ND	1.0	0.79	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4 (SUR)	100%		80-128%
2037-26-5	Toluene-D8 (SUR)	96%		82-113%
460-00-4	4-Bromofluorobenzene (SUR)	103%		79-117%
1868-53-7	Dibromofluoromethane (S)	112%		84-121%

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 Analysis

Client Sample ID:	OUTFALL 005	Date Sampled:	07/14/23
Lab Sample ID:	JD69400-2	Date Received:	07/14/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	RW-21 SPDES-Northrup Grumman, Bethpage, NY		

4.1
4

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	< 100	100	ug/l	1	07/17/23	07/18/23 ND	EPA 200.7 ¹	EPA 200.7 ²
Manganese	< 15	15	ug/l	1	07/17/23	07/18/23 ND	EPA 200.7 ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA54461

(2) Prep QC Batch: MP40788

RL = Reporting Limit

Report of Analytical Results

SDG: SQ3632
 Lab ID: SQ3632-1
 Client ID: OUTFALL 005
 Matrix: AQ
 Lab File ID: G7361.D

Sample Date: 14-JUL-23
 Extract Date: 19-JUL-23
 Extracted By: SR
 Extraction Method: SW846 3520C
 Lab Prep Batch: WG339705

Report Date: 01-AUG-23
 Analysis Date: 28-JUL-23
 Analyst: DT
 Analysis Method: SW846 8270D SIM
 % Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		4.8	ug/L	1	.25	0.24	0.080
1,4-Dioxane-D8		75.8	%				

Report of Analytical Results

SDG: SQ3632
Lab ID: SQ3632-2
Client ID: OUTFALL 005-B109
Matrix: AQ
Lab File ID: G7362.D

Sample Date: 14-JUL-23
Extract Date: 19-JUL-23
Extracted By: SR
Extraction Method: SW846 3520C
Lab Prep Batch: WG339705

Report Date: 01-AUG-23
Analysis Date: 28-JUL-23
Analyst: DT
Analysis Method: SW846 8270D SIM
% Solids: N/A

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		83.4	%				



ANALYTICAL RESULTS

Project: PROG 5C OU3 5 RW-21-ONCT-OMM
 Pace Project No.: 70263373

Sample: OUTFALL 005	Lab ID: 70263373001	Collected: 07/14/23 09:25	Received: 07/14/23 13:00	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Total Nitrogen Calculation	Analytical Method: SM22 4500-N Pace Analytical Services - Melville							
Total Nitrogen	4.0	mg/L	0.10	1		07/24/23 14:52		
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - Melville							
Nitrogen, Kjeldahl, Total	<0.10	mg/L	0.10	1	07/24/23 04:20	07/24/23 13:13	7727-37-9	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2 Pace Analytical Services - Melville							
Nitrate as N	4.0	mg/L	0.25	5		07/15/23 22:01	14797-55-8	
Nitrate-Nitrite (as N)	4.0	mg/L	0.25	5		07/15/23 22:01	7727-37-9	
353.2 Nitrogen, NO2	Analytical Method: EPA 353.2 Pace Analytical Services - Melville							
Nitrite as N	<0.050	mg/L	0.050	1		07/15/23 21:02	14797-65-0	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, LLC

Report of Analytical Results

SDG: SQ3634
 Lab ID: SQ3634-1DL
 Client ID: B109-INFLUENT
 Matrix: AQ
 Lab File ID: G7372.D

Sample Date: 14-JUL-23
 Extract Date: 19-JUL-23
 Extracted By: SR
 Extraction Method: SW846 3520C
 Lab Prep Batch: WG339705

Report Date: 02-AUG-23
 Analysis Date: 01-AUG-23
 Analyst: DT
 Analysis Method: SW846 8270D SIM
 % Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		24	ug/L	10	.25	2.4	0.82
1,4-Dioxane-D8	D	0.00	%				

Report of Analysis

Client Sample ID: OUTFALL 006	Date Sampled: 07/14/23
Lab Sample ID: JD69398-1	Date Received: 07/14/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: EPA 624.1	
Project: Northrop Grumman, OU2 System, Bethpage, NY	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1V99763.D	1	07/18/23 17:30	ED	n/a	n/a	V1V3993
Run #2							

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

VOA OU2 SPDES List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	ND	0.50	0.50	ug/l	
75-35-4	1,1-Dichloroethene	ND	0.50	0.45	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.51	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	0.46	ug/l	
76-13-1	Freon 113	ND	1.0	0.87	ug/l	
75-09-2	Methylene chloride	ND	0.50	0.41	ug/l	
127-18-4	Tetrachloroethene	ND	0.50	0.41	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.43	ug/l	
79-01-6	Trichloroethene	ND	0.50	0.43	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.79	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4 (SUR)	101%		80-128%
2037-26-5	Toluene-D8 (SUR)	96%		82-113%
460-00-4	4-Bromofluorobenzene (SUR)	103%		79-117%
1868-53-7	Dibromofluoromethane (S)	113%		84-121%

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:	OUTFALL 006	Date Sampled:	07/14/23
Lab Sample ID:	JD69398-1	Date Received:	07/14/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	Northrop Grumman, OU2 System, Bethpage, NY		

4.1
4

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	< 100	100	ug/l	1	07/17/23	07/18/23 ND	EPA 200.7 ¹	EPA 200.7 ²
Manganese	< 15	15	ug/l	1	07/17/23	07/18/23 ND	EPA 200.7 ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA54461

(2) Prep QC Batch: MP40788

RL = Reporting Limit

Report of Analytical Results

SDG: SQ3633
Lab ID: SQ3633-1
Client ID: OUTFALL 006
Matrix: AQ
Lab File ID: G7364.D

Sample Date: 14-JUL-23
Extract Date: 19-JUL-23
Extracted By: SR
Extraction Method: SW846 3520C
Lab Prep Batch: WG339705

Report Date: 01-AUG-23
Analysis Date: 29-JUL-23
Analyst: DT
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		5.1	ug/L	1	.25	0.23	0.079
1,4-Dioxane-D8		48.5	%				



ANALYTICAL RESULTS

Project: PROG 002.2-ONCT-PMM/SPDES 7/14
 Pace Project No.: 70263371

Sample: OUTFALL 006	Lab ID: 70263371001	Collected: 07/14/23 10:15	Received: 07/14/23 13:00	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Total Nitrogen Calculation	Analytical Method: SM22 4500-N Pace Analytical Services - Melville							
Total Nitrogen	4.7	mg/L	0.10	1		07/24/23 14:52		
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - Melville							
Nitrogen, Kjeldahl, Total	<0.10	mg/L	0.10	1	07/24/23 04:20	07/24/23 13:10	7727-37-9	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2 Pace Analytical Services - Melville							
Nitrate as N	4.7	mg/L	0.25	5		07/15/23 22:03	14797-55-8	
Nitrate-Nitrite (as N)	4.7	mg/L	0.25	5		07/15/23 22:03	7727-37-9	
353.2 Nitrogen, NO2	Analytical Method: EPA 353.2 Pace Analytical Services - Melville							
Nitrite as N	<0.050	mg/L	0.050	1		07/15/23 21:04	14797-65-0	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, LLC

SGS Accutest New Jersey - Dayton
 2235 Route 130 Dayton NJ 08810
 TEL 732 329-4200 FAX 732 329-4499 4480

AW
TB

IMRuse

mm-091023-106

Client / Reporting Information Company Name: Arcadis Street Address: 2 Huntington Quad, Suite 1S10 City: Melville NY State: NY Zip: 11747 Project Contact: Kevin Czarwinski, Kevin.Czarwinski@arcadis.com Phone #: 631-245-0710 Sampler(s) Name(s): Patrick Dolcave (631) 334-2574		Project Information Project Name: Prog 5C OU3.5 RW-21-ONCT-OMM/SPDES Street: _____ City: Bethpage NY State: NY Company Name: Arcadis, U.S., Inc. Project #: 30160628.OMM13 Street Address: 630 Plaza Drive, Suite 600 Client Purchase Order #: _____ City: Highlands Ranch, CO State: CO Zip: 80129 Work Authorization #: NY001496, 2015 10 30 Project Manager: Carlo San Giovanni Attention: Accounts Payable		Requested Analysis (see TEST CODE) V6242NG99SPDS+Chloroform + Benzene + 1,2-TCA + 1,1-DCA + 1,2-DCA + 1,2-DCEPANE + 40 mL Clear Glass VOA's V6242NG99SPDS+Chloroform (40 mL Clear Glass VOA's) XTNT - EPA 363.2 & EPA 361.2 w/Total N Calc (250 mL Plastic) Iron + Manganese EPA 200.7 (500 mL Plastic)		Matrix Codes DW - Drinking Water GW - Ground Water WW - Waste Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIU - Other Liquid AIR - Air SOI - Other Solid WPT - Waste FB - Field Blank LB - Laboratory Blank RB - Rinse Blank TB - Trip Blank
Turnaround Time (Business days) <input type="checkbox"/> 5M - 15 Business Days <input checked="" type="checkbox"/> 5M - 10 Business Days (by Contract only) <input type="checkbox"/> 10 Day RUSH <input type="checkbox"/> 5 Day RUSH <input type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY Emergencies & Rush Turnaround available via Letters		Approved By (Account PM) / Date _____ _____		Date Deliverable information <input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> FULLT1 (Level 3+0) <input type="checkbox"/> NJ Reduced <input type="checkbox"/> Commercial "C" Commercial "A" + Results Only Commercial "B" + Results + QC Summary NJ Reduced + Results + QC Summary + Partner Raw data		Comments / Special Instructions Initial Assessment: (1) - V. 2.1 AD 2A
Sample Custody must be documented below each time sample change possession, including courier delivery.						
1 Retrieved by: _____ Date/Time: 7/14/13	2 Retrieved by: _____ Date/Time: _____	3 Retrieved by: _____ Date/Time: _____	4 Retrieved by: _____ Date/Time: _____	5 Retrieved by: _____ Date/Time: _____	6 Retrieved by: _____ Date/Time: _____	

G:\PROJ\ECT\New Three Grunten\Bethpage OU2 2 ONCT06 Notes and Data\System Sampling\February\Q M\COCs - SGS\PAR_01_2_COC_1\66766_62211_62215_RevDec2011

5.1
5

AW

impluse

L

Client / Reporting Information		Project Information		Requested Analysis (see TEST CODE)		Matrix Codes	
Company Name Arcadis Street Address 2 Huntington Quad, Suite 1S10 City Size Zip Melville NY 11747 Project Contact E-mail Kevin Czarwinski, Kevin.Czarwinski@arcadis.com Phone # 631-245-0710 Company(s) Name(s) Phone # Patrick DeLoux (631)354-2544		Project Name AGMNYM82233 // OU2 System - GW Prog 3 OU2.2-ONCT-OMM/SPDES Street Bethpage City State Bethpage NY Company Name Arcadis, U.S., Inc. Street Address 830 Plaza Drive, Suite 600 City State Zip Highlands Ranch, CO 80129 Client Purchase Order # Work Authorization # NY001486, 2015 10 20 Project Manager Carlo San Giovanni Attention Accounts Payable		Requested Analysis V6242NGSPDS+Chloroform (40 mL Clear Glass VOA's) XTNIT - EPA 363.2 & EPA 361.2 w/Total N Calc (250 mL Plastic) Iron + Manganese EPA 200.7 (500 mL Plastic)		Matrix Codes DW - Drinking Water GW - Ground Water WW - Waste Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment DI - DI LIQ - Other Liquid AIR - Air SOL - Other Solid WPT - Waste FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank	
Turnaround Time (Business days) <input type="checkbox"/> Std 15 Business Days <input checked="" type="checkbox"/> Std. 10 Business Days (by Contract only) <input type="checkbox"/> 10 Day RUSH <input type="checkbox"/> 3 Day RUSH <input type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY Emergency & Rush (A 48h available via Lablink)		Approved By (Account PM) / Date _____ _____ _____ _____		Data Deliverable Information <input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> FULLT (Level 3+4) <input type="checkbox"/> NJ Reduced <input type="checkbox"/> Commercial "C" Commercial "A" = Results Only Commercial "B" = Results + QC Summary NJ Reduced = Results + QC Summary + Partial Raw data		Comments / Special Instructions Initial Assessment: AL2A Labat Verification	
Sample Custody must be documented below each time samples change possession, including courier delivery.							
1 Requisitioned by Sampler Date Time 7/14/13	1 Received By Date Time 7/14/13	2 Requisitioned by Date Time 7/14/13	2 Received By Date Time 7/14/13	3 Requisitioned by Sampler Date Time 7/14/13	3 Received By Date Time 7/14/13	4 Requisitioned by Date Time 7/14/13	4 Received By Date Time 7/14/13

5.1
5

G:\PROJECT\Workshop\Grunthan\Bethpage\OU2\2 ONCT08 Notes and Data\System Sampling\February 10\NYCOCs - BGBPAR - OU2 - COCs - JobPha_82233 - 82235 - RevDec2017

Report of Analysis

Client Sample ID:	WSP-7	
Lab Sample ID:	JD69397-1	Date Sampled: 07/14/23
Matrix:	AQ - Ground Water	Date Received: 07/14/23
Method:	SW846 8260D	Percent Solids: n/a
Project:	Northrop Grumman, OU3 BPGWCS System, Bethpage, NY	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2K08917.D	1	07/17/23 16:04	NW	n/a	n/a	V2K261
Run #2							

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

VOA OU3 BPGWVS List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	3.1	ug/l	
71-43-2	Benzene	ND	0.50	0.43	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.45	ug/l	
75-25-2	Bromoform	ND	1.0	0.63	ug/l	
74-83-9	Bromomethane	ND	2.0	1.6	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	2.7	ug/l	
106-99-0	1,3-Butadiene ^a	ND	5.0	0.62	ug/l	
75-15-0	Carbon disulfide ^b	ND	2.0	1.8	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	
75-45-6	Chlorodifluoromethane ^c	ND	5.0	0.49	ug/l	
75-00-3	Chloroethane ^d	ND	1.0	0.73	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
74-87-3	Chloromethane ^e	ND	1.0	0.76	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.56	ug/l	
75-71-8	Dichlorodifluoromethane ^c	ND	2.0	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 ^d	ND	5.0	0.58	ug/l	
591-78-6	2-Hexanone	ND	5.0	4.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.51	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	4.9	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.49	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.65	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:	WSP-7	Date Sampled:	07/14/23
Lab Sample ID:	JD69397-1	Date Received:	07/14/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260D		
Project:	Northrop Grumman, OU3 BPGWCS System, Bethpage, NY		

4.1
4

VOA OU3 BPGWVS List

CAS No.	Compound	Result	RL	MDL	Units	Q
127-18-4	Tetrachloroethene	ND	1.0	0.56	ug/l	
108-88-3	Toluene	ND	1.0	0.49	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	
79-01-6	Trichloroethene	ND	1.0	0.53	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.40	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.52	ug/l	
75-68-3	1-chloro-1,1-difluoroethane	ND	5.0	0.33	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	104%		80-120%
17060-07-0	1,2-Dichloroethane-D4	92%		80-120%
2037-26-5	Toluene-D8	95%		80-120%
460-00-4	4-Bromofluorobenzene	98%		82-114%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	system artifact	1.09	7.1	ug/l	J
	Total TIC, Volatile		0	ug/l	

- (a) This compound in the associated ICV is outside the method criteria of 30%, biased high. Sample was ND. Associated CCV outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits high, sample was ND. This compound in blank spike is outside in house QC limits bias high.
- (c) This compound in the associated ICV is outside the method criteria of 30%, biased high. Sample was ND. Associated CCV outside of control limits high, sample was ND. This compound in blank spike is outside in house QC limits bias high.
- (d) Associated CCV outside of control limits high, sample was ND.
- (e) Associated CCV outside of control limits low. A sensitivity check was analyzed to demonstrate system suitability to detect affected analyte. 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

Report of Analysis

Client Sample ID:	WSP-7	Date Sampled:	07/14/23
Lab Sample ID:	JD69397-1	Date Received:	07/14/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	EPA 608.3 SW846 3510C		
Project:	Northrop Grumman, OU3 BPGWCS System, Bethpage, NY		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	XX2504219.D	1	07/19/23 04:40	RK	07/18/23 08:00	OP47871A	GXX8247
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.050	0.034	ug/l	
11104-28-2	Aroclor 1221	ND	0.050	0.029	ug/l	
11141-16-5	Aroclor 1232	ND	0.050	0.020	ug/l	
53469-21-9	Aroclor 1242	ND	0.050	0.027	ug/l	
12672-29-6	Aroclor 1248	ND	0.050	0.025	ug/l	
11097-69-1	Aroclor 1254	ND	0.050	0.034	ug/l	
11096-82-5	Aroclor 1260	ND	0.050	0.027	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	63%		10-156%
877-09-8	Tetrachloro-m-xylene	54%		10-156%
2051-24-3	Decachlorobiphenyl	35%		10-143%
2051-24-3	Decachlorobiphenyl	44%		10-143%

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:	WSP-7	Date Sampled:	07/14/23
Lab Sample ID:	JD69397-1	Date Received:	07/14/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	Northrop Grumman, OU3 BPGWCS System, Bethpage, NY		

4.1
4

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	< 100	100	ug/l	1	07/17/23	07/18/23 ND	EPA 200.7 ¹	EPA 200.7 ²
Manganese	37.6	15	ug/l	1	07/17/23	07/18/23 ND	EPA 200.7 ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA54461

(2) Prep QC Batch: MP40788

RL = Reporting Limit

Report of Analytical Results

SDG: SQ3631
Lab ID: SQ3631-1
Client ID: WSP-7
Matrix: AQ
Lab File ID: G7360.D

Sample Date: 14-JUL-23
Extract Date: 19-JUL-23
Extracted By: SR
Extraction Method: SW846 3520C
Lab Prep Batch: WG339705

Report Date: 01-AUG-23
Analysis Date: 28-JUL-23
Analyst: DT
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		0.80	ug/L	1	.25	0.24	0.080
1,4-Dioxane-D8		86.6	%				



ANALYTICAL RESULTS

Project: PROG 4A OU3.2-ONCT-OMM/SPDES
 Pace Project No.: 70263374

Sample: WSP-7	Lab ID: 70263374001	Collected: 07/14/23 10:40	Received: 07/14/23 13:00	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Total Nitrogen Calculation	Analytical Method: SM22 4500-N Pace Analytical Services - Melville							
Total Nitrogen	2.1	mg/L	0.10	1		07/24/23 14:52		
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - Melville							
Nitrogen, Kjeldahl, Total	<0.10	mg/L	0.10	1	07/24/23 04:20	07/24/23 13:15	7727-37-9	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2 Pace Analytical Services - Melville							
Nitrate as N	2.1	mg/L	0.050	1		07/15/23 21:51	14797-55-8	
Nitrate-Nitrite (as N)	2.1	mg/L	0.050	1		07/15/23 21:51	7727-37-9	
353.2 Nitrogen, NO2	Analytical Method: EPA 353.2 Pace Analytical Services - Melville							
Nitrite as N	<0.050	mg/L	0.050	1		07/15/23 21:06	14797-65-0	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, LLC.

ID# **SQ3633****CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM**Page of Lab Work Order # **MSA 3601**

Send Results to:	Contact & Company Name Kevin Czerwinski - Task Manager		Telephone 631-245-0710 cell	Preservative 1							Preservation Key A H ₂ O ₂ B HCL C HNO ₃ D NaOH E None F Other G Other H Other Matrix Key SO - Soil W - Water T - Tissue SE - Sediment SL - Sludge A - Air Container Information Key 1 40 ml Vial 2 1 L Amber 3 250 ml Plastic 4 500 ml Plastic 5 Encore 6 2 oz. Glass 7 4 oz. Glass 8 8 oz. Glass 9 Other 10 Other
	Address Two Huntington Quad Suite 1S10		Fax	# of Containers 4							
	City State ZIP Melville NY 11747		E-mail Address Kevin.Czerwinski@arcadis.com		Container Information 2						
	Project Name/Contract (if same) Prog 10022-ONOT-OMM SPOES		Project # 30169301 OMM13		PARAMETER ANALYSIS & METHOD <i>1,4-Dioxane 82700-SIM-CLE</i>						
Analyst's Name <i>Patrick Belliveau</i>		Date Analyzed <i>7/14/23</i>									
Sample ID	Collection	Type (*)	Matrix								
	Date Time	Comp	Grab								
Outfall 006	<i>7/14/23 1015</i>		X GW								
Special Instructions/Comments SVOC extracted by EDD-ARCADIS_EQUIS (EQUIS6.4 file)				<input type="checkbox"/> Special QA/QC Instructions ()							

Laboratory Information and Receipt		Relinquished By		Received By		Relinquished By		Laboratory Received By	
In Name Katahdin Analytical <input checked="" type="checkbox"/> Cooler packed with ice () Spec. by Turnaround Requirements Normal TAT-10 business Shipping Tracking #	Cooler Custody Seal (✓) <input type="checkbox"/> Intact <input type="checkbox"/> Not Intact Sample Receipt Condition/Cooler Temp	Printed Name <i>Patrick Belliveau</i> Signature <i>Patrick Belliveau</i> Date/Time <i>7/14/23 1230</i>	Printed Name <i>Benjamin Hawks</i> Signature <i>Benjamin Hawks</i> Date/Time <i>7/15/23 (5.A)</i>	Printed Name Signature Date/Time					

20130826 CoC AR Form 08 27 2015 Distribution: **WHITE - Laboratory returns with results** **YELLOW - Lab copy** **PINK - Retained by Arcadis**

G:\AR\ROJ\GUP\Northrop Grumman Bethpage - Program V-0004 Project Management\Contracts and POs\Lab\Katahdin Analytical\OU22\Navy Wells CoC Master

Katahdin Analytical Services SQ3633 page 0000009 of 0000011



ID# **SC3631**

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 1 of 1

Lab Work Order # **MSA 3601**

Send Results to:	Contact & Company Name Arnas Nemickas-Project Manager	Telephone 631-391-5212 cell	Preservative F																	
	Address Two Huntington Quad-Suite 1S10	City Melville	State NY	Zip 11747	Project No. 30123958 OMMI3	Project Name Prig 4A On J12 CNDT OMMI SPDES	Project Location Prig 4A On J12 CNDT OMMI SPDES	Project Start Date 7/14/23	Project End Date 7/14/23	Project Manager Arnas Nemickas@arcadis.com	Analyst Patrick DeLaune	Filtered (-)	# of Containers 2	Container Information	Preservation Key A H ₂ O B HCL C HNO ₃ D NaOH E None F Other G Other H Other	Keys 1 40 ml Vial 2 1 L Amber 3 250 ml Plastic 4 500 ml Plastic 5 Endore 6 2 oz Glass 7 4 oz Glass 8 8 oz Glass 9 Other 10 Other	Container Information Key 1 40 ml Vial 2 1 L Amber 3 250 ml Plastic 4 500 ml Plastic 5 Endore 6 2 oz Glass 7 4 oz Glass 8 8 oz Glass 9 Other 10 Other	Matrix Key SO - Soil W - Water T - Tissue SE - Sediment SL - Sludge A - Air NL - NAPL/Oil SW - Sample Wipe Other		
	Sample ID WSP-7	Collection Date 7/14/23	Time 12:30	Type (-) Comp <input checked="" type="checkbox"/> Grab	Matrix GW	PARAMETER ANALYSIS & METHOD 7.4 dioxane 8270D SIM														

REMARKS

Special Instructions/Comments: **SVOC extracted by CCLE EDD-ARGADIS_EQUIS (EQUI6 4 file format)**

Laboratory Information and Receipt		Relinquished By		Received By		Relinquished By		Laboratory Received By	
Lab Name Katahdin Analytical Labs	Cooler Custody Seal (-) <input checked="" type="checkbox"/> Intact <input type="checkbox"/> Not Intact	Printed Name Patrick DeLaune	Signature <i>Patrick DeLaune</i>	Printed Name Brenna Havel	Signature <i>Brenna Havel</i>	Printed Name	Signature	Printed Name	Signature
Priority Turnaround Requirements Normal TAT-10 business days	Sample Receipt	Date/Time 7/14/23 12:30	Class/Time 7-15-23 15:35	Date/Time	Class/Time	Date/Time	Class/Time	Date/Time	Class/Time

Distribution: **WHITE - Laboratory returns with results** **YELLOW - Lab copy** **PINK - Retained by Arcadis**

Katahdin Analytical Services SC3631 page 0000009 of 000011

1/6
1/7



ID#:

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 1 of 1

Lab Work Order # **MSA 3601**

Client & Company Name Kevin Czerwinski - Task Manager		Telephone 631 245 0710 cell		Preservative A E					
Address Two Huntington Quad-Suite 1S10		Fax 		Filtered (✓) 					
City State Zip Melville NY 11747		E-mail Address Kevin.Czerwinski@arcadis.com		# of Containers 1 1					
Project Name/Location (City, State) Prog 4A 013 2-ONCT-OMMSP01 S		Project # 30123958 OMMI3		Consider Information 3 9		Preservation Key: A. H₂O B. HCL C. HNO D. NaOH E. None F. Other G. Other H. Other		Keys Container Information Key: 1. 40 ml Vial 2. 1 L Amber 3. 250 ml Plastic 4. 500 ml Plastic 5. Encore 6. 2 oz. Glass 7. 4 oz. Glass 8. 8 oz. Glass 9. Other: 125 ml Plastic 10. Other	
PARAMETER ANALYSIS & METHOD									
Sample ID		Collection		Type (✓)		Matrix		TKN - Method 351.2 Total Nitrogen Nitrate + Nitrite - Method 353.2	
WSP-7		7/14/13 1040		X		GW		X X	
REMARKS <div style="background-color: #90EE90; padding: 5px; display: inline-block; border: 1px solid black;"> WO#: 70263374  70263374 </div>									
Special Instructions/Comments									
<input type="checkbox"/> Special QA/QC Instructions (✓)									
Laboratory Information and Receipt		Relinquished By		Received By		Relinquished By		Laboratory Received By	
Lab Name Pace Analytical		Cooler Custody Seal (✓) <input type="checkbox"/> Intact <input type="checkbox"/> Not Intact		Relinquished By Name: Patrick Delicieux Signature: <i>[Signature]</i>		Received By Name: 7/14/13 13:00 Signature: <i>[Signature]</i>		Relinquished By Name: _____ Signature: _____	
Special Handling Requirements Normal TAT-10 business		Sample Receipt:		Firm/Counter: _____ Date/Time: 7/14/13		Firm/Counter: _____ Date/Time: _____		Firm/Counter: _____ Date/Time: _____	
Shipping Tracking #: _____ Condition/Cooler Temp: _____									

20732826 C:\C:\AN Form 09 27 2015 Distribution: **WHITE - Laboratory returns with results** **YELLOW - Lab copy** **PINK - Retained by Arcadis**

G:\PROJECT\Worshop Grumman (Billpage), Program Work\04 Project Management\Contracts and PostLab\Kathryn Analytical\012 Levy Work COC Master

August'&\$&'

Northrop Grumman
925 South Oyster Bay Road
Bethpage, NY 11714

northropgrumman.com

ESH&M-024L-23
October 4, 2023

Matthew Travis
N.Y.S. Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-3506

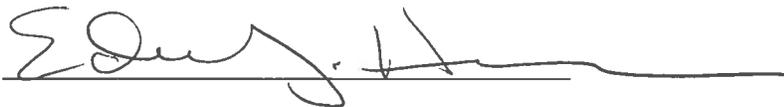
Subject: **Report for SPDES Permit Equivalent, NYSDEC Site No. 1-30-003A
Northrop Grumman Corporation - Bethpage, New York Facility**

Mr. Travis:

Enclosed please find the subject SPDES Permit Equivalent summary tables for the month of August 2023, as per additional condition requirements outlined in the SPDES Permit Equivalent (Northrop Grumman, NYSDEC No. 1-30-003A) dated July 30, 2018.

If you have any questions, please call me at 516-575-2333

Very truly yours,



Edward J. Hannon
Environmental, Safety, Health & Medical Director
516-575-2333
M/S: 02/BP15

cc: Regional Water Engineer - Region 1
NYS Department of Environmental Conservation
SUNY @ Stony Brook
50 Circle Road
Stony Brook, NY 11790-3409

Northrop Grumman
925 South Oyster Bay Road
Bethpage, NY 11714

northropgrumman.com

ESH&M-025L-23
October 4, 2023

Matthew Travis
N.Y.S. Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-3506

RE: NYSDEC No. 1-30-003A

Subject: Additional Sampling Constituents for Report Period:
August 1, 2023 – August 31, 2023.

Mr. Travis:

Below please find the 1,4 – Dioxane sampling results for Outfalls 1, 5 and 6 for this reporting period.

Outfall 1 – 0.70 ug/L
Outfall 5 – 5.2 ug/L
Outfall 6 – 6.2 ug/L

Sampling results for Outfall 1 for the following:

Ethylbenzene - <1.0
Toluene - <1.0
Benzene - <0.50
m,p-Xylene - <1.00

If you have any questions, please call me at 516-575-2333
Very truly yours,



Edward J. Hannon
Environmental, Safety, Health & Medical Director
516-575-2333
M/S: 02/BP15

cc: Regional Water Engineer - Region 1
NYS Department of Environmental Conservation
SUNY @ Stony Brook
50 Circle Road
Stony Brook, NY 11790-3409

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (include facility Name/Location if
NAME: NORTHTROP GRUMAN SYSTEMS CORP
ADDRESS: 925 SO. OYSTER BAY RD M/S- W16-035
BETHPAGE, NY 11714
FACILITY: NORTHTROP GRUMAN SYSTEMS CORP
LOCATION: 925 SO. OYSTER BAY RD M/S- W16-035
BETHPAGE, NY 11714
ATTN: JOHN COFFMAN

DMR Mailing ZIP CODE: 11714
MINOR (SUBR 01)
NC COOLING & STORM WATER TO GW
External Outfall
No Discharge

NY0096792	005-C
PERMIT NUMBER	DISCHARGE NUMBER
MM/DD/YYYY	MM/DD/YYYY
08/10/2023	08/31/2023

MONITORING PERIOD

PARAMETER	QUANTITY OR LOADING			QUALITY OR CONCENTRATION			NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	VALUE	UNITS	VALUE			
pH									
00400 1 0 Effluent Gross	*****	*****	7.0	*****	*****	7.0	0	1/31 Monthly	Grab
	*****	*****	Req. Mon. MINIMUM	*****	*****	Req. Mon. MAXIMUM			Grab
pH									
00400 1 0 Intake from Well	*****	*****	5.4	*****	*****	5.4	0	1/31 Monthly	Grab
	*****	*****	Req. Mon. MINIMUM	*****	*****	Req. Mon. MAXIMUM			Grab
Nitrogen, total [as N]									
00600 1 0 Effluent Gross	*****	*****	3.9	*****	*****	3.9	0	1/31 Monthly	Grab
	*****	*****	DAILY MX	*****	*****	10 mg/L			Grab
Methylene chloride									
34423 1 0 Effluent Gross	*****	*****	<1.0	*****	*****	<1.0	0	1/31 Monthly	Grab
	*****	*****	DAILY MX	*****	*****	5 ug/L			Grab
Tetrachloroethylene									
34475 1 0 Effluent Gross	*****	*****	<1.0	*****	*****	<1.0	0	1/31 Monthly	Grab
	*****	*****	DAILY MX	*****	*****	5 ug/L			Grab
1,1-Dichloroethylene									
34501 1 0 Effluent Gross	*****	*****	<1.0	*****	*****	<1.0	0	1/31 Monthly	Grab
	*****	*****	DAILY MX	*****	*****	5 ug/L			Grab
1,1,1-Trichloroethane									
34506 1 0 Effluent Gross	*****	*****	<1.0	*****	*****	<1.0	0	1/31 Monthly	Grab
	*****	*****	DAILY MX	*****	*****	5 ug/L			Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	TELEPHONE:	DATE
Edward J. Hannan, EHS Director	516-515-2333	10/1/2023
TYPED OR PRINTED	AREA Code	MM/DD/YYYY
SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	NUMBER	
<i>Edward J. Hannan</i>		

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
WHEN NATURAL GW HAS PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORTS SUPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

Influent PH is the average of Building 102 and Building 109 treatment streams

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (include Facility Name/Location if
NAME: NORTROP GRUMMAN SYSTEMS CORP
ADDRESS: 925 SO. OYSTER BAY RD M/S- W16- 035
BETHPAGE, NY 11714
FACILITY: NORTROP GRUMMAN SYSTEMS CORP
LOCATION: 925 SO. OYSTER BAY RD M/S- W16- 035
BETHPAGE, NY 11714
ATTN: JOHN COEMAN

NY0096792	005- C
PERMIT NUMBER	DISCHARGE NUMBER
MM/DD/YYYY	MM/DD/YYYY
08/01/2023	08/31/2023

MONITORING PERIOD

DMR Mailing ZIP CODE: 11714
MINOR (SUBR 01)
NC COOLING & STORM WATER TO GW
External Outfall
No Discharge

PARAMETER	QUANTITY OR LOADING		QUALITY OR CONCENTRATION		NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	UNITS			
Vinyl chloride	*****	*****	<1.0	ug/L	0	1/31 Monthly	Grab
39175 1 0 Effluent Gross	*****	*****	5 DAILY MX	ug/L	0	1/31 Monthly	Grab
Trichloroethylene	*****	*****	0.80	ug/L	0	1/31 Monthly	Grab
39180 1 0 Effluent Gross	*****	*****	5 DAILY MX	ug/L	0	1/31 Monthly	Grab
Flow, in conduit or thru treatment plant	*****	*****	*****	*****	0	1/31 Monthly	Measured
50050 1 0 Effluent Gross	*****	*****	*****	*****	0	1/31 Monthly	Measured
Calculated limit	*****	*****	*****	*****	0	1/31 Monthly	Calculated
74013 1 0 Effluent Gross	*****	*****	*****	*****	0	1/31 Monthly	Calculated
cis-1,2-Dichloroethylene	*****	*****	<1.0	ug/L	0	1/31 Monthly	Grab
77093 1 0 Effluent Gross	*****	*****	5 DAILY MX	ug/L	0	1/31 Monthly	Grab
Trichlorotrifluoroethane	*****	*****	<2.0	ug/L	0	1/31 Monthly	Grab
81611 0 Effluent Gross	*****	*****	5 DAILY MX	ug/L	0	1/31 Monthly	Grab
trans-1,2-Dichloroethylene	*****	*****	<1.0	ug/L	0	1/31 Monthly	Grab
85810 1 0 Effluent Gross	*****	*****	5 DAILY MX	ug/L	0	1/31 Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	TELEPHONE	DATE
Edward J. Shannon, EAS Director	516-515-2333	10/1/2023
TYPED OR PRINTED	AREA Code	NUMBER
	516-515-2333	10/1/2023
SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT		MM/DD/YYYY
		MM/DD/YYYY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
WHEN NATURAL GW HAS PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004

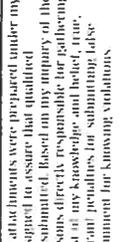
PERMITTEE NAME/ ADDRESS (include Facility Name/Location if
NAME: NORTROP GRUMAN SYSTEMS CORP
ADDRESS: 925 SO. OYSTER BAY RD M/S- W16- 035
BETHPAGE, NY 11714
FACILITY: NORTROP GRUMAN SYSTEMS CORP
LOCATION: 925 SO. OYSTER BAY RD M/S- W16- 035
BETHPAGE, NY 11714
ATTN: JOHN COEMAN

NY0096792	006- C
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
08/01/2023	08/31/2023

DMR Mailing ZIP CODE: 11714
MINOR (SUBR 01)
NC COOLING & STORM WATER TO GW
External Outfall

No Discharge

PARAMETER	QUANTITY OR LOADING			QUALITY OR CONCENTRATION			NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	VALUE	UNITS	VALUE			
pH	*****	*****	*****	*****	SU	7.0	0	1/31 Monthly	Grab
00400 1 0 Effluent Gross	*****	*****	*****	*****	SU	7.0	0	1/31 Monthly	Grab
pH	*****	*****	*****	*****	SU	5.4	0	1/31 Monthly	Grab
00400 1 0 Intake from Well	*****	*****	*****	*****	SU	5.4	0	1/31 Monthly	Grab
Nitrogen, total [as N]	*****	*****	*****	*****	mg/L	5.3	0	1/31 Monthly	Grab
00600 1 0 Effluent Gross	*****	*****	*****	*****	mg/L	10	0	1/31 Monthly	Grab
Methylene chloride	*****	*****	*****	*****	ug/L	< 0.5	0	1/31 Monthly	Grab
34423 1 0 Effluent Gross	*****	*****	*****	*****	ug/L	5	0	1/31 Monthly	Grab
Tetrachloroethylene	*****	*****	*****	*****	ug/L	< 0.5	0	1/31 Monthly	Grab
34475 1 0 Effluent Gross	*****	*****	*****	*****	ug/L	5	0	1/31 Monthly	Grab
1,1-Dichloroethylene	*****	*****	*****	*****	ug/L	< 0.5	0	1/31 Monthly	Grab
34501 1 0 Effluent Gross	*****	*****	*****	*****	ug/L	5	0	1/31 Monthly	Grab
1,1,1-Trichloroethane	*****	*****	*****	*****	ug/L	< 0.5	0	1/31 Monthly	Grab
34506 1 0 Effluent Gross	*****	*****	*****	*****	ug/L	5	0	1/31 Monthly	Grab

NAME/TITLE: PRINCIPAL EXECUTIVE OFFICER

 Edward J. Honnon, EHS Director
 TYPED OR PRINTED

TELEPHONE: _____ DATE: _____
 AREA Code: 516-575-2333 NUMBER: 10612023
 AUTHORIZED AGENT

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
 WHEN NATURAL GWS HAVE PI OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORTS SUPPLY WELL & OUTFALL PI MONTHLY & REPORT PI COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS & REQUIREMENTS

DISCHARGE MONITORING REPORT (DMR)

OMB No. 2040-0044

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if
 NAME: NORTROP GRUINMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S-W16-035
 BETHPAGE, NY 11714
 FACILITY: NORTROP GRUINMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S-W16-035
 BETHPAGE, NY 11714
 ATTN: JOHN COHMAN

NY0096792	006- C
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
08/01/2023	08/31/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SUBR 01)
 NC COOLING & STORM WATER TO GW
 External Outfall

No Discharge

PARAMETER	QUANTITY OR LOADING		QUALITY OR CONCENTRATION		NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	UNITS			
Vinyl chloride	*****	*****	*****	*****	0	1/31 Monthly	Grab
39175 1 0 Effluent Gross	*****	*****	*****	*****	0	1/31 Monthly	Grab
Trichloroethylene	*****	*****	*****	*****	0	1/31 Monthly	Grab
39180 1 0 Effluent Gross	*****	*****	*****	*****	0	1/31 Monthly	Grab
Flow, in conduit or thru treatment plant	*****	*****	*****	*****	0	1/31 Monthly	Measured
50050 1 0 Effluent Gross	*****	*****	*****	*****	0	1/31 Monthly	Measured
Calculated limit	*****	*****	*****	*****	0	1/31 Monthly	Calculated
74013 1 0 Effluent Gross	*****	*****	*****	*****	0	1/31 Monthly	Calculated
cis-1,2-Dichloroethylene	*****	*****	*****	*****	0	1/31 Monthly	Grab
77093 1 0 Effluent Gross	*****	*****	*****	*****	0	1/31 Monthly	Grab
Trichlorotrifluoroethane	*****	*****	*****	*****	0	1/31 Monthly	Grab
81611 0 Effluent Gross	*****	*****	*****	*****	0	1/31 Monthly	Grab
trans-1,2-Dichloroethylene	*****	*****	*****	*****	0	1/31 Monthly	Grab
85810 1 0 Effluent Gross	*****	*****	*****	*****	0	1/31 Monthly	Grab

NAME/TITLE: PRINCIPAL EXECUTIVE OFFICER	TELEPHONE:	DATE:
Edward J. Honan, EHS Director	516-515-2333	10/1/2023
TYPED OR PRINTED	AREA Code	NUMBER
	516-515-2333	10/1/2023
SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT		

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
 WHEN NATURAL GWS HAVE PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS & REQUIREMENTS

DISCHARGE MONITORING REPORT (DMR)

DMR No. 2010 0001

PERMITTEE NAME: ADDRESS (include Facility Name) on attachment
 NAME: NORTHTROP GRUIMMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S. W16 035
 BETHPAGE, NY 11714
 FACILITY: NORTHTROP GRUIMMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S. W16 035
 BETHPAGE, NY 11714

ATTN: JOHN COFMAN

NY0090792	001-WSP-7
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
08/01/2023	08/31/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SUFR 01)
 NC COOLING & STORM WATER TO GW
 External Outfall

No Discharge

PARAMETER	SAMPLE MEASUREMENT	QUANTITY OR LOADING			QUALITY OR CONCENTRATION			NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	UNITS	VALUE	VALUE	UNITS	VALUE			
pH	MEASUREMENT									
	PERMIT REQUIREMENT			7.1	Req. Mon. MINIMUM		7.1	Req. Mon. MAXIMUM	1/31	Monthly
0040010 Effluent Gross	MEASUREMENT									
	PERMIT REQUIREMENT			5.8	Req. Mon. MINIMUM		5.8	Req. Mon. MAXIMUM	1/31	Monthly
Nitrogen, total (as N)	MEASUREMENT									
	PERMIT REQUIREMENT						2.2	10 DAILY MX	1/31	Monthly
0060010 Effluent Gross	MEASUREMENT									
	PERMIT REQUIREMENT						<2.0	5 DAILY MX	1/31	Monthly
Methylene chloride	MEASUREMENT									
	PERMIT REQUIREMENT						<1.0	5 DAILY MX	1/31	Monthly
3442110 Effluent Gross	MEASUREMENT									
	PERMIT REQUIREMENT						<1.0	5 DAILY MX	1/31	Monthly
Tetrachloroethylene	MEASUREMENT									
	PERMIT REQUIREMENT						<1.0	5 DAILY MX	1/31	Monthly
3447110 Effluent Gross	MEASUREMENT									
	PERMIT REQUIREMENT						<1.0	5 DAILY MX	1/31	Monthly
1,1-Dichloroethylene	MEASUREMENT									
	PERMIT REQUIREMENT						<1.0	5 DAILY MX	1/31	Monthly
3450110 Effluent Gross	MEASUREMENT									
	PERMIT REQUIREMENT						<1.0	5 DAILY MX	1/31	Monthly
1,1,1-Trichloroethane	MEASUREMENT									
	PERMIT REQUIREMENT						<1.0	5 DAILY MX	1/31	Monthly
3450610 Effluent Gross	MEASUREMENT									
	PERMIT REQUIREMENT						<1.0	5 DAILY MX	1/31	Monthly

NAME/TITLE: PRINCIPAL EXECUTIVE OFFICER	TELEPHONE	DATE
<i>Edward J. Hannon</i>		
TYPED OR PRINTED		
SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE	NUMBER
<i>Edward J. Hannon</i>	516	575-2333
		10/1/2023
		MM/DD/YYYY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
 WHEN NATURAL GAS HAS PI OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PI) MONTHLY REPORT PI COMPLIANCE STATUS (YS/NO) IN CALCULATED LIMIT AREA. SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME ADDRESS (include Facility Name/Location if NAME)
 NORTROP GRUUMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S W16 035
 BETHPAGE, NY 11714
 FACILITY: NORTROP GRUUMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S W16 035
 BETHPAGE, NY 11714
 ATTN: JOHN COFFMAN

DMR Mailing ZIP CODE: 11714
 MINOR (SUBR 01)
 NC COOLING & STORM WATER TO GW
 External Outfall

No Discharge

NY0096792 PERMIT NUMBER	001-WSP-7 DISCHARGE NUMBER
MM/DD/YYYY 08/01/2023	MM/DD/YYYY 08/31/2023

PARAMETER	QUANTITY OR LOADING		QUALITY OR CONCENTRATION		NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	UNITS			
Vinyl chloride					0	1/31 Monthly	Grab
3917510 Effluent Gross Trichloroethylene			<1.0	ug/L up/L	0	1/31 Monthly	Grab
3918010 Effluent Gross Flow, in conduit or thru treatment plant			<1.0	ug/L up/L	0	1/31 Monthly	Grab
5005010 Effluent Gross Calculated limit	0.32	MGD			0	1/31 Monthly	Measured
7401310 Effluent Gross cis 1,2-Dichloroethylene					0	1/31 Monthly	Calculated
7709310 Effluent Gross Trichlorofluoroethane			<1.0	ug/L up/L	0	1/31 Monthly	Grab
8161110 Effluent Gross trans 1,2-Dichloroethylene			<5.0	ug/L up/L	0	1/31 Monthly	Grab
8581010 Effluent Gross			<1.0	ug/L up/L	0	1/31 Monthly	Grab

NAME/TITLE: PRINCIPAL EXECUTIVE OFFICER	TELEPHONE	DATE
<i>Edward J. Hannon</i> Edward J. Hannon/EHS Director	516-575-2333	10/1/2023
TYPED OR PRINTED	AREA Code	NUMBER
	516	575-2333
SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT		

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
 WHEN NATURAL GAS HAS PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORTS SUPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANCE STATUS OVS/NOI IN CALCULATED LIMIT AREA) SITE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

Monitoring Period:
August 2023
 8/1/23 12:00 AM - 8/31/23 12:00 AM
 31 Days

OU2 South Basins, Outfall 005⁵

Combined OU2 Groundwater Remedy Tower 102 and Building 109 Advanced Oxidation Process (AOP) Treatment Systems - Tower 102 Treated Air Stripper Discharge, Building 109 AOP Treatment System Discharge, and Storm Water Runoff

Parameter ⁽¹⁾	CAS Number	OUTFALL 005 8/8/2023	Discharge Limit ⁽²⁾	Units	Monitoring Frequency	Sample Type	Average Mass Loading ^(3,7)	Units
Daily Average Flow ⁽⁴⁾	--	4.93	Monitor	MGD	Continuous	SCADA	--	--
Daily Maximum Flow ⁽⁴⁾	--	6.40	Monitor	MGD	Continuous	SCADA	--	--
Influent pH ⁽⁵⁾ (Building 109)	--	5.3	NS	SU	Monthly (1/31) Days	Grab	--	--
Influent pH ⁽⁵⁾ (Tower 102)	--	5.5	NS	SU	Monthly (1/31) Days	Grab	--	--
Outfall 005 Effluent pH ⁽⁵⁾	--	7.0	Range 5.0-8.5	SU	Monthly (1/31) Days	Grab	--	--
Total Nitrogen (as N)	--	3.9	10.0	mg/L	Monthly (1/31) Days	Grab	160.50	lbs/day
Total Ion	7439-89-6	< 100	600	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Total Manganese	7439-96-5	< 15	600	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Sum of Total Iron and Manganese ⁽⁶⁾	--	ND	1,000	µg/L	Monthly (1/31) Days	Calculated	--	lbs/day
1,1-Dichloroethylene	75-35-4	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Methylene Chloride	75-09-2	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Tetrachloroethylene	127-18-4	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,1,1-Trichloroethane	71-55-6	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Trichloroethylene	79-01-6	0.60	5.0	µg/L	Monthly (1/31) Days	Grab	0.01	lbs/day
Vinyl Chloride	75-01-4	< 1.0	2.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
trans-1,2-Dichloroethylene	156-60-5	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
cis-1,2-Dichloroethylene	156-59-2	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Chloroform	67-66-3	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Trichlorofluoromethane (Freon 113)	76-13-1	< 2.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,1,2-Trichloroethane	79-00-5	< 1.0	1.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,1-Dichloroethane	75-34-3	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,2-Dichloroethane	107-06-2	< 1.0	0.6	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,2-Dichloropropane	78-87-5	< 1.0	1.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Benzene	71-43-2	< 1.0	1.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,4-Dioxane (Building 109 Influent) ⁽⁸⁾	123-91-1	43	Monitor	µg/L	Monthly (1/31) Days	Grab	NA	lbs/day
1,4-Dioxane (Building 109 Effluent) ⁽⁸⁾	123-91-1	< 0.24	Monitor	µg/L	Monthly (1/31) Days	Grab	NA	lbs/day
1,4-Dioxane (Building 109 Post AOP) ⁽⁸⁾	123-91-1	< 0.24	Monitor	µg/L	Monthly (1/31) Days	Grab	na	lbs/day
1,4-Dioxane (Outfall 005)	123-91-1	5.2	Monitor	µg/L	Monthly (1/31) Days	Grab	0.21	lbs/day

Notes and abbreviations on last page

OU3 Effluent Outfall 001 (WSP-7)

OU3 Groundwater Remedy Treatment System - Treated Air Stripper and Soil Gas Containment Condensate Discharge to Nassau County Recharge Basins

Parameter ⁽¹⁾	CAS Number	OUTFALL 001 (WSP-7) 8/23/2023	Discharge Limit ⁽²⁾	Units	Monitoring Frequency	Sample Type	Average Mass Loading ^(3,7)	Units
Daily Average Flow ⁽⁴⁾	—	0.32	Monitor	MGD	Continuous	SCADA	—	—
Daily Maximum Flow ⁽⁴⁾	—	0.32	Monitor	MGD	Continuous	SCADA	—	—
Influent pH ⁽⁵⁾	—	5.8	NS	SU	Monthly (10) Days	Grab	—	—
Effluent pH ⁽⁵⁾	—	7.1	Range 5.0-8.5	SU	Monthly (10) Days	Grab	—	—
Total Nitrogen (as N)	—	2.2	10.0	mg/L	Monthly (10) Days	Grab	5.67	lbs/day
Total Iron	7439-89-6	142	600	µg/L	Monthly (10) Days	Grab	0.38	lbs/day
Total Manganese	7439-96-5	36.1	600	µg/L	Monthly (10) Days	Grab	0.09	lbs/day
Sum of Total Iron and Manganese	—	177.1	1,000	µg/L	Monthly (10) Days	Calculator	0.47	lbs/day
1,1-Dichloroethylene	75-35-4	< 1.0	5.0	µg/L	Monthly (10) Days	Grab	—	lbs/day
Methylene Chloride	75-09-7	< 2.0	5.0	µg/L	Monthly (10) Days	Grab	—	lbs/day
Tetrachloroethylene	127-18-4	< 1.0	5.0	µg/L	Monthly (10) Days	Grab	—	lbs/day
1,1,1-Trichloroethane	71-55-6	< 1.0	5.0	µg/L	Monthly (10) Days	Grab	—	lbs/day
Trichloroethylene	79-01-6	< 1.0	5.0	µg/L	Monthly (10) Days	Grab	—	lbs/day
Vinyl Chloride	75-01-4	< 1.0	2.0	µg/L	Monthly (10) Days	Grab	—	lbs/day
1,2 (trans) Dichloroethylene	156-60-5	< 1.0	5.0	µg/L	Monthly (10) Days	Grab	—	lbs/day
1,2 (cis) Dichloroethylene	156-59-2	< 1.0	5.0	µg/L	Monthly (10) Days	Grab	—	lbs/day
Chloroform	67-66-3	< 1.0	5.0	µg/L	Monthly (10) Days	Grab	—	lbs/day
Trichlorotrifluoroethane (Freon 113)	70-13-1	< 5.0	5.0	µg/L	Monthly (10) Days	Grab	—	lbs/day
Benzene	71-43-2	< 0.50	1.0	µg/L	Monthly (10) Days	Grab	—	lbs/day
1,1-Dichloroethane	75-34-3	< 1.0	5.0	µg/L	Monthly (10) Days	Grab	—	lbs/day
Ethylbenzene	100-11-4	< 1.0	5.0	µg/L	Monthly (10) Days	Grab	—	lbs/day
Toluene	108-88-3	< 1.0	5.0	µg/L	Monthly (10) Days	Grab	—	lbs/day
o-Xylene	95-47-6	< 1.0	5.0	µg/L	Monthly (10) Days	Grab	—	lbs/day
m,p-Xylene	—	< 1.0	5.0	µg/L	Monthly (10) Days	Grab	—	lbs/day
Aroclor 1016	12674-11-2	< 0.050	0.095	µg/L	Monthly (10) Days	Grab	—	lbs/day
Aroclor 1221	11104-20-2	< 0.050	0.095	µg/L	Monthly (10) Days	Grab	—	lbs/day
Aroclor 1232	11141-16-5	< 0.050	0.095	µg/L	Monthly (10) Days	Grab	—	lbs/day
Aroclor 1242	53409-21-9	0.076	0.095	µg/L	Monthly (10) Days	Grab	0.00	lbs/day
Aroclor 1248	12672-29-6	< 0.050	0.095	µg/L	Monthly (10) Days	Grab	—	lbs/day
Aroclor 1254	11097-09-1	< 0.050	0.095	µg/L	Monthly (10) Days	Grab	—	lbs/day
Aroclor 1260	11091-02-5	< 0.050	0.095	µg/L	Monthly (10) Days	Grab	—	lbs/day
1,4-Dioxane	123-91-1	0.70	Monitor	µg/L	Monthly (10) Days	Grab	1.87E-03	lbs/day

Notes and Abbreviations

- XX Bold value indicates the constituent was detected at or above its laboratory quantification limit
- < Compound is not detected above laboratory quantification limit
- Not Applicable
- µg/L micrograms per liter
- lbs/day pounds per day
- lb/kg pounds per kilogram
- MGD million gallons per day
- mg/L milligrams per liter
- min minutes
- SU Standard Units
- B Detected in method blank as reported by laboratory
- na not available
- NA Not Applicable
- CAS Chemical Abstracts Service
- ND Non Detect
- NS None Specified
- NYSDEC New York State Department of Environmental Conservation
- SCADA Supervisory Control and Data Acquisition
- SPDES State Pollution Discharge Elimination System
- TKN Total Kjeldahl Nitrogen

1 Samples were analyzed for permit equivalency Volatile Organic Compounds (VOCs) using USEPA Method 624 at OU2 system, and USEPA Method 8260 at OU3 system. Polychlorinated Biphenyls (PCBs) using USEPA Method 608. 1,4-Dioxane using USEPA Method 8270D-SiH-CLLE. Total Nitrogen is calculated as the sum of Nitrogen (Nitrate+Nitrite) and Total Kjeldahl Nitrogen (TKN), CAS number 14797-85-8, 14797-65-0, and 7727-37-9, respectively by USEPA Methods 353.2 and 351.2, respectively. Total Iron and Manganese using USEPA Method 200.7

2 Discharge limits are per the SPDES permit equivalency, dated October 12, 2017, amended on March 23, 2023 and transmitted by the NYSDEC to Northrop Grumman on April 18, 2023.

3 Mass Loading Calculation

$$\text{Mass Loading} \left(\frac{\text{lb}}{\text{day}} \right) = \text{Flow} \left(\frac{\text{gal}}{\text{min}} \right) \cdot 1440 \left(\frac{\text{min}}{\text{day}} \right) \cdot \text{concentration} \left(\frac{\text{µg}}{\text{liter}} \right) \cdot 10^{-6} \left(\frac{\text{µg}}{\text{kg}} \right) \cdot 3.785 \left(\frac{\text{liter}}{\text{gal}} \right) \cdot 2.2046 \left(\frac{\text{lb}}{\text{kg}} \right)$$

4 Average and daily maximum flow calculated from SCADA reports for the month indicated

5 Field measurement of pH taken by hand held meter on sample date

6 When Total Iron and Total Manganese are below their respective detection limits the Sum Total of Iron and Manganese is reported as "ND"

7 Average Mass Loading calculations are based on actual flow rates unless otherwise noted

8 At the time of Outfall 005 SPDES sample collection on August 8, 2023, Building 109 AOP Treatment System remedial well flow for RW-20 was approximately 830 gpm and RW-22 was approximately 495 gpm. RW-21 was offline for electrical troubleshooting

9 Building 109 ACP Treatment System Influent, Post-ACP and Effluent samples were collected and analyzed for 1,4-Dioxane as per footnote (1) of the SPDES permit equivalency for Outfall 005

Report of Analysis

Client Sample ID:	OUTFALL 005	Date Sampled:	08/08/23
Lab Sample ID:	JD70658-2	Date Received:	08/08/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	EPA 624.1		
Project:	RW-21 SPDES-Northrup Grumman, Bethpage, NY		

4.2
4

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5A341.D	1	08/09/23 16:54	KD	n/a	n/a	V5A11
Run #2							

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

VOA OU2 SPDES List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.71	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.42	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.96	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.45	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	0.46	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.96	ug/l	
76-13-1	Freon 113	ND	2.0	0.87	ug/l	
75-09-2	Methylene chloride	ND	1.0	0.41	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.41	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.43	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.41	ug/l	
79-01-6	Trichloroethene	0.80	1.0	0.43	ug/l	J
75-01-4	Vinyl chloride	ND	1.0	0.79	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4 (SUR)	103%		80-128%
2037-26-5	Toluene-D8 (SUR)	101%		82-113%
460-00-4	4-Bromofluorobenzene (SUR)	95%		79-117%
1868-53-7	Dibromofluoromethane (S)	95%		84-121%

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: OUTFALL 005	Date Sampled: 08/08/23
Lab Sample ID: JD70658-2	Date Received: 08/08/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: RW-21 SPDES-Northrup Grumman, Bethpage, NY	

4.2
4

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	< 100	100	ug/l	1	08/10/23	08/12/23 ND	EPA 200.7 ¹	EPA 200.7 ²
Manganese	< 15	15	ug/l	1	08/10/23	08/12/23 ND	EPA 200.7 ¹	EPA 200.7 ²

- (1) Instrument QC Batch: MA54595
- (2) Prep QC Batch: MP41259

RL = Reporting Limit

Report of Analytical Results

SDG: SQ4258
Lab ID: SQ4258-2
Client ID: OUTFALL 005-B109
Matrix: AQ
Lab File ID: G7517.D

Sample Date: 08-AUG-23
Extract Date: 15-AUG-23
Extracted By: SR
Extraction Method: SW846 3520C
Lab Prep Batch: WG341179

Report Date: 24-AUG-23
Analysis Date: 22-AUG-23
Analyst: DT/EP
Analysis Method: SW846 8270D SIM
% Solids: N/A

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		61.4	%				

Report of Analytical Results

SDG: SQ4258
 Lab ID: SQ4258-1
 Client ID: OUTFALL 005
 Matrix: AQ
 Lab File ID: G7516.D

Sample Date: 08-AUG-23
 Extract Date: 15-AUG-23
 Extracted By: SR
 Extraction Method: SW846 3520C
 Lab Prep Batch: WG341179

Report Date: 24-AUG-23
 Analysis Date: 22-AUG-23
 Analyst: DT/EP
 Analysis Method: SW846 8270D SIM
 % Solids: N/A

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		69.8	%				



ANALYTICAL RESULTS

Project: PROG 5C OU3.5 RW-21-ONCT-OMM/S

Pace Project No.: 70266018

Sample: OUTFALL 005		Lab ID: 70266018001	Collected: 08/08/23 10:40	Received: 08/08/23 14:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Total Nitrogen Calculation		Analytical Method: SM22 4500-N Pace Analytical Services - Melville						
Total Nitrogen	3.9	mg/L	0.10	1		08/18/23 10:06		
351.2 Total Kjeldahl Nitrogen		Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - Melville						
Nitrogen, Kjeldahl, Total	<0.10	mg/L	0.10	1	08/17/23 04:18	08/17/23 13:49	7727-37-9	
353.2 Nitrogen, NO2/NO3 unpres		Analytical Method: EPA 353.2 Pace Analytical Services - Melville						
Nitrate as N	3.8	mg/L	0.25	5		08/09/23 00:43	14797-55-8	
Nitrate-Nitrite (as N)	3.8	mg/L	0.25	5		08/09/23 00:43	7727-37-9	
353.2 Nitrogen, NO2		Analytical Method: EPA 353.2 Pace Analytical Services - Melville						
Nitrite as N	<0.050	mg/L	0.050	1		08/08/23 22:11	14797-65-0	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, LLC.

Report of Analytical Results

SDG: SQ4260

Lab ID: SQ4260-1DL

Client ID: B109-INFLUENT

Matrix: AQ

Lab File ID: G7530.D

Sample Date: 08-AUG-23

Extract Date: 15-AUG-23

Extracted By: SR

Extraction Method: SW846 3520C

Lab Prep Batch: WG341179

Report Date: 24-AUG-23

Analysis Date: 24-AUG-23

Analyst: DT/EP

Analysis Method: SW846 8270D SIM

% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		43	ug/L	10	.25	2.4	0.81
1,4-Dioxane-D8	D	0.00	%				

Report of Analytical Results

SDG: SQ4260
Lab ID: SQ4260-2
Client ID: B109-POST-AOP
Matrix: AQ
Lab File ID: G7521.D

Sample Date: 08-AUG-23
Extract Date: 15-AUG-23
Extracted By: SR
Extraction Method: SW846 3520C
Lab Prep Batch: WG341179

Report Date: 24-AUG-23
Analysis Date: 22-AUG-23
Analyst: DT/EP
Analysis Method: SW846 8270D SIM
% Solids: N/A

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		71.2	%				

Report of Analysis

Client Sample ID:	OUTFALL 006	Date Sampled:	08/08/23
Lab Sample ID:	JD70659-2	Date Received:	08/08/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	EPA 624.1		
Project:	Northrop Grumman, OU2 System, Bethpage, NY		

4.2
4

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5A344.D	1	08/09/23 18:10	KD	n/a	n/a	V5A11
Run #2							

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

VOA OU2 SPDES List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	ND	0.50	0.50	ug/l	
75-35-4	1,1-Dichloroethene	ND	0.50	0.45	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.51	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	0.46	ug/l	
76-13-1	Freon 113	ND	1.0	0.87	ug/l	
75-09-2	Methylene chloride	ND	0.50	0.41	ug/l	
127-18-4	Tetrachloroethene	ND	0.50	0.41	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.43	ug/l	
79-01-6	Trichloroethene	ND	0.50	0.43	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.79	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4 (SUR)	102%		80-128%
2037-26-5	Toluene-D8 (SUR)	102%		82-113%
460-00-4	4-Bromofluorobenzene (SUR)	93%		79-117%
1868-53-7	Dibromofluoromethane (S)	96%		84-121%

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:	OUTFALL 006	Date Sampled:	08/08/23
Lab Sample ID:	JD70659-2	Date Received:	08/08/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	Northrop Grumman, OU2 System, Bethpage, NY		

4.2
4

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	< 100	100	ug/l	1	08/10/23	08/12/23 ND	EPA 200.7 ¹	EPA 200.7 ²
Manganese	< 15	15	ug/l	1	08/10/23	08/12/23 ND	EPA 200.7 ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA54595

(2) Prep QC Batch: MP41259

RL = Reporting Limit

Report of Analytical Results

SDG: SQ4259
 Lab ID: SQ4259-1
 Client ID: OUTFALL 006
 Matrix: AQ
 Lab File ID: G7519.D

Sample Date: 08-AUG-23
 Extract Date: 15-AUG-23
 Extracted By: SR
 Extraction Method: SW846 3520C
 Lab Prep Batch: WG341179

Report Date: 24-AUG-23
 Analysis Date: 22-AUG-23
 Analyst: DT/EP
 Analysis Method: SW846 8270D SIM
 % Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		6.2	ug/L	1	.25	0.23	0.079
1,4-Dioxane-D8		58.8	%				



ANALYTICAL RESULTS

Project: PROG 3 OU2.2-ONCT-OMM/SPDES

Pace Project No.: 70266017

Sample: OUTFALL 006	Lab ID: 70266017001	Collected: 08/08/23 09:15	Received: 08/08/23 14:30	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Total Nitrogen Calculation	Analytical Method: SM22 4500-N Pace Analytical Services - Melville							
Total Nitrogen	5.3	mg/L	0.10	1		08/18/23 10:06		
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - Melville							
Nitrogen, Kjeldahl, Total	0.87	mg/L	0.10	1	08/17/23 04:18	08/17/23 13:48	7727-37-9	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2 Pace Analytical Services - Melville							
Nitrate as N	4.4	mg/L	0.25	5		08/09/23 00:41	14797-55-8	
Nitrate-Nitrite (as N)	4.5	mg/L	0.25	5		08/09/23 00:41	7727-37-9	
353.2 Nitrogen, NO2	Analytical Method: EPA 353.2 Pace Analytical Services - Melville							
Nitrite as N	<0.050	mg/L	0.050	1		08/08/23 22:03	14797-65-0	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, LLC.

GW
TB

Client / Reporting Information		Project Information				Requested Analysis (see TEST CODE sheet)		Matrix Codes	
Company Name Arcadis		Project Name Prog SC OU3.5 RW-21-ONCT-OMM/SPDES				Requested Analysis (see TEST CODE sheet)		Matrix Codes	
Street Address 2 Huntington Quad, Suite 1S10		Street				Requested Analysis (see TEST CODE sheet)		Matrix Codes	
City Melville NY 11747		City Bathpage NY				Requested Analysis (see TEST CODE sheet)		Matrix Codes	
Project Contact Kevin Czarwinski, Kevin.Czarwinski@arcadis.com		Project # 30160626 OMMI3				Requested Analysis (see TEST CODE sheet)		Matrix Codes	
Phone # 631-245-0710		Work Authorization # NY001486 2015 10 30				Requested Analysis (see TEST CODE sheet)		Matrix Codes	
Sample(s) Name(s) Patrick Delleave (631)339-259		Project Manager Carlo San Giovanni				Requested Analysis (see TEST CODE sheet)		Matrix Codes	
Field ID / Point of Collection		Date		Time		Method		Matrix Codes	
1 TB-050823 - PD 24		8/8/23		1040		TB		X	
2 Outfall 005		↓		1140		GW		X	
3 Outfall 005-B109		↓		1015		GW		X	
4 Outfall 005-T102		↓		1015		GW		X	
Turnaround Time (Business days)		Data Deliverable Information				Comments / Special Instructions			
<input type="checkbox"/> Std. 15 Business Days <input checked="" type="checkbox"/> Std. 18 Business Days (by Contract only) <input type="checkbox"/> 10 Day RUSH <input type="checkbox"/> 8 Day RUSH <input type="checkbox"/> 7 Day EMERGENCY <input type="checkbox"/> 5 Day EMERGENCY <input type="checkbox"/> 3 Day EMERGENCY Emergency & Rush TA data available via Labfax		Approved By (Name and Title / Date) _____ <input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> FULLT1 (Level 3-4) <input type="checkbox"/> NJ Reduced <input type="checkbox"/> Commercial "C" Commercial "A" = Results Only Commercial "B" = Results + QC Summary NJ Reduced = Results + QC Summary + Partial Raw Data				Comments / Special Instructions Assessment JASA 11/12/23 11/15/23			
Sample Custody must be documented below each time samples change possession, including courier delivery									
Received by Sample #		Date Time		Received By		Signature		Received #	
1 Patrick Delleave		8/8/23		MICHAEL BOERS		Impulse		2	
Received by Sampler		Date Time		Received By		Signature		Received #	
3				1:00 PM - ERL				4	
Received by:		Date Time:		Received By:		Signature:		Received #:	
5				5				6	

C:\PROJECT\New Jersey\Gumman Bathpage OU2.2 ONCT08 Notes & 1st Data\System Sampling\February 10 AM\COC's_SGS\PAR_OU2_COCs_1stPte_82213_82215_Rev Dec2017

JD70658: Chain of Custody
Page 1 of 2

5.1
5



ID#

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 1 of 1

Lab Work Order #
MSA 3601

Send Results to:	Client / S Company Name	Telephone		Preservative	A	E						Keys Preservation Key A H ₂ SO ₄ B HCL C HNO ₃ D NaOH E None F Other G Other H Other Matrix Key SO - Soil W - Water T - Tissue Container Information Key 1 40 ml Vial 2 1 L Amber 3 250 ml Plastic 4 500 ml Plastic 5 Encase 6 2 oz. Glass 7 4 oz. Glass 8 8 oz. Glass 9 Other 128 ml Plastic 10 Other SE - Sediment NL - NAP/ION SL - Sludge SW - Sample Type A - Air Other - GW - Groundwater																																																											
	Kevin Czerwinski - Task Manager	631-245-0710 cell		Filled (✓)	-	-																																																																	
	Address	Fax		# of Containers	3	3																																																																	
	Two Huntington Quad-Suite 1S10			Container Information	3	9																																																																	
City	State	Zip	E-mail Address	PARAMETER ANALYSIS & METHOD																																																																			
Melville	NY	11747	Kevin.Czerwinski@arcadis.com																																																																				
Project Name (For Analytical Order)	Project #		<i>TKN - Method 351.2</i> <i>Total Nitrogen, Nitrate + Nitrite - Method 353.2</i>																																																																				
Prog 5C DL3 S RW-21-ONCT-OMM/SPDES	30160626 OMMI3																																																																						
<i>Patrick Dellacave</i>			<i>Patrick Dellacave</i>			<table border="1"> <thead> <tr> <th>Sample ID</th> <th colspan="2">Collection</th> <th colspan="2">Type (✓)</th> <th>Matrix</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> </tr> <tr> <th></th> <th>Date</th> <th>Time</th> <th>Corp</th> <th>Glub</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>Outfall 005</td> <td>8/9/23</td> <td>10:40</td> <td></td> <td></td> <td>X</td> <td>GW</td> <td>X</td> <td>X</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Outfall 005-B109</td> <td>↓</td> <td>11:10</td> <td></td> <td></td> <td>X</td> <td>GW</td> <td>X</td> <td>X</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Outfall 005-T102</td> <td>↓</td> <td>10:15</td> <td></td> <td></td> <td>X</td> <td>GW</td> <td>X</td> <td>X</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>						Sample ID	Collection		Type (✓)		Matrix								Date	Time	Corp	Glub								Outfall 005	8/9/23	10:40			X	GW	X	X				Outfall 005-B109	↓	11:10			X	GW	X	X				Outfall 005-T102	↓	10:15			X	GW	X	X			
Sample ID	Collection		Type (✓)		Matrix																																																																		
	Date	Time	Corp	Glub																																																																			
Outfall 005	8/9/23	10:40			X							GW	X	X																																																									
Outfall 005-B109	↓	11:10			X	GW	X	X																																																															
Outfall 005-T102	↓	10:15			X	GW	X	X																																																															
REMARKS																																																																							
Special Instructions/Comments																																																																							
<input type="checkbox"/> Special QA/QC Instructions (✓)																																																																							
Laboratory Information and Receipt			Relinquished By			Received By			Relinquished By			Laboratory Received By																																																											
LDI Name Pace Analytical			Cooler Custody Seal (✓) <input type="checkbox"/> Intact <input type="checkbox"/> Not Intact			Signature <i>Patrick Dellacave</i>			Signature <i>Matthew Nawroth</i>			Signature 																																																											
<input checked="" type="checkbox"/> Cooler packed with ice (✓)			<input type="checkbox"/> Intact <input type="checkbox"/> Not Intact			Signature <i>Patrick Dellacave</i>			Signature 			Signature 																																																											
Specialty / Additional Requirements Normal TAT-10 business			Sample Receipt			Date/Time 8/8/23 14:00			Signature Pace L.J.			Date/Time 8/8/23 14:00																																																											
Shipping Instructions			Condition/Cooler Temp			Date/Time 8/8/23 14:00			Signature Pace L.J.			Date/Time 8/8/23 14:00																																																											

WO#: 70266018



70266018

S-7



ID#: **SQ4260**

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 3 of 3

Lab Work Order # **MSA 3601**

Send Results to:	Contact & Company Name Kevin Czerwinski -Task Manager	Telephone 631-245-0710 cell	Preservative E								Keys Preservation Key A. H ₂ SO ₄ B. HCl C. HNO ₃ D. NaOH E. None F. Other _____ G. Other _____ H. Other _____ Matrix Key SO - Soil W - Water T - Tissue SE - Sediment SI - Sludge A - Air Container Information Key 1. 40 ml Vial 2. 11 Amber 3. 250 ml Plastic 4. 500 ml Plastic 5. Erlenm 6. 2 oz. Glass 7. 4 oz. Glass 8. 8 oz. Glass 9. Other _____ 10. Other _____ NL - NAP/LOI SW - Sample Wipe Other: GW-Groundwater															
	Address Two Huntington Quad-Suite 1S10	City/State/Zip Melville NY 11747	Project A/E/C Kevin Czerwinski@arcadis.com	Filtered (✓) -	# of Containers 4	Container Information 2	PARAMETER ANALYSIS & METHOD <i>1,4-Dioxane 8270D-SIM-CLE</i>																			
Project Name/Location/County/State Prog 5C OU3.5 R-W-21-ONCI-OMM-SPDES	Project # 30160626 OMMI3	<table border="1"> <thead> <tr> <th rowspan="2">Sample ID</th> <th colspan="2">Collection</th> <th colspan="2">Type (✓)</th> <th rowspan="2">Matrix</th> </tr> <tr> <th>Date</th> <th>Time</th> <th>Comp</th> <th>Gen</th> </tr> </thead> <tbody> <tr> <td>B109-Influent</td> <td>8/9/23</td> <td></td> <td>X</td> <td>GW</td> <td>X</td> </tr> <tr> <td>B109-Post-AOP</td> <td>8/9/23</td> <td></td> <td>X</td> <td>GW</td> <td>X</td> </tr> </tbody> </table>			Sample ID	Collection						Type (✓)		Matrix	Date	Time	Comp	Gen	B109-Influent	8/9/23		X	GW	X	B109-Post-AOP	8/9/23
Sample ID	Collection		Type (✓)			Matrix																				
	Date	Time	Comp	Gen																						
B109-Influent	8/9/23		X	GW	X																					
B109-Post-AOP	8/9/23		X	GW	X																					
Special Instructions/Comments SVOC extracted by EDD-ARCADIS_EQUIS (EQUIS6-4 file)	<input type="checkbox"/> Special QA/QC Instructions (-)																									
Laboratory Information and Receipt Lab Name: Katahdin Analytical Cooler packed with ice (✓)		Cooler Custody Seal (✓) <input type="checkbox"/> Intact <input type="checkbox"/> Not Intact		Relinquished By Project Name: Patrick Dellecave Signature: <i>[Signature]</i> Date/Time: 8/9/23 14:30		Received By Project Name: Jacob Bruce Signature: <i>[Signature]</i> Date/Time: 8/10/23 1030		Relinquished By Project Name: _____ Signature: _____ Date/Time: _____		Laboratory Received By Project Name: _____ Signature: _____ Date/Time: _____																
Specialty Turnaround Requirements Normal TAT-10 business		Sample Receipt Condition/Cooler Temp: _____		Distribution: WHITE - Laboratory returns with results		YELLOW - Lab copy		PINK - Retained by Arcadis																		

Katahdin Analytical Services SQ4260 page 0000010 of 0000012

70712626 C&C AR Form 62 27 2015

G:\PROJECT\Northrop Grumman B:\Programs\Widow4 Project Management\Contracts and POS\Lab\Katahdin Analytical\OU2 Navy Wells C&C Master



ID#

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 1 of 1

Lab Work Order #
MSA 3601

Send Results to: Kevin Czerwinski - Task Manager 631-245-0710 cell Two Huntington Quad-Suite 1S10 Melville NY 11747 Kevin.Czerwinski@arcadis.com		Preservation Filtered (✓) # of Containers Container Information	A 1 3	E 1 9	PARAMETER ANALYSIS & METHOD TKN - Method 351.2 Total Nitrogen - Nitrate + Nitrite - Method 353.2				Preservation Key A. H ₂ O B. HCl C. HNO ₃ D. NaOH E. None F. Other G. Other H. Other	Keys Container Information Key 1 40 ml Vial 2 1 L Amber 3 250 ml Plastic 4 500 ml Plastic 5 Encore 6 2 oz Glass 7 4 oz Glass 8 8 oz Glass 9 Other 125 ml Plastic 10 Other
Sample ID Outfall 006		Collection Date: 8/8/23 Time: 0915	Type (✓) Comp: X Grab: X	Matrix X X					REMARKS	
Project Name, location (City, State) Prog 3 OU2.2-ONCT-OMM/SPDES Patrick Delecome		Project # 30169301 OMMI3 Patrick Delecome								
Special Instructions/Comments		<input type="checkbox"/> Special QA/QC Instructions (✓)								

WO#: 70266017

70266017

Laboratory Information and Receipt		Relinquished By		Received By		Relinquished By		Laboratory Received By	
Lab Name: Pace Analytical <input checked="" type="checkbox"/> Cooler packed with ice (✓)	Cooler Custody Seal (✓) <input type="checkbox"/> Intact <input type="checkbox"/> Not Intact	Patrick Delecome Patrick Delecome	Matthew Nemeth 	Patrick Delecome Patrick Delecome	Matthew Nemeth 	Patrick Delecome Patrick Delecome	Matthew Nemeth 	Patrick Delecome Patrick Delecome	Matthew Nemeth
Specify Temperature Requirements: Normal TAT-10 business	Sample Receipt Condition/Cooler Temp _____	Date/Time: 8/8/23 1400	Date/Time: 8/8/23 14:03						

20170826 C&C AR Form 08 21 2015
 Distribution: WHITE - Laboratory returns with results YELLOW - Lab copy PINK - Retained by Arcadis
 C:\APR\PROJECT\Workshop\Grumman\Bethpage_Program Work\04 Project Management\Contacts and POs\Lab\Kathleen_Analytical\OU2 Navy Wells COC Master

5.7 (C)

Report of Analysis

Client Sample ID:	WSP-7	Date Sampled:	08/22/23
Lab Sample ID:	JD71448-6	Date Received:	08/22/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260D		
Project:	Northrop Grumman, OU3 BPGWCS System, Bethpage, NY		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4D130994.D	1	08/23/23 17:42	CF	n/a	n/a	V4D5805
Run #2							

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

VOA OU3 BPGWVS List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone ^a	ND	10	3.1	ug/l	
71-43-2	Benzene	ND	0.50	0.43	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.45	ug/l	
75-25-2	Bromoform	ND	1.0	0.63	ug/l	
74-83-9	Bromomethane	ND	2.0	1.6	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	2.7	ug/l	
106-99-0	1,3-Butadiene	ND	5.0	0.62	ug/l	
75-15-0	Carbon disulfide	ND	2.0	1.8	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	
75-45-6	Chlorodifluoromethane ^a	ND	5.0	0.49	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	
75-71-8	Dichlorodifluoromethane	ND	2.0	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	0.58	ug/l	
591-78-6	2-Hexanone	ND	5.0	4.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.51	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	4.9	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.49	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.65	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: WSP-7		
Lab Sample ID: JD71448-6		Date Sampled: 08/22/23
Matrix: AQ - Ground Water		Date Received: 08/22/23
Method: SW846 8260D		Percent Solids: n/a
Project: Northrop Grumman, OU3 BPGWCS System, Bethpage, NY		

4.6
4

VOA OU3 BPGWVS List

CAS No.	Compound	Result	RL	MDL	Units	Q
127-18-4	Tetrachloroethene	ND	1.0	0.56	ug/l	
108-88-3	Toluene	ND	1.0	0.49	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	
79-01-6	Trichloroethene	ND	1.0	0.53	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.40	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.52	ug/l	
75-68-3	1-chloro-1,1-difluoroethane	ND	5.0	0.33	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	97%		80-120%
2037-26-5	Toluene-D8	99%		80-120%
460-00-4	4-Bromofluorobenzene	101%		82-114%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	system artifact	4.38	14	ug/l	J
	Total TIC, Volatile		0	ug/l	

(a) Associated CCV outside of control limits low. A sensitivity check was analyzed to demonstrate system suitability to detect affected analyte. 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

Report of Analysis

Client Sample ID:	WSP-7	Date Sampled:	08/22/23
Lab Sample ID:	JD71448-6	Date Received:	08/22/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	EPA 608.3 EPA 608		
Project:	Northrop Grumman, OU3 BPGWCS System, Bethpage, NY		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5G133095.D	1	08/25/23 09:36	MLC	08/24/23 12:00	OP48681A	G5G3418
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.050	0.034	ug/l	
11104-28-2	Aroclor 1221	ND	0.050	0.029	ug/l	
11141-16-5	Aroclor 1232	ND	0.050	0.020	ug/l	
53469-21-9	Aroclor 1242	0.076	0.050	0.027	ug/l	
12672-29-6	Aroclor 1248	ND	0.050	0.025	ug/l	
11097-69-1	Aroclor 1254	ND	0.050	0.034	ug/l	
11096-82-5	Aroclor 1260	ND	0.050	0.027	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	90%		10-156%
877-09-8	Tetrachloro-m-xylene	96%		10-156%
2051-24-3	Decachlorobiphenyl	39%		10-143%
2051-24-3	Decachlorobiphenyl	62%		10-143%

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:	WSP-7	Date Sampled:	08/22/23
Lab Sample ID:	JD71448-6	Date Received:	08/22/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	Northrop Grumman, OU3 BPGWCS System, Bethpage, NY		

4.6
4

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	142	100	ug/l	1	08/25/23	08/26/23 ND	EPA 200.7 ¹	EPA 200.7 ²
Manganese	35.1	15	ug/l	1	08/25/23	08/26/23 ND	EPA 200.7 ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA54680

(2) Prep QC Batch: MP41549

RL = Reporting Limit

Report of Analytical Results

SDG: SQ4513
Lab ID: SQ4513-6
Client ID: WSP-7
Matrix: AQ
Lab File ID: G7553.D

Sample Date: 22-AUG-23
Extract Date: 28-AUG-23
Extracted By: JS-SR
Extraction Method: SW846 3520C
Lab Prep Batch: WG341805

Report Date: 05-SEP-23
Analysis Date: 01-SEP-23
Analyst: DT/EP
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		0.70	ug/L	1	.25	0.24	0.080
1,4-Dioxane-D8		53.2	%				



ANALYTICAL RESULTS

Project: PROG 4A OU3.2-ONCT-OMM/SPDES

Pace Project No.: 70267920

Sample: WSP-7		Lab ID: 70267920001	Collected: 08/22/23 09:25	Received: 08/22/23 13:51	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Total Nitrogen Calculation		Analytical Method: SM22 4500-N Pace Analytical Services - Melville						
Total Nitrogen	2.2	mg/L	0.10	1		09/01/23 16:29		
351.2 Total Kjeldahl Nitrogen		Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - Melville						
Nitrogen, Kjeldahl, Total	<0.10	mg/L	0.10	1	08/31/23 03:36	08/31/23 14:59	7727-37-9	
353.2 Nitrogen, NO2/NO3 unpres		Analytical Method: EPA 353.2 Pace Analytical Services - Melville						
Nitrate as N	2.2	mg/L	0.050	1		08/23/23 02:05	14797-55-8	
Nitrate-Nitrite (as N)	2.2	mg/L	0.050	1		08/23/23 02:05	7727-37-9	
353.2 Nitrogen, NO2		Analytical Method: EPA 353.2 Pace Analytical Services - Melville						
Nitrite as N	<0.050	mg/L	0.050	1		08/23/23 00:16	14797-65-0	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, LLC



ID# **SQ4513**

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 1 of 2

Lab Work Order # **MSA 3601**

Send Results to: Arnas Nemickas-Task Manager 631-391-5212 cell Two Huntington Quad-Suite 1S10 Melville NY 11747 Email: Arnas.Nemickas@arcadis.com	Preservation: E Filtered (-): # of Containers: 14 Container Identification:	PARAMETER ANALYSIS & METHOD	Keys Preservation Key A H ₂ O B HCL C HNO ₃ D NaOH E None F Other G Other H Other Matrix Key: SO - Soil W - Water T - Tissue SE - Sediment SL - Sludge A - Air NL - NAPL/Oil SW - Sample Wipe Other: EFF
--	--	--	---

Sample ID	Collection		Type (-)		Matrix	X	X	X
	Date	Time	Comp	Grab				
WSP-1	8/22/23	0840			X	GW	X	
WSP-2		0845			X	GW	X	
WSP-3		0855			X	GW	X	
WSP-4		0915			X	GW	X	
WSP-5		0920			X	GW	X	
WSP-7		0925			X	GW	X	
REP-082223-KC-1					X	GW	X	

Special Instructions/Comments: SVOC extracted by CCLE
 EDD-ARCADIS_EQUIS (EQUIS6-4 file format)

Laboratory Information and Receipt		Relinquished By	Received By	Relinquished By	Laboratory Received By
Project Name: Katahdin Analytical Labs Cooler Custody Seal (-): <input type="checkbox"/> Intact <input type="checkbox"/> Not Intact Sample Receipt: <input checked="" type="checkbox"/>	Project Name: Katahdin Analytical Labs Date Recd: 8/22/23 1410	Project Name: Kate Cooperwaska Signature: <i>[Signature]</i> Date Recd: 8/22/23 1410	Project Name: Jacob Bruce Signature: <i>[Signature]</i> Date Recd: 8/23/23 0955	Project Name: KAS Signature: <i>[Signature]</i> Date Recd: 8/23/23 0955	Project Name: KAS Signature: <i>[Signature]</i> Date Recd: 8/23/23 0955

2075025 CatC AP Form 03 21 2015 Distribution: **WHITE - Laboratory returns with results** **YELLOW - Lab copy** **PINK - Retained by Arcadis**

PROJECT: Tompco Gunman Bethpage, Program Wide 04 Project Management-Contracts and POS/ab/arahdin Analytical/02 Navy Work COC Master

Katahdin Analytical Services SQ4513 page 0000015 of 0000018

1/1



ID#

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 1 of 1

Lab Work Order #
MSA 3601

Send Results to:	Contact & Company Name Kevin Czerwinski -Task Manager		Telephone 631-245-0710 cell		Preservation A E		Filtered (✓)				Preservation Key A. H ₂ SO ₄ B. HCL C. HNO ₃ D. NaOH E. None F. Other: G. Other:	Keys Container Information Key 1 40 ml Vial 2 1 L Amber 3 250 ml Plastic 4 500 ml Plastic 5 Encore 6 2 oz. Glass 7 4 oz. Glass 8 8 oz. Glass 9 Other 125 ml Plastic 10 Other - Sediment NL NAPL/CL - Sludge SW- Sample Wipe Air Other: GW Groundwater
	Address Two Huntington Quad Suite 1S10		Fax		# of Containers 1 1		Litterer Information 3 9					
	City/State/Zip Melville NY 11747		E-mail Address Kevin.Czerwinski@arcadis.com		PARAMETER ANALYSIS & METHOD							
	Project Name/Location (City, State) Prog 4A OJ3 2-ONCT-OMM/SPDES		Project # 30188750 OMM13		Sampler's <i>Kevin Czerwinski</i>		TKN - Method 351.2		Total Nitrogen, Nitrate + Nitrite - Method 353.2			
Sample ID	Collection	Type (✓)	Matrix									
WSP-7	8/22/23 0925	Comp Grab X	GW	X	X							
Special Instructions/Comments												
<input type="checkbox"/> Special QA/QC Instructions (✓)												
Laboratory Information and Receipt		Relinquished By		Received By		Relinquished By		Laboratory Received By				
Lab Name Pace Analytical		Cooler Custody Seal (✓) <input type="checkbox"/> Intact <input type="checkbox"/> Not Intact		Printed Name <i>Kevin Czerwinski</i>		Printed Name		Printed Name		Printed Name <i>RALEU</i>		
Cooler packed with ice (✓)				Signature <i>Kevin Czerwinski</i>		Signature		Signature		Signature		
Specify Tolerable Impairments Normal TAT-10 business		Sample Receipt		Company <i>Arcadis</i>		Company		Company		Company		
Trailing 6		Condition/Cooler Temp		Date/Time <i>8/22/23 1350</i>		Date/Time		Date/Time		Date/Time <i>8/27/23 13:51</i>		

Page 13 of 14

7/27/23
25
(W)

September' &\$&'

Northrop Grumman
925 South Oyster Bay Road
Bethpage, NY 11714

northropgrumman.com

ESH&M-027L-23
November 6, 2023

Matthew Travis
N.Y.S. Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-3506

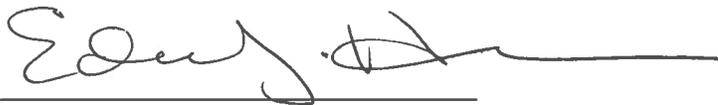
Subject: **Report for SPDES Permit Equivalent, NYSDEC Site No. 1-30-003A
Northrop Grumman Corporation - Bethpage, New York Facility**

Mr. Travis:

Enclosed please find the subject SPDES Permit Equivalent summary tables for the month of September 2023, as per additional condition requirements outlined in the SPDES Permit Equivalent (Northrop Grumman, NYSDEC No. 1-30-003A) dated July 30, 2018.

If you have any questions, please call me at 516-575-2333

Very truly yours,



Edward J. Hannon
Environmental, Safety, Health & Medical Director
516-575-2333
M/S: 02/BP15

cc: Regional Water Engineer - Region 1
NYS Department of Environmental Conservation
SUNY @ Stony Brook
50 Circle Road
Stony Brook, NY 11790-3409

Northrop Grumman
925 South Oyster Bay Road
Bethpage, NY 11714

northropgrumman.com

ESH&M-028L-23
November 6, 2023

Matthew Travis
N.Y.S. Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-3506

RE: NYSDEC No. 1-30-003A

Subject: Additional Sampling Constituents for Report Period:
September 1, 2023 – September 30, 2023.

Mr. Travis:

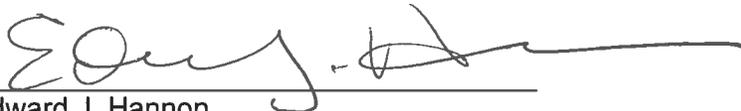
Below please find the 1,4 – Dioxane sampling results for Outfalls 1, 5 and 6 for this reporting period.

Outfall 1 – 0.75 ug/L
Outfall 5 – 3.6 ug/L
Outfall 6 – 9.0 ug/L

Sampling results for Outfall 1 for the following:

Ethylbenzene - <1.0
Toluene - <1.0
Benzene - <0.50
m,p-Xylene - <1.00

If you have any questions, please call me at 516-575-2333
Very truly yours,



Edward J. Hannon
Environmental, Safety, Health & Medical Director
516-575-2333
M/S: 02/BP15

cc: Regional Water Engineer - Region 1
NYS Department of Environmental Conservation
SUNY @ Stony Brook
50 Circle Road
Stony Brook, NY 11790-3409

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

PERMITTEL NAME/ ADDRESS (include Facility Name/ Location if
NAME: NORTHTROP GRUIMAN SYSTEMS CORP
ADDRESS: 925 SO. OYSTER BAY RD M/S- W16-035
BETHPAGE, NY 11714
FACILITY: NORTHTROP GRUIMAN SYSTEMS CORP
LOCATION: 925 SO. OYSTER BAY RD M/S- W16-035
BETHPAGE, NY 11714
ATTN: JOHN COFMAN

NY0096792	005-C
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
09/01/2023	09/30/2023

DMR Mailing ZIP CODE: 11714
MINOR (SUBR 01)
NC COOLING & STORM WATER TO GW
External Outfall
No Discharge

PARAMETER	QUANTITY OR LOADING			QUALITY OR CONCENTRATION			NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	VALUE	UNITS	VALUE			
pH									
0040010 Effluent Gross	*****	*****	7.1	*****	SU	7.1	0	1/30 Monthly	Grab
	*****	*****	Req. Mon. MINIMUM	*****	SU	Req. Mon. MAXIMUM			Grab
pH									
0040010 Intake from Well	*****	*****	5.7	*****	SU	5.7	0	1/30 Monthly	Grab
	*****	*****	Req. Mon. MINIMUM	*****	SU	Req. Mon. MAXIMUM			Grab
Nitrogen, total (as N)									
0060010 Effluent Gross	*****	*****	3.7	*****	mg/L	3.7	0	1/30 Monthly	Grab
	*****	*****	DAILY MX	*****	mg/L	10			Grab
Methylene chloride									
3442310 Effluent Gross	*****	*****	<1.0	*****	ug/L	<1.0	0	1/30 Monthly	Grab
	*****	*****	DAILY MX	*****	ug/L	5			Grab
Tetrachloroethylene									
3447510 Effluent Gross	*****	*****	<1.0	*****	ug/L	<1.0	0	1/30 Monthly	Grab
	*****	*****	DAILY MX	*****	ug/L	5			Grab
1,1-Dichloroethylene									
3450110 Effluent Gross	*****	*****	<1.0	*****	ug/L	<1.0	0	1/30 Monthly	Grab
	*****	*****	DAILY MX	*****	ug/L	5			Grab
1,1,1-Trichloroethane									
3450610 Effluent Gross	*****	*****	<1.0	*****	ug/L	<1.0	0	1/30 Monthly	Grab
	*****	*****	DAILY MX	*****	ug/L	5			Grab

NAME/TITLE: PRINCIPAL EXECUTIVE OFFICER	TELEPHONE:	DATE:
Edward J. Harmon, ESHM Director	516-575-2333	11/06/2023
TYPED OR PRINTED	AREA Code NUMBER	MM/DD/YYYY
SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT		

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

WHEN NATURAL GW HAS PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORTS SUPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANCE STATUS (Y/S/N)) IN CALCULATED LIMIT AREA. SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

* Influent PH is the average of building 102 and building 109 treatment systems

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if
NAME: NORTHTROP GRUIMAN SYSTEMS CORP
ADDRESS: 925 SO. OYSTER BAY RD M/S W16-035
BETHPAGE, NY 11714
FACILITY: NORTHTROP GRUIMAN SYSTEMS CORP
LOCATION: 925 SO. OYSTER BAY RD M/S-W16-035
BETHPAGE, NY 11714
ATTN: JOHN COFFMAN

NY0096792	005-C
PERMIT NUMBER	DISCHARGE NUMBER
MM/DD/YYYY	MM/DD/YYYY
09/01/2023	09/30/2023

DMR Mailing ZIP CODE: 11714
MINOR (SUHR 01)
NC COOLING & STORM WATER TO GW
External Outfall
No Discharge

PARAMETER	SAMPLER MEASUREMENT PERMIT REQUIREMENT	QUANTITY OR LOADING		QUALITY OR CONCENTRATION			NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	UNITS	VALUE	VALUE	UNITS			
Vinyl chloride	SAMPLE MEASUREMENT PERMIT REQUIREMENT	*****	*****	*****	*****	<1.0	0	1/30 Monthly	Grab
39175 10 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	DAILY MX	0	1/30 Monthly	Grab
Trichloroethylene	SAMPLE MEASUREMENT PERMIT REQUIREMENT	*****	*****	*****	*****	0.51	0	1/30 Monthly	Grab
39180 10 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	DAILY MX	0	1/30 Monthly	Grab
Flow in conduit or thru treatment plant	SAMPLE MEASUREMENT PERMIT REQUIREMENT	*****	*****	*****	*****	*****	0	1/30 Monthly	Measured
50030 10 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	0	1/30 Monthly	Measured
Calculated limit	SAMPLE MEASUREMENT PERMIT REQUIREMENT	*****	*****	*****	*****	*****	0	1/30 Monthly	Calculated
74013 10 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	0	1/30 Monthly	Calculated
cis-1,2-Dichloroethylene	SAMPLE MEASUREMENT PERMIT REQUIREMENT	*****	*****	*****	*****	<1.0	0	1/30 Monthly	Grab
77093 10 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	DAILY MX	0	1/30 Monthly	Grab
Trichlorotrifluoroethane	SAMPLE MEASUREMENT PERMIT REQUIREMENT	*****	*****	*****	*****	<2.0	0	1/30 Monthly	Grab
81611 10 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	DAILY MX	0	1/30 Monthly	Grab
trans-1,2-Dichloroethylene	SAMPLE MEASUREMENT PERMIT REQUIREMENT	*****	*****	*****	*****	<1.0	0	1/30 Monthly	Grab
85810 10 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	DAILY MX	0	1/30 Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	TELEPHONE	JAI
Edward J Hannon ESHM Director TYPED OR PRINTED	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	516-575-2333 AIRA Code NUMBER
		11/06/2023 MM DD YY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
WHEN NATURAL GW HAS PH OF 7.5-8.5 RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE. SAMPLE & REPORTS PPLY WELL & OUTFALL. PH MONTHLY & REPORT COMPLIANCE STATUS (Y/N) IN CALCULATED LIMIT AREA. SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME: ADDRESS: the date Facility Name/Location of
 NAME: NORTHTROP GRUMMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD N/S- W16-035
BETHPAGE, NY 11714
 FACILITY: NORTHTROP GRUMMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD N/S- W16-035
BETHPAGE, NY 11714
 ATTN: JOHN COEMAN

NY0096792	006-C
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
09/01/2023	09/30/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SUBR 01)
 NC COOLING & STORM WATER TO GW
 External Outfall
 No Discharge

PARAMETER	QUANTITY OR LOADING		QUALITY OR CONCENTRATION		UNITS	NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	UNITS				
pH	*****	*****	*****	*****		0	1/30 Monthly	Grab
0040010 Effluent Gross	*****	*****	7.1	Req. Mon. MINIMUM	su	0	1/30 Monthly	Grab
0040010 Intake from Well	*****	*****	5.8	Req. Mon. MINIMUM	su	0	1/30 Monthly	Grab
Nitrogen, total [as N]	*****	*****	4.7	10 DAILY MX	mg/L	0	1/30 Monthly	Grab
0060010 Effluent Gross	*****	*****	< 0.50	5 DAILY MX	ug/L	0	1/30 Monthly	Grab
Methylene chloride	*****	*****	< 0.50	5 DAILY MX	ug/L	0	1/30 Monthly	Grab
3442310 Effluent Gross	*****	*****	< 0.50	5 DAILY MX	ug/L	0	1/30 Monthly	Grab
Tetrachloroethylene	*****	*****	< 0.50	5 DAILY MX	ug/L	0	1/30 Monthly	Grab
3447510 Effluent Gross	*****	*****	< 0.50	5 DAILY MX	ug/L	0	1/30 Monthly	Grab
1,1-Dichloroethylene	*****	*****	< 0.50	5 DAILY MX	ug/L	0	1/30 Monthly	Grab
3450110 Effluent Gross	*****	*****	< 0.50	5 DAILY MX	ug/L	0	1/30 Monthly	Grab
1,1,1-Trichloroethane	*****	*****	< 0.50	5 DAILY MX	ug/L	0	1/30 Monthly	Grab
3450610 Effluent Gross	*****	*****	< 0.50	5 DAILY MX	ug/L	0	1/30 Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	TELEPHONE	DATE
<u>Edward J Hamon</u> Director	516-575-2333	11/06/2023
TYPED OR PRINTED	AREA Code	NUMBER
	516	575-2333
SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT		

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
 WHEN NATURAL GWS HAVE PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS & REQUIREMENTS

DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME/ ADDRESS (Include Facility Name/Location if
 NAME: NORTHTROP GRUIMMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD N/S- W16-035
 BETHPAGE, NY 11714
 FACILITY: NORTHTROP GRUIMMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD N/S- W16-035
 BETHPAGE, NY 11714
 ATTN: JOHN COFFMAN

NY0096792 006 C
 PERMIT NUMBER DISCHARGE NUMBER
 MONITORING PERIOD
 MM/DD/YYYY MM/DD/YYYY
 09/01/2023 09/30/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SUBR 01)
 NC COOLING & STORM WATER TO GW
 External Outfall
 No Discharge

PARAMETER	QUANTITY OR LOADING		QUANTITY OR CONCENTRATION		NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	UNITS			
Vinyl chloride			<0.50	ug/L	0	1/30 Monthly	Grab
391710 Effluent Gross			5	ug/L	0	1/30 Monthly	Grab
Trichloroethylene			<0.50	ug/L	0	1/30 Monthly	Grab
3918010 Effluent Gross			5	ug/L	0	1/30 Monthly	Grab
Flow in conduit or thru treatment plant	2.15	MGD			0	1/30 Monthly	Measured
5005010 Effluent Gross					0	1/30 Monthly	Measured
Calculated limit					0	1/30 Monthly	Calculated
7401310 Effluent Gross					0	1/30 Monthly	Calculated
Cis-1,2-Dichloroethylene			<0.50	ug/L	0	1/30 Monthly	Grab
7709310 Effluent Gross			5	ug/L	0	1/30 Monthly	Grab
Trichlorofluoroethane			<0.50	ug/L	0	1/30 Monthly	Grab
861110 Effluent Gross			5	ug/L	0	1/30 Monthly	Grab
Trans-1,2-Dichloroethylene			<0.50	ug/L	0	1/30 Monthly	Grab
868101 Effluent Gross			5	ug/L	0	1/30 Monthly	Grab

NAME/TITLE: PRINCIPAL EXECUTIVE OFFICER
 Signature: *Edward J. Hamon*
 TITLE: PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT
 TELEPHONE NUMBER: 516-515-2333
 DATE: 11/06/2023

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
 WITHIN NATURAL GWS HEAVY PHOENOL RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE. SAMPLE & REPORTS PERFORMED & OBTAINED MONTHLY REPORT PER COMPLIANCE STATISTICS YES, NO IN CALCULATED LIMIT AREA. SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS & REQUIREMENTS

DISCHARGE MONITORING REPORT (DMR)

DMR No. 2018 0000

PERMITTEE NAME ADDRESS (include facility name if location of NAME: NORTHTROP GRUMAN SYSTEMS CORP ADDRESS: 975 SO. OYSTER BAY RD M/S W16 035 BETHPAGE, NY 11714

FACILITY: NORTHTROP GRUMAN SYSTEMS CORP LOCATION: 975 SO. OYSTER BAY RD M/S W16 035 BETHPAGE, NY 11714

ATTN: JOHN COLEMAN

NY0006792 PERMIT NUMBER

001-wsp-7 DISCHARGE NUMBER

MONITORING PERIOD

MM/DD/YYYY 09/01/2023

MM/DD/YYYY 09/30/2023

DMR Mailing ZIP CODE: 11714 MINOR (SUBR 01)

NC COOLING & STORM WATER TO GAW External Outfall

No Discharge

PARAMETER	QUANTITY OR LOADING		QUALITY OR CONCENTRATION		NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	UNITS			
pH			8.4	Req. Min. MINIMUM	0	1/30 Monthly	Grab
0040010 Effluent Gross			8.4	Req. Mon. MINIMUM	0	1/30 Monthly	Grab
pH			5.9	Req. Mon. MINIMUM	0	1/30 Monthly	Grab
0040010 Intake from Well			5.9	Req. Mon. MINIMUM	0	1/30 Monthly	Grab
Nitrogen, total (as N)			2.1	10 DAILY MX	0	1/30 Monthly	Grab
0060010 Effluent Gross			2.1	10 DAILY MX	0	1/30 Monthly	Grab
Methylene chloride			<2.0	5 DAILY MX	0	1/30 Monthly	Grab
3441100 Effluent Gross			<2.0	5 DAILY MX	0	1/30 Monthly	Grab
Tetrachloroethylene			<1.0	5 DAILY MX	0	1/30 Monthly	Grab
3441510 Effluent Gross			<1.0	5 DAILY MX	0	1/30 Monthly	Grab
1,1-Dichloroethylene			1.0	5 DAILY MX	0	1/30 Monthly	Grab
3450110 Effluent Gross			1.0	5 DAILY MX	0	1/30 Monthly	Grab
1,1,1-Trichloroethane			1.0	5 DAILY MX	0	1/30 Monthly	Grab
3450610 Effluent Gross			1.0	5 DAILY MX	0	1/30 Monthly	Grab

NAME/TITLE: PRINCIPAL EXECUTIVE OFFICER
 Edward J. Hannon, ESQ. Director
 TYPED OR PRINTED

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT


TELEPHONE: 516-575-2333
 AREA Code NUMBER

DATE: 11/06/2023
 MM/DD/YYYY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

WHEN NATURAL GAS HAS PHOENIX RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA. SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

DMR Mailing ZIP CODE: 11713
 MINOR (SUBR 01)
 NC COOLING & STORM WATER TO GAW
 External Outfall
 No Discharge

DISCHARGE MONITORING REPORT (DMR)

NY0096792 PERMIT NUMBER	001-WSP-7 DISCHARGE NUMBER
MM/DD/YYYY 09/01/2023	MM/DD/YYYY 09/30/2023

PERMITTEE NAME ADDRESS (include County Name Location if NAME: NORTHERN GRUWMAN SYSTEMS CORP ADDRESS: 925 SO. OYSTER BAY RD M/S W16 035 BETHPAGE, NY 11714
 FACILITY: NORTHERN GRUWMAN SYSTEMS CORP LOCATION: 925 SO. OYSTER BAY RD M/S W16 035 BETHPAGE, NY 11714
 ATTN: JOHN COLMAN

PARAMETER	SAMPLE MEASUREMENT	QUANTITY OR LOADING		QUALITY OR CONCENTRATION		NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	UNITS	VALUE	UNITS			
Ammonia Chloride	SAMPLE MEASUREMENT					0	1/30 Monthly	Grab
Effluent Gross Trichloroethylene	PERMIT REQUIREMENT			<1.0	ug/L up/L	0	1/30 Monthly	Grab
Effluent Gross Flow, in conduit or thru treatment plant	SAMPLE MEASUREMENT			<1.0	ug/L up/L	0	1/30 Monthly	Grab
Effluent Gross Calculated limit	PERMIT REQUIREMENT	0.32	MGD			0	1/30 Monthly	Measured
Effluent Gross Ethylchloroethylene	SAMPLE MEASUREMENT					0	1/30 Monthly	Calculated
Effluent Gross Trichlorofluoromethane	PERMIT REQUIREMENT			<1.0	ug/L up/L	0	1/30 Monthly	Grab
Effluent Gross Trans 1,2-Dichloroethylene	SAMPLE MEASUREMENT			<5.0	ug/L up/L	0	1/30 Monthly	Grab
Effluent Gross	PERMIT REQUIREMENT			<1.0	ug/L up/L	0	1/30 Monthly	Grab

NAME/TITLE: PRINCIPAL EXECUTIVE OFFICER	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE	DATE
Edward J. Hannon / ESHH Director	<i>Edward J. Hannon</i>	516-575-2333	11/06/2023
TYPED OR PRINTED		AREA CODE	MONTH / DAY / YEAR

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (reference all attachments here)
 WITHIN NATURAL GAS HAS PIH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PIH MONTHLY REPORT PIH COMPLIANCE STATUS O/S/N/O-IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

Monitoring Period:
September 2023
 9/1/23 12:00 AM - 9/30/23 12:00 AM
 30 Days

OU2 South Basins - Outfall 005⁽¹⁾
Combined OU2 Groundwater Remedy Tower 102 and Building 109 Advanced Oxidation Process (AOP) Treatment Systems - Tower 102 Treated Air Stripper Discharge, Building 109 AOP Treatment System Discharge, and Storm Water Runoff

Parameter ⁽²⁾	CAS Number	OUTFALL 005 8/7/2023	Discharge Limit ⁽³⁾	Units	Monitoring Frequency	Sample Type	Average Mass Loading ^(4,5)	Units
Daily Average Flow ⁽⁶⁾	—	5.72	Monitor	MGD	Continuous	SCADA	—	—
Daily Maximum Flow ⁽⁴⁾	—	6.64	Monitor	MGD	Continuous	SCADA	—	—
Influent pH ⁽⁵⁾ (Building 109)	—	5.0	NS	SU	Monthly (1/30) Days	Grab	—	—
Influent pH ⁽⁵⁾ (Tower 102)	—	6.4	NS	SU	Monthly (1/30) Days	Grab	—	—
Outfall 005 Effluent pH ⁽⁵⁾	—	7.1	Range 5.0-8.5	SU	Monthly (1/30) Days	Grab	—	—
Total Nitrogen (as N)	—	3.7	10.0	mg/L	Monthly (1/30) Days	Grab	176.54	lbs/day
Total Iron	7439-89-6	< 100	800	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
Total Manganese	7439-96-5	< 15	800	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
Sum of Total Iron and Manganese ⁽⁴⁾	—	ND	1,000	µg/L	Monthly (1/30) Days	Calculated	—	lbs/day
1,1-Dichloroethylene	75-35-4	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
Methylene Chloride	75-09-2	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
Tetrachloroethylene	127-18-4	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
1,1,1-Trichloroethane	71-55-6	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
Trichloroethylene	79-01-6	0.51	5.0	µg/L	Monthly (1/30) Days	Grab	0.02	lbs/day
Vinyl Chloride	75-01-4	< 1.0	2.0	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
trans-1,2-Dichloroethylene	156-60-5	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
cis-1,2-Dichloroethylene	156-59-2	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
Chloroform	67-66-3	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
Trichlorofluoroethene (Freon 113)	76-13-1	< 2.0	5.0	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
1,1,2-Trichloroethane	79-00-5	< 1.0	1.0	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
1,1-Dichloroethane	75-34-3	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
1,2-Dichloroethane	107-06-2	< 1.0	0.6	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
1,2-Dichloropropane	78-87-5	< 1.0	1.0	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
Benzene	71-43-2	< 1.0	1.0	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
1,4-Dioxane (Building 109 Influent) ⁽⁷⁾	123-01-1	57	Monitor	µg/L	Monthly (1/30) Days	Grab	NA	lbs/day
1,4-Dioxane (Building 109 Post AOP) ⁽⁷⁾	123-01-1	0.10	Monitor	µg/L	Monthly (1/30) Days	Grab	na	lbs/day
1,4-Dioxane (Building 109 Effluent) ⁽⁷⁾	123-01-1	0.11	Monitor	µg/L	Monthly (1/30) Days	Grab	NA	lbs/day
1,4-Dioxane (Outfall 005) ⁽⁷⁾	123-01-1	3.6	Monitor	µg/L	Monthly (1/30) Days	Grab	0.17	lbs/day

Notes and abbreviations on last page

OU2 Wast Basins - Outfall 006

OU2 Groundwater Remedy Tower 96 Treatment System - Treated Air Stripper Discharge and Storm Water Runoff

Parameter ⁽¹⁾	CAS Number	OUTFALL 006 8/7/2023	Discharge Limit ⁽²⁾	Units	# Monitoring Frequency	Sample Type	Average Mass Loading ^(3,5)	Units
Daily Average Flow ⁽⁴⁾	—	1.75	Monitor	MGD	Continuous	SCADA	—	—
Daily Maximum Flow ⁽⁴⁾	—	2.15	Monitor	MGD	Continuous	SCADA	—	—
Influent pH ⁽⁵⁾	—	5.8	NS	SU	Monthly (120) Days	Grab	—	—
Effluent pH ⁽⁵⁾	—	7.1	Range 5.0-8.5	SU	Monthly (120) Days	Grab	—	—
Total Nitrogen (as N)	—	4.7	10.0	mg/L	Monthly (120) Days	Grab	84.47	lbs/day
Total Iron	7439-89-6	< 100	600	µg/L	Monthly (120) Days	Grab	—	lbs/day
Total Manganese	7439-96-5	< 15	600	µg/L	Monthly (120) Days	Grab	—	lbs/day
Sum of Total Iron and Manganese ⁽⁶⁾	—	ND	1,000	µg/L	Monthly (120) Days	Calculated	—	lbs/day
1,1 Dichloroethylene	75-35-4	< 0.50	5.0	µg/L	Monthly (120) Days	Grab	—	lbs/day
Methylene Chloride	75-09-2	< 0.50	5.0	µg/L	Monthly (120) Days	Grab	—	lbs/day
Tetrachloroethylene	127-18-4	< 0.50	5.0	µg/L	Monthly (120) Days	Grab	—	lbs/day
1,1,1 Trichloroethane	71-55-6	< 0.50	5.0	µg/L	Monthly (120) Days	Grab	—	lbs/day
Trichloroethylene	79-01-6	< 0.50	5.0	µg/L	Monthly (120) Days	Grab	—	lbs/day
Vinyl Chloride	75-01-4	< 0.50	2.0	µg/L	Monthly (120) Days	Grab	—	lbs/day
trans-1,2 Dichloroethylene	156-60-5	< 0.50	5.0	µg/L	Monthly (120) Days	Grab	—	lbs/day
cis-1,2 Dichloroethylene	156-59-2	< 0.50	5.0	µg/L	Monthly (120) Days	Grab	—	lbs/day
Chloroform	67-66-3	< 0.50	5.0	µg/L	Monthly (120) Days	Grab	—	lbs/day
Trichlorofluoroethane (Freon 113)	78-13-1	< 0.50	5.0	µg/L	Monthly (120) Days	Grab	—	lbs/day
1,4 Dioxane	123-01-1	9.0	Monitor	µg/L	Monthly (120) Days	Grab	0.10	lbs/day

Notes and abbreviations on last page

Table 1
 SPDES Permit Equivalency Monthly Report
 OU2 and OU3 On-Site Containment Systems
 Northrop Grumman Bethpage Facility Site
 NYSDEC Site No. 139001A

OU3 Effluent, Outfall 001 (WSP-7)

OU3 Groundwater Remedy Treatment System - Treated Air Stripper and Soil Gas Containment Condensate Discharge to Nassau County Recharge Basins

Parameter ¹⁾	CAS Number	OUTFALL 001 (WSP-7) 8/7/2023	Discharge Limit ²⁾	Units	Monitoring Frequency	Sample Type	Average Mass Loading ³⁾	Units
Daily Average Flow ⁴⁾		0.30	Monitor	MGD	Continuous	SCADA	—	—
Daily Maximum Flow ⁴⁾		0.32	Monitor	MGD	Continuous	SCADA	—	—
Influent pH ⁵⁾		5.9	NS	SU	Monthly (1/30) Days	Grab	—	—
Effluent pH ⁵⁾		8.4	Range 5.0-8.5	SU	Monthly (1/30) Days	Grab	—	—
Total Nitrogen (as N)		2.1	10.0	mg/L	Monthly (1/30) Days	Grab	5.26	lbs/day
Total Iron	7439-89-6	< 100	600	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
Total Manganese	7439-96-5	37.2	600	µg/L	Monthly (1/30) Days	Grab	0.09	lbs/day
Sum of Total Iron and Manganese		37.2	1,000	µg/L	Monthly (1/30) Days	Calculated	0.09	lbs/day
1,1-Dichloroethylene	75-35-4	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
Methylene Chloride	75-09-2	< 2.0	5.0	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
Tetrachloroethylene	127-18-4	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
1,1,1-Trichloroethane	71-55-6	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
Trichloroethylene	79-01-6	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
Vinyl Chloride	75-01-4	< 1.0	2.0	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
1,2-(cis)-Dichloroethylene	156-00-5	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
1,2-(trans)-Dichloroethylene	156-59-7	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
Chloroform	67-66-3	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
Trichlorofluoroethane (Freon 113)	78-13-1	< 5.0	5.0	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
Benzene	71-43-2	< 0.50	1.0	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
1,1-Dichloroethane	75-34-3	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
Ethylbenzene	100-41-4	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
Toluene	108-88-3	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
o-Xylene	95-47-6	< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
m,p-Xylene		< 1.0	5.0	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
Aroclor 1010	12674-11-2	< 0.050	0.095	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
Aroclor 1221	11104-28-2	< 0.050	0.095	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
Aroclor 1232	11141-16-5	< 0.050	0.095	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
Aroclor 1242 ¹¹⁾	53409-21-0	0.13	0.095	µg/L	Monthly (1/30) Days	Grab	0.00	lbs/day
Aroclor 1248	12672-29-6	< 0.050	0.095	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
Aroclor 1254	11097-69-1	< 0.050	0.095	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
Aroclor 1260	11096-82-5	< 0.050	0.095	µg/L	Monthly (1/30) Days	Grab	—	lbs/day
1,4-Dioxane	123-01-1	0.75	Monitor	µg/L	Monthly (1/30) Days	Grab	1.88E-03	lbs/day

Notes and Abbreviations.

- XX Bold value indicates the constituent was detected at or above its laboratory quantification limit
 - < Compound is not detected above laboratory quantification limit
 - Not Applicable
 - CAS Chemical Abstracts Service
 - µg/L micrograms per liter
 - ND Non Detect
 - lbs/day pounds per day
 - NS None Specified
 - lb/kg pounds per kilogram
 - NYSDEC New York State Department of Environmental Conservation
 - MGD million gallons per day
 - SCADA Supervisory Control and Data Acquisition
 - mg/L milligrams per liter
 - SPDES State Pollution Discharge Elimination System
 - min minutes
 - SU Standard Units
 - TKN Total Kjeldahl Nitrogen
 - B Detected in method blank as reported by laboratory
 - na not available
 - NA Not Applicable
 - COC Chain of Custody
1. Samples were analyzed for permit equivalency Volatile Organic Compounds (VOCs) using USEPA Method 624 at OU2 system, and USEPA Method 8260 at OU3 system. Polychlorinated Biphenyls (PCBs) using USEPA Method 608; 1,4-Dioxane using USEPA Method 8270D-SIM-CLE. Total Nitrogen is calculated as the sum of Nitrogen (Nitrate+Nitrite) and Total Kjeldahl Nitrogen (TKN), (CAS number 14797-55-8, 14797-65-0, and 7727-37-9, respectively) by USEPA Methods 353.2 and 351.2, respectively. Total Iron and Manganese using USEPA Method 200.7
 2. Discharge limits are per the SPDES permit equivalency, dated October 12, 2017, amended on March 23, 2023 and transmitted by the HYSDEC to Northrop Grumman on April 18, 2023
 3. Mass Loading Calculation

$$\text{Mass Loading} \left(\frac{\text{lb}}{\text{day}} \right) = \text{Flow} \left(\frac{\text{gal}}{\text{min}} \right) \cdot 1440 \left(\frac{\text{min}}{\text{day}} \right) \cdot \text{concentration} \left(\frac{\mu\text{g}}{\text{liter}} \right) \cdot 10^6 \left(\frac{\mu\text{g}}{\text{kg}} \right) \cdot 3.785 \left(\frac{\text{liter}}{\text{gal}} \right) \cdot 2.2046 \left(\frac{\text{lb}}{\text{kg}} \right)$$
 4. Average and daily maximum flow calculated from SCADA reports for the month indicated.
 5. Field measurement of pH taken by hand held meter on sample date.
 6. When Total Iron and Total Manganese are below their respective detection limits the Sum Total of Iron and Manganese is reported as "ND"
 7. Average Mass Loading calculations are based on actual flow rates unless otherwise noted.
 8. At the time of Outfall 005 SPDES sample collection on September 7, 2023, Building 109 AOP Treatment System remedial well flow for RW-20 was approximately 336 gpm. RW-21 was approximately 335 gpm and RW-22 was approximately 437 gpm.
 9. Building 109 AOP Treatment System Influent (corresponds to sample B109-INFLUENT on the COC), Post-AOP (corresponds to sample B109-POST-AOP on the COC) and Effluent (corresponds to sample OUTFALL 005-B109 on the COC) samples were collected and analyzed for 1,4-Dioxane as per footnote (1) of the SPDES permit equivalency for Outfall 005.
 10. Outfall 005 combines discharge from Building 109 and Tower 102 treatment systems however Tower 102 has not yet been upgraded for 1-4-D treatment. Although sample Outfall 005-T102 is included on the COC for the SPDES sampling report, analytical results have not been included in this report since this sample was collected for internal monitoring and analytical data associated with Outfall 005-T102 will be included in a separate EDD submittal.
 11. Aroclor 1242 was detected at a concentration of 0.13 µg/L, above the discharge limit of 0.095 µg/L. Northrop Grumman is coordinating installation of liquid phase granulated activated carbon treatment at the BPGWCS to address the detected PCBs.

Report of Analysis

Client Sample ID: OUTFALL 005 Lab Sample ID: JD72354-2 Matrix: AQ - Ground Water Method: EPA 624.1 Project: RW-21 SPDES-Northrup Grumman, Bethpage, NY	Date Sampled: 09/07/23 Date Received: 09/07/23 Percent Solids: n/a
--	--

4.2
4

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5A006.D	1	09/08/23 20:50	NW	n/a	n/a	V5A31
Run #2							

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

VOA OU2 SPDES List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.71	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.42	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.96	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.45	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	0.46	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.96	ug/l	
76-13-1	Freon 113	ND	2.0	0.87	ug/l	
75-09-2	Methylene chloride	ND	1.0	0.41	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.41	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.43	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.41	ug/l	
79-01-6	Trichloroethene	0.51	1.0	0.43	ug/l	J
75-01-4	Vinyl chloride	ND	1.0	0.79	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4 (SUR)	96%		80-128%
2037-26-5	Toluene-D8 (SUR)	106%		82-113%
460-00-4	4-Bromofluorobenzene (SUR)	90%		79-117%
1868-53-7	Dibromofluoromethane (S)	106%		84-121%

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:	OUTFALL 005	Date Sampled:	09/07/23
Lab Sample ID:	JD72354-2	Date Received:	09/07/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	RW-21 SPDES-Northrup Grumman, Bethpage, NY		

4.2
4

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	< 100	100	ug/l	1	09/11/23	09/12/23 ND	EPA 200.7 ¹	EPA 200.7 ²
Manganese	< 15	15	ug/l	1	09/11/23	09/12/23 ND	EPA 200.7 ¹	EPA 200.7 ²

- (1) Instrument QC Batch: MA54751
- (2) Prep QC Batch: MP41809

RL = Reporting Limit

Report of Analytical Results

SDG: SQ4821
Lab ID: SQ4821-1
Client ID: OUTFALL 005
Matrix: AQ
Lab File ID: G7992.D

Sample Date: 07-SEP-23
Extract Date: 13-SEP-23
Extracted By: SH/SR
Extraction Method: SW846 3520C
Lab Prep Batch: WG342553

Report Date: 05-OCT-23
Analysis Date: 29-SEP-23
Analyst: DT/EP
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		3.6	ug/L	1	.25	0.24	0.080
1,4-Dioxane-D8		82.7	%				

Report of Analytical Results

SDG: SQ4821
Lab ID: SQ4821-2
Client ID: OUTFALL 005-B109
Matrix: AQ
Lab File ID: G7993.D

Sample Date: 07-SEP-23
Extract Date: 13-SEP-23
Extracted By: SH/SR
Extraction Method: SW846 3520C
Lab Prep Batch: WG342553

Report Date: 05-OCT-23
Analysis Date: 29-SEP-23
Analyst: DT/EP
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane	J	0.11	ug/L	1	.25	0.24	0.081
1,4-Dioxane-D8		90.5	%				

Report of Analytical Results

SDG: SQ4824
Lab ID: SQ4824-1DL
Client ID: B109-INFLUENT
Matrix: AQ
Lab File ID: G7998.D

Sample Date: 07-SEP-23
Extract Date: 13-SEP-23
Extracted By: SH/SR
Extraction Method: SW846 3520C
Lab Prep Batch: WG342553

Report Date: 05-OCT-23
Analysis Date: 29-SEP-23
Analyst: DT/EP
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		57	ug/L	10	.25	2.4	0.82
1,4-Dioxane-D8	D	0.00	%				

Report of Analytical Results

SDG: SQ4824
Lab ID: SQ4824-2
Client ID: B109-POST-AOP
Matrix: AQ
Lab File ID: G7999.D

Sample Date: 07-SEP-23
Extract Date: 13-SEP-23
Extracted By: SH/SR
Extraction Method: SW846 3520C
Lab Prep Batch: WG342553

Report Date: 05-OCT-23
Analysis Date: 29-SEP-23
Analyst: DT/EP
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane	J	0.10	ug/L	1	.25	0.24	0.082
1,4-Dioxane-D8		78.8	%				



ANALYTICAL RESULTS

Project: PROG 5COU3 5RW-21-ONCT-OMM

Pace Project No.: 70269693

Sample: OUTFALL 005		Lab ID: 70269693001	Collected: 09/07/23 13:15	Received: 09/07/23 16:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Total Nitrogen Calculation	Analytical Method: SM22 4500-N Pace Analytical Services - Melville							
Total Nitrogen	3.7	mg/L	0.10	1		09/18/23 15:30		
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - Melville							
Nitrogen, Kjeldahl, Total	<0.10	mg/L	0.10	1	09/18/23 03:56	09/18/23 12:59	7727-37-9	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2 Pace Analytical Services - Melville							
Nitrate as N	3.7	mg/L	0.25	5		09/08/23 01:08	14797-55-8	
Nitrate-Nitrite (as N)	3.7	mg/L	0.25	5		09/08/23 01:08	7727-37-9	
353.2 Nitrogen, NO2	Analytical Method: EPA 353.2 Pace Analytical Services - Melville							
Nitrite as N	<0.050	mg/L	0.050	1		09/07/23 22:44	14797-65-0	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, LLC

Report of Analysis

Client Sample ID:	OUTFALL 006	Date Sampled:	09/07/23
Lab Sample ID:	JD72356-2	Date Received:	09/07/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	EPA 624.1		
Project:	Northrop Grumman, OU2 System, Bethpage, NY		

4.2
4

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5A000.D	1	09/08/23 18:17	NW	n/a	n/a	V5A31
Run #2							

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

VOA OU2 SPDES List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	ND	0.50	0.50	ug/l	
75-35-4	1,1-Dichloroethene	ND	0.50	0.45	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	0.50	0.51	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	0.46	ug/l	
76-13-1	Freon 113	ND	0.50	0.87	ug/l	
75-09-2	Methylene chloride	ND	0.50	0.41	ug/l	
127-18-4	Tetrachloroethene	ND	0.50	0.41	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.43	ug/l	
79-01-6	Trichloroethene	ND	0.50	0.43	ug/l	
75-01-4	Vinyl chloride	ND	0.50	0.79	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4 (SUR)	94%		80-128%
2037-26-5	Toluene-D8 (SUR)	106%		82-113%
460-00-4	4-Bromofluorobenzene (SUR)	91%		79-117%
1868-53-7	Dibromofluoromethane (S)	104%		84-121%

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: OUTFALL 006	Date Sampled: 09/07/23
Lab Sample ID: JD72356-2	Date Received: 09/07/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Northrop Grumman, OU2 System, Bethpage, NY	

4.2
4

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	< 100	100	ug/l	1	09/11/23	09/12/23 ND	EPA 200.7 ¹	EPA 200.7 ²
Manganese	< 15	15	ug/l	1	09/11/23	09/12/23 ND	EPA 200.7 ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA54758

(2) Prep QC Batch: MP41831

RL = Reporting Limit

Report of Analytical Results

SDG: SQ4822
Lab ID: SQ4822-1
Client ID: OUTFALL 006
Matrix: AQ
Lab File ID: G7995.D

Sample Date: 07-SEP-23
Extract Date: 13-SEP-23
Extracted By: SH/SR
Extraction Method: SW846 3520C
Lab Prep Batch: WG342553

Report Date: 05-OCT-23
Analysis Date: 29-SEP-23
Analyst: DT/EP
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		9.0	ug/L	1	.25	0.24	0.080
1,4-Dioxane-D8		87.6	%				



ANALYTICAL RESULTS

Project: PROG 3 OJ2.2-ONCT-OMM/SPDES

Pace Project No.: 70269690

Sample: OUTFALL 006		Lab ID: 70269690001	Collected: 09/07/23 10:10	Received: 09/07/23 16:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Total Nitrogen Calculation		Analytical Method: SM22 4500-N Pace Analytical Services - Melville						
Total Nitrogen	4.7	mg/L	0.10	1		09/18/23 15:30		
351.2 Total Kjeldahl Nitrogen		Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - Melville						
Nitrogen, Kjeldahl, Total	<0.10	mg/L	0.10	1	09/18/23 03:56	09/18/23 12:58	7727-37-9	
353.2 Nitrogen, NO2/NO3 unpres		Analytical Method: EPA 353.2 Pace Analytical Services - Melville						
Nitrate as N	4.7	mg/L	0.25	5		09/08/23 01:04	14797-55-8	
Nitrate-Nitrite (as N)	4.7	mg/L	0.25	5		09/08/23 01:04	7727-37-9	
353.2 Nitrogen, NO2		Analytical Method: EPA 353.2 Pace Analytical Services - Melville						
Nitrite as N	<0.050	mg/L	0.050	1		09/07/23 22:30	14797-65-0	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, LLC

GW
TB

SGS Accutest New Jersey - Dayton
3334 Route 170 Dayton NJ 08810
TEL 732 329-0200 FAX 732-329-3499 3480
www.sgs.com

Client / Reporting Information		Project Information		Requested Analysis (see TEST CODE sheet)		Matrix Codes	
Company Name Arcadis		Project Name Prog 5C OU3.5 RW-21-ONCT-OMM/SPDES		TCE Testing #		Matrix Codes	
Street Address 2 Huntington Quad, Suite 1S10		Street		Accutest Job # JD72354		DW Drinking Water GW Ground Water WW Waste Water SW Surface Water SO Soil SL Sludge SED Sediment OI Oil IQ Other Liquid AIR Air SOL Other Solid WP Waste FB Frac. Barn EB Equipment Barn RB Runoff Barn TB Trap Barn	
City State Zip Melville NY 11747		City State Bethpage NY		M242NGSPDS + Chloroform + Benzene + 1,2-TCA 1,1-DCA + 1,2-DCA + 1,2-DCEPAME 40 mL Clear Glass VOA's V6242NGSPDS+Chloroform (40 mL Clear Glass VOA's) XTINIT - EPA 353.2 & EPA 351.2 w/Total N Calc (250 mL Plastic) Iron + Manganese EPA 200.7 (500 mL Plastic)			
Phone # 831-245-0710		Client Purchase Order # 30160826.OMM13		Billing Information (if different from Report to)			
Company Contact Kevin Czerwinski, Kevin.Czerwinski@arcadis.com		Company Name Arcadis, U.S., Inc		Company Address 630 Plaza Drive, Suite 600			
Phone # 831-245-0710		Work Authorization # NY001486_2015 1C 3C		City State Zip Highlands Ranch, CO 80129			
Company Name Kevin Czerwinski 831-245-0710		Project Manager Carlo San Giovanni		Accounts Payable			
Field ID / Point of Collection TO-0907-3-PD-3		WEDMCH V. #		Date 9/7/23		Time 1315	
Outfall 005				Sampled By PD		Meters 4	
Outfall 005-B109				Sampled By GW		Meters 4	
Outfall 005-T102				Sampled By GW		Meters 4	
Turnaround Time (in next days)		Approved By (Account #) / Date		Data Deliverable Information		Comments / Special Instructions	
<input type="checkbox"/> Std. 15 Business Days <input checked="" type="checkbox"/> Std. 10 Business Days (by Contract only) <input type="checkbox"/> 10 Day RUSH <input type="checkbox"/> 5 Day RUSH <input type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY Emergency & Rush T/A data available V.A. Labfax				<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> FULLT1 (Level 3-6) <input type="checkbox"/> NJ Reduced <input type="checkbox"/> Commercial "C" Commercial "A" + Results Only Commercial "B" + Results + QC Summary NJ Reduced + Results + QC Summary + Partial Raw data		<input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> State Farms <input checked="" type="checkbox"/> EDD Format EQuIB 8 <input checked="" type="checkbox"/> Other COMMC+	
Sample Custody must be documented below each time samples change possession, including courier delivery							
Retrieved by Sampler 1	Date Time 9/7/23	Received By Junior H	Date Time 9/7/23	Retrieved by 4/5/2023	Date Time	Retrieved by 4	Date Time
Retrieved by Sampler 3	Date Time	Received By 5	Date Time	Retrieved by 5	Date Time	Retrieved by 5	Date Time
Retrieved by 5	Date Time	Received By 5	Date Time	Retrieved by 5	Date Time	Retrieved by 5	Date Time

5.1
5

AL 3B

9/7/23
1400

G:\APROJCT\Northrop Grumman Bethpage\OU2 2 ONCT08 Notes and Data System Sampling of eQuary (G MYCOCs - SGS\PAR - OU2 - COCs - LabFile_8223) 8223 - Rev Dec 2017



ID# SQ4821

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 1 of 1

Lab Work Order # MSA 3601

Client Name	Kevin Czerwinski - Task Manager	Phone	631-245-0710 cell
Address	Two Huntington Quad-Suite 1S10		
City	NY	State	11747
Sample ID	Kevin Czerwinski@arcadis.com		
Project Name	30160626 OMMI3		
Project #	30160626 OMMI3		
Sample Description	1,4-Dioxane		

Sample ID	Collection		Type (✓)		Matrix
	Date	Time	Comp	Grab	
Outfall 005	9/7/23	1315	X	X	GW
Outfall 005-B109	↓	1100	X	X	GW
Outfall 005-T102	↓	1255	X	X	GW

Sample ID	Collection Date	Collection Time	Type (✓)		Matrix	Remarks
			Comp	Grab		
Outfall 005	9/7/23	1315	X	X	GW	1,4-Dioxane
Outfall 005-B109	↓	1100	X	X	GW	
Outfall 005-T102	↓	1255	X	X	GW	

Special Instructions/Comments: SVOC extracted by EDD-ARCADIS_EQUIS (EQUIS6-4 file)

Special QA/QC Instructions (*)

Client Name	Katahdin Analytical	Project Name	Kevin Czerwinski
Client Address	1000 Main Street, Bangor, ME 04401	Received By	Jacob Bruce
Client Phone	207-687-1000	Relinquished By	Kevin Czerwinski
Client Email	normal.tat@katahdin.com	Received Date	9/08/23 0930
Client Project #	Normal TAT-10 business	Relinquished Date	9/7/23 1600

Sample Receipt: Condition/Cooler Temp

Distribution: WHITE - Laboratory returns with results; YELLOW - Lab copy; PINK - Retained by Arcadis



ID# SQ4824

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Lab Work Order # MSA 3601

Page 1 of 1

Contract & Company Name: Kevin Czerwinski - Task Manager	Telephone: 631 245 0710 cell	Filtered (✓)	4
Address: Two Huntington Quad Suite 1S10	City: Melville NY 11747	# of Containers	2
State: NY	County: Suffolk	Container Information	
City: Melville	Country: USA		
Send Results to: Project Manager: Kevin Czerwinski Project: 30160626 OMMI3	Requester: Kevin Czerwinski		
Sampling Location: Project: 30160626 OMMI3	Sampling Method: Hand Collected		

Sample ID	Date	Time	Collection		Type (✓)	Grabs	Matrix	REMARKS
			Initial	Comp				
B109-Influent	9/7/23	1045			X		GW	1,4-Dioxane 8270D-SIM-CLE
B109-Post-AOP	↓	1055			X		GW	

Special Instructions/Comments:
SVOC extracted by
EDD-ARCADIS_EOUIS (EQUIS6-4 file)

Special QA/QC Instructions (✓)

Laboratory Information and Receipt	Relinquished By	Received By	Relinquished By	Laboratory Received By
Name: Katahdin Analytical Cooler Curiosity Seal (✓) <input type="checkbox"/> Intact <input type="checkbox"/> Not Intact Sample Receipt: Condition/Cooler Temp:	Name: Kevin Czerwinski Signature: <i>[Signature]</i> Date: 9/7/23 1600	Name: Jacob Bruce Signature: <i>[Signature]</i> Date: 9/8/23 0930	Name: ARCADIS Signature: <i>[Signature]</i> Date: 9/10/23 0930	Name: ARCADIS Signature: <i>[Signature]</i> Date: 9/10/23 0930

Distribution: **WHITE** - Laboratory returns with results
YELLOW - Lab copy
PINK - Retained by Arcadis



CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Lab Work Order #
MSA 3601

Page 1 of 1

ID#

Contact & Company Name Kevin Czerwinski - Task Manager Address: Two Huntington Quad-Suite 1S10 C. y: Melville NY 11747	Telephone: 631-245-0710 cell Fax: E-mail Address: Kevin.Czerwinski@arcadis.com	Project #: 30160626.OMMI3 Subproject #:	Keys Container Information Key: 1. 40 ml Vial 2. 1 L Amber 3. 250 ml Plastic 4. 500 ml Plastic 5. Encore 6. 2 oz Glass 7. 4 oz Glass 8. 8 oz Glass 9. Other: 125 ml Plastic 10. Other:
Send Results to: Project Name/Location (City, State): Prog 5C OUS 5 RW-21 ONC - OMM/SPDES Saff's Printed Name: <i>Kevin Czerwinski</i>		Matrix Key: SE - Sediment NL - NAP/DOI SO - Soil SW - Sample Wipe W - Water A - Air Other: GW - Groundwater	

WO#: 70269693

70269693

PARAMETER ANALYSIS & METHOD

Preservative Filtered (✓)	A	E
3	3	3
3	3	9

Sample ID	Collection Date	Time	Type (✓)		Matrix
			Comp	Grab	
Outfall 005	9/7/23	1315		X	GW
Outfall 005-B109	9/7/23	1100		X	GW
Outfall 005-T102	9/7/23	1255		X	GW

TKN - Method 351.2
Total Nitrogen, Nitrate + Nitrite - Method 353.2

Special QA/QC Instructions (✓)

Laboratory Information and Receipt		Relinquished By		Received By		Laboratory Received By	
Lab Name Pace Analytical	Project Name Kevin Czerwinski	Printed Name <i>Kevin Czerwinski</i>					
Cooler Custody Seal (✓) <input checked="" type="checkbox"/> Intact <input type="checkbox"/> Not Intact	Signature <i>Kevin Czerwinski</i>						
Sample Receipt: Normal TAT - 10 business	Firm Arcadis						
Shipping Tracking #	Date/Time 9/7/23						

PINK - Retained by Arcadis

YELLOW - Lab copy

WHITE - Laboratory returns with results

Distribution: WHITE - Laboratory returns with results
YELLOW - Lab copy
PINK - Retained by Arcadis



ID# SQ4822

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 1 of 1
Lab Work Order # MSA 3601

Client Name / Location / Phone	Kevin Czerwinski - Task Manager 631-245-0710 cell
Address	Two Huntington Quad Suite 1S10
City / State / Zip	Melville NY 11747
Project #	30169301 OMMI3
Sample ID	Outfall 006
Collection Date	9/7/23 1016
Type (✓)	Comp X Grab
Matrix	CW
Matrix Key	SE - Sediment SL - Sludge A - Air SW - Stormwater Other GWR/Groundwater

Sample ID	Collection Date	Type (✓)	Matrix	Remarks	Preservation	Filtered (✓)	# of Containers	Container Information	PARAMETER ANALYSIS & METHOD	
									1-4-Dioxane	8270D-SIM-CLE
Outfall 006	9/7/23 1016	Comp X Grab	CW				2			

Special Instructions/Comments: Special QA/QC Instructions (✓)

SVOC extracted by EDD-ARCADIS_EQUIS (EQUIS6-4 file)

Lab Name	Laboratory Information and Receipt	Reinquished By	Received By	Reinquished By	Laboratory Received By
Kalahdin Analytical	<input checked="" type="checkbox"/> Intact <input type="checkbox"/> Not Intact Sample Receipt: Condition/Cooler Temp:	Project Name: Kevin Czerwinski Signature: <i>[Signature]</i> Date: 9/7/23 1600	Project Name: Jacob Bruce Signature: <i>[Signature]</i> Date: 9/08/23 0930	Project Name: Signature: Date:	Project Name: Signature: Date:

20710876 calC AR Form 08 27 2015
G:\PROJECT\Northrop_Griemahn_Bethpage_Program\Wetlab_Project Management\Couplets and PODs\Lab Kalar din Analytical\OU2 Navy Wetls COC Master

Distribution: WHITE - Laboratory returns with results
YELLOW - Lab copy
PINK - Retained by Arcadis



CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Lab Work Order #
MSA 3601

Page 1 of 1

ID#:

Company & Company Name Kevin Czerwinski - Task Manager		Telephone 631-245-0710 cell		Preservative		A		E	
Address Two Huntington Quad-Suite 1S10		Fax		Filtered (✓)		1		1	
City State Zip Melville NY 11747		E-mail Address Kevin.Czerwinski@arcadis.com		# of Containers		3		9	
Project Name/Location (City, State) Prog. 3.0U2-2-ONCT-OMM/SPDES		Project # 30169301.OMM13		Container Information		Total Nitrogen - Method 353.2		Nitrate + Nitrite - Method 351.2	
Contract Number 30169301.OMM13		Sample ID Outfall 006		Collection Date Time 9/7/23 10:10		TKN - Method 351.2		Matrix GW	
Sample ID Outfall 006		Collection Date Time 9/7/23 10:10		Type (✓) Comp		X		X	
Sample ID Outfall 006		Collection Date Time 9/7/23 10:10		Type (✓) Grab		X		X	

Keys Preservation Key: A. H ₂ SO ₄ B. HCL C. HNO ₃ D. NaOH E. None F. Other G. Other H. Other Matrix Key: SO - Soil W - Water T - Tissue SE - Sediment NL - NAPL/Oil SL - Sludge SW - Sample Wipe A - Air Other: GW - Groundwater		Container Information Key: 1 - 40 ml Vial 2 - 1L Amber 3 - 250 ml Plastic 4 - 500 ml Plastic 5 - Encore 6 - 2 oz. Glass 7 - 4 oz. Glass 8 - 8 oz. Glass 9 - Other: 125 ml Plastic 10 - Other	
---	--	---	--

WO# : 70269690

70269690

Special QA/QC Instructions(✓):

Special Instructions/Comments:

Laboratory Information and Receipt Cooler Custody Seal (✓) <input type="checkbox"/> Intact <input type="checkbox"/> Not Intact Sample Receipt: Condition/Cooler Temp: _____		Relinquished By Printed Name Signature Firm/Counter Date/Time		Received By Printed Name Signature Firm/Counter Date/Time		Relinquished By Printed Name Signature Firm/Counter Date/Time		Laboratory Received By Printed Name Signature Firm/Counter Date/Time	
Lab Name Pace Analytical <input checked="" type="checkbox"/> Cooler packed with ice (✓) Specify Turnaround Requirements Normal TAT-10 business Shipping Tracking #		Kevin Czerwinski Signature Arcadis Date/Time 9/7/23		Kevin Czerwinski Signature Arcadis Date/Time 9/7/23 10:20		[Blank]		[Blank]	

20730626 Co/C AR Form 08 27 2015
 G:\PROJECT\Northrop Grumman Beltpage\Program Wide\04 Project Management\Contracts and POS\Lab\Ka\and\Anal\ca\NOU2 Navy Wells COC Master

Report of Analysis

Client Sample ID: WSP-7	Date Sampled: 09/07/23
Lab Sample ID: JD72352-1	Date Received: 09/07/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260D	
Project: Northrop Grumman, OU3 BPGWCS System, Bethpage, NY	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4A1044.D	1	09/12/23 20:07	NW	n/a	n/a	V4A33
Run #2							

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

VOA OU3 BPGWVS List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone ^a	ND	10	3.1	ug/l	
71-43-2	Benzene	ND	0.50	0.43	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.45	ug/l	
75-25-2	Bromoform	ND	1.0	0.63	ug/l	
74-83-9	Bromomethane ^b	ND	2.0	1.6	ug/l	
78-93-3	2-Butanone (MEK) ^a	ND	10	2.7	ug/l	
106-99-0	1,3-Butadiene ^a	ND	5.0	0.62	ug/l	
75-15-0	Carbon disulfide	ND	2.0	1.8	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	
75-45-6	Chlorodifluoromethane ^a	ND	5.0	0.49	ug/l	
75-00-3	Chloroethane ^c	ND	1.0	0.73	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
74-87-3	Chloromethane ^a	ND	1.0	0.76	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.56	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	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	0.58	ug/l	
591-78-6	2-Hexanone	ND	5.0	4.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.51	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	4.9	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.49	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.65	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: WSP-7			
Lab Sample ID: JD72352-1		Date Sampled: 09/07/23	
Matrix: AQ - Ground Water		Date Received: 09/07/23	
Method: SW846 8260D		Percent Solids: n/a	
Project: Northrop Grumman, OU3 BPGWCS System, Bethpage, NY			

4.1
4

VOA OU3 BPGWVS List

CAS No.	Compound	Result	RL	MDL	Units	Q
127-18-4	Tetrachloroethene	ND	1.0	0.56	ug/l	
108-88-3	Toluene	ND	1.0	0.49	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.54	ug/l	
79-00-5	1,1,2-Trichloroethane ^b	ND	1.0	0.53	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.53	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.40	ug/l	
75-01-4	Vinyl chloride ^a	ND	1.0	0.52	ug/l	
75-68-3	1-chloro-1,1-difluoroethane	ND	5.0	0.33	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	114%		80-120%
17060-07-0	1,2-Dichloroethane-D4	100%		80-120%
2037-26-5	Toluene-D8	103%		80-120%
460-00-4	4-Bromofluorobenzene	92%		82-114%

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.
- (b) Associated CCV outside of control limits low. A sensitivity check was analyzed to demonstrate system suitability to detect affected analyte. Sample was ND.
- (c) Associated CCV outside of control limits high, sample was ND. This compound in blank spike is outside in house QC limits bias high.

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: WSP-7	Date Sampled: 09/07/23
Lab Sample ID: JD72352-1	Date Received: 09/07/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: EPA 608.3 EPA 608	
Project: Northrop Grumman, OU3 BPGWCS System, Bethpage, NY	

4.1
4

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	XX2506409.D	1	09/13/23 11:47	CP	09/12/23 14:30	OP49009A	GXX8305
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.050	0.034	ug/l	
11104-28-2	Aroclor 1221	ND	0.050	0.029	ug/l	
11141-16-5	Aroclor 1232	ND	0.050	0.020	ug/l	
53469-21-9	Aroclor 1242 ^a	0.13	0.050	0.027	ug/l	
12672-29-6	Aroclor 1248	ND	0.050	0.025	ug/l	
11097-69-1	Aroclor 1254	ND	0.050	0.034	ug/l	
11096-82-5	Aroclor 1260	ND	0.050	0.027	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	85%		10-156%
877-09-8	Tetrachloro-m-xylene	52%		10-156%
2051-24-3	Decachlorobiphenyl	55%		10-143%
2051-24-3	Decachlorobiphenyl	32%		10-143%

(a) Reported from the 1st signal. The %D of the CCV on the 2nd signal exceeds the method criteria of 20%, so it being used for confirmation only. More than 40% RPD for detected concentrations between the two GC columns.

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:	WSP-7	Date Sampled:	09/07/23
Lab Sample ID:	JD72352-1	Date Received:	09/07/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	Northrop Grumman, OU3 BPGWCS System, Bethpage, NY		

4.1

4

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	< 100	100	ug/l	1	09/11/23	09/12/23 ND	EPA 200.7 ¹	EPA 200.7 ²
Manganese	37.2	15	ug/l	1	09/11/23	09/12/23 ND	EPA 200.7 ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA54751

(2) Prep QC Batch: MP41809

RL = Reporting Limit

Report of Analytical Results

SDG: SQ4823
Lab ID: SQ4823-1
Client ID: WSP-7
Matrix: AQ
Lab File ID: G7996.D

Sample Date: 07-SEP-23
Extract Date: 13-SEP-23
Extracted By: SH/SR
Extraction Method: SW846 3520C
Lab Prep Batch: WG342553

Report Date: 05-OCT-23
Analysis Date: 29-SEP-23
Analyst: DT/EP
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		0.75	ug/L	1	.25	0.23	0.079
1,4-Dioxane-D8		77.8	%				



ANALYTICAL RESULTS

Project: PROG4A OU3.2-ONCT-OMM/SPDES
 Pace Project No.: 70269696

Sample: WSP-7	Lab ID: 70269696001	Collected: 09/07/23 09:00	Received: 09/07/23 16:20	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Total Nitrogen Calculation	Analytical Method: SM22 4500-N Pace Analytical Services - Melville							
Total Nitrogen	2.1	mg/L	0.10	1		09/18/23 15:30		
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - Melville							
Nitrogen, Kjeldahl, Total	<0.10	mg/L	0.10	1	09/18/23 03:56	09/18/23 13:23	7727-37-9	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2 Pace Analytical Services - Melville							
Nitrate as N	2.1	mg/L	0.050	1		09/08/23 00:39	14797-55-8	
Nitrate-Nitrite (as N)	2.1	mg/L	0.050	1		09/08/23 00:39	7727-37-9	
353.2 Nitrogen, NO2	Analytical Method: EPA 353.2 Pace Analytical Services - Melville							
Nitrite as N	<0.050	mg/L	0.050	1		09/07/23 22:22	14797-65-0	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, LLC.

OctoVYf`&\$&'



Northrop Grumman
925 South Oyster Bay Road
Bethpage, NY 11714

northropgrumman.com

ESH&M-029L-23
December 6, 2023

Matthew Travis
N.Y.S. Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-3506

Subject: **Report for SPDES Permit Equivalent, NYSDEC Site No. 1-30-003A
Northrop Grumman Corporation - Bethpage, New York Facility**

Mr. Travis:

Enclosed please find the subject SPDES Permit Equivalent summary tables for the month of October 2023, as per additional condition requirements outlined in the SPDES Permit Equivalent (Northrop Grumman, NYSDEC No. 1-30-003A) dated July 30, 2018.

If you have any questions, please call me at 516-575-2333

Very truly yours,

A handwritten signature in black ink, appearing to read "Edward J. Hannon", written over a horizontal line.

Edward J. Hannon
Environmental, Safety, Health & Medical Manager
516-575-2333
M/S: 02/BP15

cc: Regional Water Engineer - Region 1
NYS Department of Environmental Conservation
SUNY @ Stony Brook
50 Circle Road
Stony Brook, NY 11790-3409

Northrop Grumman
925 South Oyster Bay Road
Bethpage, NY 11714

northropgrumman.com

ESH&M-030L-23
December 6, 2023

Matthew Travis
N.Y.S. Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-3506

RE: NYSDEC No. 1-30-003A

Subject: Additional Sampling Constituents for Report Period:
October 1, 2023 – October 31, 2023.

Mr. Travis:

Below please find the 1,4 – Dioxane sampling results for Outfalls 1, 5 and 6 for this reporting period.

Outfall 1 – 0.23 ug/L
Outfall 5 – 3.0 ug/L
Outfall 6 – 4.6 ug/L

Sampling results for Outfall 1 for the following:

Ethylbenzene - <1.0
Toluene - <1.0
Benzene - <0.50
m,p-Xylene - <1.00

If you have any questions, please call me at 516-575-2333
Very truly yours,



Edward J. Hannon
Environmental, Safety, Health & Medical Director
516-575-2333
M/S: 02/BP15

cc: Regional Water Engineer - Region 1
NYS Department of Environmental Conservation
SUNY @ Stony Brook
50 Circle Road
Stony Brook, NY 11790-3409

DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME/ADDRESS (include Facility Name/Location if
 NAME: NORTROP GRUMMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S- W16- 035
 BETHPAGE, NY 11714
 FACILITY: NORTROP GRUMMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S- W16- 035
 BETHPAGE, NY 11714
 ATTN: JOHN COFMAN

NY0096792	005- C
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
10/31/2023	10/31/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SUBR 01)
 NC COOLING & STORM WATER TO GW
 External Outfall
 No Discharge

PARAMETER	QUANTITY OR LOADING		QUALITY OR CONCENTRATION		NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	UNITS			
pH	*****	*****	*****	*****	0	1/31 Monthly	Grab
00400 1 0 Effluent Gross	*****	*****	8.1 Req. Mon. MINIMUM	8.1 Req. Mon. MAXIMUM	0	1/31 Monthly	Grab
pH	*****	*****	*****	*****	0	1/31 Monthly	Grab
00400 1 0 Intake from Well	*****	*****	6.4 Req. Mon. MINIMUM	6.4 Req. Mon. MAXIMUM	0	1/31 Monthly	Grab
Nitrogen, total [as N]	*****	*****	*****	3.3 10 DAILY MX	0	1/31 Monthly	Grab
00600 1 0 Effluent Gross	*****	*****	*****	*****	0	1/31 Monthly	Grab
Methylene chloride	*****	*****	*****	*****	0	1/31 Monthly	Grab
3-4423 1 0 Effluent Gross	*****	*****	*****	<1.0 5 DAILY MX	0	1/31 Monthly	Grab
Tetrachloroethylene	*****	*****	*****	*****	0	1/31 Monthly	Grab
3-4475 1 0 Effluent Gross	*****	*****	*****	<1.0 5 DAILY MX	0	1/31 Monthly	Grab
1,1,1- Dichloroethylene	*****	*****	*****	*****	0	1/31 Monthly	Grab
3-4501 1 0 Effluent Gross	*****	*****	*****	<1.0 5 DAILY MX	0	1/31 Monthly	Grab
1,1,1- Trichloroethane	*****	*****	*****	*****	0	1/31 Monthly	Grab
3-4506 1 0 Effluent Gross	*****	*****	*****	<1.0 5 DAILY MX	0	1/31 Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	TELEPHONE	DATE
Edward Shannon Manager	516-575-2333	12/6/2023
TYPED OR PRINTED	AREA Code NUMBER	MM/DD/YYYY
	516-575-2333	12/6/2023
SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT		
<i>Edward Shannon</i>		

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

WHEN NATURAL GW HAS PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

* Influent PH is the average of building 102 and building 109 treatment systems

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if
NAME: NORTHROP GRUMAN SYSTEMS CORP
ADDRESS: 925 SO. OYSTER BAY RD M/S- W16- 035
BETHPAGE, NY 11714
FACILITY: NORTHROP GRUMAN SYSTEMS CORP
LOCATION: 925 SO. OYSTER BAY RD M/S- W16- 035
BETHPAGE, NY 11714
ATTN: JOHN COFMAN

NY0096792	005- C
PERMIT NUMBER	DISCHARGE NUMBER
MM/DD/YYYY	MM/DD/YYYY
10/01/2023	10/31/2023

DMR Mailing ZIP CODE: 11714
MINOR (SUBR 01)
NC COOLING & STORM WATER TO GW
External Outfall

No Discharge

PARAMETER	SAMPLE MEASUREMENT PERMIT REQUIREMENT	QUANTITY OR LOADING		QUALITY OR CONCENTRATION		NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	UNITS	VALUE	UNITS			
Vinyl chloride	*****	*****	*****	*****	*****	0	1/31 Monthly	Grab
3917510 Effluent Gross Trichloroethylene	*****	*****	*****	*****	*****	0	1/31 Monthly	Grab
3918010 Effluent Gross Flow, in conduit or thru treatment plant	*****	*****	*****	*****	*****	0	1/31 Monthly	Grab
5005010 Effluent Gross Calculated limit	*****	6.65 5 DAILY MX	*****	*****	*****	0	1/31 Monthly	Measured
7401310 Effluent Gross	*****	*****	*****	*****	*****	0	1/31 Monthly	Calculated
cis- 1,2- Dichloroethylene	*****	*****	*****	*****	*****	0	1/31 Monthly	Grab
7709310 Effluent Gross	*****	*****	*****	*****	*****	0	1/31 Monthly	Grab
Trichlorotrifluoroethane	*****	*****	*****	*****	*****	0	1/31 Monthly	Grab
8161110 Effluent Gross	*****	*****	*****	*****	*****	0	1/31 Monthly	Grab
trans- 1,2- Dichloroethylene	*****	*****	*****	*****	*****	0	1/31 Monthly	Grab
8581010 Effluent Gross	*****	*****	*****	*****	*****	0	1/31 Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	TELEPHONE	DATE
Edward J. Hannan, Manager	516-515-2333	12/06/2023
TYPED OR PRINTED	AREA Code NUMBER	MM/DD/YYYY
SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT		

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

WHEN NATURAL GW HAS PFI OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

FORM APPROVED
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (include Facility Name/Location if
NAME: NORTHROP GRUMMAN SYSTEMS CORP
ADDRESS: 925 SO. OYSTER BAY RD M/S- W16-035
BETHPAGE, NY 11714
FACILITY: NORTHROP GRUMMAN SYSTEMS CORP
LOCATION: 925 SO. OYSTER BAY RD M/S- W16-035
BETHPAGE, NY 11714
ATTN: JOHN COFMAN

NY0096792	006- C
PERMIT NUMBER	DISCHARGE NUMBER
MM/DD/YYYY	MM/DD/YYYY
10/01/2023	10/31/2023

DMR Mailing ZIP CODE: 11714
MINOR (SUBR 01)
NC COOLING & STORM WATER TO GW
External Outfall

No Discharge

PARAMETER	QUANTITY OR LOADING			QUALITY OR CONCENTRATION			NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	VALUE	UNITS	VALUE			
pH	*****	*****	*****	*****	*****	*****	0	1/31 Monthly	Grab
00400 1 0 Effluent Gross	*****	*****	7.9	Req. Mon. MINIMUM	*****	7.9	0	1/31 Monthly	Grab
pH	*****	*****	*****	*****	*****	*****	0	1/31 Monthly	Grab
00400 1 0 Intake from Well	*****	*****	6.0	Req. Mon. MINIMUM	*****	6.0	0	1/31 Monthly	Grab
Nitrogen, total [as N]	*****	*****	*****	*****	*****	*****	0	1/31 Monthly	Grab
00600 1 0 Effluent Gross	*****	*****	*****	*****	*****	4.1	0	1/31 Monthly	Grab
Methylene chloride	*****	*****	*****	*****	*****	10	0	1/31 Monthly	Grab
34423 1 0 Effluent Gross	*****	*****	*****	*****	*****	5	0	1/31 Monthly	Grab
Tetrachloroethylene	*****	*****	*****	*****	*****	5	0	1/31 Monthly	Grab
34475 1 0 Effluent Gross	*****	*****	*****	*****	*****	5	0	1/31 Monthly	Grab
1,1-Dichloroethylene	*****	*****	*****	*****	*****	5	0	1/31 Monthly	Grab
34501 1 0 Effluent Gross	*****	*****	*****	*****	*****	5	0	1/31 Monthly	Grab
1,1,1-Trichloroethane	*****	*****	*****	*****	*****	5	0	1/31 Monthly	Grab
34506 1 0 Effluent Gross	*****	*****	*****	*****	*****	5	0	1/31 Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	TELEPHONE	DATE
<i>Edward J Hannon</i> Edward J Hannon Manager TYPED OR PRINTED	516-575-2333 AREA Code NUMBER	12/06/2023 MM/DD/YYYY
SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT		

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
WHEN NATURAL GWS HAVE PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS & REQUIREMENTS

DISCHARGE MONITORING REPORT (DMR)

OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (include Facility Name/Location if
 NAME: NORTROP GRUMMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S- W16-035
 BETHPAGE, NY 11714
 FACILITY: NORTROP GRUMMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S- W16-035
 BETHPAGE, NY 11714
 ATTN: JOHN COFMAN

NY0096792
 PERMIT NUMBER
 MONITORING PERIOD
 MM/DD/YYYY
 10/01/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SUBR 01)
 NC COOLING & STORM WATER TO GW
 External Outfall
 No Discharge

006-C
 DISCHARGE NUMBER
 MONITORING PERIOD
 MM/DD/YYYY
 10/31/2023

PARAMETER	QUANTITY OR LOADING		QUALITY OR CONCENTRATION		NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	UNITS			
Vinyl chloride	*****	*****	*****	*****	0	1/31 Monthly	Grab
39175 10 Effluent Gross	*****	*****	<0.5	ug/L	0	1/31 Monthly	Grab
Trichloroethylene	*****	*****	*****	*****	0	1/31 Monthly	Grab
39180 10 Effluent Gross	*****	*****	<0.5	ug/L	0	1/31 Monthly	Grab
Flow, in conduit or thru treatment plant	*****	*****	*****	*****	0	1/31 Monthly	Measured
50050 10 Effluent Gross	*****	*****	*****	*****	0	1/31 Monthly	Measured
Calculated limit	*****	*****	*****	*****	0	1/31 Monthly	Calculated
74013 10 Effluent Gross	*****	*****	*****	*****	0	1/31 Monthly	Calculated
cis- 1,2- Dichloroethylene	*****	*****	*****	*****	0	1/31 Monthly	Grab
77093 10 Effluent Gross	*****	*****	*****	*****	0	1/31 Monthly	Grab
Trichlorotrifluoroethane	*****	*****	*****	*****	0	1/31 Monthly	Grab
81611 10 Effluent Gross	*****	*****	*****	*****	0	1/31 Monthly	Grab
trans- 1,2- Dichloroethylene	*****	*****	*****	*****	0	1/31 Monthly	Grab
85810 10 Effluent Gross	*****	*****	*****	*****	0	1/31 Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER: *Edward J. Hannan*
 SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT: *Edward J. Hannan*
 TELEPHONE: 516-515-2333
 DATE: 12/06/2023
 AREA Code NUMBER MM/DD/YYYY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
 WHEN NATURAL GWS HAVE PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS & REQUIREMENTS

DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME/ADDRESS (include Facility Name/Location if
 NAME: NORTROP GRUMMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S- W16- 035
 BETHPAGE, NY 11714
 FACILITY: NORTROP GRUMMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S- W16- 035
 BETHPAGE, NY 11714
 ATTN: JOHN COFFMAN

NY0096792	001- WSP-7
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
10/01/2023	10/31/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SUJRR 01)
 NC COOLING & STORM WATER TO GW
 External Outfall

No Discharge

PARAMETER	QUANTITY OR LOADING			QUALITY OR CONCENTRATION			NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	VALUE	UNITS	VALUE			
pH	*****	*****	*****	*****	*****	*****	0	1/31 Monthly	Grab
0040010 Effluent Gross	*****	*****	*****	8.7	Req. Mon. MINIMUM	8.7	0	1/31 Monthly	Grab
pH	*****	*****	*****	*****	*****	*****	0	1/31 Monthly	Grab
0040010 Intake from Well	*****	*****	*****	7.2	Req. Mon. MINIMUM	7.2	0	1/31 Monthly	Grab
Nitrogen, total (as N)	*****	*****	*****	*****	*****	*****	0	1/31 Monthly	Grab
0060010 Effluent Gross	*****	*****	*****	*****	*****	*****	0	1/31 Monthly	Grab
Methylene chloride	*****	*****	*****	*****	*****	*****	0	1/31 Monthly	Grab
3442310 Effluent Gross	*****	*****	*****	*****	*****	*****	0	1/31 Monthly	Grab
Tetrachloroethylene	*****	*****	*****	*****	*****	*****	0	1/31 Monthly	Grab
3447510 Effluent Gross	*****	*****	*****	*****	*****	*****	0	1/31 Monthly	Grab
1,1-Dichloroethylene	*****	*****	*****	*****	*****	*****	0	1/31 Monthly	Grab
3450110 Effluent Gross	*****	*****	*****	*****	*****	*****	0	1/31 Monthly	Grab
1,1,1-Trichloroethane	*****	*****	*****	*****	*****	*****	0	1/31 Monthly	Grab
3450610 Effluent Gross	*****	*****	*****	*****	*****	*****	0	1/31 Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	TELEPHONE	DATE
Edward J. Hannan, Manager	516-515-2333	10/06/2023
TYPED OR PRINTED	NUMBER	MM/DD/YYYY
SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT		
<i>Edward J. Hannan</i>		

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

WHEN NATURAL GW HAS PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

DISCHARGE MONITORING REPORT (DMR)

OMB No. 2040-0004

PERMITTEE NAME/ ADDRESS (Include Facility Name/Location if
 NAME: NORTROP GRUMMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S- WIG- 035
 BETHPAGE, NY 11714
 FACILITY: NORTROP GRUMMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S- WIG- 035
 BETHPAGE, NY 11714
 ACT'N: JOHN COFMAN

NY0096792
 PERMIT NUMBER

061-WSP-7
 DISCHARGE NUMBER

MM/DD/YYYY
 10/31/2023

MONITORING PERIOD
 MM/DD/YYYY
 10/31/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SUFR 01)
 NC COOLING & STORM WATER TO GW
 External Outfall

No Discharge

PARAMETER	SAMPLE MEASUREMENT	QUANTITY OR LOADING			QUALITY OR CONCENTRATION			NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	UNITS	VALUE	VALUE	UNITS				
Vinyl chloride	PERMIT REQUIREMENT	*****	*****	*****	*****	<1.0	ug/L	0	1/31 Monthly	Grab
39175 1 0 Effluent Gross Trichloroethylene	SAMPLE MEASUREMENT	*****	*****	*****	*****	5 DAILY MX	ug/L	0	1/31 Monthly	Grab
39180 1 0 Effluent Gross Flow, in conduit or thru treatment plant	PERMIT REQUIREMENT	*****	*****	*****	*****	5 DAILY MX	ug/L	0	1/31 Monthly	Grab
50050 1 0 Effluent Gross Calculated limit	SAMPLE MEASUREMENT	0.32	MGD	*****	*****	*****	*****	0	1/31 Monthly	Measured
7-4013 1 0 Effluent Gross cis- 1,2- Dichloroethylene	PERMIT REQUIREMENT	1	Reg. Mon. Single Rdg	*****	*****	*****	*****	0	1/31 Monthly	Calculated
77093 1 0 Effluent Gross Trichlorotrifluoroethane	SAMPLE MEASUREMENT	*****	*****	*****	*****	5 DAILY MX	ug/L	0	1/31 Monthly	Grab
81611 1 0 Effluent Gross Trans- 1,2- Dichloroethylene	PERMIT REQUIREMENT	*****	*****	*****	*****	5 DAILY MX	ug/L	0	1/31 Monthly	Grab
85810 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	5 DAILY MX	ug/L	0	1/31 Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
 I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Edward J. Harrison
 SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE DATE
 516-515-2333 NUMBER
 12/06/2023 MM/DD/YYYY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
 WHEN NATURAL GW HAS PI1 OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PI1 MONTHLY & REPORT PI1 COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA. SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

Table 1
 SPDES Permit Equivalency Monthly Report
 OU7 and OU3 On-Site Containment Systems
 Northrop Grumman Billings Air Force Station
 H350E0 Site ID: 139914

Monitoring Period:
October 2023
 10/1/23 12:00 AM - 10/31/23 12:00 AM
 31 Days

OU2 South Basins, Outfall 005⁵
Combined OU2 Groundwater Remedy Tower 102 and Building 109 Advanced Oxidation Process (AOP) Treatment Systems - Tower 102 Treated Air Stripper Discharge, Building 109 AOP Treatment System Discharge, and Storm Water Runoff

Parameter ⁽¹⁾	CAS Number	OUTFALL 005 10/4/2023	Discharge Limit ⁽²⁾	Units	Monitoring Frequency	Sample Type	Average Mass Loading ^(3,7)	Units
Daily Average Flow ⁽⁴⁾	--	5.99	Monitor	MGD	Continuous	SCADA	--	--
Daily Maximum Flow ⁽⁴⁾	--	6.65	Monitor	MGD	Continuous	SCADA	--	--
Influent pH ⁽⁵⁾ (Building 109)	--	5.9	NS	SU	Monthly (1/31) Days	Grab	--	--
Influent pH ⁽⁵⁾ (Tower 102)	--	6.9	NS	SU	Monthly (1/31) Days	Grab	--	--
Outfall 005 Effluent pH ⁽⁵⁾	--	8.1	Range 5.0-8.5	SU	Monthly (1/31) Days	Grab	--	--
Total Nitrogen (as N)	--	3.3	10.0	mg/L	Monthly (1/31) Days	Grab	137.65	lbs/day
Total Iron	7439-89-0	< 100	600	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Total Manganese	7439-06-5	< 15	600	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Sum of Total Iron and Manganese ⁽⁶⁾	--	ND	1,000	µg/L	Monthly (1/31) Days	Calculated	--	lbs/day
1,1-Dichloroethylene	75-35-4	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Methylene Chloride	75-09-2	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Tetrachloroethylene	127-18-4	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,1,1-Trichloroethane	71-55-6	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Trichloroethylene	79-01-6	0.84	5.0	µg/L	Monthly (1/31) Days	Grab	0.03	lbs/day
Vinyl Chloride	75-01-4	< 1.0	2.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
trans-1,2-Dichloroethylene	156-60-5	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
cis-1,2-Dichloroethylene	156-59-2	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Chloroform	67-66-3	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Trichlorofluoroethane (Freon 113)	76-13-1	< 2.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,1,2-Trichloroethane	79-00-5	< 1.0	1.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,1-Dichloroethane	75-34-3	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,2-Dichloroethane	80-06-2	< 1.0	0.6	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,2-Dichloropropane	78-87-5	< 1.0	1.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Benzene	71-43-2	< 1.0	1.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,4-Dioxane (Building 109 Influent) ⁽⁸⁾	123-91-1	41	Monitor	µg/L	Monthly (1/31) Days	Grab	NA	lbs/day
1,4-Dioxane (Building 109 Post AOP) ⁽⁸⁾	123-91-1	< 0.24	Monitor	µg/L	Monthly (1/31) Days	Grab	0.0	lbs/day
1,4-Dioxane (Building 109 Effluent) ⁽⁸⁾	123-91-1	< 0.23	Monitor	µg/L	Monthly (1/31) Days	Grab	NA	lbs/day
1,4-Dioxane (Outfall 005) ⁽¹⁰⁾	123-91-1	3.0	Monitor	µg/L	Monthly (1/31) Days	Grab	0.13	lbs/day

Notes and abbreviations on last page

OU2 West Basins, Outfall #06

OU2 Groundwater Remedy Tower 96 Treatment System - Treated Air Stripper Discharge and Storm Water Runoff

Parameter ⁽¹⁾	CAS Number	OUTFALL 006 194/2023	Discharge Limit ⁽²⁾	Units	Monitoring Frequency	Sample Type	Average Mass Loading ^(3,7)	Units
Daily Average Flow ⁽⁴⁾	—	1.94	Monitor	MGD	Continuous	SCADA	—	—
Daily Maximum Flow ⁽⁴⁾	—	2.16	Monitor	MGD	Continuous	SCADA	—	—
Influent pH ⁽⁵⁾	—	6.0	NS	SU	Monthly (1/31) Days	Grab	—	—
Effluent pH ⁽⁵⁾	—	7.9	Range 5.0-8.5	SU	Monthly (1/31) Days	Grab	—	—
Total Nitrogen (as N)	—	4.1	10.0	mg/L	Monthly (1/31) Days	Grab	7.368	lbs/day
Total Iron	7439-89-6	217	600	µg/L	Monthly (1/31) Days	Grab	3.91	lbs/day
Total Manganese	7439-96-5	19.0	600	µg/L	Monthly (1/31) Days	Grab	0.34	lbs/day
Sum of Total Iron and Manganese ⁽⁶⁾	—	236.0	1,000	µg/L	Monthly (1/31) Days	Calculated	4.25	lbs/day
1,1-Dichloroethylene	75-35-4	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
Methylene Chloride	75-09-2	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
Tetrachloroethylene	127-18-4	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
1,1,1-Trichloroethane	71-55-6	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
Trichloroethylene	79-01-6	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
Vinyl Chloride	75-01-4	< 0.50	2.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
trans-1,2-Dichloroethylene	156-60-5	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
cis-1,2-Dichloroethylene	156-59-2	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
Chloroform	67-66-3	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
Tetrachlorofluoroethane (Froren 113)	76-13-1	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	—	lbs/day
1,4-Dioxane	123-91-1	4.6	Monitor	µg/L	Monthly (1/31) Days	Grab	0.08	lbs/day

Notes and abbreviations on last page

OU3 Groundwater Remedy Treatment System - Treated Air Stripper and Soil Gas Containment Condensate Discharge to Nassau County Recharge Basins

Parameter ¹⁾	CAB Number	OUTFALL 001 (WSP-7) 194/2023	Discharge Limit ²⁾	Units	Monitoring Frequency	Sample Type	Average Mass Loading ³⁾	Units
Daily Average Flow ⁴⁾	--	0.29	Monitor	MGD	Continuous	SCADA	--	--
Daily Maximum Flow ⁴⁾	--	0.32	Monitor	MGD	Continuous	SCADA	--	--
Influent pH ⁵⁾	--	7.2	NS	SU	Monthly (1-31) Days	Grab	--	--
Effluent pH ⁵⁻¹⁾	--	6.7	Range 5.0-8.5	SU	Monthly (1-31) Days	Grab	--	--
Total Nitrogen (as N)	--	2.1	10.0	mg/L	Monthly (1-31) Days	Grab	5.08	lbs/day
Total Iron	7439-03-6	192	600	µg/L	Monthly (1-31) Days	Grab	0.46	lbs/day
Total Manganese	7439-99-5	37.6	600	µg/L	Monthly (1-31) Days	Grab	0.09	lbs/day
Sum of Total Iron and Manganese	--	229.6	1,000	µg/L	Monthly (1-31) Days	Calculated	0.56	lbs/day
1,1-Dichloroethylene	75-35-4	< 1.0	5.0	µg/L	Monthly (1-31) Days	Grab	--	lbs/day
Methylene Chloride	75-09-2	< 2.0	5.0	µg/L	Monthly (1-31) Days	Grab	--	lbs/day
Tetrachloroethylene	127-18-4	< 1.0	5.0	µg/L	Monthly (1-31) Days	Grab	--	lbs/day
1,1,1-Trichloroethane	71-55-6	< 1.0	5.0	µg/L	Monthly (1-31) Days	Grab	--	lbs/day
Trichloroethylene	79-01-6	< 1.0	5.0	µg/L	Monthly (1-31) Days	Grab	--	lbs/day
Vinyl Chloride	75-01-4	< 1.0	2.0	µg/L	Monthly (1-31) Days	Grab	--	lbs/day
1,2-(trans) Dichloroethylene	156-60-5	< 1.0	5.0	µg/L	Monthly (1-31) Days	Grab	--	lbs/day
1,2-(cis) Dichloroethylene	156-59-2	< 1.0	5.0	µg/L	Monthly (1-31) Days	Grab	--	lbs/day
Chloroform	67-68-3	< 1.0	5.0	µg/L	Monthly (1-31) Days	Grab	--	lbs/day
Trichlorofluoromethane (Freon 113)	76-13-1	< 5.0	5.0	µg/L	Monthly (1-31) Days	Grab	--	lbs/day
Benzene	71-43-2	< 0.50	1.0	µg/L	Monthly (1-31) Days	Grab	--	lbs/day
1,1-Dichloroethane	75-34-1	< 1.0	5.0	µg/L	Monthly (1-31) Days	Grab	--	lbs/day
Ethylbenzene	100-41-4	< 1.0	5.0	µg/L	Monthly (1-31) Days	Grab	--	lbs/day
Toluene	108-88-3	< 1.0	5.0	µg/L	Monthly (1-31) Days	Grab	--	lbs/day
o-Xylene	95-47-6	< 1.0	5.0	µg/L	Monthly (1-31) Days	Grab	--	lbs/day
m,p-Xylene	--	< 1.0	5.0	µg/L	Monthly (1-31) Days	Grab	--	lbs/day
Aroclor 1016	12674-11-2	< 0.050	0.095	µg/L	Monthly (1-31) Days	Grab	--	lbs/day
Aroclor 1221	11104-28-2	< 0.050	0.095	µg/L	Monthly (1-31) Days	Grab	--	lbs/day
Aroclor 1232	11141-16-5	< 0.050	0.095	µg/L	Monthly (1-31) Days	Grab	--	lbs/day
Aroclor 1242	53169-21-9	0.088	0.095	µg/L	Monthly (1-31) Days	Grab	0.00	lbs/day
Aroclor 1248	12672-29-6	< 0.050	0.095	µg/L	Monthly (1-31) Days	Grab	--	lbs/day
Aroclor 1254	11097-62-1	< 0.050	0.095	µg/L	Monthly (1-31) Days	Grab	--	lbs/day
Aroclor 1260	11096-82-5	< 0.050	0.095	µg/L	Monthly (1-31) Days	Grab	--	lbs/day
1,4-Dioxane	123-91-1	< 0.23	Monitor	µg/L	Monthly (1-31) Days	Grab	--	lbs/day

Notes and Abbreviations:

- XX Bold value indicates the constituent was detected at or above its laboratory quantification limit
- < Compound is not detected above laboratory quantification limit
- Not Applicable
- CAS Chemical Abstracts Service
- µg/L micrograms per liter
- ND Non Detect
- lbs/day pounds per day
- NS None Specified
- lb/kg pounds per kilogram
- MGD million gallons per day
- SCADA Supervisory Control and Data Acquisition
- mg/L milligrams per liter
- SPDES State Pollution Discharge Elimination System
- min minutes
- TKN Total Kjeldahl Nitrogen
- SU Standard Units
- B Detected in method blank as reported by laboratory
- na not available
- NA Not Applicable
- COC Chain of Custody

1 Samples were analyzed for permit equivalency Volatile Organic Compounds (VOCs) using USEPA Method 624 at OU2 system and USEPA Method 8260 at OU3 system. Polychlorinated Biphenyls (PCBs) using USEPA Method 608, 1,4-Dioxane using USEPA Method 8270D-SIM-CLE, Total Nitrogen is calculated as the sum of Nitrogen (Nitrate+Nitrite) and Total Kjeldahl Nitrogen (TKN), (CAS number 14797-55-8, 14797-65-0, and 7727-37-9 respectively) by USEPA Methods 353.2 and 351.2 respectively, Total Iron and Manganese using USEPA Method 200.7

2 Discharge limits are per the SPDES permit equivalency, dated October 12, 2017, amended on March 23, 2023 and transmitted by the NYSDEC to Northrop Grumman on April 18, 2023

3 Mass Loading Calculation

$$\text{Mass Loading} \left(\frac{\text{lb}}{\text{day}} \right) = \text{Flow} \left(\frac{\text{gal}}{\text{min}} \right) \times 1440 \left(\frac{\text{min}}{\text{day}} \right) \times \text{concentration} \left(\frac{\mu\text{g}}{\text{liter}} \right) \times 10^{-6} \left(\frac{\mu\text{g}}{\text{kg}} \right) \times 3.785 \left(\frac{\text{liter}}{\text{gal}} \right) \times 2.2046 \left(\frac{\text{lb}}{\text{kg}} \right)$$

4 Average and daily maximum flow calculated from SCADA reports for the month indicated

5 Field measurement of pH taken by hand held meter on sample date

6 When Total Iron and Total Manganese are below their respective detection limits the Sum Total of Iron and Manganese is reported as 'ND'

7 Average Mass Loading calculations are based on actual flow rates unless otherwise noted

8 At the time of Outfall 005 SPDES sample collection on October 4, 2023, Building 109 AOP Treatment System remedial well flow for RW-20 was approximately 344 gpm, RW-21 was approximately 491 gpm and RW-22 was approximately 448 gpm

9 Building 109 AOP Treatment System Influent (corresponds to sample B109-INFLUENT on the COC) Post-AOP (corresponds to sample B109-POST-AOP on the COC) and Effluent (corresponds to sample OUTFALL 005-B103 on the COC) samples were collected and analyzed for 1,4-Dioxane as per footnote (1) of the SPDES permit equivalency for Outfall 005

10 Outfall 005 combines discharge from Building 109 and Tower 102 treatment systems, however, Tower 102 has not yet been upgraded for 1,4-D treatment. Although sample Outfall 005-T102 is included on the COC for the SPDES sampling report, analytical results have not been included in this report since this sample was collected for internal monitoring and analytical data associated with Outfall 005-T102 will be included in a separate EDD submittal

11 It is unclear why the effluent pH measurement for Outfall 001 (WSP-7) is markedly higher than historical effluent pH measurements, although this anomalous result is most likely due to a field instrument error. Effluent pH measurements will be monitored during upcoming sample rounds

Report of Analysis

Client Sample ID:	OUTFALL 005	Date Sampled:	10/04/23
Lab Sample ID:	JD74155-2	Date Received:	10/04/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	EPA 624.1		
Project:	RW-21 SPDES-Northrup Grumman, Bethpage, NY		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5A1563.D	1	10/05/23 19:30	NW	n/a	n/a	V5A48
Run #2							

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

VOA OU2 SPDES List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.71	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.42	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.96	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.45	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	0.46	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.96	ug/l	
76-13-1	Freon 113	ND	2.0	0.87	ug/l	
75-09-2	Methylene chloride	ND	1.0	0.41	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.41	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.43	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.41	ug/l	
79-01-6	Trichloroethene	0.64	1.0	0.43	ug/l	J
75-01-4	Vinyl chloride	ND	1.0	0.79	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4 (SUR)	99%		80-128%
2037-26-5	Toluene-D8 (SUR)	99%		82-113%
460-00-4	4-Bromofluorobenzene (SUR)	94%		79-117%
1868-53-7	Dibromofluoromethane (S)	96%		84-121%

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: OUTFALL 005	Date Sampled: 10/04/23
Lab Sample ID: JD74155-2	Date Received: 10/04/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: RW-21 SPDES-Northrup Grumman, Bethpage, NY	

4.2
4

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	< 100	100	ug/l	1	10/05/23	10/07/23 ND	EPA 200.7 ¹	EPA 200.7 ²
Manganese	< 15	15	ug/l	1	10/05/23	10/07/23 ND	EPA 200.7 ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA54880

(2) Prep QC Batch: MP42347

RL = Reporting Limit

Report of Analysis

Client Sample ID:	OUTFALL 005	Date Sampled:	10/04/23
Lab Sample ID:	JD74155-2	Date Received:	10/04/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	RW-21 SPDES-Northrup Grumman, Bethpage, NY		

4.2
4

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Nitrogen, Nitrate + Nitrite	3.3	0.10	mg/l	1	10/05/23 13:35	JD	EPA 353.2/LACHAT
Nitrogen, Total ^a	3.3	0.30	mg/l	1	10/06/23 18:37	JD	SM4500 A-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	10/06/23 18:37	JD	EPA 351.2/LACHAT

(a) Calculated as: (Nitrogen, Total Kjeldahl) + (Nitrogen, Nitrate + Nitrite)

RL = Reporting Limit

Report of Analytical Results

IDG: SQ5395
Job ID: SQ5395-1
Client ID: OUTFALL 005
Matrix: AQ
Job File ID: G8090.D

Sample Date: 04-OCT-23
Extract Date: 11-OCT-23
Extracted By: CMW
Extraction Method: SW846 3520C
Lab Prep Batch: WG343753

Report Date: 17-OCT-23
Analysis Date: 13-OCT-23
Analyst: DT
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
,4-Dioxane		3.0	ug/L	1	.25	0.24	0.080
,4-Dioxane-D8		83.0	%				

Report of Analytical Results

IDG: SQ5395
Lab ID: SQ5395-2
Client ID: OUTFALL 005-B109
Matrix: AQ
Lab File ID: G8091.D

Sample Date: 04-OCT-23
Extract Date: 11-OCT-23
Extracted By: CMW
Extraction Method: SW846 3520C
Lab Prep Batch: WG343753

Report Date: 17-OCT-23
Analysis Date: 13-OCT-23
Analyst: DT
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
,4-Dioxane	U	0.23	ug/L	1	.25	0.23	0.079
,4-Dioxane-D8		89.0	%				

Report of Analytical Results

IDG: SQ5397

Lab ID: SQ5397-1DL

Client ID: B109-INFLUENT

Matrix: AQ

Lab File ID: G8110.D

Sample Date: 04-OCT-23

Extract Date: 11-OCT-23

Extracted By: CMW

Extraction Method: SW846 3520C

Lab Prep Batch: WG343753

Report Date: 23-OCT-23

Analysis Date: 20-OCT-23

Analyst: DT

Analysis Method: SW846 8270D SIM

% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
,4-Dioxane		41	ug/L	10	.25	2.4	0.81
,4-Dioxane-D8	D	0.00	%				

Report of Analytical Results

IDG: SQ5397

Lab ID: SQ5397-2

Client ID: B109-POST-AOP

Matrix: AQ

Lab File ID: G8095.D

Sample Date: 04-OCT-23

Extract Date: 11-OCT-23

Extracted By: CMW

Extraction Method: SW846 3520C

Lab Prep Batch: WG343753

Report Date: 23-OCT-23

Analysis Date: 13-OCT-23

Analyst: DT

Analysis Method: SW846 8270D SIM

% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
,4-Dioxane	U	0.24	ug/L	1	.25	0.24	0.080
,4-Dioxane-D8		92.5	%				

Report of Analysis

Client Sample ID: OUTFALL 006 Lab Sample ID: JD74154-2 Matrix: AQ - Ground Water Method: EPA 624.1 Project: Northrop Grumman, OU2 System, Bethpage, NY	Date Sampled: 10/04/23 Date Received: 10/04/23 Percent Solids: n/a
--	--

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5A1562.D	1	10/05/23 19:05	NW	n/a	n/a	V5A48
Run #2							

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

VOA OU2 SPDES List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	ND	0.50	0.50	ug/l	
75-35-4	1,1-Dichloroethene	ND	0.50	0.45	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	0.50	0.51	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	0.46	ug/l	
76-13-1	Freon 113	ND	0.50	0.87	ug/l	
75-09-2	Methylene chloride	ND	0.50	0.41	ug/l	
127-18-4	Tetrachloroethene	ND	0.50	0.41	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.43	ug/l	
79-01-6	Trichloroethene	ND	0.50	0.43	ug/l	
75-01-4	Vinyl chloride	ND	0.50	0.79	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4 (SUR)	99%		80-128%
2037-26-5	Toluene-D8 (SUR)	100%		82-113%
460-00-4	4-Bromofluorobenzene (SUR)	93%		79-117%
1868-53-7	Dibromofluoromethane (S)	95%		84-121%

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: OUTFALL 006	Date Sampled: 10/04/23
Lab Sample ID: JD74154-2	Date Received: 10/04/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Northrop Grumman, OU2 System, Bethpage, NY	

4.2
4

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	217	100	ug/l	1	10/05/23	10/07/23 ND	EPA 200.7 ¹	EPA 200.7 ²
Manganese	19.0	15	ug/l	1	10/05/23	10/07/23 ND	EPA 200.7 ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA54880

(2) Prep QC Batch: MP42347

RL = Reporting Limit

Report of Analysis

Client Sample ID: OUTFALL 006	Date Sampled: 10/04/23
Lab Sample ID: JD74154-2	Date Received: 10/04/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Northrop Grumman, OU2 System, Bethpage, NY	

4.2
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By Method
Nitrogen, Nitrate + Nitrite	4.1	0.10	0.090	mg/l	1	10/05/23 13:34 JD	EPA 353.2/LACHAT
Nitrogen, Total ^a	4.1	0.30	0.23	mg/l	1	10/06/23 18:37 JD	SM4500 A-11
Nitrogen, Total Kjeldahl	0.14 U	0.20	0.14	mg/l	1	10/06/23 18:37 JD	EPA 351.2/LACHAT

(a) Calculated as: (Nitrogen, Total Kjeldahl) + (Nitrogen, Nitrate + Nitrite)

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result >= MDL but < RL

Report of Analytical Results

IDG: SQ5396
Lab ID: SQ5396-1
Client ID: OUTFALL 006
Matrix: AQ
Lab File ID: G8093.D

Sample Date: 04-OCT-23
Extract Date: 11-OCT-23
Extracted By: CMW
Extraction Method: SW846 3520C
Lab Prep Batch: WG343753

Report Date: 17-OCT-23
Analysis Date: 13-OCT-23
Analyst: DT
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
,4-Dioxane		4.6	ug/L	1	.25	0.24	0.082
,4-Dioxane-D8		45.5	%				

GW

CHAIN OF CUSTODY

SGS Accutest New Jersey - Dayton
2234 Route 130, Dayton, NJ 08810
TEL 732-329-0200 FAX 732-329-3499 3483
www.sgs.com

Client / Reporting Information		Project Information		Requested Analysis (see TEST CODE sheet)		Matrix Codes	
Company Name Arcadis		Project Name AGMNYM82233 // OU2 System - GW Prog 3 OU2.2-ONCT-OMN/SPDES		Date Order Created AM-10723-143		License # JD74154	
Street Address 2 Huntington Quad, Suite 1S10		Street Bathpage		Billing Information (if different from Report to)		Matrix Codes DW - Drinking Water GW - Ground Water WW - Wastewater SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EQ - Equipment Blank RB - Reuse Blank TB - Trip Blank	
City Melville NY		City Bathpage NY		Company Name Arcadia, U.S., Inc.		Requested Analysis (see TEST CODE sheet)	
State NY		State NY		Street Address 630 Plaza Drive, Suite 600		Requested Analysis (see TEST CODE sheet)	
Zip 11747		Zip NY		City Highlands Ranch, CO		Requested Analysis (see TEST CODE sheet)	
Project Contact Kevin Czarwinski, Kevin.Czarwinski@arcadis.com		Project # 30169301 OMMI3		State CO		Requested Analysis (see TEST CODE sheet)	
Phone # 631-245-0710		Contract Purchase Order # NY001496_2015 10 30		Zip 80129		Requested Analysis (see TEST CODE sheet)	
Sample(s) Name(s) Patrick Dellecane		Phone # 631-374-8571		Address Highlands Ranch, CO 80129		Requested Analysis (see TEST CODE sheet)	
Project Manager Carlo San Giovanni		Accounts Payable		Number of preserved bottles		Requested Analysis (see TEST CODE sheet)	
Approved By (Name/Title) / Date		Approved By (Name/Title) / Date		Approved By (Name/Title) / Date		Approved By (Name/Title) / Date	
Turnaround Time (Business days)		Data Deliverable Information		Comments / Special Instructions		LAB USE ONLY	
<input type="checkbox"/> Std. 18 Business Days <input checked="" type="checkbox"/> Std. 10 Business Days (by Contract only) <input type="checkbox"/> 10 Day RUSH <input type="checkbox"/> 6 Day RUSH <input type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY Emergency & Rush T/A data available V.A. Labfax		<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> FULLT1 (Level 3+4) <input type="checkbox"/> NJ Reduced <input type="checkbox"/> Commercial "C" Commercial "A" = Results Only Commercial "B" = Results + QC Summary NJ Reduced = Results + QC Summary + Partial Review		<input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> State Forms <input checked="" type="checkbox"/> EOD Format-EQUS 6 <input checked="" type="checkbox"/> Other COMM-C		Initial Assessment 23-JW Verification _____	
Sample Custody must be documented below each time samples change possession, including courier delivery							
Relinquished by Sampler Patrick Dellecane	Date/Time 10/14/23	Received By Sean C...	Date/Time 10/14/23	Relinquished by Sean C...	Date/Time 10/14/23	Received By SP 17:48	Date/Time 10/24
Relinquished by Sampler Patrick Dellecane	Date/Time 10/14/23	Received By Sean C...	Date/Time 10/14/23	Relinquished by Sean C...	Date/Time 10/14/23	Received By SP 17:48	Date/Time 10/24
Relinquished by Sampler Patrick Dellecane	Date/Time 10/14/23	Received By Sean C...	Date/Time 10/14/23	Relinquished by Sean C...	Date/Time 10/14/23	Received By SP 17:48	Date/Time 10/24

5.2
5

© APHO, FCT, Inc. / New York, NY. Form No. 1002.2 ONCT08. Notes are: Data System Sampling Facility (QAP) C-OC3_SGS PAR_OU2_COCs_1002.2 ONCT08_Rev 04-2011

Report of Analysis

Client Sample ID:	WSP-7	Date Sampled:	10/04/23
Lab Sample ID:	JD74153-1	Date Received:	10/04/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260D		
Project:	Northrop Grumman, OU3 BPGWCS System, Bethpage, NY		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2G5934.D	1	10/06/23 18:38	LD	n/a	n/a	V2G192
Run #2							

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

VOA OU3 BPGWVS List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	3.1	ug/l	
71-43-2	Benzene	ND	0.50	0.43	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.45	ug/l	
75-25-2	Bromoform	ND	1.0	0.63	ug/l	
74-83-9	Bromomethane ^a	ND	2.0	1.6	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	2.7	ug/l	
106-99-0	1,3-Butadiene	ND	5.0	0.62	ug/l	
75-15-0	Carbon disulfide	ND	2.0	1.8	ug/l	
56-23-5	Carbon tetrachloride ^a	ND	1.0	0.55	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.56	ug/l	
75-45-6	Chlorodifluoromethane ^a	ND	5.0	0.49	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 ^a	ND	1.0	0.76	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.56	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	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 ^a	ND	5.0	0.58	ug/l	
591-78-6	2-Hexanone	ND	5.0	4.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.51	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	4.9	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.49	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.65	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: WSP-7	Date Sampled: 10/04/23
Lab Sample ID: JD74153-1	Date Received: 10/04/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260D	
Project: Northrop Grumman, OU3 BPGWCS System, Bethpage, NY	

4.1
4

VOA OU3 BPGWVS List

CAS No.	Compound	Result	RL	MDL	Units	Q
127-18-4	Tetrachloroethene	ND	1.0	0.56	ug/l	
108-88-3	Toluene	ND	1.0	0.49	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	
79-01-6	Trichloroethene	ND	1.0	0.53	ug/l	
75-69-4	Trichlorofluoromethane ^a	ND	2.0	0.40	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.52	ug/l	
75-68-3	1-chloro-1,1-difluoroethane	ND	5.0	0.33	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	95%		80-120%
17060-07-0	1,2-Dichloroethane-D4	106%		80-120%
2037-26-5	Toluene-D8	107%		80-120%
460-00-4	4-Bromofluorobenzene	102%		82-114%

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

(a) Associated CCV outside of control limits low. A sensitivity check was analyzed to demonstrate system suitability to detect affected analyte. 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

Report of Analysis

Client Sample ID: WSP-7 Lab Sample ID: JD74153-1 Matrix: AQ - Ground Water Method: EPA 608.3 EPA 608 Project: Northrop Grumman, OU3 BPGWCS System, Bethpage, NY	Date Sampled: 10/04/23 Date Received: 10/04/23 Percent Solids: n/a
---	--

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	XX2507317.D	1	10/07/23 17:37	TP	10/06/23 10:00	OP49604A	GXX8328
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.050	0.034	ug/l	
11104-28-2	Aroclor 1221	ND	0.050	0.029	ug/l	
11141-16-5	Aroclor 1232	ND	0.050	0.020	ug/l	
53469-21-9	Aroclor 1242 ^a	0.088	0.050	0.027	ug/l	
12672-29-6	Aroclor 1248	ND	0.050	0.025	ug/l	
11097-69-1	Aroclor 1254	ND	0.050	0.034	ug/l	
11096-82-5	Aroclor 1260	ND	0.050	0.027	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	85%		10-156%
877-09-8	Tetrachloro-m-xylene	96%		10-156%
2051-24-3	Decachlorobiphenyl	22%		10-143%
2051-24-3	Decachlorobiphenyl	25%		10-143%

(a) More than 40 % RPD for detected concentrations between the two GC columns.

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

Client Sample ID: WSP-7	Date Sampled: 10/04/23
Lab Sample ID: JD74153-1	Date Received: 10/04/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Northrop Grumman, OU3 BPGWCS System, Bethpage, NY	

4.1
4

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	192	100	ug/l	1	10/05/23	10/07/23 ND	EPA 200.7 ¹	EPA 200.7 ²
Manganese	37.6	15	ug/l	1	10/05/23	10/07/23 ND	EPA 200.7 ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA54880

(2) Prep QC Batch: MP42347

RL = Reporting Limit

Report of Analysis

Client Sample ID: WSP-7		Date Sampled: 10/04/23
Lab Sample ID: JD74153-1		Date Received: 10/04/23
Matrix: AQ - Ground Water		Percent Solids: n/a
Project: Northrop Grumman, OU3 BPGWCS System, Bethpage, NY		

4.1
4

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Nitrogen, Nitrate + Nitrite	1.9	0.10	mg/l	1	10/05/23 13:32	JD	EPA 353.2/LACHAT
Nitrogen, Total ^a	2.1	0.30	mg/l	1	10/06/23 18:27	JD	SM4500 A-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	10/06/23 18:27	JD	EPA 351.2/LACHAT

(a) Calculated as: (Nitrogen, Total Kjeldahl) + (Nitrogen, Nitrate + Nitrite)

RL = Reporting Limit

Report of Analytical Results

IDG: SQ5398
Lab ID: SQ5398-1
Client ID: WSP-7
Matrix: AQ
Lab File ID: G8096.D

Sample Date: 04-OCT-23
Extract Date: 11-OCT-23
Extracted By: CMW
Extraction Method: SW846 3520C
Lab Prep Batch: WG343753

Report Date: 17-OCT-23
Analysis Date: 13-OCT-23
Analyst: DT
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
,4-Dioxane	U	0.23	ug/L	1	.25	0.23	0.079
,4-Dioxane-D8		65.5	%				

GW

Client / Reporting Information Company Name: Arcadis Street Address: 2 Huntington Quad, Suite 1S10 City: Malville NY 11747		Project Information Project Name: AGMNYM62236 // OU3 BPGWCS - GW Prog 4A OU3.2-ONCT-OMMSPDES Billing Information (if different from Report to): Company Name: Arcadis, U.S., Inc. Street Address: 630 Plaza Drive, Suite 600 City: Highlands Ranch, CO 80129		FED-EX Tracking # Accutest Order # Matrix Codes Matrix Codes: DW-Drinking Water GW-Grnd Water WW-Waste Water SW-Surface Water SO-Soil SL-Sludge SED-Sediment OI-Oil LOI-Liquid AIR-Air SOL-Other Solid WP-Wipe FB-Field Blank EB-Equipment Blank RB-Rinse Blank TB-Trip Blank	
Project Contact: Arnes Nemickas, arnes.nemickas@arcadis.com Phone #: 631-391-5212 Sample(s) Name(s): Patrick Deleauve (631)391-2591		Project #: Client Purchase Order #: Work Authorization #: Project Manager: Arnie Nemickas		Bottle Order Control # MM-10223-142 Accutest Job # J074153	
Turnaround Time (Business days): <input type="checkbox"/> Std. 15 Business Days <input checked="" type="checkbox"/> 10 Business Days (by Contract only) <input type="checkbox"/> 10 Day RUSH <input type="checkbox"/> 5 Day RUSH <input type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY Emergency & Rush T/A data available VIA Leobink		Approved By (Accutest PM): I Date: _____ Date Deliverable Information: <input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> FULLT1 (Level 3+4) <input type="checkbox"/> NJ Reduced <input type="checkbox"/> Commercial "C" Commercial "A" = Results Only Commercial "B" = Results + QC Summary NJ Reduced = Results + QC Summary + Partial Raw data		Comments / Special Instructions: Initial Assessment 2-B-JW Label Verification	
Sample Custody must be documented below each time samples change possession, including courier delivery					
Requisitioned by Sampler: 1 Patrick Deleauve Date Time: 10/14/23		Received By: 1 Sean Curtis Date Time: _____		Requisitioned By: 2 SP Date Time: 17:46 10/14	
Requisitioned by Sampler: 3 Date Time: _____		Received By: 3 Date Time: _____		Requisitioned By: 4 Date Time: _____	
Requisitioned by Sampler: 5 Date Time: _____		Received By: 5 Date Time: 10/14/23 3:00		Requisitioned By: 5:39 Date Time: _____	

G:\PROJECT\Northrop Grumman Bethpage_Program Wide\04 Project Management\Contracts and POs\Lab\SGS-Accutest\LAB_CODESEndCOCs\Customized_TM_COCs\OU3 GW COCs Revised 8.21.20

JD74153: Chain of Custody
Page 1 of 2

5.2
5

November'&\$&'

Northrop Grumman
925 South Oyster Bay Road
Bethpage, NY 11714

northropgrumman.com

ESH&M-031L-23
December 20, 2023

Matthew Travis
N.Y.S. Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-3506

**Subject: Report for SPDES Permit Equivalent, NYSDEC Site No. 1-30-003A
Northrop Grumman Corporation - Bethpage, New York Facility**

Mr. Travis:

Enclosed please find the subject SPDES Permit Equivalent summary tables for the month of November 2023, as per additional condition requirements outlined in the SPDES Permit Equivalent (Northrop Grumman, NYSDEC No. 1-30-003A) dated July 30, 2018.

If you have any questions, please call me at 516-575-2333

Very truly yours,



Edward J. Hannon
Environmental, Safety, Health & Medical Manager
516-575-2333
M/S: 02/BP15

cc: Regional Water Engineer - Region 1
NYS Department of Environmental Conservation
SUNY @ Stony Brook
50 Circle Road
Stony Brook, NY 11790-3409

Northrop Grumman
925 South Oyster Bay Road
Bethpage, NY 11714

northropgrumman.com

ESH&M-032L-23
December 20, 2023

Matthew Travis
N.Y.S. Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-3506

RE: NYSDEC No. 1-30-003A

Subject: Additional Sampling Constituents for Report Period:
November 1, 2023 – November 30, 2023.

Mr. Travis:

Below please find the 1,4 – Dioxane sampling results for Outfalls 1, 5 and 6 for this reporting period.

Outfall 1 – 2.2 ug/L
Outfall 5 – 2.6 ug/L
Outfall 6 – 7.5 ug/L

Sampling results for Outfall 1 for the following:

Ethylbenzene - <1.0
Toluene - <1.0
Benzene - <0.50
m,p-Xylene - <1.00

If you have any questions, please call me at 516-575-2333
Very truly yours,



Edward J. Hannon
Environmental, Safety, Health & Medical Director
516-575-2333
M/S: 02/BP15

cc: Regional Water Engineer - Region 1
NYS Department of Environmental Conservation
SUNY @ Stony Brook
50 Circle Road
Stony Brook, NY 11790-3409

DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if
 NAME: NORTROP GRUMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S- W16- 035
 BETHPAGE, NY 11714

FACILITY: NORTROP GRUMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S- W16- 035
 BETHPAGE, NY 11714

ATTN: JOHN COFMAN

NY0096792	005-C
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
11/30/2023	11/30/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SUBR 01)
 NC COOLING & STORM WATER TO GW
 External Outfall

No Discharge

PARAMETER	QUANTITY OR LOADING		QUALITY OR CONCENTRATION		NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	UNITS			
pH	*****	*****	*****	*****	0	1/30 Monthly	Grab
00400 1 0 Effluent Gross	*****	*****	Req. Mon. MINIMUM	Req. Mon. MAXIMUM	0	1/30 Monthly	Grab
pH	*****	*****	*****	*****	0	1/30 Monthly	Grab
00400 1 0 Intake from Well	*****	*****	Req. Mon. MINIMUM	Req. Mon. MAXIMUM	0	1/30 Monthly	Grab
Nitrogen, total [as N]	*****	*****	*****	*****	0	1/30 Monthly	Grab
00600 1 0 Effluent Gross	*****	*****	*****	*****	0	1/30 Monthly	Grab
Methylene chloride	*****	*****	*****	*****	0	1/30 Monthly	Grab
34423 1 0 Effluent Gross	*****	*****	*****	*****	0	1/30 Monthly	Grab
Tetrachloroethylene	*****	*****	*****	*****	0	1/30 Monthly	Grab
34475 1 0 Effluent Gross	*****	*****	*****	*****	0	1/30 Monthly	Grab
1,1-Dichloroethylene	*****	*****	*****	*****	0	1/30 Monthly	Grab
34501 1 0 Effluent Gross	*****	*****	*****	*****	0	1/30 Monthly	Grab
1,1,1-Trichloroethane	*****	*****	*****	*****	0	1/30 Monthly	Grab
34506 1 0 Effluent Gross	*****	*****	*****	*****	0	1/30 Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
 I certify under penalty of law that this document and all attachments were prepared under my direct supervision and that I am a duly qualified person responsible for the accuracy and completeness of the information submitted hereon, to the best of my knowledge and belief, and that I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT
 TELEPHONE
 DATE
 AREA Code NUMBER
 MM/DD/YYYY

Edward J. Hannan, **ESH Manager**
 TYPED OR PRINTED

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

WHEN NATURAL GW HAS PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

FORM APPROVED
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if
NAME: NORTHROP GRUMMAN SYSTEMS CORP
ADDRESS: 925 SO. OYSTER BAY RD M/S- W16- 035
BETHPAGE, NY 11714

FACILITY: NORTHROP GRUMMAN SYSTEMS CORP
LOCATION: 925 SO. OYSTER BAY RD M/S- W16- 035
BETHPAGE, NY 11714

ATTN: JOHN COFMAN

NY0096792	005- C
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
11/01/2023	11/30/2023

DMR Mailing ZIP CODE: 11714
MINOR (SUBR 01)
NC COOLING & STORM WATER TO GW
External Outfall

No Discharge

PARAMETER	QUANTITY OR LOADING		QUALITY OR CONCENTRATION		NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	UNITS			
Vinyl chloride	*****	*****	*****	*****	0	1/30 Monthly	Grab
39175 1 0 Effluent Gross	*****	*****	*****	*****	0	1/30 Monthly	Grab
Trichloroethylene	*****	*****	*****	*****	0	1/30 Monthly	Grab
39180 1 0 Effluent Gross	*****	*****	*****	*****	0	1/30 Monthly	Grab
Flow, in conduit or thru treatment plant	*****	*****	*****	*****	0	1/30 Monthly	Measured
50050 1 0 Effluent Gross	*****	*****	*****	*****	0	1/30 Monthly	Measured
Calculated limit	*****	*****	*****	*****	0	1/30 Monthly	Calculated
74013 1 0 Effluent Gross	*****	*****	*****	*****	0	1/30 Monthly	Calculated
cis- 1,2- Dichloroethylene	*****	*****	*****	*****	0	1/30 Monthly	Grab
77093 1 0 Effluent Gross	*****	*****	*****	*****	0	1/30 Monthly	Grab
Trichlorotrifluoroethane	*****	*****	*****	*****	0	1/30 Monthly	Grab
81611 0 Effluent Gross	*****	*****	*****	*****	0	1/30 Monthly	Grab
trans- 1,2- Dichloroethylene	*****	*****	*****	*****	0	1/30 Monthly	Grab
85810 1 0 Effluent Gross	*****	*****	*****	*****	0	1/30 Monthly	Grab

NAME/TITLE: PRINCIPAL EXECUTIVE OFFICER	TELEPHONE	DATE
<i>Edward J. Hannon</i>	516-515-2333	12/26/2023
SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA Code	MM/DD/YYYY
<i>Edward J. Hannon</i>	516	12/26/2023

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

WHEN NATURAL GW HAS PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

run approved
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (include Facility Name/Location if
NAME: NORTHROP GRUMAN SYSTEMS CORP
ADDRESS: 925 SO. OYSTER BAY RD M/S- W1G- 035
BETHPAGE, NY 11714
FACILITY: NORTHROP GRUMAN SYSTEMS CORP
LOCATION: 925 SO. OYSTER BAY RD M/S- W1G- 035
BETHPAGE, NY 11714
ATTN: JOHN COEMAN

DMR Mailing ZIP CODE: 11714
MINOR (SUBR 01)
NC COOLING & STORM WATER TO GW
External Outfall

No Discharge

NY0096792	006-C
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
11/01/2023	11/30/2023

PARAMETER	QUANTITY OR LOADING			QUALITY OR CONCENTRATION			NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	VALUE	UNITS	VALUE			
pH	*****	*****	*****	*****	*****	*****	0	1/30 Monthly	Grab
00400 1 0 Effluent Gross	*****	*****	7.5	*****	*****	*****	0	1/30 Monthly	Grab
pH	*****	*****	*****	*****	*****	*****	0	1/30 Monthly	Grab
00400 1 0 Intake from Well	*****	*****	5.4	*****	*****	*****	0	1/30 Monthly	Grab
Nitrogen, total (as N)	*****	*****	*****	*****	*****	*****	0	1/30 Monthly	Grab
00600 1 0 Effluent Gross	*****	*****	*****	*****	*****	*****	0	1/30 Monthly	Grab
Methylene chloride	*****	*****	*****	*****	*****	*****	0	1/30 Monthly	Grab
34423 1 0 Effluent Gross	*****	*****	*****	*****	*****	*****	0	1/30 Monthly	Grab
Tetrachloroethylene	*****	*****	*****	*****	*****	*****	0	1/30 Monthly	Grab
34475 1 0 Effluent Gross	*****	*****	*****	*****	*****	*****	0	1/30 Monthly	Grab
1,1-Dichloroethylene	*****	*****	*****	*****	*****	*****	0	1/30 Monthly	Grab
34501 1 0 Effluent Gross	*****	*****	*****	*****	*****	*****	0	1/30 Monthly	Grab
1,1,1-Trichloroethane	*****	*****	*****	*****	*****	*****	0	1/30 Monthly	Grab
34506 1 0 Effluent Gross	*****	*****	*****	*****	*****	*****	0	1/30 Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	TELEPHONE	DATE
Edward J. Hampton ESH Manager		
TYPED OR PRINTED	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA Code NUMBER
		516-515-2333
		MM/DD/YYYY
		12/20/2023

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
WHEN NATURAL GWS HAVE PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS & REQUIREMENTS

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if
 NAME: NORTROP GRUMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S- W16-035
 BETHPAGE, NY 11714
 FACILITY: NORTROP GRUMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S- W16-035
 BETHPAGE, NY 11714
 ATTN: JOHN COFMAN

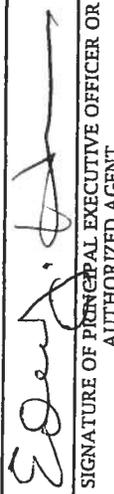
NY0096792	006-C
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
11/01/2023	11/30/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SUJR 01)
 NC COOLING & STORM WATER TO GW
 External Outfall

No Discharge

PARAMETER	QUANTITY OR LOADING		QUALITY OR CONCENTRATION		NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
	VALUE	UNITS	VALUE	UNITS			
Vinyl chloride	*****	*****	< 0.5	ug/L	0	1/30 Monthly	Grab
39175 1 0 Effluent Gross	*****	*****	5	ug/L	0	1/30 Monthly	Grab
Trichloroethylene	*****	*****	< 0.5	ug/L	0	1/30 Monthly	Grab
39180 1 0 Effluent Gross	*****	*****	5	ug/L	0	1/30 Monthly	Grab
Flow, in conduit or thru treatment plant	*****	*****	*****	*****	0	1/30 Monthly	Measured
50050 1 0 Effluent Gross	*****	MGD	*****	*****	0	1/30 Monthly	Measured
Calculated limit	*****	*****	*****	*****	0	1/30 Monthly	Calculated
74013-1 0 Effluent Gross	*****	*****	*****	*****	0	1/30 Monthly	Calculated
cis-1,2-Dichloroethylene	*****	*****	< 0.5	ug/L	0	1/30 Monthly	Grab
77093 1 0 Effluent Gross	*****	*****	5	ug/L	0	1/30 Monthly	Grab
Trichlorotrifluoroethane	*****	*****	< 0.5	ug/L	0	1/30 Monthly	Grab
81611 1 0 Effluent Gross	*****	*****	5	ug/L	0	1/30 Monthly	Grab
trans-1,2-Dichloroethylene	*****	*****	< 0.5	ug/L	0	1/30 Monthly	Grab
85810 1 0 Effluent Gross	*****	*****	5	ug/L	0	1/30 Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
 Edward J Hancock, JESH Manager
 TYPED OR PRINTED

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT


TELEPHONE	DATE
516-515-2333	12/20/2023
AREA Code	MM/DD/YYYY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

WHEN NATURAL GWS HAVE PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORTS SUPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS & REQUIREMENTS

DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME/ADDRESS (include Facility Name/Location if
 NAME: NORTTHROP GRUIMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S- W16- 035
 BETHPAGE, NY 11714
 FACILITY: NORTTHROP GRUIMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S- W16- 035
 BETHPAGE, NY 11714
 ATTN: JOHN COFFMAN

NY0096792
 PERMIT NUMBER
 MONITORING PERIOD
 MM/DD/YYYY
 11/01/2023

001-WSP-7
 DISCHARGE NUMBER
 MONITORING PERIOD
 MM/DD/YYYY
 11/30/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SUBR 01)
 NC COOLING & STORM WATER TO GW
 External Outfall

No Discharge

PARAMETER	SAMPLE MEASUREMENT	QUANTITY OR LOADING		QUALITY OR CONCENTRATION		UNITS	NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	UNITS	VALUE	UNITS				
pH	PERMIT REQUIREMENT	*****	*****	*****	*****	SU	0	1/30 Monthly	Grab
0040010 Effluent Gross	PERMIT REQUIREMENT	*****	*****	6.2 Req. Mon. MINIMUM	6.2 Req. Mon. MAXIMUM	SU	0	1/30 Monthly	Grab
pH	SAMPLE MEASUREMENT	*****	*****	*****	*****	SU	0	1/30 Monthly	Grab
0040010 Intake from Well	PERMIT REQUIREMENT	*****	*****	5.5 Req. Mon. MINIMUM	5.5 Req. Mon. MAXIMUM	SU	0	1/30 Monthly	Grab
Nitrogen, total [as N]	SAMPLE MEASUREMENT	*****	*****	*****	*****	mg/L	0	1/30 Monthly	Grab
0060010 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	10 DAILY MX	mg/L	0	1/30 Monthly	Grab
Methylene chloride	SAMPLE MEASUREMENT	*****	*****	*****	*****	ug/L	0	1/30 Monthly	Grab
3442310 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	<2.0 5 DAILY MX	ug/L	0	1/30 Monthly	Grab
Tetrachloroethylene	SAMPLE MEASUREMENT	*****	*****	*****	*****	ug/L	0	1/30 Monthly	Grab
3447510 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	<1.0 5 DAILY MX	ug/L	0	1/30 Monthly	Grab
1,1-Dichloroethylene	SAMPLE MEASUREMENT	*****	*****	*****	*****	ug/L	0	1/30 Monthly	Grab
3450110 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	<1.0 5 DAILY MX	ug/L	0	1/30 Monthly	Grab
1,1,1-Trichloroethane	SAMPLE MEASUREMENT	*****	*****	*****	*****	ug/L	0	1/30 Monthly	Grab
3450610 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	<1.0 5 DAILY MX	ug/L	0	1/30 Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
 Edward J. Hammond, ESH Manager
 TYPED OR PRINTED

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT


TELEPHONE
 516-575-2333
 AREA Code NUMBER
 DATE
 12/20/2023
 MM/DD/YYYY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
 WHEN NATURAL GW HAS PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORTS SUPPLY WELL & OUTFALL PH MONTHLY & REPORT P1)
 COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA. SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

DISCHARGE MONITORING REPORT (DMR)

PERMITTEE NAME: ADDRESS (include Facility Name/Location if applicable)
 NAME: NORTROP GRUMMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S- W16-035
 BETHPAGE, NY 11714
 FACILITY: NORTROP GRUMMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S- W16-035
 BETHPAGE, NY 11714
 ATTN: JOHN COFMAN

NY0096792
 PERMIT NUMBER
 MONITORING PERIOD
 MM/DD/YYYY
 11/01/2023

001-WSP-7
 DISCHARGE NUMBER
 MM/DD/YYYY
 11/30/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SUHR 01)

NC COOLING & STORM WATER TO GW
 External Outfall

No Discharge

PARAMETER	SAMPLE MEASUREMENT	QUANTITY OR LOADING		QUALITY OR CONCENTRATION		NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	UNITS	VALUE	UNITS			
Vinyl chloride	MEASUREMENT	*****	*****	*****	*****	0	1/30 Monthly	Grab
3917510 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	0	1/30 Monthly	Grab
Trichloroethylene	MEASUREMENT	*****	*****	*****	*****	0	1/30 Monthly	Grab
3918010 Effluent-Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	0	1/30 Monthly	Grab
Flow in conduit or thru treatment plant	MEASUREMENT	*****	*****	*****	*****	0	1/30 Monthly	Measured
5005010 Effluent-Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	0	1/30 Monthly	Calculated
Calculated limit	MEASUREMENT	*****	*****	*****	*****	0	1/30 Monthly	Calculated
7401310 Effluent-Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	0	1/30 Monthly	Calculated
cis-1,2-Dichloroethylene	MEASUREMENT	*****	*****	*****	*****	0	1/30 Monthly	Grab
7709310 Effluent-Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	0	1/30 Monthly	Grab
Trichlorotrifluoroethane	MEASUREMENT	*****	*****	*****	*****	0	1/30 Monthly	Grab
816110 Effluent-Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	0	1/30 Monthly	Grab
trans-1,2-Dichloroethylene	MEASUREMENT	*****	*****	*****	*****	0	1/30 Monthly	Grab
8581010 Effluent-Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	0	1/30 Monthly	Grab

NAME/TITLE: PRINCIPAL EXECUTIVE OFFICER
 Edward J. Hannon, ESH Manager
 TYPED OR PRINTED

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT


TELEPHONE: DATE: 12/20/2023

AREA Code NUMBER: 516-575-2333 MM/DD/YYYY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
 WHEN NATURAL GW HAS PIH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORTS SUPPLY WELL & OUTFALL PIH MONTHLY & REPORT PIH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

Monitoring Period:
November 2023
 11/1/23 12:00 AM - 11/30/23 12:00 AM
 30 Days

OU2 South Basins Outfall 005³

Combined OU2 Groundwater Remedy Tower 102 and Building 109 Advanced Oxidation Process (AOP) Treatment Systems - Tower 102 Treated Air Stripper Discharge, Building 109 AOP Treatment System Discharge, and Storm Water Runoff

Parameter ⁽¹⁾	CAS Number	OUTFALL 005 11/7/2023	Discharge Limit ⁽¹⁾	Units	Monitoring Frequency	Sample Type	Average Mass Loading ⁽²⁾	Units
Daily Average Flow ⁽⁴⁾	---	5.90	Monitor	MGD	Continuous	SCADA	---	---
Daily Maximum Flow ⁽⁴⁾	---	5.95	Monitor	MGD	Continuous	SCADA	---	---
Influent pH ^{(5) (Building 109)}	---	---	NS	5.0	Monthly (1/30) Days	Grab	---	---
Influent pH ^{(5) (Tower 102)}	---	5.6	NS	5.0	Monthly (1/30) Days	Grab	---	---
Outfall OGD Effluent pH ⁽⁵⁾	---	---	Range: 5.0-8.5	5.0	Monthly (1/30) Days	Grab	---	---
Total Nitrogen (as N)	---	3.4	10.0	mg/l	Monthly (1/30) Days	Grab	15.8 kg/d	lb/day
Total Iron	7439-89-6	117	600	ppm	Monthly (1/30) Days	Grab	5.47	lb/day
Total Manganese	7439-96-5	< 15	600	ppm	Monthly (1/30) Days	Grab	---	lb/day
Sum of Total Iron and Manganese ⁽⁶⁾	---	117	1,000	ppm	Monthly (1/30) Days	Calculated	5.47	lb/day
1,1-Dichloroethylene	75-35-4	< 1.0	5.0	ppm	Monthly (1/30) Days	Grab	---	lb/day
Methylene Chloride	75-09-2	< 1.0	5.0	ppm	Monthly (1/30) Days	Grab	---	lb/day
Tetrachloroethylene	127-18-4	< 1.0	5.0	ppm	Monthly (1/30) Days	Grab	---	lb/day
1,1,1-Trichloroethane	71-55-6	< 1.0	5.0	ppm	Monthly (1/30) Days	Grab	---	lb/day
Trichloroethylene	79-01-6	< 1.0	5.0	ppm	Monthly (1/30) Days	Grab	---	lb/day
Vinyl Chloride	75-01-4	< 1.0	2.0	ppm	Monthly (1/30) Days	Grab	---	lb/day
trans-1,2-Dichloroethylene	156-60-5	< 1.0	5.0	ppm	Monthly (1/30) Days	Grab	---	lb/day
cis-1,2-Dichloroethylene	156-59-2	< 1.0	5.0	ppm	Monthly (1/30) Days	Grab	---	lb/day
Chloroform	67-66-3	< 1.0	5.0	ppm	Monthly (1/30) Days	Grab	---	lb/day
Tetrachlorofluoroethane (Tetra 113)	76-13-1	< 2.0	5.0	ppm	Monthly (1/30) Days	Grab	---	lb/day
1,1,2-Trichloroethane	70-00-5	< 1.0	1.0	ppm	Monthly (1/30) Days	Grab	---	lb/day
1,1-Dichloroethane	75-34-3	< 1.0	5.0	ppm	Monthly (1/30) Days	Grab	---	lb/day
1,2-Dichloroethane	107-06-2	< 1.0	0.6	ppm	Monthly (1/30) Days	Grab	---	lb/day
1,2-Dichloropropane	78-87-5	< 1.0	1.0	ppm	Monthly (1/30) Days	Grab	---	lb/day
Dioxene	71-43-2	< 1.0	1.0	ppm	Monthly (1/30) Days	Grab	---	lb/day
1,4-Dioxane (Building 109 Influent) ⁽⁸⁾	123-91-1	27	Monitor	ppm	Monthly (1/30) Days	Grab	NA	lb/day
1,4-Dioxane (Building 109 Post AOP) ⁽⁹⁾	123-91-1	< 0.20	Monitor	ppm	Monthly (1/30) Days	Grab	nc	lb/day
1,4-Dioxane (Building 109 Effluent) ⁽⁸⁾	123-91-1	< 0.20	Monitor	ppm	Monthly (1/30) Days	Grab	NA	lb/day
1,4-Dioxane (Outfall 005) ⁽¹⁰⁾	123-91-1	2.6	Monitor	ppm	Monthly (1/30) Days	Grab	0.12	lb/day

Notes and abbreviations on last page

Report of Analysis

4.2
4

Client Sample ID:	OUTFALL 005	Date Sampled:	11/07/23
Lab Sample ID:	JD76250-2	Date Received:	11/07/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	EPA 624.1		
Project:	RW-21 SPDES-Northrup Grumman, Bethpage, NY		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	L360536.D	1	11/08/23 13:59	NW	n/a	n/a	VL10985
Run #2							

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

VOA OU2 SPDES List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.71	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.42	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.96	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.45	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	0.46	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.96	ug/l	
76-13-1	Freon 113	ND	2.0	0.87	ug/l	
75-09-2	Methylene chloride	ND	1.0	0.41	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.41	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.43	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.41	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.43	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.79	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4 (SUR)	92%		80-128%
2037-26-5	Toluene-D8 (SUR)	101%		82-113%
460-00-4	4-Bromofluorobenzene (SUR)	90%		79-117%
1868-53-7	Dibromofluoromethane (S)	110%		84-121%

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:	OUTFALL 005	Date Sampled:	11/07/23
Lab Sample ID:	JD76250-2	Date Received:	11/07/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	RW-21 SPDES-Northrup Grumman, Bethpage, NY		

4.2
4

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	117	100	ug/l	1	11/09/23	11/09/23 ND	EPA 200.7 ¹	EPA 200.7 ²
Manganese	< 15	15	ug/l	1	11/09/23	11/09/23 ND	EPA 200.7 ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA55052

(2) Prep QC Batch: MP43011

RL = Reporting Limit

Report of Analysis

Client Sample ID:	OUTFALL 005	Date Sampled:	11/07/23
Lab Sample ID:	JD76250-2	Date Received:	11/07/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	RW-21 SPDES-Northrup Grumman, Bethpage, NY		

4.2
4

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Nitrogen, Nitrate + Nitrite	3.4	0.10	mg/l	1	11/08/23 18:54	SS	EPA 353.2/LCHAT
Nitrogen, Total ^a	3.4	0.30	mg/l	1	11/13/23 13:58	SS	SM4500 A-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	11/13/23 13:58	SS	EPA 351.2/LCHAT

(a) Calculated as: (Nitrogen, Total Kjeldahl) + (Nitrogen, Nitrate + Nitrite)

RL = Reporting Limit

Report of Analytical Results

IDG: SQ6190
Lab ID: SQ6190-1RA
Client ID: OUTFALL 005
Matrix: AQ
Lab File ID: G8308.D

Sample Date: 07-NOV-23
Extract Date: 13-NOV-23
Extracted By: NH/CMW
Extraction Method: SW846 3520C
Lab Prep Batch: WG345300

Report Date: 07-DEC-23
Analysis Date: 20-NOV-23
Analyst: DT
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
,4-Dioxane		2.6	ug/L	1	.25	0.24	0.080
,4-Dioxane-D8		61.6	%				

Report of Analytical Results

IDG: SQ6190
Lab ID: SQ6190-2RA
Client ID: OUTFALL 005-B109
Matrix: AQ
Lab File ID: G8309.D

Sample Date: 07-NOV-23
Extract Date: 13-NOV-23
Extracted By: NH/CMW
Extraction Method: SW846 3520C
Lab Prep Batch: WG345300

Report Date: 07-DEC-23
Analysis Date: 20-NOV-23
Analyst: DT
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
,4-Dioxane	U	0.23	ug/L	1	.25	0.23	0.079
,4-Dioxane-D8		81.1	%				

Report of Analytical Results

IDG: SQ6189
Lab ID: SQ6189-1DL
Client ID: B109-INFLUENT
Matrix: AQ
Lab File ID: G8332.D

Sample Date: 07-NOV-23
Extract Date: 10-NOV-23
Extracted By: SH/NH/AC
Extraction Method: SW846 3520C
Lab Prep Batch: WG345175

Report Date: 07-DEC-23
Analysis Date: 21-NOV-23
Analyst: DT
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
,4-Dioxane		27	ug/L	10	.25	2.4	0.82
,4-Dioxane-D8	D	0.00	%				

Report of Analytical Results

iDG: SQ6189
Lab ID: SQ6189-2
Client ID: B109-POST-AOP
Matrix: AQ
Lab File ID: G8264.D

Sample Date: 07-NOV-23
Extract Date: 10-NOV-23
Extracted By: SH/NH/AC
Extraction Method: SW846 3520C
Lab Prep Batch: WG345175

Report Date: 07-DEC-23
Analysis Date: 17-NOV-23
Analyst: DT
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
4-Dioxane	U	0.26	ug/L	1	.25	0.26	0.089
4-Dioxane-D8		80.6	%				

Report of Analysis

Client Sample ID:	OUTFALL 006	Date Sampled:	11/07/23
Lab Sample ID:	JD76255-1	Date Received:	11/07/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	EPA 624.1		
Project:	Northrop Grumman, OU2 System, Bethpage, NY		

4.1
4

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	L360539.D	1	11/08/23 15:07	NW	n/a	n/a	VL10985
Run #2							

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

VOA OU2 SPDES List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	ND	0.50	0.50	ug/l	
75-35-4	1,1-Dichloroethene	ND	0.50	0.45	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	0.50	0.51	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	0.46	ug/l	
76-13-1	Freon 113	ND	0.50	0.87	ug/l	
75-09-2	Methylene chloride	ND	0.50	0.41	ug/l	
127-18-4	Tetrachloroethene	ND	0.50	0.41	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.43	ug/l	
79-01-6	Trichloroethene	ND	0.50	0.43	ug/l	
75-01-4	Vinyl chloride	ND	0.50	0.79	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4 (SUR)	91%		80-128%
2037-26-5	Toluene-D8 (SUR)	103%		82-113%
460-00-4	4-Bromofluorobenzene (SUR)	91%		79-117%
1868-53-7	Dibromofluoromethane (S)	110%		84-121%

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: OUTFALL 006 Lab Sample ID: JD76255-1 Matrix: AQ - Ground Water Project: Northrop Grumman, OU2 System, Bethpage, NY	Date Sampled: 11/07/23 Date Received: 11/07/23 Percent Solids: n/a
---	--

4.1
4

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	< 100	100	ug/l	1	11/09/23	11/09/23 ND	EPA 200.7 ¹	EPA 200.7 ²
Manganese	< 15	15	ug/l	1	11/09/23	11/09/23 ND	EPA 200.7 ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA55052

(2) Prep QC Batch: MP43011

RL = Reporting Limit

Report of Analysis

Client Sample ID: OUTFALL 006	Date Sampled: 11/07/23
Lab Sample ID: JD76255-1	Date Received: 11/07/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Northrop Grumman, OU2 System, Bethpage, NY	

4.1
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By Method
Nitrogen, Nitrate + Nitrite	4.4	0.10	0.090	mg/l	1	11/08/23 19:06 SS	EPA 353.2/LACHAT
Nitrogen, Total ^a	4.4	0.30	0.23	mg/l	1	11/13/23 14:01 SS	SM4500 A-11
Nitrogen, Total Kjeldahl	0.14 U	0.20	0.14	mg/l	1	11/13/23 14:01 SS	EPA 351.2/LACHAT

(a) Calculated as: (Nitrogen, Total Kjeldahl) + (Nitrogen, Nitrate + Nitrite)

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analytical Results

IDG: SQ6188
Lab ID: SQ6188-1
Client ID: OUTFALL 006
Matrix: AQ
Lab File ID: G8262.D

Sample Date: 07-NOV-23
Extract Date: 10-NOV-23
Extracted By: SH/NH/AC
Extraction Method: SW846 3520C
Lab Prep Batch: WG345175

Report Date: 07-DEC-23
Analysis Date: 17-NOV-23
Analyst: DT
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
,4-Dioxane		7.5	ug/L	1	.25	0.24	0.082
,4-Dioxane-D8		68.0	%				

GW

CHAIN OF CUSTODY

SGS Accutest New Jersey - Dayton
 2335 Route 130 Dayton NJ 08811
 TEL 732-329-0200 FAX 732-322-3499 3480
 WWW.SGS.COM

PV

Client / Reporting Information		Project Information		Requested Analysis (see TEST CODE sheet)		Matrix Codes			
Company Name Arcadis		Project Name AGMNYM62233 // OU2 System - GW Prog 3 OU2.2-ONCT-OMM/SPDES		Requested Analysis (see TEST CODE sheet)		Matrix Codes			
Site Address 2 Huntington Quad, Suite 1510 Malville NY 11747		Street Bethpage NY		Billing Information (if different from Report to)		Matrix Codes			
City Malville NY 11747		City Bethpage NY		Company Name Arcadia, U.S., Inc.		Matrix Codes			
Project Contact Kevin Czarwinski, Kevin.Czarwinski@arcadis.com 631-245-0710		Project # 30169301.OMMI3		Street Address 630 Plaza Drive, Suite 600 Highlands Ranch, CO 80129		Matrix Codes			
Phone # 631-245-0710		Client Purchase Order # NY201495-2013.10.30		City Highlands Ranch, CO 80129		Matrix Codes			
Sample(s) Name(s) Outfall 006		Project Manager Carlo San Giovanni		Accounts Payable		Matrix Codes			
Field ID / Point of Collection TB-115723		Method Used ---		Date 11-7-23		Matrix Codes			
Field ID / Point of Collection Outfall 006		Method Used ---		Date 12-05		Matrix Codes			
Turnaround Time (Business Days)		Approved By (User and P#) / Date		Data Deliverable Information		Comments / Special Instructions			
<input type="checkbox"/> Std. 15 Business Days <input checked="" type="checkbox"/> Std. 10 Business Days (by Contract only) <input type="checkbox"/> 10 Day RUSH <input type="checkbox"/> 5 Day RUSH <input type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY Emergency & Rush TIA data available VIA Labfax		Approved By (User and P#) / Date _____ _____		<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> FULLT1 (Level 3-4) <input type="checkbox"/> NJ Reduced <input type="checkbox"/> Commercial "C" Commercial "A" - Results Only Commercial "B" - Results - QC Summary NJ Reduced - Results - QC Summary - Project Raw data		<input type="checkbox"/> NTASP Category A <input type="checkbox"/> NTASP Category B <input type="checkbox"/> State Form <input checked="" type="checkbox"/> EDO Form-EDQS & <input type="checkbox"/> Other COMSEC-		Initial Assessment 3A Label Verification _____	
Sample Custody must be documented below each time sample change possession, including courier delivery									
Requested by Sample #	Date Time	Received By	Date Time	Requested by Sample #	Date Time	Received By	Date Time		
1	11-7-23	SEAN QUINN 59	11-7-23	2	11-7-23	SEAN QUINN 59	11-7-23		
3				4					
5				6					

5.2
5

0 LA PROJECT Northrop Grumman BethpageOU2.2 ONCT06 Name and Data System Sampling February (D) MFCOC: SGSPAR (DL2) COC# MAP# 62233 12235 Rev Dec 2011

Report of Analysis

Client Sample ID:	WSP-7	Date Sampled:	11/08/23
Lab Sample ID:	JD76370-6	Date Received:	11/08/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260D		
Project:	Northrop Grumman, OU3 BPGWCS System, Bethpage, NY		

4.6
4

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	2R07986.D	1	11/10/23 15:19	ED	n/a	n/a	V2R273

Run #1	Purge Volume
Run #2	5.0 ml

VOA OU3 BPGWVS List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	3.1	ug/l	
71-43-2	Benzene	ND	0.50	0.43	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.45	ug/l	
75-25-2	Bromoform	ND	1.0	0.63	ug/l	
74-83-9	Bromomethane ^a	ND	2.0	1.6	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	2.7	ug/l	
106-99-0	1,3-Butadiene	ND	5.0	0.62	ug/l	
75-15-0	Carbon disulfide	ND	2.0	1.8	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	
75-45-6	Chlorodifluoromethane	ND	5.0	0.49	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 ^a	ND	1.0	0.76	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.56	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	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	0.62	1.0	0.51	ug/l	J
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	0.58	ug/l	
591-78-6	2-Hexanone	ND	5.0	4.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.51	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	4.9	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.49	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.65	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:	WSP-7	Date Sampled:	11/08/23
Lab Sample ID:	JD76370-6	Date Received:	11/08/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260D	Project: Northrop Grumman, OU3 BPGWCS System, Bethpage, NY	

4.6
4

VOA OU3 BPGWVS List

CAS No.	Compound	Result	RL	MDL	Units	Q
127-18-4	Tetrachloroethene	ND	1.0	0.56	ug/l	
108-88-3	Toluene	ND	1.0	0.49	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	
79-01-6	Trichloroethene	ND	1.0	0.53	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.40	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.52	ug/l	
75-68-3	1-chloro-1,1-difluoroethane	ND	5.0	0.33	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	109%		80-120%
17060-07-0	1,2-Dichloroethane-D4	111%		80-120%
2037-26-5	Toluene-D8	93%		80-120%
460-00-4	4-Bromofluorobenzene	105%		82-114%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	system artifact	1.45	5.7	ug/l	J
	Total TIC, Volatile		0	ug/l	

(a) Associated CCV outside of control limits low. A sensitivity check was analyzed to demonstrate system suitability to detect affected analyte. Sample was ND.

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

4.6
4

Client Sample ID:	WSP-7	Date Sampled:	11/08/23
Lab Sample ID:	JD76370-6	Date Received:	11/08/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	EPA 608.3 EPA 608		
Project:	Northrop Grumman, OU3 BPGWCS System, Bethpage, NY		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	XX2508163.D	1	11/11/23 14:57	TP	11/10/23 07:00	OP50403A	GXX8362
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.050	0.034	ug/l	
11104-28-2	Aroclor 1221	ND	0.050	0.029	ug/l	
11141-16-5	Aroclor 1232	ND	0.050	0.020	ug/l	
53469-21-9	Aroclor 1242	ND	0.050	0.027	ug/l	
12672-29-6	Aroclor 1248	ND	0.050	0.025	ug/l	
11097-69-1	Aroclor 1254	0.078	0.050	0.034	ug/l	
11096-82-5	Aroclor 1260	ND	0.050	0.027	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	185% ^a		10-156%
877-09-8	Tetrachloro-m-xylene	221% ^a		10-156%
2051-24-3	Decachlorobiphenyl	112%		10-143%
2051-24-3	Decachlorobiphenyl	128%		10-143%

(a) Outside of in house control limits.

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:	WSP-7	Date Sampled:	11/08/23
Lab Sample ID:	JD76370-6	Date Received:	11/08/23
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	Northrop Grumman, OU3 BPGWCS System, Bethpage, NY		

4.6
4

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	1410	100	ug/l	1	11/10/23	11/10/23 ND	EPA 200.7 ¹	EPA 200.7 ²
Manganese	141	15	ug/l	1	11/10/23	11/10/23 ND	EPA 200.7 ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA55059

(2) Prep QC Batch: MP43043

RL = Reporting Limit

Report of Analytical Results

IDG: SQ6192
Lab ID: SQ6192-6RA
Client ID: WSP-7
Matrix: AQ
Lab File ID: G8321.D

Sample Date: 08-NOV-23
Extract Date: 15-NOV-23
Extracted By: HP/AC
Extraction Method: SW846 3520C
Lab Prep Batch: WG345470

Report Date: 07-DEC-23
Analysis Date: 20-NOV-23
Analyst: DT
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
,4-Dioxane		2.2	ug/L	1	.25	0.24	0.081
,4-Dioxane-D8		80.4	%				

GW TB

CHAIN OF CUSTODY

SGS Accutest New Jersey - Dayton
 2235 Route 130 Dayton, NJ 08811
 TEL 732-319-0200 FAX 732-319-3499 7480
 www.sgs.com

Client / Reporting Information		Project Information		Requested Analysis (see TEST CODE sheet)		Matrix Codes	
Company Name Arcadis		Project Name AGMNYM62236 // OJ3 BPGWCS - GW		Requested Analysis (see TEST CODE sheet)		Matrix Codes	
Street Address 2 Huntington Quad, Suite 1910		Client Northrop Grumman OJ3 Bethpage Groundwater Containment System		Requested Analysis (see TEST CODE sheet)		Matrix Codes	
City Melville	State NY	Zip 11747	City Bethpage	State NY	City Arcadis, U.S., Inc.		
Armas Nemickas Armas.Nemickas@arcadis.com		Project # 30168780.OMM3		Client Purchase Order # 630 Plaza Drive, Suite 600			
Phone # 631-391-6272		Work Authorization # NYSD1406_2015 1C 33		City Highlands Ranch, CO 80129			
Sample # REP-110523 - LW		Project Manager Armas Nemickas		Accounts Payable			
Field ID / Point of Collection		MEC-ID No #	Date	Time	Permitted by	Matrix	Number of preserved bottles
1	WSP-1		11-8-23	07:40	PL	GW	3 3
2	WSP-2			08:45	PL	GW	3 3
3	WSP-3			07:50	PL	GW	3 3
4	WSP-4			07:45	PL	GW	3 3
5	WSP-6			08:00	PL	GW	3 3
6	WSP-7			08:00	PL	GW	6 3
7	TB-110523 - LW-1				LW	TB	2 3
8	REP-110523 - LW				LW	GW	2 3

Requested Analysis: PCBs - EPA 608 (1 L Amber), VIBS03NGWGW-20, VIBS-13BUTADN, VIBS-1102 (40 mL Clear Glass VOA's), XTNT - EPA 353.2 & EPA 351.2 w/Total N Calc (500 mL Plastic), Iron + Manganese EPA 200.7 (500 mL Plastic)

Matrix Codes: DW - Drinking Water, GW - Ground Water, WW - Waste Water, SW - Surface Water, SO - Soil, SL - Sludge, SED - Sediment, LIQ - Other Liquid, AIR - Air, SO₂ - Other Gas, WP - WSP, TB - Test Blank, EQ - Equipment Blank, RB - Ring Blank, TB-Top Blank

LAB USE ONLY

Turnaround time (Business days): 8hr, 16 Business Days (by Contract only), 18 Day RUSH, 3 Day RUSH, 1 Day EMERGENCY, 1 Day EMERGENCY, 1 Day EMERGENCY

Emergency & Rush T.A. rates available via Quote.

Approved By (Armas Nemickas): [Signature]

Comments / Special Instructions: PDF-DELIVERABLE "COMM" EDO ARCADIS_EOHS (EOHS-4 file format) Send sample confirmation receipt within 48 hours. 42 target sample list, with MD special low RLs

Commercial "A" = Results Only
 Commercial "B" = Results + QC Summary
 RI Reduced = Results + QC Summary + Partial Raw data

Sample Custody must be documented below each time samples change possession, including courier delivery.

1	Collected by: [Signature]	Date Time: 11/7/23 16:58	Received by: [Signature]	Date Time: 11/8/23 11:00
2	Received by: [Signature]	Date Time: [Blank]	Received by: [Signature]	Date Time: [Blank]
3	Received by: [Signature]	Date Time: [Blank]	Received by: [Signature]	Date Time: [Blank]
4	Received by: [Signature]	Date Time: [Blank]	Received by: [Signature]	Date Time: [Blank]

5.2
5

© APPROVE IT Northrop Grumman Bethpage, Program W0404 Project Management/Care and PO's Use SGS Accutest/LAB_CODE/Serial/COCs/Customized_TM_CODE/OT GW COCs Revised 9.21.20

JD76370: Chain of Custody
 Page 1 of 2

1.2°C
 1R80



CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Lab Work Order # **MSA 3601**

Page 1 of 1

ID#: 260192

Contact & Company Name Arnas Nemickas-Task Manager Telephone: 631-391-5212 cell Fax:		Preservative Filtered (✓) <u>14</u> # of Containers Container Information <u>2</u>	Keys Container Information Key: 1. 40 ml Vial 2. 1 L Amber 3. 250 ml Plastic 4. 500 ml Plastic 5. Encore 6. 2 oz. Glass 7. 4 oz. Glass 8. 8 oz. Glass 9. Other: _____ 10. Other: _____
Send Results to: Two Huntington Quad-Suite 1S10 City: Melville NY 11747 State: NY Zip: 11747 Project Name/Location (City, State): Program 3 - OUS TS/SPDES (Beitpage, NY) Project #: 30188750.OMMI2 Field Sampler's Printed Name: <u>Bob Quinn</u> Sampler's Signature: <u>[Signature]</u>		PARAMETER ANALYSIS & METHOD <u>1,4-dioxane</u> <u>8270D SIM</u>	
Sample ID		REMARKS	
WSP-1	11-6-23 0740	X	GW
WSP-2	0745	X	GW
WSP-3	0750	X	GW
WSP-4	0755	X	GW
WSP-5	0800	X	GW
WSP-7	0805	X	GW
REP-110623-1-21	-	X	GW
<input type="checkbox"/> Special QA/QC Instructions(✓):			
Special Instructions/Comments: - SVOC extracted by CCLE EDD-ARCADIS_EQUIS (EQUIS6-4 file format)		<input type="checkbox"/> Special QA/QC Instructions(✓):	
Laboratory Information and Receipt Lab Name: <u>Katahdin Analytical Labs</u> Cooler Custody Seal (✓) <input type="checkbox"/> Intact <input type="checkbox"/> Not Intact Sample Receipt: Normal TAT-10 business days Shipping Tracking #		Received By Printed Name: <u>Bruce Bruce</u> Signature: <u>[Signature]</u> Firm/Company: <u>LAS</u> Date/Time: <u>11/13/23</u> Date/Time: <u>0840</u>	
Relinquished By Printed Name: <u>Bob Quinn</u> Signature: <u>[Signature]</u> Firm/Company: <u>Aras</u> Date/Time: <u>11-6-23/1355</u>		Relinquished By Printed Name: _____ Signature: _____ Firm/Company: _____ Date/Time: _____	
Laboratory Received By Printed Name: _____ Signature: _____ Firm/Company: _____ Date/Time: _____		Laboratory Received By Printed Name: _____ Signature: _____ Firm/Company: _____ Date/Time: _____	

20730826 CCLC AR Form 04.27.2015
 G:\PROJECT\Northrup Grumman Beitpage_\Program Wide\04 Project Management\Contracts and POs\Lab\Katahdin Analytical\OU2 Navy Wells COC Master.

Distribution: **WHITE** - Laboratory returns with results
YELLOW - Lab copy
PINK - Retained by Arcadis

the

Dec Ya VYf`&\$&'

Northrop Grumman
925 South Oyster Bay Road
Bethpage, NY 11714

northropgrumman.com

ESH&M-002L-24
February 5, 2024

Jason Pelton
N.Y.S. Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-3506

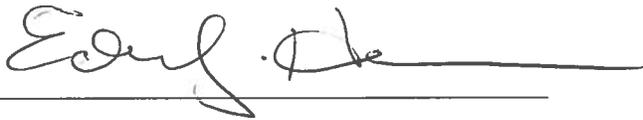
Subject: **Report for SPDES Permit Equivalent, NYSDEC Site No. 1-30-003A
Northrop Grumman Corporation - Bethpage, New York Facility**

Mr. Pelton:

Enclosed please find the subject SPDES Permit Equivalent summary tables for the month of December 2023, as per additional condition requirements outlined in the SPDES Permit Equivalent (Northrop Grumman, NYSDEC No. 1-30-003A) dated July 30, 2018.

If you have any questions, please call me at 516-575-2333

Very truly yours,



Edward J. Hannon
Corporate Manage ESHM
516-575-2333
M/S: 02/BP15

cc: Regional Water Engineer - Region 1
NYS Department of Environmental Conservation
SUNY @ Stony Brook
50 Circle Road
Stony Brook, NY 11790-3409

Northrop Grumman
925 South Oyster Bay Road
Bethpage, NY 11714

northropgrumman.com

ESH&M-003L-24
February 5, 2024

Jason Pelton
N.Y.S. Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-3506

RE: NYSDEC No. 1-30-003A

Subject: Additional Sampling Constituents for Report Period:
December 1, 2023 – December 31, 2023.

Mr. Pelton:

Below please find the 1,4 – Dioxane sampling results for Outfalls 1, 5 and 6 for this reporting period.

Outfall 1 – 1.1 ug/L
Outfall 5 – 3.2 ug/L
Outfall 6 – 8.8 ug/L

Sampling results for Outfall 1 for the following:

Ethylbenzene - <1.0
Toluene - <1.0
Benzene - <0.50
Xylene, Ortho - <1.0
Xylene, Meta - <1.0
Xylene, Para - <1.0

If you have any questions, please call me at 516-575-2333
Very truly yours,



Edward J. Hannon
Corporate Manager ESHM
516-575-2333
M/S: 02/BP15

cc: Regional Water Engineer - Region 1
NYS Department of Environmental Conservation
SUNY @ Stony Brook
50 Circle Road
Stony Brook, NY 11790-3409

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

OMB No. 2040-0004

PERMITTEE NAME/ADDRESS: (Include Facility Name/Location if
 NAME: NORTRORP GRUMMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S- W16- 035
 BETHPAGE, NY 11714
 FACILITY: NORTRORP GRUMMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S- W16- 035
 BETHPAGE, NY 11714
 ATTN: JOHN COFMAN

NY0096792	005-C
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
12/01/2023	12/31/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SUFR 01)
 NC COOLING & STORM WATER TO GW
 External Outfall
 No Discharge

PARAMETER	QUANTITY OR LOADING	QUANTITY OR LOADING		QUALITY OR CONCENTRATION		UNITS	NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	UNITS	VALUE	UNITS				
pH	SAMPLE MEASUREMENT	*****	*****	*****	*****				
	PERMIT REQUIREMENT	*****	*****	7.2	*****			1/31	Grab
00400 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	Req. Mon. MINIMUM	*****				
	PERMIT REQUIREMENT	*****	*****	5.15	*****			1/31	Grab
00400 1 0 Intake from Well	SAMPLE MEASUREMENT	*****	*****	Req. Mon. MINIMUM	*****				
	PERMIT REQUIREMENT	*****	*****	4.0	*****			1/31	Grab
00600 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	Req. Mon. MAXIMUM	*****				
	PERMIT REQUIREMENT	*****	*****	10	*****			1/31	Grab
Methylene chloride	SAMPLE MEASUREMENT	*****	*****	<1.0	*****	ug/L	0	1/31	Grab
	PERMIT REQUIREMENT	*****	*****	5	*****	ug/L	0	Monthly	Grab
34423 1 0 Tetrahydroethylene	SAMPLE MEASUREMENT	*****	*****	<1.0	*****	ug/L	0	1/31	Grab
	PERMIT REQUIREMENT	*****	*****	5	*****	ug/L	0	Monthly	Grab
34475 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	<1.0	*****	ug/L	0	1/31	Grab
	PERMIT REQUIREMENT	*****	*****	5	*****	ug/L	0	Monthly	Grab
1,1-Dichloroethylene	SAMPLE MEASUREMENT	*****	*****	<1.0	*****	ug/L	0	1/31	Grab
	PERMIT REQUIREMENT	*****	*****	5	*****	ug/L	0	Monthly	Grab
34501 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	<1.0	*****	ug/L	0	1/31	Grab
	PERMIT REQUIREMENT	*****	*****	5	*****	ug/L	0	Monthly	Grab
1,1,1-Trichloroethane	SAMPLE MEASUREMENT	*****	*****	<1.0	*****	ug/L	0	1/31	Grab
	PERMIT REQUIREMENT	*****	*****	5	*****	ug/L	0	Monthly	Grab
34506 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	<1.0	*****	ug/L	0	1/31	Grab
	PERMIT REQUIREMENT	*****	*****	5	*****	ug/L	0	Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
 Edward S Hannon
 Corporate Manager ESHM
 TYPED OR PRINTED

I certify under penalty of law that this document and all attachments were prepared under my direct supervision and that I am a duly licensed professional engineer in the State of New York. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT


TELEPHONE
 AREA Code NUMBER
 516-575-2333

DATE
 MM/DD/YYYY
 02/05/2024

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
 WHEN NATURAL GW HAS PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANT). STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

PERMITTEE NAME/ADDRESS (include Facility Name/Location if
 NAME: NORTROP GRUMMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S- W16- 035
 BETHPAGE, NY 11714
 FACILITY: NORTROP GRUMMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S- W16- 035
 BETHPAGE, NY 11714
 ATTN: JOHN COFFMAN

NY0096792	005-C
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
12/01/2023	12/31/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SUFR 01)
 NC COOLING & STORM WATER TO GW
 External Outfall
 No Discharge

PARAMETER	SAMPLE MEASUREMENT	QUANTITY OR LOADING			QUALITY OR CONCENTRATION			NO. OF EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE			
Vinyl chloride	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	0	1/31	Grab
3917510 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	0	Monthly	Grab
Trichloroethylene	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	0	1/31	Grab
3918010 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	0	Monthly	Grab
Flow, in conduit or thru treatment plant	SAMPLE MEASUREMENT	*****	5.99	MGID	*****	*****	*****	0	1/31	Measured
5005010 Effluent Gross	PERMIT REQUIREMENT	*****	DAILY MX	*****	*****	*****	*****	0	Monthly	Measured
Calculated limit	SAMPLE MEASUREMENT	*****	1	*****	*****	*****	*****	0	1/31	Calculated
7401310 Effluent Gross	PERMIT REQUIREMENT	*****	*****	Req. Mon. Single Rdg	*****	*****	*****	0	Monthly	Calculated
cis-1,2-Dichloroethylene	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	0	1/31	Grab
7709310 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	0	Monthly	Grab
Trichlorofluoromethane	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	0	1/31	Grab
8161110 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	0	Monthly	Grab
Trans-1,2-Dichloroethylene	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	0	1/31	Grab
8581010 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	0	1/31	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
Edward J Hannon
Corporate Manager ESHM
 TYPED OR PRINTED

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted, based on any inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT


TELEPHONE: 516-515-2333
 AREA Code: 516 NUMBER: 515-2333

DATE: 02/05/2024
 MM/DD/YYYY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
 WHEN NATURAL GW HAS PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORTS SUPPLY WELL & OUTFALL PH MONTHLY & REPORT P11 COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

EPA Form 3320-1 (Rev. 01/06) Previous editions may be used.

10/19/2018 Page 2

PERMITTEE NAME/ADDRESS (include Facility Name/Location if applicable)
NORTROP GRUMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S- W16- 035
 BETHPAGE, NY 11714
 FACILITY: NORTROP GRUMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S- W16- 035
 BETHPAGE, NY 11714
 ATTN: JOHN COHMAN

NY0096792	006-C
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
12/01/2023	12/31/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SUBR 01)
 NC COOLING & STORM WATER TO GW
 External Outfall
 No Discharge

PARAMETER	SAMPLE MEASUREMENT	QUANTITY OR LOADING			QUALITY OR CONCENTRATION			UNITS	NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE				
00400 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	6.4	*****	*****	Req. Mon. MINIMUM	*****	1/31	Grab
00400 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	5.3	*****	*****	Req. Mon. MAXIMUM	*****	1/31	Grab
00400 1 0 Intake from Well	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	Req. Mon. MINIMUM	*****	1/31	Grab
00400 1 0 Nitrogen, total [as N]	SAMPLE MEASUREMENT	*****	*****	*****	4.5	*****	*****	Req. Mon. MAXIMUM	*****	1/31	Grab
00600 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	10	*****	*****	DAILY MX	*****	1/31	Grab
00600 1 0 Methylene chloride	SAMPLE MEASUREMENT	*****	*****	*****	<0.50	*****	*****	ug/L	*****	1/31	Grab
34423 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	5	*****	*****	DAILY MX	*****	1/31	Grab
34423 1 0 Tetrachloroethylene	SAMPLE MEASUREMENT	*****	*****	*****	<0.50	*****	*****	ug/L	*****	1/31	Grab
34475 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	5	*****	*****	DAILY MX	*****	1/31	Grab
34475 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	<0.50	*****	*****	ug/L	*****	1/31	Grab
34501 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	5	*****	*****	DAILY MX	*****	1/31	Grab
34501 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	<0.50	*****	*****	ug/L	*****	1/31	Grab
34506 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	5	*****	*****	DAILY MX	*****	1/31	Grab
34506 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	<0.50	*****	*****	ug/L	*****	1/31	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
Edward J Hannon
Corporate Manager ESHM
 TYPED OR PRINTED

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified persons perform all functions related to the preparation, review, and certification of this report or statement. I am aware that there are significant penalties for knowingly providing false information, including the possibility of fine and imprisonment for knowing violations.

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT


TELEPHONE: 516-515-7333
 DATE: 02/05/2024

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
 WHEN NATURAL GWS HAVE PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORT SUPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANCE STATISTICS (YES/NO) IN CALCULATED LIMIT AREA) SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS & REQUIREMENTS

PERMITTEE NAME/ADDRESS (include facility name/location if applicable)
 NAME: NORTRON GRUMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S- W16- 035
 BETHPAGE, NY 11714
 FACILITY: NORTRON GRUMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S- W16- 035
 BETHPAGE, NY 11714
 ATTN: JOHN COFMAN

NY0096792	006- C
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
12/01/2023	12/31/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SUFR 01)
 NC COOLING & STORM WATER TO GW
 External Outfall
 No Discharge

PARAMETER	SAMPLE MEASUREMENT	QUANTITY OR LOADING			QUALITY OR CONCENTRATION			UNITS	NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE				
Vinyl chloride	MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	0	1/31	Grab
39175 1 0	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	< 0.50	ug/L	0	1/31	Grab
Trichloroethylene	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	DAILY MX	ug/L	0	Monthly	Grab
39180 1 0	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	< 0.50	ug/L	0	1/31	Grab
Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	DAILY MX	ug/L	0	Monthly	Grab
Flow, in conduit or thru treatment plant	SAMPLE MEASUREMENT	*****	2.17	*****	*****	*****	DAILY MX	*****	0	1/31	Measured
50050 1 0	PERMIT REQUIREMENT	*****	4.25	MGD	*****	*****	*****	*****	0	Monthly	Measured
Calculated limit	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	0	1/31	Calculated
74013 1 0	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	0	1/31	Calculated
Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	< 0.50	ug/L	0	1/31	Grab
cis- 1,2- Dichloroethylene	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	< 0.50	ug/L	0	1/31	Grab
77093 1 0	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	DAILY MX	ug/L	0	Monthly	Grab
Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	DAILY MX	ug/L	0	1/31	Grab
Trichlorofluoromethane	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	< 0.50	ug/L	0	1/31	Grab
81611 1 0	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	DAILY MX	ug/L	0	Monthly	Grab
Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	DAILY MX	ug/L	0	1/31	Grab
trans- 1,2- Dichloroethylene	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	< 0.50	ug/L	0	1/31	Grab
85810 1 0	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	< 0.50	ug/L	0	1/31	Grab
Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	DAILY MX	ug/L	0	Monthly	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	EDWARD S HANNON Corporate Manager ESHM	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE	DATE
TYPED OR PRINTED			516-575-2333	02/05/2024
AREA Code	NUMBER	MM/DD/YYYY		

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

WHEN NATURAL GWS HAVE PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORTS UPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANCE: STATIS (YES/NO) IN CALCULATED LIMIT AREA).SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS & REQUIREMENTS

DISCHARGE MONITORING REPORT (DMR)

OMH No. 2010-0004

PERMITTEE NAME/ADDRESS (include Facility Name/Location if
 NAME: NORTRROP GRUIMMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S- W16-035
 BETHPAGE, NY 11714
 FACILITY: NORTRROP GRUIMMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S- W16-035
 BETHPAGE, NY 11714
 ATTN: JOHN COHMAN

NY0096792	001 - WSP-7
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
12/01/2023	12/31/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SUHR 01)
 NC COOLING & STORM WATER TO CAN External Outfall
 No Discharge

PARAMETER	SAMPLE MEASUREMENT	QUANTITY OR LOADING			QUALITY OR CONCENTRATION			NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE	
		VALUE	VALUE	UNITS	VALUE	VALUE	UNITS				
pH	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	*****	*****	*****	
00400 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	6.5	Req. Mon. MINIMUM	*****	*****	*****	1/31	Grab
00400 1 0 Intake from Well	SAMPLE MEASUREMENT	*****	*****	*****	5.6	Req. Mon. MINIMUM	*****	*****	*****	1/31	Grab
Nitrogen, Total [as N]	PERMIT REQUIREMENT	*****	*****	*****	2.3	Req. Mon. MAXIMUM	*****	*****	*****	1/31	Grab
00600 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	10	DAILY MX	*****	*****	*****	1/31	Grab
Methylene chloride	SAMPLE MEASUREMENT	*****	*****	*****	<2.0	DAILY MX	*****	*****	*****	1/31	Grab
34423 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	*****	1/31	Grab
Tetrahydroethylene	SAMPLE MEASUREMENT	*****	*****	*****	<1.0	DAILY MX	*****	*****	*****	1/31	Grab
34475 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	*****	1/31	Grab
1,1-Dichloroethylene	SAMPLE MEASUREMENT	*****	*****	*****	<1.0	DAILY MX	*****	*****	*****	1/31	Grab
34501 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	*****	*****	1/31	Grab
1,1,1-Trichloroethane	SAMPLE MEASUREMENT	*****	*****	*****	5	DAILY MX	*****	*****	*****	1/31	Grab
34506 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	<1.0	DAILY MX	*****	*****	*****	1/31	Grab

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER
Edward J Hannan
Corporate Manager ESHM
 TYPED OR PRINTED

I certify under penalty of law that this document and all attachments were prepared under my direct supervision and that I am a duly licensed professional engineer in accordance with a system designed to assure that qualified persons prepare each document. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT


TELEPHONE: 516-575-7333
 ALTA Code: NUMBER: 02/05/2024
 DATE: MM/DD/YYYY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
 WHEN NATURAL GAS HAS PH OUTSIDE RANGE, IT MAY BE ONE EXTREMITY OF THE ALLOWABLE RANGE (SAMPLE & REPORTS UPPLY WELL & OUTFALL PH MONTHLY & REPORT PH COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA). SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

NATIONAL POLLUTANT DISCHARGE ELIMINATION ACT
DISCHARGE MONITORING REPORT (DMR)

DMR No. 2018-0004

PERMITTEE NAME: ADDRESS (include facility Name/Location if
 NAME: NORTIKOP GRUNMAN SYSTEMS CORP
 ADDRESS: 925 SO. OYSTER BAY RD M/S- W16- 035
 BEHIPAGE, NY 11714
 FACILITY: NORTIKOP GRUNMAN SYSTEMS CORP
 LOCATION: 925 SO. OYSTER BAY RD M/S- W16- 035
 BEHIPAGE, NY 11714
 A.T.N: JOHN COFMAN

NY0096792	001-WSP-1
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
12/01/2023	12/31/2023

DMR Mailing ZIP CODE: 11714
 MINOR (SUJR 01)
 NC COOLING & STORM WATER TO CW
 External Outfall
 No Discharge

PARAMETER	SAMPLE MEASUREMENT	QUANTITY OR LOADING			QUALITY OR CONCENTRATION			NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	UNITS			
Vinyl chloride	MEASUREMENT	*****	*****	*****	*****	*****	*****	0	1/31	Grab
39175 1 0	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	0	Monthly	Grab
Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	0	1/31	Grab
Trichloroethylene	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	0	1/31	Grab
39180 1 0	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	0	Monthly	Grab
Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	0	1/31	Measured
Flow, in conduit or thru treatment plant	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	0	Monthly	Measured
50050 1 0	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	0	Monthly	Measured
Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	0	1/31	Calculated
Calculated limit	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	0	1/31	Calculated
74013 1 0	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	0	Monthly	Calculated
Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	0	Monthly	Calculated
cis-1,2-Dichloroethylene	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	0	Monthly	Calculated
77093 1 0	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	0	Monthly	Calculated
Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	0	Monthly	Calculated
Trichlorotrifluoroethane	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	0	Monthly	Calculated
81611 1 0	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	0	Monthly	Calculated
Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	0	Monthly	Calculated
Trans-1,2-Dichloroethylene	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	0	Monthly	Calculated
85810 1 0	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	*****	0	Monthly	Calculated
Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*****	0	Monthly	Calculated

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE	DATE
Edward S Hannon Corporate Manager ESHM		516-575-2333	02/05/2024
TYPED OR PRINTED		AREA CODE	NUMBER
			MM/DD/YYYY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)
 WHEN NATURAL CAUSE IS OUTSIDE RANGE, IT MAY BE ONE EXTREME OF THE ALLOWABLE RANGE (SAMPLE & REPORTS SUPPLY WELL & OUTFALL PH MONTHLY REPORT PH)
 COMPLIANCE STATUS (YES/NO) IN CALCULATED LIMIT AREA. SEE PERMIT FOR ADDITIONAL NOTES, COMMENTS AND REQUIREMENTS.

EPA Form 3320-1 (Rev. 01/06) Previous editions may be used.

10/19/2018 Page 2

Monitoring Period:
December 2023
 12/1/23 12:00 AM 12/31/23 12:00 AM
 31 Days

OU2 South Basins: Outfall 005⁽⁶⁾
Combined OU2 Groundwater Remedy Tower 102 and Building 109 Advanced Oxidation Process (AOP) Treatment Systems - Tower 102 Treated Air Stripper Discharge, Building 109 AOP Treatment System Discharge, and Storm Water Runoff

Parameter ⁽¹⁾	CAS Number	OUTFALL 005 12/7/2023	Discharge Limit ⁽²⁾	Units	Monitoring Frequency	Sample Type	Average Mass Loading ^(3,7)	Units
Daily Average Flow ^(4, 12)	--	5.63	Monitor	MGD	Continuous	SCADA	--	--
Daily Maximum Flow ^(4, 12)	--	5.99	Monitor	MGD	Continuous	SCADA	--	--
Influent pH ⁽⁵⁾ (Building 109)	--	5.2	NS	SU	Monthly (1/31) Days	Grab	--	--
Influent pH ⁽⁵⁾ (Tower 102)	--	5.1	NS	SU	Monthly (1/31) Days	Grab	--	--
Outfall 005 Effluent pH ⁽⁵⁾	--	7.2	Range: 5.0-8.5	SU	Monthly (1/31) Days	Grab	--	--
Total Nitrogen (as N)	--	4.0	10.0	mg/L	Monthly (1/31) Days	Grab	187.88	lbs/day
Total Iron	7439-89-6	< 100	600	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Total Manganese	7439-96-5	< 15	600	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Sum of Total Iron and Manganese ⁽⁶⁾	--	ND	1,000	µg/L	Monthly (1/31) Days	Calculated	--	lbs/day
1,1-Dichloroethylene	75-35-4	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Methylene Chloride	75-09-2	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Tetrachloroethylene	127-18-4	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,1,1-Trichloroethane	71-55-6	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Trichloroethylene	79-01-6	0.52	5.0	µg/L	Monthly (1/31) Days	Grab	0.02	lbs/day
Vinyl Chloride	75-01-4	< 1.0	2.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
trans-1,2-Dichloroethylene	156-60-5	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
cis-1,2-Dichloroethylene	156-59-2	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Chloroform	67-66-3	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Trichlorotrifluoroethane (Freon 113)	76-13-1	< 2.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,1,2-Trichloroethane	79-00-5	< 1.0	1.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,1-Dichloroethane	75-34-3	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,2-Dichloroethane	107-06-2	< 1.0	0.6	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,2-Dichloropropane	78-87-5	< 1.0	1.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Benzene	71-43-2	< 1.0	1.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,4-Dioxane (Building 109 Influent) ⁽⁹⁾	123-91-1	31	Monitor	µg/L	Monthly (1/31) Days	Grab	NA	lbs/day
1,4-Dioxane (Building 109 Post AOP) ⁽⁹⁾	123-91-1	0.23	Monitor	µg/L	Monthly (1/31) Days	Grab	na	lbs/day
1,4-Dioxane (Building 109 Effluent) ⁽⁹⁾	123-91-1	0.43	Monitor	µg/L	Monthly (1/31) Days	Grab	NA	lbs/day
1,4-Dioxane (Outfall 005) ⁽¹⁰⁾	123-91-1	3.2	Monitor	µg/L	Monthly (1/31) Days	Grab	0.15	lbs/day

Notes and abbreviations on last page.

OU2 West Basins: Outfall 006

OU2 Groundwater Remedy Tower 96 Treatment System - Treated Air Stripper Discharge and Storm Water Runoff

Parameter ⁽¹⁾	CAS Number	OUTFALL 006 12/7/2023	Discharge Limit ⁽²⁾	Units	Monitoring Frequency	Sample Type	Average Mass Loading ^(3,7)	Units
Daily Average Flow ⁽⁴⁾	--	1.93	Monitor	MGD	Continuous	SCADA	--	--
Daily Maximum Flow ⁽⁴⁾	--	2.17	Monitor	MGD	Continuous	SCADA	--	--
Influent pH ⁽⁶⁾	--	5.3	NS	SU	Monthly (1/31) Days	Grab	--	--
Effluent pH ⁽⁵⁾	--	6.4	Range: 5.0-8.5	SU	Monthly (1/31) Days	Grab	--	--
Total Nitrogen (as N)	--	4.5	10.0	mg/L	Monthly (1/31) Days	Grab	81.49	lbs/day
Total Iron	7439-89-6	< 100	600	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Total Manganese	7439-96-5	< 15	600	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Sum of Total Iron and Manganese ⁽⁸⁾	--	ND	1,000	µg/L	Monthly (1/31) Days	Calculated	--	lbs/day
1,1-Dichloroethylene	75-35-4	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Methylene Chloride	75-09-2	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Tetrachloroethylene	127-18-4	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,1,1-Trichloroethane	71-55-6	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Trichloroethylene	79-01-6	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Vinyl Chloride	75-01-4	< 0.50	2.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
trans-1,2-Dichloroethylene	156-60-5	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
cis-1,2-Dichloroethylene	156-59-2	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Chloroform	67-66-3	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Trichlorotrifluoroethane (Freon 113)	76-13-1	< 0.50	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,4-Dioxane	123-91-1	8.8	Monitor	µg/L	Monthly (1/31) Days	Grab	0.16	lbs/day

Notes and abbreviations on last page.

OU3 Effluent: Outfall 001 (WSP-7)
OU3 Groundwater Remedy Treatment System - Treated Air Stripper and Soil Gas Containment Condensate Discharge to Nassau County Recharge Basins

Parameter ⁽¹⁾	CAS Number	OUTFALL 001 (WSP-7) 12/7/2023	Discharge Limit ⁽²⁾	Units	Monitoring Frequency	Sample Type	Average Mass Loading ^(3,7)	Units
Daily Average Flow ⁽⁴⁾	--	0.35	Monitor	MGD	Continuous	SCADA	--	--
Daily Maximum Flow ⁽⁴⁾	--	0.43	Monitor	MGD	Continuous	SCADA	--	--
Influent pH ⁽⁵⁾	--	5.6	NS	SU	Monthly (1/31) Days	Grab	--	--
Effluent pH ⁽⁵⁾	--	6.5	Range: 5.0-8.5	SU	Monthly (1/31) Days	Grab	--	--
Total Nitrogen (as N)	--	2.3	10.0	mg/L	Monthly (1/31) Days	Grab	6.75	lbs/day
Total Iron ⁽¹¹⁾	7439-89-6	3190	600	µg/L	Monthly (1/31) Days	Grab	9.36	lbs/day
Total Manganese	7439-96-5	74.6	600	µg/L	Monthly (1/31) Days	Grab	0.22	lbs/day
Sum of Total Iron and Manganese	--	3264.6	1,000	µg/L	Monthly (1/31) Days	Calculated	9.58	lbs/day
1,1-Dichloroethylene	75-35-4	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Methylene Chloride	75-09-2	< 2.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Tetrachloroethylene	127-18-4	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,1,1-Trichloroethane	71-55-6	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Trichloroethylene	79-01-6	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Vinyl Chloride	75-01-4	< 1.0	2.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,2 (trans)-Dichloroethylene	156-60-5	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,2-(cis)-Dichloroethylene	156-59-2	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Chloroform	67-66-3	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Trichlorotrifluoroethane (Freon 113)	76-13-1	< 5.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Benzene	71-43-2	< 0.50	1.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,1-Dichloroethane	75-34-3	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Ethylbenzene	100-41-4	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Toluene	108-88-3	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
o-Xylene	95-47-6	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
m,p-Xylene	--	< 1.0	5.0	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Aroclor 1016	12674-11-2	< 0.050	0.095	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Aroclor 1221	11104-28-2	< 0.050	0.095	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Aroclor 1232	11141-16-5	< 0.050	0.095	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Aroclor 1242	53469-21-9	< 0.050	0.095	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Aroclor 1248	12672-29-6	< 0.050	0.095	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Aroclor 1254	11097-69-1	< 0.050	0.095	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
Aroclor 1260	11096-82-5	< 0.050	0.095	µg/L	Monthly (1/31) Days	Grab	--	lbs/day
1,4-Dioxane	123-91-1	1.1	Monitor	µg/L	Monthly (1/31) Days	Grab	3.23E-03	lbs/day

Notes and Abbreviations:

- XX** Bold value indicates the constituent was detected at or above its laboratory quantification limit
- <** Compound is not detected above laboratory quantification limit
- Not Applicable
- µg/L** micrograms per liter
- lbs/day** pounds per day
- lb/kg** pounds per kilogram
- MGD** million gallons per day
- mg/L** milligrams per liter
- min** minutes
- SU** Standard Units
- B** Detected in method blank as reported by laboratory
- na** not available
- NA** Not Applicable
- COC** Chain of Custody
- CAS** Chemical Abstracts Service
- ND** Non Detect
- NS** None Specified
- NYSDEC** New York State Department of Environmental Conservation
- SCADA** Supervisory Control and Data Acquisition
- SPDES** State Pollution Discharge Elimination System
- TKN** Total Kjeldahl Nitrogen

1. Samples were analyzed for permit equivalency Volatile Organic Compounds (VOCs) using USEPA Method 624 at OU2 system, and USEPA Method 8260 at OU3 system; Polychlorinated Biphenyls (PCBs) using USEPA Method 608; 1,4-Dioxane using USEPA Method 8270D-SIM-CLLE; Total Nitrogen is calculated as the sum of Nitrogen, (Nitrate+Nitrite) and Total Kjeldahl Nitrogen (TKN), (CAS number: 14797-55-8, 14797-65-0, and 7727-37-9, respectively) by USEPA Methods 353.2 and 351.2, respectively; Total Iron and Manganese using USEPA Method 200.7.

2. Discharge limits are per the SPDES permit equivalency, dated October 12, 2017, amended on March 23, 2023 and transmitted by the NYSDEC to Northrop Grumman on April 18, 2023.

3. Mass Loading Calculation:

$$Mass\ Loading\ \left(\frac{lb}{day}\right) = Flow\ \left(\frac{gal}{min}\right) * 1440\ \left(\frac{min}{day}\right) * concentration\ \left(\frac{\mu g}{liter}\right) \div 10^9\ \left(\frac{\mu g}{kg}\right) * 3.785\ \left(\frac{liter}{gal}\right) * 2.2046\ \left(\frac{lb}{kg}\right)$$

- 4. Average and daily maximum flow calculated from SCADA reports for the month indicated.
- 5. Field measurement of pH taken by hand held meter on sample date.
- 6. When Total Iron and Total Manganese are below their respective detection limits the Sum Total of Iron and Manganese is reported as "ND".
- 7. Average Mass Loading calculations are based on actual flow rates unless otherwise noted.
- 8. At the time of Outfall 005 SPDES sample collection on November 7, 2023, Building 109 AOP Treatment System remedial well flow for RW-20 was approximately 489 gpm, RW-21 was approximately 488 gpm and RW-22 was approximately 463 gpm.
- 9. Building 109 AOP Treatment System Influent (corresponds to sample B109-INFLUENT on the COC), Post-AOP (corresponds to sample B109-POST-AOP on the COC) and Effluent (corresponds to sample OUTFALL 005-B109 on the COC) samples were collected and analyzed for 1,4-Dioxane as per footnote (1) of the SPDES permit equivalency for Outfall 005.
- 10. Outfall 005 combines discharge from Building 109 and Tower 102 treatment systems; however, Tower 102 has not yet been upgraded for 1,4-D treatment. Although sample Outfall 005-T102 is included on the COC for the SPDES sampling report, analytical results have not been included in this report since this sample was collected for internal monitoring and analytical data associated with Outfall 005-T102 will be included in a separate EDD submittal.
- 11. The analytical results for iron collected from Outfall 1 (WSP-7) on December 7, 2023 were unusually high (3,190 µg/l). Bag filter maintenance conducted on the date the sample was collected likely contributed to the high iron concentration reported. Subsequently, Outfall WSP-7 was sampled on January 11, 2024 and iron concentrations reported from this sample was 270 µg/l. This decrease suggests that the bag filter maintenance event resulted in the high iron concentration reported and the system is currently operating within the SPDES permit effluent limit of 600 µg/l.
- 12. Flow data was not collected after 12/23 due to a software update. No downtime was recorded and data from 12/24-12/31 was calculated using data collected from 12/1-12/23.

Report of Analysis

Client Sample ID: OUTFALL 005	Date Sampled: 12/07/23
Lab Sample ID: JD78420-2	Date Received: 12/07/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: EPA 624.1	
Project: RW-21 SPDES-Northrup Grumman, Bethpage, NY	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4A3178.D	1	12/12/23 20:12	NW	n/a	n/a	V4A99
Run #2							

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

VOA OU2 SPDES List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.71	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.42	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.96	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.45	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	0.46	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.96	ug/l	
76-13-1	Freon 113	ND	2.0	0.87	ug/l	
75-09-2	Methylene chloride	ND	1.0	0.41	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.41	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.43	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.41	ug/l	
79-01-6	Trichloroethene	0.52	1.0	0.43	ug/l	J
75-01-4	Vinyl chloride	ND	1.0	0.79	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4 (SUR)	90%		80-128%
2037-26-5	Toluene-D8 (SUR)	100%		82-113%
460-00-4	4-Bromofluorobenzene (SUR)	86%		79-117%
1868-53-7	Dibromofluoromethane (S)	93%		84-121%

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: OUTFALL 005	Date Sampled: 12/07/23
Lab Sample ID: JD78420-2	Date Received: 12/07/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: RW-21 SPDES-Northrup Grumman, Bethpage, NY	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	< 100	100	ug/l	1	12/11/23	12/12/23 ND	EPA 200.7 ¹	EPA 200.7 ²
Manganese	< 15	15	ug/l	1	12/11/23	12/12/23 ND	EPA 200.7 ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA55226

(2) Prep QC Batch: MP43655

RL = Reporting Limit

Report of Analysis

Client Sample ID: OUTFALL 005	Date Sampled: 12/07/23
Lab Sample ID: JD78420-2	Date Received: 12/07/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: RW-21 SPDES-Northrup Grumman, Bethpage, NY	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Nitrogen, Nitrate + Nitrite	4.0	0.10	mg/l	1	12/12/23 20:05	SS	EPA 353.2/LACHAT
Nitrogen, Total ^a	4.0	0.30	mg/l	1	12/13/23 19:30	SS	SM4500 A-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	12/13/23 19:30	SS	EPA 351.2/LACHAT

(a) Calculated as: (Nitrogen, Total Kjeldahl) + (Nitrogen, Nitrate + Nitrite)

RL = Reporting Limit

4.2
4

Report of Analytical Results

SDG: SQ6739**Lab ID:** SQ6739-1**Client ID:** OUTFALL 005**Matrix:** AQ**Lab File ID:** G8571.D**Sample Date:** 07-DEC-23**Extract Date:** 11-DEC-23**Extracted By:** NH/AC**Extraction Method:** SW846 3520C**Lab Prep Batch:** WG346779**Report Date:** 18-DEC-23**Analysis Date:** 16-DEC-23**Analyst:** DT**Analysis Method:** SW846 8270D SIM**% Solids:** N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		3.2	ug/L	1	.25	0.24	0.081
1,4-Dioxane-D8		75.4	%				

Report of Analytical Results

SDG: SQ6739
Lab ID: SQ6739-2
Client ID: OUTFALL 005-B109
Matrix: AQ
Lab File ID: G8572.D

Sample Date: 07-DEC-23
Extract Date: 11-DEC-23
Extracted By: NH/AC
Extraction Method: SW846 3520C
Lab Prep Batch: WG346779

Report Date: 18-DEC-23
Analysis Date: 17-DEC-23
Analyst: DT
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		0.43	ug/L	1	.25	0.24	0.080
1,4-Dioxane-D8		89.3	%				

Report of Analytical Results

SDG: SQ6742
Lab ID: SQ6742-1DL
Client ID: B109-INFLUENT
Matrix: AQ
Lab File ID: G8602.D

Sample Date: 07-DEC-23
Extract Date: 11-DEC-23
Extracted By: NH/AC
Extraction Method: SW846 3520C
Lab Prep Batch: WG346779

Report Date: 05-JAN-24
Analysis Date: 22-DEC-23
Analyst: DT
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		31	ug/L	10	.25	2.3	0.79
1,4-Dioxane-D8	D	0.00	%				

Report of Analytical Results

SDG: SQ6742
Lab ID: SQ6742-2
Client ID: B109-POST-AOP
Matrix: AQ
Lab File ID: G8577.D

Sample Date: 07-DEC-23
Extract Date: 11-DEC-23
Extracted By: NH/AC
Extraction Method: SW846 3520C
Lab Prep Batch: WG346779

Report Date: 05-JAN-24
Analysis Date: 17-DEC-23
Analyst: DT
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane	U	0.23	ug/L	1	.25	0.23	0.079
1,4-Dioxane-D8		67.1	%				

Report of Analysis

Client Sample ID: OUTFALL 006 Lab Sample ID: JD78421-2 Matrix: AQ - Ground Water Method: EPA 624.1 Project: Northrop Grumman, OU2 System, Bethpage, NY	Date Sampled: 12/07/23 Date Received: 12/07/23 Percent Solids: n/a
---	---

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5A3183.D	1	12/12/23 21:39	NW	n/a	n/a	V5A99
Run #2							

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

VOA OU2 SPDES List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-66-3	Chloroform	ND	0.50	0.50	ug/l	
75-35-4	1,1-Dichloroethene	ND	0.50	0.45	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	0.50	0.51	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	0.50	0.46	ug/l	
76-13-1	Freon 113	ND	0.50	0.87	ug/l	
75-09-2	Methylene chloride	ND	0.50	0.41	ug/l	
127-18-4	Tetrachloroethene	ND	0.50	0.41	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.43	ug/l	
79-01-6	Trichloroethene	ND	0.50	0.43	ug/l	
75-01-4	Vinyl chloride	ND	0.50	0.79	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4 (SUR)	95%		80-128%
2037-26-5	Toluene-D8 (SUR)	98%		82-113%
460-00-4	4-Bromofluorobenzene (SUR)	85%		79-117%
1868-53-7	Dibromofluoromethane (S)	94%		84-121%

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: OUTFALL 006	Date Sampled: 12/07/23
Lab Sample ID: JD78421-2	Date Received: 12/07/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Northrop Grumman, OU2 System, Bethpage, NY	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	< 100	100	ug/l	1	12/11/23	12/12/23 ND	EPA 200.7 ¹	EPA 200.7 ²
Manganese	< 15	15	ug/l	1	12/11/23	12/12/23 ND	EPA 200.7 ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA55226

(2) Prep QC Batch: MP43655

RL = Reporting Limit

Report of Analysis

Client Sample ID: OUTFALL 006		Date Sampled: 12/07/23
Lab Sample ID: JD78421-2		Date Received: 12/07/23
Matrix: AQ - Ground Water		Percent Solids: n/a
Project: Northrop Grumman, OU2 System, Bethpage, NY		

4.2
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Nitrogen, Nitrate + Nitrite	4.5	0.20	0.18	mg/l	2	12/12/23 22:03 SS		EPA 353.2/LACHAT
Nitrogen, Total ^a	4.5	0.40	0.32	mg/l	1	12/13/23 20:27 SS		SM4500 A-11
Nitrogen, Total Kjeldahl	0.14 U	0.20	0.14	mg/l	1	12/13/23 20:27 SS		EPA 351.2/LACHAT

(a) Calculated as: (Nitrogen, Total Kjeldahl) + (Nitrogen, Nitrate + Nitrite)

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analytical Results

SDG: SQ6740
Lab ID: SQ6740-1
Client ID: OUTFALL 006
Matrix: AQ
Lab File ID: G8574.D

Sample Date: 07-DEC-23
Extract Date: 11-DEC-23
Extracted By: NH/AC
Extraction Method: SW846 3520C
Lab Prep Batch: WG346779

Report Date: 18-DEC-23
Analysis Date: 17-DEC-23
Analyst: DT
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		8.8	ug/L	1	.25	0.24	0.082
1,4-Dioxane-D8		87.6	%				

SGS Accutest New Jersey - Dayton
 2235 Route 130, Dayton, NJ 08810
 TEL: 732-329-0200 FAX: 732-329-3499/3480
 www.sgs.com

6W

FED EX Tracking #
 Bottle Only Contingency # **AL-12423-193**
 Account Quote #
 Account Rep # **JD78420**

Client / Reporting Information		Project Information		Requested Analysis (see TEST CODE sheet)										Matrix Codes		
Company Name Arcadis		Project Name Prog 5C OU3.5 RW-21-ONCT-OMM/SPDES		V6242NG9SPDS + Chloroform + Benzene + 1,2,2,4,6,6-Hexachlorocyclohexane + 1,2,4-DCA + 1,2,4,6,8-Heptachlorocyclohexane + 1,2,4,6,8-Heptachlorocyclohexane V6242NG9SPDS + Chloroform (40 mL Clear Glass VOA's) XTNIT - EPA 353.2 & EPA 351.2 w/Total N Calc (250 mL Plastic) Iron + Manganese EPA 200.7 (500 mL Plastic)										DW - Drinking Water GW - Ground Water WW - Waste Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OL - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Waste FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank		
Street Address 2 Huntington Quad, Suite 1S10		Street														
City State Zip Melville NY 11747		City State Bethpage NY														
Project Contact Kevin Czerwinski, Kevin.Czerwinski@arcadis.com		Company Name Arcadis, U.S., Inc.														
Phone # 631-245-0710		Project # 30160626.OMMI3		Billing Information (if different from Report to)		Street Address 630 Plaza Drive, Suite 600		City State Zip Highlands Ranch, CO 80129		Client Purchase Order # 30160626.OMMI3		Work Authorization # NY001496_2015 10 30		Attention Accounts Payable		
Sampler(s) Name(s) Phone # Patrick Deleane (631) 839-3591		Project Manager Carlo San Giovanni		Collection		Date		Time		Sampled by		Matrix		Number of bottles		LAB USE ONLY
Field ID / Point of Collection		MECH/Dr Val #		Date		Time		Sampled by		Matrix		Number of bottles		LAB USE ONLY		
1 TB-120733 - PD -1				12/7/23		PD		TB		2		2		A 37		
2 Outfall 005				↓		0835		GW		5		3		C 58		
3 Outfall 005-B109				↓		0840		GW		5		3		V 337		
4 Outfall 005-T102				↓		0815		GW		5		3				
Turnaround Time (Business days)		Approved By (Accutest PM) / Date:		Data Deliverable Information		Comments / Special Instructions										
<input type="checkbox"/> Std. 15 Business Days <input checked="" type="checkbox"/> Std. 10 Business Days (by Contract only) <input type="checkbox"/> 10 Day RUSH <input type="checkbox"/> 5 Day RUSH <input type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY Emergency & Rush T/A data available VIA Lablink				<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> FULLT1 (Level 3+4) <input type="checkbox"/> NJ Reduced <input type="checkbox"/> Commercial "C" Commercial "A" = Results Only Commercial "B" = Results + QC Summary NJ Reduced = Results + QC Summary + Partial Raw data		<input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> State Forms <input checked="" type="checkbox"/> EDD Format-EQuis 6 <input checked="" type="checkbox"/> Other COMMC+		Initial Assessment <i>13 on</i> Lab Verification _____								
Sample Custody must be documented below each time samples change possession, including courier delivery.																
Relinquished by Sampler: Patrick Deleane		Date Time: 12/7/23 1530		Received By: Sean Curtis		Date Time: 12/7/23 1530		Relinquished By: Sean Curtis		Date Time: 12/7/23 1530		Received By: Sean Curtis		Date Time: 12/7/23 1530		
Relinquished by Sampler: Patrick Deleane		Date Time: 12/7/23 1530		Received By: Sean Curtis		Date Time: 12/7/23 1530		Relinquished By: Sean Curtis		Date Time: 12/7/23 1530		Received By: Sean Curtis		Date Time: 12/7/23 1530		
Relinquished by:		Date Time:		Received By:		Date Time:		Relinquished By:		Date Time:		Received By:		Date Time:		

G:\APROJECT\Wardrop Grumman Bethpage\OU2 2 ONCT\06 Notes and Data\System Sampling\February (Q.M)\COCs_SGS\PAR_002_COCs_02PNo_62233_62235_RevDec2017

6:15

5.2 5



ACCUTEST

CHAIN OF CUSTODY

SGS Accutest New Jersey - Dayton
2235 Route 130, Dayton, NJ 08810
TEL: 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

COC #1 PAGE 1 OF 1

GW

EG-EX Tracking # Bottle Order # 120923-193
Accutest Quote # JD78421

Form containing Client/Reporting Information, Project Information, Requested Analysis, Matrix Codes, and Sample Custody table.

G:\PROJECT\Northrop Grumman Bethpage\OU2.2 ONCT06 Notes and Data\System Sampling\February 10.MJ\COCs_SGS\PAR_OU2_COCs lab\FM_62233_62235_RevDec2017
12/1/23 5:35 6:15 10:30 1P40

5.2 5

JD78421: Chain of Custody

Page 1 of 2



Report of Analysis

Client Sample ID: WSP-7		Date Sampled: 12/07/23
Lab Sample ID: JD78422-1		Date Received: 12/07/23
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260D		
Project: Northrop Grumman, OU3 BPGWCS System, Bethpage, NY		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	L361298.D	1	12/12/23 12:25	LD	n/a	n/a	VL11009

Run #1	Purge Volume
Run #2	5.0 ml

VOA OU3 BPGWVS List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	3.1	ug/l	
71-43-2	Benzene	ND	0.50	0.43	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.45	ug/l	
75-25-2	Bromoform	ND	1.0	0.63	ug/l	
74-83-9	Bromomethane	ND	2.0	1.6	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	2.7	ug/l	
106-99-0	1,3-Butadiene ^a	ND	5.0	0.62	ug/l	
75-15-0	Carbon disulfide	ND	2.0	1.8	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	
75-45-6	Chlorodifluoromethane	ND	5.0	0.49	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	
75-71-8	Dichlorodifluoromethane	ND	2.0	0.56	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.57	ug/l	
107-06-2	1,2-Dichloroethane ^b	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	0.58	ug/l	
591-78-6	2-Hexanone	ND	5.0	4.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.51	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	4.9	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.49	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.65	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: WSP-7		Date Sampled: 12/07/23
Lab Sample ID: JD78422-1		Date Received: 12/07/23
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260D		
Project: Northrop Grumman, OU3 BPGWCS System, Bethpage, NY		

VOA OU3 BPGWVS List

CAS No.	Compound	Result	RL	MDL	Units	Q
127-18-4	Tetrachloroethene	ND	1.0	0.56	ug/l	
108-88-3	Toluene	ND	1.0	0.49	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	
79-01-6	Trichloroethene	ND	1.0	0.53	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.40	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.52	ug/l	
75-68-3	1-chloro-1,1-difluoroethane	ND	5.0	0.33	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	106%		80-120%
17060-07-0	1,2-Dichloroethane-D4	89%		80-120%
2037-26-5	Toluene-D8	103%		80-120%
460-00-4	4-Bromofluorobenzene	86%		82-114%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	system artifact	1.38	11	ug/l	J
	Total TIC, Volatile		0	ug/l	

- (a) Associated CCV outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits low. A sensitivity check was analyzed to demonstrate system suitability to detect affected analyte. 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: WSP-7		
Lab Sample ID: JD78422-1		Date Sampled: 12/07/23
Matrix: AQ - Ground Water		Date Received: 12/07/23
Method: EPA 608.3 EPA 608		Percent Solids: n/a
Project: Northrop Grumman, OU3 BPGWCS System, Bethpage, NY		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	XX2508865.D	1	12/13/23 05:50	CP	12/12/23 13:15	OP51077A	GXX8393
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.050	0.034	ug/l	
11104-28-2	Aroclor 1221	ND	0.050	0.029	ug/l	
11141-16-5	Aroclor 1232	ND	0.050	0.020	ug/l	
53469-21-9	Aroclor 1242	ND	0.050	0.027	ug/l	
12672-29-6	Aroclor 1248	ND	0.050	0.025	ug/l	
11097-69-1	Aroclor 1254	ND	0.050	0.034	ug/l	
11096-82-5	Aroclor 1260	ND	0.050	0.027	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	119%		10-156%
877-09-8	Tetrachloro-m-xylene	112%		10-156%
2051-24-3	Decachlorobiphenyl	92%		10-143%
2051-24-3	Decachlorobiphenyl	102%		10-143%

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: WSP-7	Date Sampled: 12/07/23
Lab Sample ID: JD78422-1	Date Received: 12/07/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Northrop Grumman, OU3 BPGWCS System, Bethpage, NY	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	3190	100	ug/l	1	12/11/23	12/12/23 ND	EPA 200.7 ¹	EPA 200.7 ²
Manganese	74.6	15	ug/l	1	12/11/23	12/12/23 ND	EPA 200.7 ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA55226

(2) Prep QC Batch: MP43655

RL = Reporting Limit

4.1
4

Report of Analysis

Client Sample ID: WSP-7	Date Sampled: 12/07/23
Lab Sample ID: JD78422-1	Date Received: 12/07/23
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: Northrop Grumman, OU3 BPGWCS System, Bethpage, NY	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Nitrogen, Nitrate + Nitrite	2.3	0.10	mg/l	1	12/12/23 20:09	SS	EPA 353.2/LACHAT
Nitrogen, Total ^a	2.3	0.30	mg/l	1	12/13/23 20:27	SS	SM4500 A-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	12/13/23 20:27	SS	EPA 351.2/LACHAT

(a) Calculated as: (Nitrogen, Total Kjeldahl) + (Nitrogen, Nitrate + Nitrite)

RL = Reporting Limit

Report of Analytical Results

SDG: SQ6741
Lab ID: SQ6741-1
Client ID: WSP-7
Matrix: AQ
Lab File ID: G8575.D

Sample Date: 07-DEC-23
Extract Date: 11-DEC-23
Extracted By: NH/AC
Extraction Method: SW846 3520C
Lab Prep Batch: WG346779

Report Date: 18-DEC-23
Analysis Date: 17-DEC-23
Analyst: DT
Analysis Method: SW846 8270D SIM
% Solids: N/A

Compound	Qualifier	Result	Units	Dilution	PQL	ADJ PQL	ADJ MDL
1,4-Dioxane		1.1	ug/L	1	.25	0.25	0.084
1,4-Dioxane-D8		78.4	%				



CHAIN OF CUSTODY

Accutest New Jersey/SPL Environmental
 2235 Route 130, Dayton, NJ 08810
 TEL: 732-329-0200 FAX: 732-329-3499/3480
 www.accutest.com

COC # JD78422 **PAGE 1 OF 1**

EW

FED-EX Tracking # _____
 Accutest Quote # _____
 Bottle Order Control # AL-12423-194
 Accutest Job # JD78422

Client / Reporting Information		Project Information										Matrix Codes	
Company Name Arcadis		Project Name AGMNYM62236 // OU3 BPGWCS - GW										DW-Drinking Water GW-Ground Water WW-Waste Water SW-Surface Water SO-Soil SL-Sludge SED-Sediment DI-DI LIQ-Other Liquid AIR-Air SOL-Other Solid WP-Wipe FB-Field Blank EB-Equipment Blank RB-Rinse Blank TB-Trip Blank	
Street Address 2 Huntington Quad, Suite 1S10		Billing Information (If different from Report to)											
City State Zip Melville NY 11747		Company Name Arcadis, U.S., Inc.											
Project Contact Email Arnas Nemickas, arnas.nemickas@arcadis.com		Street Address 630 Plaza Drive, Suite 600											
Phone # Fax # 631-391-5212		City State Zip Highlands Ranch, CO 80129											
Sagittaler(s) Name(s) Phone # Patrick Delaney (631) 391-2594		Project # 30188750.OMMI3		Client Purchase Order #		Work Authorization # NYD01496_2015.10.30		Project Manager Arnie Nemickas		Attention Accounts Payable		VMS-F142 (40 mL Clear Glass VOA's) VMS-F142 (500 mL Plastic) XMIT - EPA 353.2 & EPA 351.2 w/Total Calc- (500 mL Plastic) Iron + Manganese EPA 200.7 (500 mL Plastic) PCBs - EPA 806 (1 L Amber)	
Turnaround Time (Business days)		Data Deliverable Information											LAB USE ONLY <u>C39</u> <u>V337</u>
<input type="checkbox"/> Std. 15 Business Days <input checked="" type="checkbox"/> Std. 10 Business Days (by Contract only) <input type="checkbox"/> 10 Day RUSH <input type="checkbox"/> 5 Day RUSH <input type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY Emergency & Rush T/A data available VIA Lablink		Approved By (Accutest PM) / Date:		<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 4) <input type="checkbox"/> FULLT1 (Level 3+4) <input type="checkbox"/> NJ Reduced <input type="checkbox"/> Commercial "C"		<input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> State Forms <input checked="" type="checkbox"/> EDD Format Equis 6 <input checked="" type="checkbox"/> Other COMM+		Commercial "A" = Results Only Commercial "B" = Results + QC Summary NJ Reduced = Results + QC Summary + Partial Raw data		Comments / Special Instructions			
Requisitioned by Sampler: Date Time: Relinquished by Sampler: Date Time: Relinquished by: Date Time:		Received By: Date Time: Received By: Date Time: Received By: Date Time:		Relinquished By: Date Time: Relinquished By: Date Time: Relinquished By: Date Time:		Received By: Date Time: Received By: Date Time: Received By: Date Time:		Office Cooler Temp. Date Time:					

G:\PROJECT\Northrop Grumman Bethpage_Program Wide\04 Project Management\Contracts and POs\Lab\SGS-Accutest\LAB_CODE\Sand\COCs\Customized_TM_COCs\OU3 GW COCs Revised 9 21 20

12/7/23 3:35

6:15

JD78422: Chain of Custody

Page 1 of 2



5.2
5

Appendix E

Groundwater Sampling Logs and Chain of Custody Records

Groundwater Sampling Logs

Groundwater Sampling Log

Project No. 30169301 GWMI2 Well ID OPW 2-1

Page 1 of 1
Date 2/21/23
Weather 40° overcast

Project Name/Location Q12 Q1 GW

Measuring Pt. Description TOC Screen Interval (ft-bmp) 360-400 Casing Diameter (in.) 2"

Well Material PVC SS

Static Water Level (ft-bmp) 19.02 Total Depth (ft-bmp) 405 Water Column/ Gallons in Well ~380.98

MP Elevation _____ Pump Intake (ft-bn) 380 Purge Method non-dedicated Peristaltic Submersible Blaster

Sample Method 1 WSV + LF + TV

Pump On/Off 0923 / 1025 Volume Purged (gal) 40L

Sampled by SV / SW

Sample Time: Label OPW 2-1 Replicate/ Code No. N/A

PID: 0.0

1020

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
0925	0	800	19.05	0	3.89	106.9	0.47	9.38	13.5	245.2	clear	N/A
0930	5	1000		5	3.92	105.7		5.62	13.5	173.4	"	"
0935	10	1000	19.05	10	3.93	106.1	0.39	9.44	13.4	197.2	"	"
0940	15	1000		15	4.06	101.8		9.47	13.3	196.7	"	"
0945	20	1000	19.06	20	4.08	101.8	0.34	9.54	12.4	202.1	"	"
0950	25	1000		25	4.07	101.2		9.48	12.3	206.1	"	"
0955	30	1000	19.05	30	4.08	101.1	0.31	3.62	12.2	207.4	"	"
1000	35	400	19.04	32	4.14	98.1	0.28	3.96	12.0	208.9	"	"
1005	40	400	19.04	34	4.16	98.7	0.24	3.94	12.7	206.9	"	"
1010	45	400	19.03	36	4.19	98.3	0.21	3.98	12.4	207.8	"	"
1015	50	400	19.03	38	4.19	98.1	0.18	3.97	12.2	207.9	"	"

Constituents Sampled	Container	Number	Preservative
VOC's 524	40ml Vial	3	HCL
1,4 Dioxine 522	250 ml Glass	2	NaHSO4

Notes:
 $360 - 400 = 40 \times 0.16 = 6.4 \text{ gal} = 24 \text{ L}$
 $TV = 405 - 19.02 \times 885.98 = 3.7$
30L total

Well Casing Volumes	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
Gallons/Foot	1" = 0.04	3" = 0.37	4" = 0.65	1/2" = 0.01	
	1.25" = 0.06	2" = 0.18			

Well Information	Well Location:	Well Locked at Arrival:
Well Location:	<u>Gloria Rd</u>	Yes / No
Condition of Well:	<u>Good 2/260HS ✓</u>	Yes / No
Well Completion:	<u>Flush Mount / Stick Up</u>	Key Number To Well:

30169301 GWM12
Groundwater Sampling Log

Project No. 30169301 NAVISV Well ID BPOW 2-2 Page 1 of 1
 Date 2/21/23
 Project Name/Location OU2 Q1 GW Weather 41° Rain
 Measuring Pt. Description TOC Screen Interval (ft-bmp) 455-495 Casing Diameter (in.) 2" Well Material PVC SS
 Static Water Level (ft-bmp) 19.08 Total Depth (ft-bmp) 500 Water Column/ Gallons in Well 480.92
 MP Elevation _____ Pump Intake (ft-bn) 475 Purge Method Dedicated Peristaltic Submersible Bladder Sample Method 1WSV + LF+TV
 Pump On/Off 0518/0915 Volume Purged (gal) 38L Other _____
 Sample Time: Label BPOW2-2 Replicate/ Code No. N/A Sampled by SV
 Start 0910 End 0915 SW
 PID: 0.0ppm 0910

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
0820	0	1000	19.07	0	4.18	82.1	0.16	7.35	13.6	229.5	Clear	None
0825	5	1000		5	4.34	78.7		3.13	13.5	216.9	"	"
0830	10	1000	19.08	10	4.33	79.2	0.21	2.10	13.4	197.1	"	"
0835	15	1000		15	4.32	79.3		1.95	13.5	187.1	"	"
0840	20	1000	19.12	20	4.31	79.2	0.24	1.57	13.4	171.9	"	"
0845	25	1000		25	4.31	79.9		1.36	13.3	160.8	"	"
0850	30	400	19.13	30	4.31	80.0	0.21	1.27	13.3	156.6	"	"
0855	35	400	19.14	32	4.32	78.9	0.24	3.42	13.3	145.6	"	"
0900	40	400	19.18	34	4.31	78.4	0.21	8.45	13.2	147.9	"	"
0905	45	400	19.18	36	4.31	78.1	0.23	0.340	13.1	146.8	"	"

Constituents Sampled	Container	Number	Preservative
VOC's 02000 529.2	40ml Vial	3	HCL
1,4 Dioxane 522	250ml Glass	2	NaHSO4

Notes:
 $495 - 455 = 40 \times 0.16 = 6.4 \text{ gal} = 24.2 \text{ L}$
 $500 - 19.08 = 480.92 \text{ gal} = 52 \text{ L}$

30L total

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2" = 0.16	2.5" = 0.26	3" = 0.37	3.5" = 0.50	4" = 0.65	6" = 1.47	3/8" = 0.006	1/2" = 0.01
--------------	-----------	-------------	-----------	-------------	-----------	-------------	-----------	-----------	--------------	-------------

Well Information

Well Location: Good 3/3 bolts but dont lock Well Locked at Arrival: Yes / No
 Condition of Well: Aluminum St Well Locked at Departure: Yes / No
 Well Completion: Flush Mount / Stick Up Key Number To Well: _____

Groundwater Sampling Log

Project No. 30169301 ~~477~~ ^{GUM12} Well ID BPOW 2-3 Page 1 of 2
 Date 08/21/23 ^{450'}
 Project Name/Location 002 01 Ground Water Monitoring Weather 02/21/23
 Measuring Pt. Description TOC Screen Interval (ft-bmp) 564-594 Casing Diameter (in.) 4" Well Material X PVC SS
 Static Water Level (ft-bmp) 18.40' Total Depth (ft-bmp) 598' Water Column/Gallons in Well 594-1840 = 374.4 Gall
 MP Elevation _____ Pump Intake (ft-bmp) mid screen Purge Method Dedicated Bladder Sample Method 1WSV + 1 tubing vol
 Pump On/Off 0808 Volume Purged (gal) 83.2L Peristaltic Submersible Rediflow SD Other _____
 Sample Time: Label BPOW 2-3 Replicate/Code No. NA Sampled by SW
 Start 0945 End 0950

PID: 0.0 ppm 0945

6.75
7.13

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
0810	2	300	18.33	0.6	4.02	0.045	9.69	5.0	12.0	118.2	clear	None
0815	7	1350		11.25	4.30	0.072		1.4	12.7	0.6	clear	None
0820	12	1350	18.32	18	4.44	0.072	4.26	0.6	13.8	5.4	clear	None
0825	17	1350		24.75	4.38	0.071		0.2	13.8	40.7	clear	None
0830	22	1350	18.32	31.5	4.39	0.071	4.34	0.2	13.7	75.5	clear	medium
0835	27	1450		38	4.29	0.071	3.96	0.2	13.5	83.8	clear	medium
0840	32	1450	18.32	44.75	4.28	0.071	4.30	0.2	13.7	91.5	clear	medium
0845	37	1425		52.8	4.31	0.071		0.1	13.4	103.7	clear	medium
0850	42	1425	18.32	60.0	4.28	0.071	4.40	0.2	13.7	102.5	clear	medium
0855	47	1425		67.15	4.26	0.071		0.1	13.7	108.7	clear	medium
0900	52	1425	18.35	74.27	4.28	0.071	3.47	0.2	13.7	107.5	clear	medium
0905	57	1425		81.4	4.26	0.071		0.1	13.6	113.6	clear	medium
0910	62	200	18.34	81.6	4.29	0.072	4.49	0.1	13.12	119.8	clear	None
0915	67	200	18.32	81.8	4.11	0.071	6.36	0.2	10.6	131.9	clear	None
0920	72	200	18.32	82	3.92	0.071	3.58	0.2	10.6	141.2	clear	None
0925	77	200	18.32	82.2	4.02	0.071	4.03	0.2	10.5	135.2	clear	None

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane	250ml amber	2	Sodium Bisulfate

Notes:
 $594 - 564 = 30' \times 0.65 \frac{\text{gal}}{\text{ft}} = 19.5 \text{ gal} \times 3.785 \frac{\text{L}}{\text{gal}} = 73.81 \text{ L}$
 $594 - 18.40' = 575.6' \times 0.65 = 374.14 \text{ gal tubing vol } 6 \text{ L}$
 Total purge = $73.81 \text{ L} + 6 \text{ L} = 79.81 \text{ L}$

Well Casing Volumes	1" = 0.04	1.5" = 0.09	2" = 0.16	2.5" = 0.26	3" = 0.37	3.5" = 0.50	4" = 0.65	6" = 1.47	8" = 0.006
---------------------	-----------	-------------	-----------	-------------	-----------	-------------	-----------	-----------	------------

Well Information

Well Location: Alona Rd, North Massapequa Well Locked at Arrival: Yes / No

Condition of Well: Good 3/3 Well Locked at Departure: Yes / No

Well Completion: Flush Mount / Stick Up Key Number To Well: NA

Groundwater Sampling Log

Project No. 30169301.GWM12 Well ID BROW2-3

Page 22 of 2
Date over cast 45 OF

Project Name/Location 012 01 Groundwater monitoring

Weather 02/21/23

Measuring Pt. Description TOC Screen Interval (ft-bmp) _____ Casing Diameter (in.) 4"

Well Material PVC SS

Static Water Level (ft-bmp) See Total Depth (ft-bmp) PAGE #1 Water Column/Gallons in Well FOR INFO

MP Elevation _____ Pump Intake (ft-bmp) mid screen Purge Method dedicated SW
 Peristaltic Bladder
 Submersible rediflow

Sample Method 3WSV + LF

Pump On/Off 0808 Volume Purged (gal) 83.2 gal

Sample Time: Label BROW2-3 Replicate/Code No. NA

Sampled by SW

Start 0945 End 0950
PID: 0.07pm 0945

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
0930	82	200	18.32	82.4	4.08	0.071	2.68	0.2	12.7	133.0	clear	None
0935	87	200	18.32	82.6	4.11	0.671	1.84	0.2	10.4	132.0	clear	None
0940	92	200	18.32	82.8	4.14	0.071	1.82	0.2	10.5	130.0	clear	None

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane	250ml amber	2	Sodium Bisulfide

Notes: See pg 1

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: _____	Well Locked at Arrival: Yes / No
Condition of Well: _____	Well Locked at Departure: Yes / No
Well Completion: Flush Mount / Stick Up	Key Number To Well: _____

Groundwater Sampling Log

Project No 30129301 GWMFZ Well ID GM-210a

Date 2/23/13 Page 1 of 1

Project Name/Location OUR Q1 AWS

Weather 35° Westcast

Measuring Pt Description TOC Screen Interval (ft-bmp) 516-526' Casing Diameter (in) 4

Well Material PVC SS

Static Water Level (ft-bmp) 49.88 Total Depth (ft-bmp) 526' Water Column/ Gallons in Well 476.12'

MP Elevation _____ Pump Intake (ft-bmp) 521' Purge Method Non-dedicated Sw

Sample Method 1 WSV + LF + TV

Pump On/Off 0747 Volume Purged (gal) 37.5 L Other Acosub

Sample Time Label GM-210a Replicate/ Code No NA
Start 0915 End 0920

Sampled by SW
SV

PID. 0.0 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Redox (mV)	Appearance	
											Color	Odor
0750	3	400	50.00	1.2	5.29	0.124	4.73	4.1	12.2	126.5	Clear	None
0755	8	400		3.5	5.36	0.125		3.4	11.9	1338	Clear	None
0800	13	400	49.95	5.5	5.42	0.123	4.29	3.6	12.1	140.2	Clear	None
0805	18	400		7.5	5.59	0.129		3.3	12.2	142.2	Clear	None
0810	23	400	49.83	9.5	7.25	0.175	284	2.2	12.2	98.9	Clear	None
0815	28	400		11.5	9.26	0.174		1.3	12.3	104.0	Cloudy	None
0820	33	400	49.96	13.5	9.50	0.168	174	2.4	12.5	111.0	Cloudy	None
0825	38	400		15.5	9.52	0.163		3.0	12.2	116.2	Cloudy	None
0830	42	400	49.95	17.5	9.41	0.156	100	4.1	12.5	123.3	Cloudy	None
0835	48	400		19.5	9.29	0.152		5.1	12.3	126.6	Cloudy	None
0840	52	400	49.76	21.5	9.14	0.149	868	5.7	12.4	129.7	Cloudy	None
0845	58	400	49.75	23.5	8.74	0.146	58.9	6.5	12.4	135.6	Cloudy	None
0850	62	400	49.75	25.5	8.55	0.143	44.5	6.6	12.4	137.4	Cloudy	None
0855	68	400	49.75	27.5	8.38	0.142	39.2	7.1	12.2	137.8	Cloudy	None
0900	72	400	49.75	29.5	8.19	0.140	29.2	7.4	12.5	137.4	Cloudy	None
0905	78	400	49.75	31.5	8.02	0.138	21.8	7.4	12.4	157.4	Cloudy	None
0910	82	400	49.75	33.5	7.94	0.138	22.4	7.5	12.6	127.4	Clear	None

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270	1L Amber	2	None

Notes: 526-49.88 = 476.12' = 111' = TV

Well Casing Volumes	1" = 0.04	1.25" = 0.06	1.5" = 0.09	2" = 0.16	2.5" = 0.26	3" = 0.37	3.5" = 0.50	4" = 0.65	5" = 1.00	6" = 1.47	8" = 2.45	10" = 4.00
---------------------	-----------	--------------	-------------	-----------	-------------	-----------	-------------	-----------	-----------	-----------	-----------	------------

Well Information	Well Locked at Arrival:	Yes	1	No
Well Location: <u>Harrison & N Batehorni Bethpage NY</u>	Well Locked at Departure:	Yes	1	No
Condition of Well: <u>No well part. Good. excessive material at top</u>	Key Number To Well:	<u>NA</u>		
Well Completion: <u>Flush Mount</u> / <u>Stick Up</u>				

Groundwater Sampling Log

Project No. 30126046.NAVI2

Well ID 6/low-2-2

Date 5-1-23

Project Name/Location OU2 Q2 2023 GW Sampling

Weather 60°F/clear

Measuring Pt. Description TOC Screen Interval (ft-bmp) 455-495

Casing Diameter (in.) 2

Well Material PVC SS

Static Water Level (ft-bmp) 19.10 Total Depth (ft-bmp) 495

Water Column/ Gallons in Well 175ft + 176gal

MP Elevation Pump Intake (ft-bn) mid ocean Volume Purged (gal) 54h

Purge Method non-dedicated dedicated Peristaltic Submersible rod flow Other

Sample Method 1wsr+LF

Sample Time: Label 6/low-2-2 Replicate/ Start 12:45 Code No. nlc End 12:50

Sampled by PG SH

PID: 0.00ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
1112	0	750	19.10	0	3.62	0.080	0.86	17.0	14.9	149.2	clear	None
1117	5	750	19.12	3.75	3.71	0.075		20.2	14.9	143.3		
1122	10	750		7.5	4.15	0.074	0.56	20.7	14.8	135.6		
1127	15	750	19.18	11.25	4.18	0.074		20.8	14.9	110.5		
1132	20	750		15	4.60	0.073	0.58	20.6	14.9	103.1		
1137	25	750	19.24	18.75	4.27	0.074		19.7	14.8	101.8		
1142	30	750		22.5	4.37	0.074	0.65	19.5	14.7	100.2		
1147	35	750	19.24	26.25	4.73	0.074		19.3	14.7	99.1		
LOW FLOW 1152	40	450		28.5	4.46	0.074	1.07	19.2	14.9	96.0		
1157	45	450	19.26	30.75	4.45	0.074	1.08	19.2	14.9	95.8		
1202	50	450	19.27	33	4.49	0.074	0.56	19.1	15.0	95.6		
1207	55	450	19.27	35.25	4.44	0.074	0.45	19.3	15.0	95.6		
1212	60	450	19.28	37.5	4.51	0.074	0.85	19.3	14.7	95.0		
1217	65	450	19.28	39.75	4.88	0.074	0.41	19.5	14.8	96.0		
1222	70	450	19.28	42	5.33	0.074	0.31	19.5	14.9	94.4		
1227	75	450	19.29	44.25	4.47	0.074	0.51	19.7	14.9	93.1		

Constituents Sampled	Container	Number	Preservative
VOC's 8260-G <u>524.2</u>	40ml Vial	3	HCL
1,4 Dioxane 8270-D-GM <u>522</u>	1 Liter Amber	2	None

Notes:

$40 \times 0.16 = 6.4 \times 3.785 = 24.26 \text{ L: 1wsr}$
 $495 - 19.10 = 475.9 \times 0.0025 = 1.18 \times 3.785 \approx 4.5 \text{ L: TV}$
28.6 Total

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: _____
 Condition of Well: _____
 Well Completion: Flush Mount / Stick Up

Well Locked at Arrival: Yes / No
 Well Locked at Departure: Yes / No
 Key Number To Well: _____

Groundwater Sampling Log

Page 1 of 2

Project No. 30126046.NAVI2

Well ID blow 2-3

Date 5-1-23

Project Name/Location OU2 Q2 2023 GW Sampling

Weather 55°F / Clear

Measuring Pt. Description TOC

Screen Interval (ft-bmp) 564-594

Casing Diameter (in.) 4

Well Material PVC SS

Static Water Level (ft-bmp) 18.24

Total Depth (ft-bmp) 599

Water Column/ Gallons in Well 580.76ft / 377.5gal

MP Elevation

Pump Intake (ft-bn) midstream

Purge Method non-dedicated Peristaltic Submersible recirculation

Sample Method 1 WSW + LP

Pump On/Off 0905 / 1055

Volume Purged (gal) 102

Sample Time: Label blow 2-3
Start 1050
End

Replicate/ Code No.

Sampled by PG, PH

PID: 0.0 ppm

* missed parameter, turned off pump

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
0908	0	500	18.19	0	8.33	0.080	0.91	11.8	12.9	183.7	Clear	None
0913	5	500		2.5	6.71	0.061	0.46	19.6	14.1	73.1		
0923	15	1500	18.25	12.5	6.40	0.063		20.5	14.1	35.5		
0928	20	1700		24.0	6.17	0.062	1.29	20.6	14.3	73.8		
0933	25	1700	18.23	29.5	5.93	0.062		20.9	14.3	106.3		
0938	30	1700		38	5.98	0.062	0.51	21.0	14.3	122.2		
0943	35	1700	18.24	46.5	4.22	0.062		21.0	14.4	126.0		
0948	40	1700		55	4.42	0.067	0.78	18.9	14.2	154.3		
0953	45	1700	18.24	63.5	4.36	0.064		20.0	14.4	148.7		
0958	50	1700		72	4.38	0.063	0.44	20.3	14.4	148.8		
1003	55	1700	18.24	80.5	4.61	0.062		20.1	14.5	147.3		
1008	60	450		82.75	4.28	0.062	0.35	20.7	14.4	148.9		
1013	65	450	18.25	85	4.37	0.062	0.46	20.6	14.4	144.3		
1018	70	450	18.24	87.25	4.35	0.062	0.30	20.7	14.5	141.1		
1023	75	450	18.24	89.5	4.34	0.062	0.45	20.7	14.6	141.3		
1028	80	450	18.25	91.75	4.33	0.062	0.38	20.7	14.6	141.3		

Constituents Sampled	Container	Number	Preservative
VOC's 8200 524.2	40ml Vial	3	HCL
1,4 Dioxane 8270 522	1 Liter Amber 250ml Amber	2	None

Notes:

WSV: $594 - 564 = 30ft \times 0.65 = 19.5 \text{ gal} \times 3.785 = 73.8 \text{ L}$
 TV: $579 - 18.24 = 560.76 \times 0.025 = 1.4 \text{ gal} \times 3.785 = 5.3 \text{ L}$

Well Casing Volumes

Gallons/Foot	1.5" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: <u>Harris and Glendon Rd, Plainville</u>	Well Locked at Arrival: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well: <u>Good</u>	Well Locked at Departure: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion: <u>Flush Mount / Stick Up</u>	Key Number To Well: <u> </u>

Groundwater Sampling Log

Project No. 30126046.NAVI2 Well ID BPOW2-3 Date 5/01/23 Page 12 of 2

Project Name/Location OU2 Q2 2023 GW Sampling Weather _____

Measuring Pt. TOC Screen Interval (ft-bmp) _____ Casing Diameter (in.) _____ Well Material PVC SS

Static Water Level (ft-bmp) _____ Total Depth (ft-bmp) _____ Water Column/ Gallons in Well _____

MP Elevation _____ Pump Intake (ft-bn) _____ Purge Method: Dedicated non-dedicated Peristaltic Submersible Other _____ Sample Method _____

Pump On/Off _____ Volume Purged (gal) _____

Sample Time: Label _____ Replicate/ Code No. _____ Start _____ End _____ Sampled by _____

PID: _____

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
1033	85	450	18.25	94	4.24	0.062	0.22	20.6	14.7	140.0		
1038	90	450	18.26	96.25	4.23	0.062	0.24	20.7	14.7	137.6		
1043	95	450	18.26	98.5	4.27	0.062	0.34	20.7	14.8	136.7		
1048	100	450	18.26	100.75	4.25	0.062	0.38	20.6	14.9	136.0		

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes: _____

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: _____ Well Locked at Arrival: Yes / No

Condition of Well: _____ Well Locked at Departure: Yes / No

Well Completion: Flush Mount / Stick Up Key Number To Well: _____

Groundwater Sampling Log

Page 1 of 2

Project No. 30126046.NAV12 Well ID BPOW1-2 Date 6/09/23
 Project Name/Location OU2 Q2 GW sampling 2023, Bethpage Weather 63°F, partly cloudy
 Measuring Pt. Description Top of Casing Screen Interval (ft-bmp) 274-314 Casing Diameter (in.) 4 Well Material PVC SS
 Static Water Level (ft-bmp) 32.07 Total Depth (ft-bmp) 335 Water Column/ Gallons in Well 302.93 ft / 196.9 gal
 MP Elevation _____ Pump Intake (ft-bmp) Midscreen Purge Method Non-dedicated bladder Peristaltic Submersible Other _____ Sample Method 1WSV/LF + TV
 Pump On/Off 0958/1230 Volume Purged (gal) 110 Sample Time Label BPOW1-2 Replicate/ Code No. N/A Start 1225 End 1230 Sampled by SH SW ARH

PID 0.0 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Redox (mV)	Appearance	
											Color	Odor
1000	0	700	32.07	0	6.30	0.221	0.36	10.6	16.2	135.1	Clear	None
1005	5	700	32.11	3.5	5.59	0.203		14.4	15.1	79.3		
1010	10	750		7.25	5.40	0.208	6.50	14.9	14.7	50.5		
1015	15	800	32.12	11.25	5.30	0.210		15.1	14.7	37.6		
1020	20	800		15.25	5.25	0.210	5.41	15.2	14.4	34.9		
1025	25	800	32.11	19.25	5.23	0.210		15.3	14.4	31.8		
1030	30	800		23.25	5.22	0.211	3.39	15.4	14.4	28.8		
1035	35	800	32.11	27.25	5.16	0.211		15.2	14.9	29.0		
1040	40	850		31.5	5.17	0.211	3.77	15.4	14.4	29.1		
1045	45	850	32.09	35.75	5.13	0.211		15.4	14.5	33.0		
1050	50	850		40	5.10	0.210	4.87	15.4	14.5	33.4		
1055	55	850	32.10	44.25	5.10	0.210		15.5	14.5	33.5		
1100	60	850		48.5	5.12	0.209	3.44	15.5	14.3	31.2		
1105	65	850	32.09	52.75	5.08	0.207		15.4	14.5	29.0		
1110	70	850		57	5.03	0.206	2.22	15.5	14.4	29.5		
1115	75	850	32.09	61.25	5.04	0.205		15.6	14.4	30.8	↓	↓

Constituents Sampled	Container	Number	Preservative
VOCs 524.2	40 mL glass vial	3	HCl
1,4-Dioxane 522 SIM	250 mL amber bottle	2	NaHSO4

Notes:

Tubing Volume Equation: Volume (gal) = (Midscreen depth - static water level depth) x tubing conversion factor (gal/ft) 4" High DO - YSI serial # 43948
 WSV: $40 \times 0.65 = 26 \text{ gal} \times 3.785 = 98.4 \text{ L}$
 TV: $335 - 32.07 = 302.93 \times 0.025 = 0.75 \text{ gal} \times 3.785 = 2.86 \text{ L}$ 102 L TOTAL

*Field Blank Required *Cone off early or day before
 3 successive readings should be within +/- 0.1 for pH, +/- 3 percent for Sp. Con., +/- 10 percent for DO, +/- 10 mv for ORP, +/- 10 percent for turbidity, and +/- 10 percent for temperature.

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006	1/4" = 0.025
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01		

Well Information

Well Location: Bruce Ln and Lawrence St. Well Locked at Arrival: Yes / No
 Condition of Well: see well inspection log Well Locked at Departure: Yes / No
 Well Completion: Flush Mount / Stick Up Key Number To Well: N/A

Groundwater Sampling Log

Project No. 301200416.NAV12 Well ID BPOWI-2 Date 6/9/23
 Project Name/Location DU2 Q2 GW Sampling 2023 Weather 63°F, partly cloudy
 Measuring Pt. Screen Casing 4 Well Material X PVC
 Description Top of Casing Interval (ft-bmp) 274-314 Diameter (in.) 4 SS
 Static Water Level (ft-bmp) 32.07 Total Depth (ft-bmp) 335 Water Column/
 Gallons in Well 302.93 ft / 196.9 gal
 MP Elevation Pump Intake (ft-bmp) Midscreen Purge Method Non-dedicated bladder Sample Method 1WSV + TV + LF
 Pump On/Off 0958/1230 Volume Purged 110 L Peristaltic Submersible Other
 Sample Time: Label BPOWI-2 Replicator/ Code No. N/A Sampled by SH SW ARH
 Start 1225 End 1230

PID: 0.0 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
1120	80	850		65.5	5.01	0.204	3.81	15.6	14.2	30.2	clear	None
1125	85	850	32.09	69.75	5.03	0.202		15.7	14.3	38.3		
1130	90	850		74	5.04	0.201	2.76	15.6	14.4	40.9		
1135	95	850	32.09	78.25	5.03	0.199		15.7	14.5	35.9		
1140	100	850		82.5	5.05	0.198	4.77	15.6	14.4	32.9		
1145	105	850	32.10	86.75	5.07	0.198		15.8	14.2	32.4		
1150	110	850		91	5.04	0.196	2.29	15.7	14.2	29.4		
1155	115	850	32.09	95.25	5.04	0.194		15.7	14.5	28.9		
1200	120	850		99.5	5.05	0.193	2.38	15.7	14.5	26.5		
LF 1205	125	400	31.92	101.5	5.09	0.192		15.3	15.7	24.0		
1210	130	400	31.91	103.5	5.07	0.192	1.94	15.3	15.7	22.3		
1215	135	400	31.91	105.5	5.07	0.192	1.60	15.3	15.9	22.1		
1220	140	400	31.91	107.5	5.06	0.191	1.39	15.1	16.2	22.0	↓	↓

Constituents Sampled	Container	Number	Preservative
VOCs 524.2	40 mL glass vial	3	HCl
1,4- Dioxane 522 SIM	250 mL amber bottle	2	NaHSO4

Notes:
 Tubing Volume Equation: Volume (gal)=(Midscreen depth - static water level depth) x tubing conversion factor (gal/ft)
SEE PAGE #1 FOR INFO

*Field Blank Required *Cone off early or day before
 3 successive readings should be within +/- 0.1 for pH, +/- 3 percent for Sp. Con., +/- 10 percent for DO, +/- 10 my for ORP, +/- 10 percent for turbidity, and +/- 10 percent for temperature.

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2" = 0.16	2.5" = 0.26	3" = 0.37	3.5" = 0.50	4" = 0.65	6" = 1.47	3/8" = 0.006
	1.25" = 0.06							1/2" = 0.01	

Well Information

Well Location:	<u>Bruce Ln & Lawrence St</u>	Well Locked at Arrival:	<u>Yes</u> / No
Condition of Well:	<u>see well inspection log</u>	Well Locked at Departure:	<u>Yes</u> / No
Well Completion:	<u>Flush Mount</u> / Stick Up	Key Number To Well:	<u> </u>

Groundwater Sampling Log

Project No. 301260416.NAVIZ Well ID BLOW3-3 Date 06/09/23 Page 1 of 2
 Project Name/Location Old QA GW Sampling Weather Overcast 70°F
 Measuring Pt. TOC Screen Interval (ft-bmp) 580-620' Casing Diameter (in.) 4" Well Material PVC SS
 Static Water Level (ft-bmp) 25.56 Total Depth (ft-bmp) 625 Water Column/ Gallons in Well 599.44ft/390gal
 MP Elevation 113.7 Pump Intake (ft-bmp) MidScreen(600) Purge Method Dedicated Bladder Peristaltic Submersible Rediffusion Other _____ Sample Method 1 WSV + LF + TV
 Pump On/Off 11:35 Volume Purged (gal) 115.25(L) Sample Time Label BLOW3-3 Replicate/ Code No. None Sampled by SW/PO

PID: 0.0 ppm

Volume (L)
31.25
38.75
46.25
53.75
61.25
68.75
76.25
83.75
91.25

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Redox (mV)	Appearance	
											Color	Odor
1140	0	500	—	0	8.51	0.105	1.31	7.21	18.5	-2.5	Clear	None
1145	5	500	—	2.5	7.76	0.095	—	3.12	15.6	55.3	Clear	Medium
1150	10	650	25.54	5.75	7.76	0.095	0.91	2.53	15.5	58.0	Clear	Medium
1155	15	900	—	10.25	7.91	0.095	—	2.87	15.5	48.3	Clear	Strong
1200	20	900	25.54	14.75	7.78	0.096	1.47	2.29	15.5	-54.1	Clear	Strong
1205	25	900	—	19.25	7.85	0.097	—	2.10	15.5	30.9	Clear	Strong
1210	30	1200	25.51	23.75	7.66	0.097	5.37	2.49	15.0	62.2	Clear	Strong
1215	35	1500	—	28.25	7.90	0.075	—	70.20	14.6	3.4	Clear	Strong
1220	40	1500	25.50	32.75	8.04	0.092	4.77	11.21	14.6	5.1	Clear	Strong
1225	45	1500	—	37.25	8.14	0.094	—	14.09	14.6	7.3	Clear	Strong
1230	50	1500	25.50	41.75	8.44	0.091	3.53	10.65	14.5	3.7	Clear	Strong
1235	55	1500	—	46.25	8.49	0.096	—	13.33	14.7	2.5	Clear	Strong
1240	60	1500	25.49	50.75	8.48	0.095	2.63	13.53	14.5	1.8	Clear	Strong
1245	65	1500	—	55.25	9.79	0.095	—	12.73	14.5	-54.2	Clear	Strong
1250	70	1500	25.49	59.75	11.07	0.095	3.99	14.12	14.6	4.7	Clear	Strong
1255	75	1500	—	64.25	11.31	0.097	—	11.37	14.5	1.8	Clear	Strong

Constituents Sampled	Container	Number	Preservative
VOC's 6260 524.2	40ml Vial	3	HCL
1,4 Dioxane 522	250ml amber	2	Sodium Bisulfate

Notes:

$1WSV = (620' - 580') = 40' \times 0.65 \text{ gal/ft} = 26 \text{ gal} \times 3.785 \text{ L/gal} = 98.4 \text{ L} = 103 \text{ L total}$

$TV = 625' \times 0.0026 = 1.625 \text{ gal} \times 3.785 = 6.15 \text{ L}$
 $- 25.56' = 599.44' \times 0.65 \text{ gal/ft} = 389.636 \text{ gal} \times 3.785 \text{ L/gal} = 1473.7 \text{ L}$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location:	<u>Basin - Seaman's Neck Rd, Sanford, NY</u>	Well Locked at Arrival:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Condition of Well:	<u>OK; Pump struggled getting high rate</u>	Well Locked at Departure:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Well Completion:	<u>Flush Mount / Stick Up</u>	Key Number To Well:	<u>NA</u>	

↳ For more info check well inspection log (SW)

Groundwater Sampling Log

Project No. 301260416-NAVIA2 Well ID BPOW3-3 Page 2 of 2
 Date 06/09/23
 Project Name/Location 02 02 GW Sampling Weather Overcast 70°F
 Measuring Pt. Description TOC Screen Interval (ft-bmp) 580'-620' Casing Diameter (in.) 4" Well Material PVC SS
 Static Water Level (ft-bmp) SEE PAGE # 7 FOR INFO Total Depth (ft-bmp) 620' Water Column/ Gallons in Well
 MP Elevation SEE PAGE # 7 FOR INFO Pump Intake (ft-bmp) SEE PAGE # 7 FOR INFO Pump Method Peristaltic Sample Method 3WSV + LF
 Pump On/Off SEE PAGE # 7 FOR INFO Volume Purged (gal) SEE PAGE # 7 FOR INFO Other Bladder
 Sample Time: Label BPOW3-3 Replicate/
 Start 1345 Code No. NONE Sampled by SW/PO
 End 1350

PID: 0.0ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Redox (mV)	Appearance	
											Color	Odor
1300	54	1500	25.48	98.75	2.99	0.096	5.80	11.25	14.5	55.8	Clear	Strong
1305	81	1500	—	106.25	2.80	0.097	—	11.72	14.5	61.8	Clear	Strong
1310	90	200	25.40	107.25	3.39	0.097	2.32	11.04	17.7	76.2	Clear	Strong
1315	95	200	25.40	108.25	3.03	0.084	—	3.68	17.0	71.2	Clear	Strong
1320	100	200	25.40	109.25	2.23	0.099	1.22	2.78	17.1	54.0	Clear	Strong
1325	105	200	25.40	110.25	5.17	0.099	0.88	3.17	17.1	2.1	Clear	Strong
1330	110	200	25.40	111.25	3.78	0.099	0.54	3.24	17.3	-16.5	Clear	Strong
1335	115	200	25.40	112.25	3.80	0.099	0.62	3.20	18.3	-19.1	Clear	Strong
1340	120	200	25.40	113.25	3.75	0.099	0.71	3.20	18.3	-18.4	Clear	Strong

Radon Water — 06/09/23

Constituents Sampled	Container	Number	Preservative
VOC's <u>524.2</u>	40ml Vial	3	HCL
1,4 Dioxane <u>522</u>	250ml amber	2	Sodium Bisulfate

Notes:
 * At 1300 YSI computer was switched out to troubleshoot high pH readings. This solved the issue. Sw * Volume was initially incorrectly calculated - so adjusted on left side of page 1. Sw

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: <u>Basin - Scamans Neck Rd, Scarsford, NY</u>	Well Locked at Arrival: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well: <u>Good</u>	Well Locked at Departure: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion: <u>Flush Mount</u> / <u>Stick Up</u>	Key Number To Well: <u>NA</u>

Groundwater Sampling Log

Project No. 30126046.NAVI2

Well ID Brow 3-1

Date 5-1-23

Project Name/Location OU2 Q2 2023 GW Sampling

Weather 55°F/11°C

Measuring Pt. TOC

Screen Interval (ft-bmp) 436.5-476.5

Casing Diameter (in.) 4

Well Material PVC SS

Static Water Level (ft-bmp) 24.76

Total Depth (ft-bmp) 516

Water Column/ Gallons in Well 491.24 ft / 319.3 gal

MP Elevation N/A

Pump Intake (ft-bn) mid screen

Purge Method non-dedicated dedicated

Sample Method 1 LRV + LF

Pump On/Off 1323 / 1506

Volume Purged (gal) 120.5

Peristaltic Submersible Rediflow Other

Sample Time: Label BPOW3-1
Start 1500
End

Replicate/ Code No. N/A

Sampled by PG SH

PID: 0.0 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
1325	0	1350	24.76	0	3.75	0.258	2.03	9.20	15.4	173.8	clear	None
1330	5	1700	25.01	8.5	4.13	0.125		6.95	14.8	155.5		
1335	10	1700		17	4.09	0.128	1.26	5.26	14.7	120.8		
1340	15	1700	24.89	25.5	3.94	0.123		6.31	14.6	162.4		
1345	20	1700		34	3.93	0.197	4.26	6.35	14.7	161.4		
1350	25	1700	24.78	42.5	3.93	0.220		5.78	14.7	161.0		
1355	30	1700		51	3.94	0.228	3.39	5.53	14.6	161.6		
1400	35	1700	24.71	59.5	3.93	0.230		6.15	14.7	160.8		
1405	40	1700		68	3.94	0.227	1.83	3.63	14.7	161.3		
1410	45	1700	24.70	76.5	3.93	0.225		4.47	14.8	161.0		
1415	50	1700		85	3.94	0.226	0.63	5.62	14.6	161.1		
1420	55	1700	24.41	93.5	3.92	0.230		5.78	14.6	160.1		
1425	60	1700		102	3.93	0.231	3.49	5.48	14.6	160.6		
low-flow 1430	65	500	24.01	104.5	3.95	0.231		7.8	14.9	160.7		
1435	70	500	23.94	107	3.94	0.231	0.71	0.65	14.9	160.8		
1440	75	500	23.95	109.5	5.13	0.231	1.75	0.61	14.9	90.9	↓	↓

Constituents Sampled	Container	Number	Preservative
VOC's 8260-C <u>524.2</u>	40ml Vial	3	HCL
1,4 Dioxane 8270-D/STIM <u>522</u>	1 Liter Amber	2	None

Notes:

WSV: $476.5 - 436.5 = 40 \times .65 = 26 \text{ gal} \times 3.785 = 98.41 \text{ L}$
 TV: $463.5 - 24.76 = 438.74 \times .0025 = 1.10 \text{ gal} \times 3.785 = 4.16 \text{ L}$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: <u>Red Maple Dr. East and Rib Ln</u>	Well Locked at Arrival: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well: <u>Fair</u>	Well Locked at Departure: <input type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion: <input checked="" type="checkbox"/> Flush Mount / <input type="checkbox"/> Stick Up	Key Number To Well: <u> </u>

Groundwater Sampling Log

Project No. 30126046.NAVI2 Well ID BPOW3-1 Date 5/01/23 Page 2 of 2

Project Name/Location OU2 Q2 2023 GW Sampling Weather _____

Measuring Pt. TOC Screen Interval (ft-bmp) _____ Casing Diameter (in.) _____ Well Material PVC SS

Static Water Level (ft-bmp) _____ Total Depth (ft-bmp) _____ Water Column/ Gallons in Well _____

MP Elevation _____ Pump Intake (ft-bn) _____ Purge Method non-dedicated Sample Method _____
Peristaltic _____ Submersib rediflow _____ Other _____

Pump On/Off _____ Volume Purged (gal) _____

Sample Time: Label _____ Replicate/ Code No. _____ Start _____ End _____ Sampled by _____

PID: _____

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
1445	80	500	23.95	112	4.02	0.231	1.56	0.57	15.0	153.4	clear	None
1450	85	500	23.95	114.5	4.82	0.231	1.23	0.53	15.0	113.2	↓	↓
1455	90	500	23.95	117	4.76	0.231	0.63	0.51	14.9	116.3	↓	↓
1500	95	500	23.95	119.5	4.73	0.231	1.23	0.52	14.8	118.3	↓	↓

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes: _____

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2" = 0.16	2.5" = 0.26	3" = 0.37	3.5" = 0.50	4" = 0.65	6" = 1.47	3/8" = 0.006	1/2" = 0.01
--------------	-----------	-------------	-----------	-------------	-----------	-------------	-----------	-----------	--------------	-------------

Well Information

Well Location: _____ Well Locked at Arrival: Yes / No

Condition of Well: _____ Well Locked at Departure: Yes / No

Well Completion: Flush Mount / Stick Up Key Number To Well: _____

Groundwater Sampling Log

Project No 30126046 NAVI2

Well ID BPOW 3-4

Date 6-9-23 Page 1 of 2

Project Name/Location 2023 OU2 Q2 GW Sampling

Weather 24°C / Clear

Measuring Pt Description TOC Screen Interval (ft-bmp) 640-690

Casing Diameter (in.) 4

Well Material PVC SS

Static Water Level (ft-bmp) 27.40 Total Depth (ft-bmp) 695

Water Column/ Gallons in Well 662ft / 430gal

MP Elevation — Pump Intake (ft-bmp) midstream

Purge Method non-dedicated bladder

Sample Method 1-1/2" TV + LF

Pump On/Off 11:13/12:55 Volume Purged (gal) —

Peristaltic Submersible Other

Sample Time Label BPOW 3-4 Replicate/ Code No. REP060923001
 Start 12:50
 End 12:55

Sampled by PG SW

PID 0.0 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Redox (mV)	Appearance	
											Color	Odor
11:14	0	1.100	27.40	0	6.53	0.073	1.36	9.55	17.1	149.6	clear	none
11:19	5	1.500		75	5.36	0.070		6.21	16.0	121.1		
11:24	10	1.500		15	5.90	0.070		2.00	14.8	90.2		
11:29	15	1.500	27.35	22.5	5.35	0.070	1.97	0.36	14.6	83.4		
11:34	20	1.500		30	5.14	0.070		0.31	14.6	67.0		
11:39	25	1.500		37.5	5.14	0.070		0.30	14.7	64.9		
11:44	30	1.500	27.31	45	5.04	0.070	3.14	0.29	14.5	51.1		
11:49	35	1.500		52.5	4.92	0.070		0.27	14.6	40.0		
11:54	40	1.500		60	4.92	0.070		0.24	14.7	36.9		
11:59	45	1.500	27.30	67.5	4.87	0.070	2.54	0.26	14.7	32.5		
12:04	50	1.500		75	4.76	0.070		0.21	14.6	24.9		
12:09	55	1.650		82.5	4.76	0.070		0.24	14.7	22.7		
12:14	60	1.700	27.29	90	4.73	0.070	2.63	0.24	14.7	21.1		
12:19	65	1.700		100.25	4.73	0.070		0.23	14.6	19.1		
12:24	70	1.700		108.75	4.65	0.070		0.24	14.7	15.6		
12:29	75	1.700	27.29	117.25	4.68	0.070	1.76	0.21	14.6	13.3	✓	✓

Constituents Sampled	Container	Number	Preservative
VOC's 8200C <u>524.2</u>	40ml Vial	3	HCL
1,4 Dioxane 8270-D-GM <u>522</u>	1-liter Amber <u>250ml Amber</u>	2	NaHSO4

Notes
 $640-690 = 50 \times 0.65 = 32.5 \times 3.785 = 123 \text{ L WSV}$
 $690 - 27.40 = 662.6 \times 0.0025 = 1.65 \times 3.785 = 6.24 \text{ L TV}$ 129 L Total

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location	<u>491 Secorway Neck Rd</u>	Well Locked at Arrival:	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well:	<u>Good</u>	Well Locked at Departure:	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion:	<u>Flush Mount / Stick Up</u>	Key Number To Well:	

Groundwater Sampling Log

Project No. 30126046.NAVI2 Well ID BPOW 3-2 Date 6-14-23 Page 1 of 2

Project Name/Location 2023 OU2 Q2 GW Sampling Weather 70°F Sunny

Measuring Pt. TOC Screen Interval (ft-bmp) 604.5 - 644.5 Casing Diameter (in.) 4 Well Material X PVC SS

Static Water Level (ft-bmp) 29.00 Total Depth (ft-bmp) 647 Water Column/ Gallons in Well 615.5 ft / 399 gal

MP Elevation — Pump Intake (ft-bn) n/a Purge Method non-dedicated Sample Method 1 w/v + LF

Pump On/Off 09:31 / 13:30 Volume Purged (gal) — Peristaltic — Submersible Geosub — Other —

Sample Time: Label BPOW 3-2 Replicate/ Code No. n/a Sampled by PQ

Start 13:25 End 13:30

PID: 0.0 ppm ** Switch K11 computer due to high DO #*

Time	Minutes Elapsed	Rate (ml/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
09:32	0	1,700	29.00	0	4.48	0.270	9.04	16.8	16.8	157.2	clear	none
09:37	5	1,700		8.5	3.49	0.247		20.0	15.5	132.2	↓	
09:42	10	1,700	29.02	17	4.44	0.208	102	0.20	15.8	100.8	cloudy	
09:47	15	1,700		25.5	4.84	0.206		0.20	16.3	99.8	↓	
09:52	20	1,700		34	4.77	0.207		0.18	16.5	98.2	↓	
09:57	25	1,700	29.02	42.5	4.73	0.207	620	0.14	16.7	93.6	↓	
10:02	30	1,700		51	4.76	0.206		0.58	16.4	111.3	↓	
10:07	35	1,700		59.5	4.73	0.207		0.39	15.9	107.3	↓	
10:12	40	1,700	29.03	69.5	5.01	0.207	35.8	0.24	15.2	94.5	clear	
10:17	45	1,700		79.5								
10:22	50	2,000										
10:27	55											
12:50	45	200	28.96	80.5	6.34	0.252	Over Range	7.53	23.0	71.3	Dark Brown	
12:55	50	200		81.5	6.43	0.273		6.70	24.2	70.0	↓	
13:00	55	200		82.5	6.50	0.270		6.43	24.5	71.2	↓	
13:05	60	200	28.96	83.5	6.56	0.247	Over Range	4.87	25.0	63.6	Grey	

Constituents Sampled	Container	Number	Preservative
VOC's 8200C 524.2	40ml Vial	3	HCL
1,4 Dioxane 8270-0-01M 522	40ml Amber 250ml Amber	2	None Nitric

Notes:
 $614.5 - 604.5 = 40 \times 0.65 = 26 = 98.41L: 1w/v$
 $644.5 - 29.00 = 615.5 \times 0.0025 = 1.5 + 3.785 = 5.28L: 1w/v$
104L Total

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: _____ Well Locked at Arrival: Yes / No

Condition of Well: Good Well Locked at Departure: Yes / No

Well Completion: Flush Mount / Stick Up Key Number To Well: _____

Groundwater Sampling Log

Project No. 30126046.NAVI2 Well ID OPow 3-2 Date _____

Project Name/Location 2023 OU2 Q2 GW Sampling Weather _____

Measuring Pt. _____ Screen _____ Casing _____ Well Material PVC
 Description TOC Interval (ft-bmp) _____ Diameter (in.) _____ SS

Static Water _____ Water Column/
 Level (ft-bmp) _____ Total Depth (ft-bmp) _____ Gallons in Well _____

MP Elevation _____ Pump Intake (ft-bn) _____ Purge Method non-dedicated Sample Method _____
 Peristaltic
 Pump On/Off _____ Volume Purged (gal) _____ Submersib Geosub
 Other _____

Sample Time: Label _____ Replicate/
 Start _____ Code No. _____ Sampled by _____
 End _____

SEE PAGE 1

PID: _____

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
13:10	65	200	28.96	84.5	6.62	0.320	Over Range	2.49	25.3	37.2	Grey	none
13:15	70	200	28.95	85.5	6.70	0.330	Over Range	1.46	24.7	6.7		
13:20	75	200	28.96	86.5								

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes: _____

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: _____	Well Locked at Arrival: Yes / No
Condition of Well: _____	Well Locked at Departure: Yes / No
Well Completion: Flush Mount / Stick Up	Key Number To Well: _____

Groundwater Sampling Log

Project No. 301210046 NAW12 Well ID BPOW1-3 Page 1 of 1
 Date 06/09/23
 Project Name/Location 002 Q2 GW Sampling 2023 Weather Overcast 65°F
 Measuring Pt. Description TOC Screen Interval (ft-bmp) 369'-409' Casing Diameter (in.) 2" Well Material X PVC SS
 Static Water Level (ft-bmp) 32.37' Total Depth (ft-bmp) 419 Water Column/ Gallons in Well ft 386.6 / 61.86 gal
 MP Elevation Pump Intake (ft-bf) midscreen Purge Method non-dedicated Bladder Sample Method 1WSV + LFTTV
 Pump On/Off 1305/1410 Volume Purged (gal) 38 Penistaltic Submersible Other Sample Method 3WSV + LP
 Sample Time: Label BPOW1-3 Replicate/ Code No. None Sampled by SW/SA/APH
 Start 1405 End 1410

PID: 0.0ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Redox (mV)	Appearance	
											Color	Odor
1306	0	800	31.92	0	4.38	0.157	0.28	9.20	18.1	177.1	clear	Yes - Mild
1311	5	800	21.69	4	4.00	0.148		0.31	14.6	72.6		
1316	10	800		8	4.08	0.154	0.93	0.24	14.6	79.3		
1321	15	800	21.94	12	3.34	0.161		0.21	14.3	104.3		
1326	20	800		16	3.39	0.161	1.37	0.17	14.3	109.3		
1331	25	800	21.92	20	3.49	0.161		0.16	14.5	109.2		
1336	30	800		24	3.65	0.161	0.47	0.16	14.4	107.9		
1341	35	800	21.65	28	3.54	0.161		0.15	14.3	105.8		
LF 1346	40	400	32.05	30	3.59	0.161	0.44	0.17	15.2	104.1		
1351	45	400	32.08	32	3.73	0.161	0.16	0.14	14.9	101.9		
1356	50	400	32.11	34	3.73	0.161	0.32	0.13	14.8	100.3		
1401	55	400	32.08	36	3.72	0.160	0.12	0.12	15.8	98.9	↓	↓

Constituents Sampled	Container	Number	Preservative
VOC's 8200C 524	40ml Vial	3	HCL
1,4-Dioxane 522 SIM	250 mL Amber	2	NaHSO4

Notes:
 WSV: $409 - 369 = 40' \times .16 = 6.4 \text{ gal} \times 3.785 = 24.2 \text{ L}$
 TV: $419 - 32.37 = 386.63' \times .0025 = 0.966 \text{ gal} \times 3.785 = 3.65 \text{ L}$ 28 L Total 1/4"

Well Casing Volumes	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006	1/4" = 0.025
Gallons/Foot	1.25" = 0.06	2" = 0.18	3" = 0.37	4" = 0.65	1/2" = 0.01		

Well Information	Well Location:	Well Locked at Arrival:	Yes	No
Condition of Well:	<u>20 Bule Lane, Plainville, NY</u>	Well Locked at Departure:	Yes	No
Well Completion:	<u>Flush Mount / Stick Up</u>	Key Number To Well:	<u>NA</u>	

Groundwater Sampling Log

Project No. 30126046-NAVIZ Well ID BPOW1-6 Page 1 of 2
 Date 6/13/23
 Project Name/Location 012 Q2 GW Sampling Weather 76°F, sunny
 Measuring Pt. Screen Casing Well Material X PVC
 Description TOC Interval (ft-bmp) 700-750 Diameter (in.) 4 SS
 Static Water Level (ft-bmp) 15.84 Total Depth (ft-bmp) 755 Water Column/
 Gallons in Well 739.16ft / 480.45 gal
 MP Elevation _____ Pump Intake (ft-bn) midscreen Purge Method non-dedicated Sample
 Pump On/Off 1250/1450 Volume Purged (gal) 147 Peristaltic _____ Method BWSV + LF
 Submersible _____
 Other _____
 Sample Time: Label BPOW1-6 Replicate/ Start 1445 Code No. N/A End 1450 Sampled by SH SW
 PID: 0.0 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
1251	0	1300	15.90	0	5.69	0.025	5.74	1.84	14.7	111.0	clear	Mild
1256	5	1400	15.90	6.75	5.35	0.029		1.8 1.8	12.8	15.4		
1301	10	1400		13.75	5.59	0.028	1.18	0.76	13.2	5.0		
1306	15	1400	15.89	20.75	5.63	0.027		1.11	12.9	10.4		
1311	20	1400		27.75	5.64	0.027	0.71	1.01	12.9	27.2		
1316	25	1400	15.88	34.75	5.29	0.027		1.12	12.9	45.6		
1321	30	1400		41.75	5.27	0.026	0.45	1.18	12.8	56.6		
1326	35	1400	15.88	48.75	5.20	0.026		1.14	12.8	64.9		
1331	40	1400		55.75	5.77	0.027	0.63	1.16	12.7	29.3		
1336	45	1500	15.85	63	5.88	0.026		1.17	12.8	18.3		
1341	50	1500		70.5	5.93	0.026	0.44	1.18	12.8	6.8		
1346	55	1500	15.80	78	5.91	0.026		1.17	12.7	8.1		
1351	60	1500		85.5	5.93	0.026	0.36	1.18	12.7	8.1		
1356	65	1500	15.80	93	5.94	0.027		1.16	12.8	7.0		
1401	70	1500		100.5	5.91	0.027	0.57	1.14	12.8	7.0		
1406	75	1500	15.78	108	5.95	0.026		1.21	12.6	7.3		

Constituents Sampled	Container	Number	Preservative
VOC's 8200 524.2	40ml Vial	3	HCL
1,4 Dioxane 522 SIM	250 mL amber bottle	2	NaHSO4

Notes:
 WSV: $750 - 700 = 50 \times 0.65 = 32.5 \text{ gal} \times 3.785 = 123.0 \text{ L}$
 TV: $755 - 15.84 = 739.16 \times 0.025 = 1.85 \text{ gal} \times 3.785 = 6.99 \text{ L}$
130 L Total 14"

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2" = 0.16	2.5" = 0.26	3" = 0.37	3.5" = 0.50	4" = 0.65	6" = 1.47	3/8" = 0.006	1/2" = 0.01
--------------	-----------	-------------	-----------	-------------	-----------	-------------	-----------	-----------	--------------	-------------

Well Information

Well Location: <u>Basin 19 closest to Entry Gate</u>	Well Locked at Arrival: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well: <u>see well inspection log</u>	Well Locked at Departure: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion: <u>Flush Mount</u> / <u>Stick Up</u>	Key Number To Well: <u>N/A</u>

Groundwater Sampling Log

Project No. _____ Well ID BPOW 1-6 Date _____

Project Name/Location _____ Weather _____

Measuring Pt. _____ Screen _____ Casing _____ Well Material x PVC
 Description Top of Casing Interval (ft-bmp) _____ Diameter (in.) _____ SS

Static Water _____ Total Depth (ft-bmp) _____ Water Column/
 Level (ft-bmp) _____ Gallons in Well _____

MP Elevation _____ Pump Intake (ft-bmp) Midscreen Purge Method: Non-dedicated _____ Sample
 Pump On/Off _____ Volume Purged (gal) _____ Peristaltic _____ Method
 Other _____

Sample Time: Label BPOW16 Replicate/ _____
 Start 1445 Code No. _____
 End _____ Sampled by _____

PID: _____

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
1401	80	1500		115.5	5.94	0.026	0.43	1.21	12.7	7.4	clear	None
1416	85	1500	15.78	123	5.95	0.026		1.19	12.8	7.6	↓	↓
1421	90	1500		130.5	5.94	0.026	0.34	1.19	12.7	8.9	↓	↓
LF 1426	95	500	15.71	136.5	5.90	0.026		1.11	13.9	5.7	↓	↓
1431	100	500	15.71	138	5.87	0.026	0.33	1.10	14.1	7.7	↓	↓
1436	105	500	15.70	140.5	5.85	0.026	0.30	1.11	14.3	8.6	↓	↓
1441	110	500	15.70	143	5.85	0.026	0.27	1.12	14.1	9.7	↓	↓

Constituents Sampled	Container	Number	Preservative
VOCs 524.2	40 mL glass vial	3	HCl
1,4- Dioxane 522 SIM	250 mL amber bottle	2	NaHSO4

Notes: _____

Tubing Volume Equation: Volume (gal)=(Midscreen depth - static water level depth) x tubing conversion factor (gal/ft)

SEE PAGE #1 FOR INFO

*Field Blank Required *Cone off early or day before

3 successive readings should be within +/- 0.1 for pH, +/- 3 percent for Sp. Con., +/- 10 percent for DO, +/- 10 mv for ORP, +/- 10 percent for turbidity, and +/- 10 percent for temperature.

Well Casing Volumes	1"	1.25"	1.5"	2"	2.5"	3"	3.5"	4"	6"	3/8"
Gallons/Foot	0.04	0.06	0.09	0.16	0.26	0.37	0.50	0.65	1.47	0.006

Well Information

Well Location: Basin 19 closest to Entry Gate Well Locked at Arrival: Yes / No

Condition of Well: _____ Well Locked at Departure: Yes / No

Well Completion: Flush Mount / Stick Up Key Number To Well: _____

Groundwater Sampling Log

Project No 301260416.NAVJZ Well ID BPOW 1-5 Date 06/13/23 Page 1 of 3

Project Name/Location 02 Q2 GW Sampling Weather Partly cloudy 65°F

Measuring Pt Description TOC Screen Interval (ft-bmp) 600-650 Casing Diameter (in) 4" Well Material X PVC SS

Static Water Level (ft-bmp) 15.56 Total Depth (ft-bmp) 655 Water Column/ Gallons in Well 3639.44ft / 416gal

MP Elevation Pump Intake (ft-br) Midscreen Purge Method Non-dedicated Bladder Sample Method 1 WSV + LF + TV

Pump On/Off 0925 Volume Purged (gal) 153.75(L) SW Peristaltic Submersible Other

Sample Time: Label BPOW15 Replicate/ Start 1250 Code No. NA End 1255 Sampled by SW/SH

PID: 0.0ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Redox # (mV)	Appearance	
											Color	Odor
0926	0	600		0	4.71	0.042	17.0	13.9	13.5	191.0	Clear	None
0931	5	600	15.50	3	4.20	0.031		14.8	13.7	202.3	Clear	None
0936	10	650		6.25	5.09	0.031	963	15.7	13.2	252.5	Clear	None
0941	15	650	15.50	9.5	5.20	0.032		15.8	13.7	235.2	Clear	None
★ Purge paused at 0940 to switch out air compressor ★												
1025	15	950	15.42	14	4.35	0.035	99.5	15.3	17.6	209.2	Clear	None
1030	20	1050		19.25	3.69	0.033		13.0	16.3	230.6	Brown	None
1035	25	1200	15.38	25.25	4.00	0.034	85.1	12.8	16.4	226.2	Brown	None
1040	30	1250		31.5	4.15	0.034		16.5	12.8	221.9	Brown	None
1045	35	1250	15.34	37.75	3.61	0.034	45.4	16.5	12.8	247.8	Brown	None
1050	40	1250		44	4.05	0.033		16.4	13.2	231.3	Brown	None
1055	45	1250	15.44	50.25	4.12	0.033	45.5	16.5	12.9	227.6	Brown	None
1100	50	1250		56.5	5.50	0.033		16.5	12.7	224.5	Clear	None
1105	55	1250	15.38	62.75	5.43	0.032		16.6	12.7	218.6	Clear	None
1110	60	1250		69	5.36	0.032	31.3	16.5	12.8	216.7	Clear	None
1115	65	1250	15.40	75.25	4.48	0.032		16.5	12.7	220.7	Clear	None

Constituents Sampled	Container	Number	Preservative
VOCs <u>0260.C 524</u>	40ml Vial	3	HCL
<u>1,4 dioxane 522 SIM</u>	<u>250ml amber</u>	2	<u>NaHSO4</u>

★ issue with meter reading high DO. Switched meters in low flow for more accurate reading

Notes:

$WSV = 650' - 600' = 50' \times 0.65 \text{ gal/ft} = 32.5 \text{ gal}$ $34 \text{ gal} \times 3.785 \text{ L/gal}$
 $TV = 655' - 15.56' = 639.44 \text{ ft} \times 0.0025 \text{ gal/ft} = 1.6 \text{ gal}$ 129 L

Well Casing Volumes	1" = 0.04	1.5" = 0.09	2" = 0.16	2.5" = 0.26	3" = 0.37	4" = 0.65	6" = 1.47	8" = 3.06
Gallons/Foot	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	6" = 1.47	8" = 3.06	1/4" = 0.0025	

Well Information

Well Location: <u>Flow Basin - Lurgen Dr, Farmingdale, NY</u>	Well Locked at Arrival: <u>Yes</u> / No
Condition of Well: <u>See inspection log</u>	Well Locked at Departure: <u>Yes</u> / No
Well Completion: <u>Flush Mount</u> / Suck Up	Key Number To Well: <u>NA (NYS DOT)</u>

Groundwater Sampling Log

Project No 30126046-NAVIA Well ID BPOW1-5 Date 06/13/23 Page 12 of 3
 Project Name/Location 002 02 GW Sampling Weather Partly Cloudy 65°F
 Measuring Pt Description TOC Screen Interval (ft bwp) 600'-650' Casing Diameter (in) 4" Well Material X PVC SS
 Static Water Level (ft bwp) SEE PAGE # 7 FOR INFO. Water Column / Gallons in Well
 MP Elevation SEE PAGE # 7 FOR INFO. Pump Intake (ft) SEE PAGE # 7 FOR INFO. Pump Method Hand Pump Sample Method 3WSV + LF
 Pump On/Off SEE PAGE # 7 FOR INFO. Volume Purged (gal) SEE PAGE # 7 FOR INFO. Penstator SEE PAGE # 7 FOR INFO. Submersible Redflow Other SEE PAGE # 7 FOR INFO.
 Sample Time Label BPOW1-5 Replicate/
 Start 1250 Code No NA Sampled by SW/SH
 End 1255
 PID 0.0 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Redox (mV)	Appearance	
											Color	Odor
1120	70	1250	—	81.5	4.41	0.032	30.5	16.6	12.7	209.0	Clear	None
1125	75	1200	15.35	88	4.42	0.032	26.6	16.5	13.0	206.8	Clear	None
1130	80	1300	—	84.25	4.47	0.032	—	16.5	12.8	204.4	Clear	None
1135	85	1300	15.40	100.5	4.47	0.032	21.3	16.5	12.9	205.2	Clear	None
1140	90	1300	—	106.75	4.50	0.032	—	16.5	12.7	200.9	Clear	None
1145	95	1300	15.34	113	4.51	0.031	19.9	16.5	12.8	201.2	Clear	None
1150	100	1300	—	119.25	4.74	0.031	—	16.6	12.7	196.7	Clear	None
1155	105	1300	15.42	125.5	5.59	0.031	18.0	16.6	12.7	197.7	Clear	None
1200	110	1300	—	131.75	5.55	0.031	—	16.5	12.8	196.4	Clear	None
1205	115	400	15.34	137.75	5.58	0.031	19.3	13.3	13.3	192.7	Clear	None
1210	120	400	15.34	135.75	4.69	0.031	—	0.22	13.9	160.2	Clear	None
1215	125	400	15.34	137.75	4.68	0.032	22.3	0.16	14.1	100.4	Clear	None
1220	130	400	15.34	139.75	4.73	0.032	—	0.15	14.0	193.7	Clear	None
1225	135	400	15.34	141.75	5.54	0.032	—	0.16	14.1	167.2	Clear	None
1230	140	400	15.34	143.75	5.59	0.032	19.3	0.16	14.4	133.4	Clear	None
1235	145	400	15.34	145.75	5.48	0.032	21.8	0.16	14.1	108.4	Clear	None

Do ↓ 0.33

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 522p Sim	250ml amber	2	NaHSO4

Notes:

See page # 2 FOR Calc. Info.

Well Casing Volumes	
Gallons/Foot	1" = 0.04 1.25" = 0.06
	1.5" = 0.09 2" = 0.16
	2.5" = 0.26 3" = 0.37
	3.5" = 0.50 4" = 0.65
	6" = 1.47 12" = 0.01
	1/4" = 0.0025

Well Information			
Well Location	<u>Basin - Lungden Dr, Farmingdale, NY</u>	Well Locked at Arrival:	<u>Yes</u> / No
Condition of Well	<u>See Inspection Log</u>	Well Locked at Departure:	<u>Yes</u> / No
Well Completion	<u>Flush Mount</u> / Stick Up	Key Number To Well:	<u>NA (NYSDOT)</u>

Groundwater Sampling Log

Project No 30126046.NAVI2 Well ID BROW 1-5 Page 3 of 3
 Date 06/13/23
 Project Name/Location 002 Q2 GW Sampling Weather Sunny 76°F
 Measuring Pt Description TOC Screen Interval (ft bwp) 600'-650' Casing Diameter (in) 4" Well Material X PVC SS
 Static Water Level (ft) See page #1 for info. Water Column (ft) _____
 MP Elevation _____ Total Depth (ft) _____
 Pump On/Off _____ Volume Purged (gal) _____ Peristaltic _____
 Sample Method 3WSV + LF Submersible flow _____ Other _____
 Sample Time Label X Replicate/Code No X (Sw) Sampled by SW/SH
 P.D. 0.09ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Redox (mV)	Appearance	
											Color	Odor
1240	150	400	15.34	149.75	5.51	0.032	—	0.17	14.5	91.4	Clear	None
1245	155	400	15.34	149.75	5.51	0.032	—	0.16	14.6	86.2	Clear	None
1250	160	400	15.34	S	A	M	P	L	E	P		
Static Water												

Constituents Sampled	Container	Number	Preservative
VOCs 524	40ml Vial	3	HCL
1,4 Dioxane 522 D Sim	250 ml amber	2	NatH504

Notes

Well Casing Volumes	1"	1.5"	2"	2.5"	3"	3.5"	4"
Gallons Foot	1" = 0.04	1.5" = 0.09	2" = 0.16	2.5" = 0.26	3" = 0.37	3.5" = 0.50	4" = 0.65

Well Information	Well Location	Well Locked at Arrival	Yes	No
Condition of Well	Well Locked at Departure	Yes	No	
Well Completion	Flush Mount / Stuck Up	Key Number To Well		

SEE PAGE 1

Groundwater Sampling Log

Project No. BPA 30126046.NAUSA Well ID BROW 1-4 Date 06/13/23
 Project Name/Location Q2 Q2 GW Sampling Weather overcast/g
 Measuring Pt. TOC Screen Interval (ft-bmp) 340-400 Casing Diameter (in.) 4" Well Material PVC SS
 Static Water Level (ft-bmp) 14.19' Total Depth (ft-bmp) 405 Water Column/ Gallons in Well 390.81ft / 254.02 gal
 MP Elevation _____ Pump Intake (ft-bn) midscreen Purge Method non-dedicated Peristaltic Submersible flow Other _____ Sample Method 1 AWSV + LF
 Pump On/Off 0925/1230 Volume Purged (gal) 172
 Sample Time: Label BROW1-4 Replicate/ Code No. N/A Sampled by SH SW
 Start 1225 End 1230

PID: 0.0ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
0927	0	600	14.13	0	3.52	0.146	0.27	5.61	14.8	186.0	clear	None
0932	5	600	14.09	3	3.50	0.139	—	1.23	14.1	120.0	↓	Mild
0937	10	600	—	6	3.50	0.142	0.47	0.84	14.1	109.2	↓	↓
0940 Purge Purged to switch out air compressor												
0950	10	350	—	7.75	3.63	0.143	—	0.78	17.3	116.5	clear	None
0955	15	350	14.00	9.5	3.70	0.147	3.14	0.65	15.7	116.7	Clear	None
091060	20	350	—	10.75	3.72	0.147	—	0.51	16.1	117.4	clear	None
1005	25	350	14.00	12.5	3.75	0.148	4.73	0.40	15.8	118.5	Clear	Strong
1010	30	350	—	14.25	3.77	0.148	—	0.37	15.6	119.6	clear	Mild
1015	35	350	13.99	16	3.79	0.148	1.95	0.34	15.9	119.9	Clear	mild
1020	40	350	—	17.75	3.79	0.148	—	0.35	15.8	119.7	Clear	mild
1025	45	1300	—	24.25	3.78	0.150	—	0.43	16.1	122.2	↓	↓
1030	50	1500	14.00	30.75	3.77	0.149	12.2	1.89	13.1	120.9	↓	↓
1035	55	1500	—	38.25	3.79	0.147	—	1.29	13.7	118.8	↓	↓
1040	60	1500	14.01	45.75	3.80	0.146	7.18	2.73	13.1	119.7	↓	↓
1045	65	1500	—	53.25	3.80	0.145	—	3.01	13.1	119.5	↓	↓

Constituents Sampled	Container	Number	Preservative
<u>524.2</u> VOC's <u>8200C</u>	<u>40ml Vial</u>	<u>3</u>	<u>HCL</u>
<u>1,4 Dioxane 522</u>	<u>250ml Amber bottle</u>	<u>2</u>	<u>NaHSO4</u>

Notes:

WSV: $400 - 340 = 60 \times .65 = 39 \text{ gal} \times 3.785 = 147.6 \text{ L}$
 TV: $405 - 14.19 = 390.81 \times 0.025 = 9.77 \text{ gal} \times 3.785 = 36.9 \text{ L}$ 151.2 L Total 1/4"

Well Casing Volumes

Gallons/Foot 1" = 0.04 1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 6" = 1.47 3/8" = 0.006 1/4 = 0.0025
 1.25" = 0.06 2" = 0.16 3" = 0.37 4" = 0.65 1/2" = 0.01

Well Information

Well Location: <u>Basin 19 Farthest from Entry Gate</u>	Well Locked at Arrival: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well: <u>see well inspection logs</u>	Well Locked at Departure: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion: <u>Flush Mount</u> / <u>Stick Up</u>	Key Number To Well: <u>N/A</u>

Groundwater Sampling Log

Project No. _____ Well ID BPOW 1-4 Date _____

Project Name/Location _____ Weather _____

Measuring Pt. _____ Screen _____ Casing _____ Well Material PVC
 Description Top of Casing Interval (ft-bmp) _____ Diameter (in.) _____ SS

Static Water _____ Water Column/
 Level (ft-bmp) _____ Total Depth (ft-bmp) _____ Gallons in Well _____

MP Elevation _____ Pump Intake (ft-bmp) Midscreen Purge Method: Non-dedicated Peristaltic Submersible Other _____ Sample Method _____

Pump On/Off _____ Volume Purged (gal) _____

Sample Time: Label BPOW-4 Replicate/ Code No. _____
 Start 1225
 End 1230 Sampled by _____

PID: _____

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
1050	70	1500	14.01	60.75	3.82	0.145		2.81	13.1	119.2	Clear	Mild
1055	75	1500		68.25	3.83	0.145	2.97	2.88	13.1	119.4		
1100	80	1500	14.00	75.75	3.84	0.144		2.27	13.0	117.7		
1105	85	1500		83.25	3.88	0.142	0.60	2.47	13.1	117.5		
1110	90	1500	13.99	90.75	3.86	0.143		2.49	13.0	118.0		
1115	95	1500		97.75	3.88	0.144	2.29	2.72	12.9	117.8		
1120	100	1500	14.00	105.25	3.89	0.143		2.77	13.2	117.5		
1125	105	1500		112.75	3.89	0.144	0.88	2.42	13.0	117.6		
1130	110	1500	14.00	120.25	3.90	0.145		2.79	13.2	117.3		
1135	115	1500		127.75	3.91	0.144	0.89	2.56	13.2	116.8		
1140	120	1500	13.98	135.25	3.91	0.144		2.64	13.4	117.2		
1145	125	1500		142.75	3.91	0.143	0.26	2.72	13.1	117.6		
1150	130	1500	13.99	150.25	3.93	0.145		2.65	13.0	115.4		
1155	135	1500		157.75	3.94	0.144	1.45	2.70	13.1	115.8		
LF 1200	140	400	13.90	159.75	3.97	0.143		2.19	15.0	115.4		
1205	145	400		161.75	3.90	0.145	1.07	0.64	15.4	113.6	↓	↓

Constituents Sampled	Container	Number	Preservative
VOCs ^{524.2} 524.2	40 mL glass vial	3	HCl
1,4-Dioxane ⁵²² 522-61M	250 mL amber bottle	2	NaHSO ₄ NaHSO ₄

Notes: _____

Tubing Volume Equation: Volume (gal) = (Midscreen depth - static water level depth) x tubing conversion factor (gal/ft)

SEE PAGE #1 FOR INFO

*Field Blank Required *Cone off early or day before
 3 successive readings should be within +/- 0.1 for pH, +/- 3 percent for Sp. Con., +/- 10 percent for DO, +/- 10 mv for ORP, +/- 10 percent for turbidity, and +/- 10 percent for temperature.

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: _____	Well Locked at Arrival: Yes / No
Condition of Well: _____	Well Locked at Departure: Yes / No
Well Completion: <u>Flush Mount</u> / <u>Stick Up</u>	Key Number To Well: _____

Groundwater Sampling Log

Project No. _____ Well ID BPOW 1-4 Date _____

Project Name/Location _____ Weather _____

Measuring Pt. _____ Screen _____ Casing _____ Well Material x PVC
 Description Top of Casing Interval (ft-bmp) _____ Diameter (in.) _____ SS

Static Water _____ Water Column/
 Level (ft-bmp) _____ Total Depth (ft-bmp) _____ Gallons in Well _____

MP Elevation _____ Pump Intake (ft-bmp) Midscreen Purge Method: Non-dedicated _____ Sample Method _____
 Peristaltic _____
 Submersible _____
 Other _____

Pump On/Off _____ Volume Purged (gal) _____

Sample Time: Label BPOW 1-4 Replicate/ _____
 Start 1225 Code No. _____
 End 1230 Sampled by _____

PID: _____

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
1210	150	400	13.90	163.25	3.99	0.145	1.89	0.52	15.3	112.0	clear	Mild
1215	155	400	13.90	165.25	4.00	0.144	1.97	0.50	15.2	111.2	↓	↓
1220	160	400	13.89	167.25	4.00	0.145	1.30	0.51	15.2	110.3	↓	↓

Constituents Sampled	Container	Number	Preservative
VOCs 524.2	40 mL glass vial	3	HCl
1,4- Dioxane 522 SIM	250 mL amber bottle	2	NaHSO4

Notes: _____

Tubing Volume Equation: Volume (gal)=(Midscreen depth - static water level depth) x tubing conversion factor (gal/ft)

SEE PAGE #1 FOR INFO

*Field Blank Required *Cone off early or day before

3 successive readings should be within +/- 0.1 for pH, +/- 3 percent for Sp. Con., +/- 10 percent for DO, +/- 10 mv for ORP, +/- 10 percent for turbidity, and +/- 10 percent for temperature.

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: _____	Well Locked at Arrival: Yes / No
Condition of Well: _____	Well Locked at Departure: Yes / No
Well Completion: <u>Flush Mount / Stick Up</u>	Key Number To Well: _____

Groundwater Sampling Log

Project No. 30126046.NAVI2 Well ID BPOW 2-1 Page 1 of
 Project Name/Location OU2 Q2 2023 GW Sampling Date 5-1-23
 Measuring Pt. Screen Interval (ft-bmp) 360-400 Casing Diameter (in.) 2 Weather 60°F Clear
 Description TOC Total Depth (ft-bmp) 400 Water Column/Gallons in Well 380.8 ft/60 gal Well Material X PVC
 Static Water Level (ft-bmp) 19.19 Pump Intake (ft-bn) midgreen Purge Method non-dedicated Peristaltic Sample Method Ins+LP
 MP Elevation Volume Purged (gal) Other red flow bladder
 Pump On/Off 11:32 / 12:30 Replicate/Code No. n/a
 Sample Time: Label BPOW 2-1 Start 12:25 End 12:30 Sampled by PC

PID: 0.0 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
11:35	0	600	19.19	0	3.95	0.100	2.77	4.62	15.2	175.4	clear	none
11:40	5	6200	19.15	6	4.62	0.094		6.06	15.1	201.2		
11:45	10	1,200		12	4.57	0.099		1.32	14.8	183.2		
11:50	15	1,200	19.13	18	4.64	0.102	3.98	0.63	15.0	155.8		
11:55	20	1,200		24	4.50	0.102		0.60	14.9	125.7		
12:00	25	450		26.25	4.52	0.103		0.54	15.1	115.4		
12:05	30	450	19.12	28.5	4.55	0.103	1.01	0.51	15.2	105.1		
12:10	35	450		30.75	4.57	0.103	0.83	0.51	14.9	99.8		
12:15	40	450	19.12	33	4.57	0.103	0.80	0.52	14.9	94.2		
12:20	45	450	19.12	35.25	4.56	0.103	0.77	0.52	15.0	92.9		
12:25	SAMPLE											

Constituents Sampled	Container	Number	Preservative
VOC's 8960C <u>524.2</u>	40ml Vial	3	HCL
1,4 Dioxane 8270 D-9M <u>522</u>	1 Liter Amber <u>250ml Amber</u>	2	None <u>NATHOU</u>

Notes:

$40 \times 0.16 = 6.4 + 3.785 = 24.2 \text{ L: wsv}$
 $400 - 19.19 = 380.8 \times 0.0025 = 0.9 + 3.785 = 3.6 \text{ L: TV}$
27L Total

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	<u>2" = 0.16</u>	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: <u>Harriet and Gloria Rd</u>	Well Locked at Arrival: <u>Yes</u> / No
Condition of Well: <u>Good</u>	Well Locked at Departure: <u>Yes</u> / No
Well Completion: <u>Flush Mount</u> / Stick Up	Key Number To Well: <u> </u>

Groundwater Sampling Log

Project No. 30169301_GWMI2 Well ID GM-18D Date 6-12-23 Page 1 of 1

Project Name/Location 2023 OU2 Q2 GW Sampling Weather 65°F (cloudy)

Measuring Pt. Description TOC Screen Interval (ft-bmp) 290-300 Casing Diameter (in.) 4 Well Material X PVC SS

Static Water Level (ft-bmp) 46.25 Total Depth (ft-bmp) 300 Water Column/ Gallons in Well 253ft / 164gal

MP Elevation Pump Intake (ft-bn) m:screen Purge Method dedicated Sample Method TV+LP
 Pump On/Off 09:51/09:50 Volume Purged (gal) Peristaltic Submersib Geosub Bladder Other

Sample Time: Label GM-18D Replicate/ Code No. n/g Sampled by PCJ
 Start 09:45 End 09:50

PID: 0.0 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
08:52	0	900	46.25	0	5.20	0.125	1.79	8.21	17.3	141.2	clear	none
08:57	5	500		2.5	5.16	0.122		8.33	16.4	138.8		
09:02	10	500		5	5.33	0.122		8.50	16.5	130.3		
09:07	15	500	46.34	7.5	5.39	0.122	1.56	8.45	16.6	123.0		
09:12	20	500		10	5.39	0.122		8.51	16.4	120.3		
09:17	25	500		12.5	5.40	0.122		8.55	16.6	115.8		
09:22	30	500	46.33	15	5.39	0.122	0.82	8.57	16.3	115.0		
09:27	35	600		17.5	5.39	0.122		8.56	16.3	111.9		
09:32	40	500	46.33	20	5.40	0.122	0.81	8.54	16.4	108.2		
09:37	45	500	46.33	22.5	5.41	0.122	0.60	8.54	16.7	106.2		
09:42	50	500	46.33	25	5.40	0.122	0.57	8.55	16.5	104.4	↓	↓

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes: 1/4 in tubing down well
 $300 - 46.25 = 253.75 \times 0.0025 = 0.6 + 3.785 = 2.42 \text{ TV}$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: <u>MTA Parking Lot</u>	Well Locked at Arrival: <u>Yes</u> / No
Condition of Well: <u>Good</u>	Well Locked at Departure: <u>Yes</u> / No
Well Completion: <u>Flush Mount</u> / Stick Up	Key Number To Well: <u> </u>

Groundwater Sampling Log

Project No 3013160416 NAVIA

Well ID BROW 4-2R

Page 2 of 2

Date 06/12/23

Project Name/Location 002 Q2 GW Sampling

Weather Overcast 75°F

Measuring Pt Description TOC

Screen Interval (ft bwp) 725'-705' Casing Diameter (in) 4"

Well Material PVC SS

Static Water Level (ft bwp)

Total Depth SEE PAGE #1 FOR INFO Water Column Gallons in Well

MP Elevation

Pump Int: SEE PAGE #1 FOR INFO Pump Weather Condition (see instructions) Sample Volume (gallons)

Pump On/Off

Volume Purged (gallons) Other

BWSV + LF + TV

Sample Time Label BROW 4-2R Replicate/
Start 1450 Code No
End 1510

MS/MSD / BROW 4-2R

Sampled by SW/ARH

PID 0.0 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Redox (mV)	Appearance	
											Color	Odor
1425	85	1550	—	97.95	4.43	0.0170	—	9.82	14.7	209.9	Clear	None
1430	90	550	28.23	105.7	4.45	0.0187	4.80	9.45	14.8	205.5	Clear	None
1435	95	500	—	106.7	4.56	0.0303	—	6.29	18.2	202.4	Clear	None
1440	100	500	28.06	107.7	4.70	0.0311	0.70	5.15	18.1	180.3	Clear	None
1445	105	500	28.10	108.7	4.80	0.0312	1.02	4.97	18.1	182.3	Clear	None
1450	110	500	28.10	109.5	4.85	0.0313	0.75	4.70	18.0	183.6	Clear	None
1455	120	500	28.10	110.5	4.79	0.0313	—	4.63	17.9	180.6	Clear	None

SW 06/12/23

Constituents Sampled	Container	Number	Preservative
VOCs 8260 C	40ml Vial	3	HCL
1/4 Dioxane 522a Sim	250ml amber	2	NaHSO4

Notes

Well Casing Volumes	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
Gallons Foot	1" = 0.04	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01

Well Information

Well Location	<u>Elbow Lane & Elm Dr Wileentona NY</u>	Well Locked at Arrival	<input checked="" type="checkbox"/> Yes	/	<input type="checkbox"/> No
Condition of Well	<u>See well inspection log</u>	Well Locked at Departure	<input checked="" type="checkbox"/> Yes	/	<input type="checkbox"/> No
Well Completion	<u>Flush Mount / Stick Up</u>	Key Number To Well:	<u>NA</u>		

Groundwater Sampling Log

Project No 30126046-NAVIA2 Well ID BPOW4-2R Date 06/11/23
 Project Name/Location 002 GW Sampling 02 Weather Sunny 74°F
 Measuring Pt Description TOC Screen Interval (ft-bmp) 725'-765' Casing Diameter (in) 4" Well Material PVC SS
 Static Water Level (ft-bmp) 29.85' Total Depth (ft-bmp) 770' Water Column/ Gallons in Well 740.15ft
 MP Elevation _____ Pump Intake (ft-bmp) Midscreen Purge Method Medicated Bladder Peristaltic Submersible Flow SW Other _____ Sample Method 3WSV + LF
 Pump On/Off 1257 Volume Purged (gal) 118 L (SW)
 Sample Time Label BPOW4-2R Replicate/ Code No. MS/MSD Sampled by SW/ARH
 Start 1500 End 1510

PID 0.002m

Time	Minutes Elapsed	Rate (ml/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Redox (mV)	Appearance	
											Color	Odor
1300	0	900	29.85	0	4.85	0.0393	0.67	7.31	23.1	208.1	Clear	None
1305	5	900	—	4.5	4.32	0.0377	—	2.26	16.1	223.7	Clear	None
1310	10	900	29.65	9	4.38	0.0394	1.95	5.08	16.1	235.0	Clear	None
1315	15	900	—	13.5	4.30	0.0361	—	5.53	16.0	230.9	Clear	None
1320	20	900	28.26	18	4.15	0.0284	4.49	7.57	16.1	220.0	Clear	None
1325	30	300	—	19.5	4.22	0.0280	—	4.54	17.1	215.6	Clear	None
1335	35	800	—	23.5	4.20	0.0279	1.19	4.78	16.3	213.3	Clear	None
1340	40	800	28.85	27.5	4.18	0.0281	—	5.54	16.0	213.3	Clear	None
1345	45	800	—	31.7	4.21	0.0282	4.06	6.36	15.7	213.3	Clear	None
1350	50	800	28.63	40.7	4.17	0.0279	—	5.69	15.7	213.0	Clear	None
1355	55	400	—	47.7	4.32	0.0154	—	9.60	14.9	210.0	Clear	None
1400	60	1700	28.54	56.2	4.34	0.0153	7.16	9.82	15.0	205.4	Clear	None
1405	65	1700	—	64.7	4.33	0.0071	—	9.29	14.8	212.1	Clear	None
1410	70	1700	28.41	73.2	4.37	0.0154	3.04	9.58	15.3	216.4	Clear	None
1415	75	1700	—	81.7	4.40	0.0219	—	9.81	14.9	209.3	Clear	None
1420	80	1700	28.25	90.2	4.36	0.0205	3.04	9.41	14.9	207.3	Clear	None

(SW)

Constituents Sampled	Container	Number	Preservative
VOCs 8200 (SW)	40ml Vial	3	HCL
1,4 Dioxane 522 Sim	250ml amber	2	NATSO4

*Generator Stopped & fixed a leak in the airline. Missed/paused purge for 10min.

Notes Transducer was found tangled above PVC well casing inside manhole
 $WSV = 765' - 725' = 40ft \times 0.165gal/ft = 26gal$
 $TR = 770' - 29.85' = 740.15ft \times 0.0025 = 1.85gal \rightarrow 2gal$
 28gal → 106gal

Well Casing Volumes	1" = 0.04	1.5" = 0.09	2" = 0.16	3" = 0.26	3.5" = 0.50	4" = 0.65	6" = 1.47	3/8" = 0.006	1/2" = 0.01
Gallons/foot	1.25" = 0.06								

1/4" = 0.0025

Well Information	Well Location	Well Locked at Arrival:	Yes	No
Well Location	<u>Elbow Lane and Elm Dr W, Levittown</u>	Well Locked at Arrival:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Condition of Well	<u>See Well</u>	Well Locked at Departure:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Well Completion	<u>Flush Mound / Stick Up</u>	Key Number To Well	<u>NA</u>	

Groundwater Sampling Log

Page 1 of 1
Date 5/30/23

Project No. 30169301.GWM12

Well ID ~~GM-13D~~ GM-13D

Weather 65°F, sunny

Project Name/Location 2023 OU2 Q2 GW Sampling

Measuring Pt. Description TOC

Screen Interval (ft-bmp) 200-210

Casing Diameter (in.) 4

Well Material PVC SS

Static Water Level (ft-bmp) 46.71

Total Depth (ft-bmp) 210

Water Column/ Gallons in Well 163.29 ft / 106.13 gal

MP Elevation _____

Pump Intake (ft-bn) midscreen Purge Method non-dedicated
 Peristaltic
 Submersib Geosub
 Other _____

Sample Method MP / LF

Pump On/Off 1028 / 1135

Volume Purged (gal) 24

Sample Time: Label GM-13D
Start 1130
End 1135

Replicate/ Code No. N/A

Sampled by SH PQ

PID: 0.0 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
1030	0	400	46.81	0	6.57	0.150	3.60	18.7	17.7	141.7	clear	Mild
1035	5	400	46.81	2	5.75	0.145		20.2	17.7	157.1		
1040	10	400		4	5.60	0.144	2.58	20.3	17.7	159.2		
1045	15	400	46.80	6	5.45	0.143		20.4	18.0	158.3		
1050	20	400		8	5.46	0.143	2.69	20.4	18.0	156.5		↓
1055	25	400	46.81	10	5.47	0.143		20.5	18.1	154.0		None
1100	30	400		12	5.54	0.143	3.63	18.3	17.9	151.9		
1105	35	400	46.81	14	5.46	0.143	3.51	19.0	17.9	152.6		
1110	40	400	46.81	16	5.48	0.143	2.75	18.5	18.6	150.1		
1115	45	400	46.81	18	5.56	0.143	2.10	18.8	18.6	130.2		
1120	50	300	46.81	20	5.58	0.143	2.82	19.0	18.6	126.7		
1125	55	300	46.81	21.5	5.55	0.143	2.20	19.1	18.6	126.1	↓	↓

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes:
 $TV: 210 - 46.71 = 163.29 \times .006 = 0.98 \text{ gal} \times 3.785 = 3.70 \text{ L}$
 * Recalibrate YSI at 1100

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: <u>Old Dominion Trucking Company</u>	Well Locked at Arrival: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well: <u>Bad Fair</u>	Well Locked at Departure: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion: <u>Flush Mount</u> / <u>Stick Up</u>	Key Number To Well: <u>N/A</u>

Groundwater Sampling Log

Project No 30126046 NAVIA Well ID BPOW 4-1R Page 1 of 3
 Date 06/19/23
 Project Name/Location 022 Q2 GW Sampling Weather Overcast 68°F
 Measuring Pt Description TOC Screen Interval (ft bwp) 652'-692' Casing Diameter (in) 4" Well Material X PVC SS
 Static Water Level (ft bwp) 29.40" Total Depth (ft bwp) 697' Water Column/ Gallons in Well 668ft / 4342gal
 MP Elevation Pump Intake (ft bwp) Mosueen Purge Method Unadorned Bladder Sample Method 1
 Pump On/Off 0846/1210 Volume Purged (gal) 124.72' Persistence Submersible Other
 Sample Time Label BPOW 4-1R Replicate/Start 1205 Code No Sampled by SW/ARH
 End 1210
 PID 1.6ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Redox (mV)	Appearance	
											Color	Odor
0855	0	250	29.44	0	5.44	0.0558	2.44	6.18	19.6	173.8	Clear	None
0900	5	300	—	1.5	4.80	0.0528	3.132	3.05	16.6	191.4	Clear	None
0905	10	300	—	3	4.36	0.0532	0.92	2.23	16.6	196.2	Clear	None
0915	20	300	29.43	4.5	4.41	0.0549	0.52	1.62	17.0	214.2	Clear	None
0920	25	300	—	6	4.60	0.0605	0.70	1.84	16.7	237.1	Clear	None
0925	30	300	29.44	7.5	4.86	0.0638	0.51	2.07	16.8	227.2	Clear	None
0930	35	375	—	9.38	4.92	0.0612	0.80	2.81	16.4	223.2	Clear	None
0935	40	375	29.45	11.16	4.91	0.0600	0.92	3.57	16.3	222.7	Clear	None
0940	45	375	—	13	4.83	0.0581	0.60	3.44	16.3	218.9	Clear	None
0945	50	375	29.44	14.9	4.72	0.0581	0.84	3.08	16.3	215.9	Clear	None
0950	55	375	—	16.8	4.61	0.0572	—	3.60	16.3	212.6	Clear	None
0955	60	375	29.44	18.65	4.57	0.0565	1.20	3.29	16.4	211.0	Clear	None
1000	65	375	—	20.53	4.58	0.0578	—	3.05	16.4	207.6	Clear	None
1005	70	375	Purge Paused to troubleshoot / fix air line								16.5	Restarted at 1015.
1015	78	500	29.38	23.63	4.75	0.0563	1.60	5.21	19.9	228.1	Clear	None
1020	80	600	—	26.03	4.66	0.0567	—	4.02	15.7	203.5	Clear	None

Constituents Sampled	Container	Number	Preservative
VOCs 8260e	40ml Vial	3	HCL
1,4 Dioxane	250ml amber	2	NaHSO4

*0910 parameter was not taken due to troubleshooting late.

Notes
 WSV = 692' - 652' = 40ft x 0.65gal/ft = 26gal → total volume = 28gal
 TV = 697' - 29.40' = 667.60ft x 0.0025gal/ft = 1.7gal x 3.785 = 106L

Well Casing Volumes	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	5" = 1.47	3/8" = 0.006	4" = 0.025
Gallons/Foot	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.38	1/2" = 0.01		

Well Information	
Well Location	<u>Edenbank, and Elm Dr W, Levittown, NY</u> Well Locked at Arrival: <u>Yes</u> / No
Condition of Well	<u>See inspection form</u> Well Locked at Departure: <u>Yes</u> / No
Well Completion	<u>Flush Mouth</u> / Stick Up Key Number To Well: <u>NA</u>

Groundwater Sampling Log

Project No: 30126046-NAVED Well ID: BPOW 4-1R Date: 06/11/23 70°F Page 12 of 3

Project Name/Location: 00202 GW Sampling Weather: overcast

Measuring Pt Description: TOC Screen Interval (ft-bmp): 652'-692' Casing Diameter (in): 4" Well Material: PVC SS

Static Water Level (ft-bmp): _____ Total Depth (ft-bmp): _____ Water Column/Conductions in Well: _____

MP Elevation: _____ Pump Intake: _____ Purge Method: Submersible flow Sample Method: VS

Pump On/Off: _____ Volume Purged (gal): _____ Other: _____

Sample Time Label: BPOW4-1R Replicate/Code No.: no/1960 SW Sampled by: SW/ARH

Start: _____ End: _____

SEE PAGE # 7 FOR INFO

PID: 1.6ppm

▼★
Purge paused for 5min to fix reset switch out

Time	M:notes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Redox (mV)	Appearance	
											Color	Odor
1025	80	600	29.35	29.03	4.67	0.0561	2.75	3.35	16.2	199.3	clear	None
1030	85	600	—	32.03	4.65	0.0568	—	3.57	16.1	199.3	clear	None
1035	90	600 1100	29.41	37.53	4.59	0.0561	1.20	4.35	18.2	207.3	clear	None
1040	95	1100	—	43.03	4.55	0.0563	—	4.89	14.9	202.0	clear	None
1045	100	1100	29.44	48.53	4.54	0.0558	2.21	4.53	14.7	199.5	clear	None
1050	105	1800	—	54.53	4.67	0.0530	—	9.53	14.5	204.3	clear	None
1055	110	1200	29.55	60.53 67.28	4.64	0.0535	1.88	9.17	15.2	206.3	clear	None
1100	115	1150	—	67.28	4.59	0.0565	4.00	3.70	15.5	199.1	clear	None
1105	120	1000	29.79	72.28	4.57	0.0568	3.44	4.91	15.3	200.4	clear	None
1110	125	1000	—	77.28	4.58	0.0562	—	4.75	15.2	199.2	clear	None
1115	130	1000	29.79	82.28	4.57	0.0558	1.91	4.41	15.2	197.7	clear	none
1120	135	1000	—	87.28	4.58	0.0560	—	4.43	15.4	199.2	clear	none
1125	140	1000	29.87	92.28	4.59	0.0561	1.10	4.72	15.3	196.6	clear	None
1130	145	1000	—	102.28	4.66	0.0564	—	4.29	15.3	193.6	clear	None
1135	150	1000	29.78	107.29	4.68	0.0557	3.11	4.47	15.4	193.5	clear	None
1140	155	500	29.87 <u>29.87</u> <u>SW</u>	109.28	4.64	0.0560	1.07	4.19	16.5	196.0	clear	None

(L) → 163.55

Constituents Sampled	Container	Number	Preservative
VOCs 2000 522 SIM 524	40ml Vial	3	HCL
1,4-Dioxane 522 SIM	250 amber	2	NaHSO4

Notes

Well Casing Volumes	1" = 0.04	1.5" = 0.09	2" = 0.16	2.5" = 0.26	3" = 0.37	3.5" = 0.50	4" = 0.65	6" = 1.47	8" = 3.06	12" = 0.01	1/4" = 0.0025
---------------------	-----------	-------------	-----------	-------------	-----------	-------------	-----------	-----------	-----------	------------	---------------

Well Information

Well Location:	<u>Eden Ln + Elm Dr W; Levittown NY</u>	Well Locked at Arrival:	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well:	<u>See Well Inspection Log</u>	Well Locked at Departure:	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion:	<u>Flush Mount / Stick Up</u>	Key Number To Well:	<u>NA</u>

Groundwater Sampling Log

Project No 3037600416-NAVE2 Well ID BROWN-1R Page 3 of 3
 Date 06/11/23
 Project Name/Location 02.02 GW Sampling Weather Sunny 70°F
 Measuring Pt Description TOC Screen Interval (m bwp) 052'-092' Casing Diameter (in) 4" Well Material X PVC — SS
 Static Water Level (m bwp) _____ Water Column/ Gallons in Well _____
 MP Elevation _____ Pump Intake in _____ Pump On/Off _____
 Sample Time Label BROWN-1R Replicate/ Start 1205 Code No SW End 1210 Sampled by SW/ARH

PID 1.6ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Redox (mV)	Appearance	
											Color	Odor
1145	160	500	—	112.22	4.74	0.0557	1.15	4.01	16.1	191.3	Clear	None
1150	165	500	29.78	114.72	4.75	0.0558	0.43	4.17	16.2	191.1	Clear	None
1155	170	500	29.78	117.22	4.77	0.0561	0.34	4.20	16.2	190.4	Clear	None
1200	175	500	29.78	119.72	4.79	0.0559	0.57	4.28	16.3	189.9	Clear	None

Jade Watson

Do₂ 4.17

Constituents Sampled	Container	Number	Preservative
VOCs 8260 C	40ml Vial	3	HCL
1,4 Dioxane 522 SIM	250ml ambers	2	NaHSO4

Notes
SEE PAGE #1 FOR INFO

Well Casing Volumes

Gallons:Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3.8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location	<u>See Pages 1 & 2</u>	Well Locked at Arrival	Yes / No
Condition of Well	<u>See Pages 1 & 2</u>	Well Locked at Departure	Yes / No
Well Completion	Flush Mount / Stick Up	Key Number To Well	

Groundwater Sampling Log

Project No. 30169301.GWMI2

Well ID GM-15D2

Page 1 of 1
Date 4-18-23

Project Name/Location OU2 Q2 2023 GW Sampling

Weather 50°F Sun/Windy

Measuring Pt. TOC
Description TOC
Screen Interval (ft-bmp) 536-556

Casing Diameter (in.) 4

Well Material X PVC
SS

Static Water Level (ft-bmp) 50.24
Total Depth (ft-bmp) 556

Water Column/
Gallons in Well 505 ft / 328 gal

MP Elevation
Pump Intake (ft-bn) n/a screen
Pump On/Off 09:02 / 10:10
Volume Purged (gal) 30L

Purge Method non-dedicated
Peristaltic
Submersible ~~Flow Control~~ Casing
Other

Sample Method TV + LF

Sample Time: Label MW-15D2
Start 10:05
End 10:10
Replicate/
Code No. n/a

Sampled by PR

PID: 00ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
09:03	0	600	50.24	0	5.89	0.076	1.40	4.49	15.6	204.9	Clear	none
09:08	5	500		2.5	5.57	0.076		1.92	16.2	217.6		
09:13	10	500		5	5.17	0.078		5.20	16.4	225.7		
09:18	15	500	50.29	7.5	5.17	0.078	1.64	6.38	16.4	228.7		
09:23	20	500		10	5.15	0.078		6.30	16.6	231.4		
09:28	25	500		12.5	5.16	0.076		6.41	16.1	236.4		
09:33	30	500	50.31	15	5.17	0.076	2.00	6.32	16.2	236.8		
09:38	35	500		17.5	5.14	0.076		6.32	16.0	239.6		
09:43	40	500	50.31	20	5.16	0.077	1.03	5.99	16.1	241.3		
09:48	45	500	50.32	22.5	5.16	0.077	0.94	6.05	16.1	241.5		
09:53	50	500	50.32	25	5.17	0.076		6.07	16.2	242.8		
09:58	55	500	50.32	27.5	5.18	0.076	1.05	6.09	16.1	243.0		

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes:

$556 - 50.24 = 505.76 \times 0.006 = 3.03 \times 3.785 = 11.4 \text{ L TV}$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.85	1/2" = 0.01	

Well Information

Well Location: <u>Optimum parking lot</u>	Well Locked at Arrival: <u>Yes</u> / No
Condition of Well: <u>1/2 Bolts, Fair</u>	Well Locked at Departure: <u>Yes</u> / No
Well Completion: <u>Flush Mount</u> / Stick Up	Key Number To Well: <u> </u>

Groundwater Sampling Log

Project No. 30169301.GWMI2 Well ID GM-15I Date 04/18/23 Page 1 of 1
 Project Name/Location OU2 Q2 2023 GW Sampling Weather Overcast 55°F/windy
 Measuring Pt. Description TOC Screen Interval (ft-bmp) 95-105' Casing Diameter (in.) 4" Well Material X PVC
 Static Water Level (ft-bmp) 45.18' Total Depth (ft-bmp) 105' Water Column/ Gallons in Well 59.82' / 39 gal SS
 MP Elevation _____ Pump Intake (ft-bn) 100' Purge Method non-dedicated Sample Method LF & TV
 Pump On/Off 1100/1215 Volume Purged (gal) 20 L Peristaltic Submersible rediflow Other _____
 Sample Time: Label GM-15I Replicate/ Start 0405-1208 Code No. NA (SW) Sampled by S. W. J. J. & P. Quinton
 End 1215
 PID: 0.0ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
1103	0	1300	45.85	0	5.67	0.546	2.14	7.44	15.3	352.4	Clear	None
1108	5	200	—	6.5	5.76	0.544	—	7.91	14.4	370.8	Clear	None
1113	10	200	45.84	7.5	5.72	0.543	1.90	7.18	14.1	360.3	Clear	None
1118	15	200	—	8.5	5.66	0.546	—	6.99	14.3	362.5	Clear	None
1123	20	200	45.85	9.5	6.75	0.573	2.18	6.71	14.7	365.0	Clear	None
1128	25	200	—	10.5	5.65	0.577	—	6.71	14.7	361.1	Clear	None
1133	30	200	45.87	11.5	5.63	0.595	2.07	6.63	14.7	357.3	Clear	None
1138	35	200	45.87	12.5	5.61	0.617	1.97	6.63	14.6	354.0	Clear	None
1143	40	200	45.87	13.5	5.60	0.629	2.03	6.55	15.0	351.4	Clear	None
1148	45	200	45.87	14.5	5.59	0.641	1.72	6.55	15.1	345.2	Clear	None
1153	50	200	45.83	15.5	5.59	0.651	1.30	6.50	15.4	343.7	Clear	None
1158	55	200	45.83	16.5	5.57	0.655	1.83	6.50	15.6	342.7	Clear	None
1203	60	200	45.83	17.5	5.60	0.657	1.25	6.51	15.4	339.0	Clear	None
(SW)												

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes:

TV → 105' - 45.18' = 59.82' × 0.01 gal/ft = 0.5982 gal × 3.785 gal/L = 1.35 L = TV

When well cap was opened, tubing had fallen down. Sadie & Shirley fished it out.

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: <u>Optimum parking lot (Along fence) End of Givimant Rd</u>	Well Locked at Arrival:	<u>Yes</u>	/	No
Condition of Well: <u>Okay 3/3 Bores look at inspection for next</u>	Well Locked at Departure:	<u>Yes</u>	/	No
Well Completion: <u>Flush Mount</u>	<u>Stick Up</u>	<u>info.</u>	Key Number To Well:	<u>NA</u>

Groundwater Sampling Log

Project No. 30169301.GWM12 Well ID GM-17D Page 1 of 1
 Date 04/11/23
 Project Name/Location OU2 Q2 2023 GW Sampling Weather Sunny 54°F
 Measuring Pt. Description TOC Screen Interval (ft-bmp) 278-298 Casing Diameter (in.) 4" Well Material PVC SS
 Static Water Level (ft-bmp) 50.02 Total Depth (ft-bmp) 298 Water Column/ Gallons in Well 247.98' / 161.23 gal
 MP Elevation _____ Pump Intake (ft-bmp) 288' Purge Method non-dedicated Sample Method LF+TV
 Pump On/Off 0856 Volume Purged (gal) 28L Penstaltic Submersible Other
 Sample Time: Label GM-17D Replicate/ Code No. NA Sampled by S. Woloson
 Start 1000 End 1006 S. Vlavianos
 PID: 0.0ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
0856	0	400	49.99'	0	6.49	0.243	1.10	10.34	13.8	125.5	Clear	None
0901	5	400	50.00	2	5.43	0.241	—	6.69	13.5	137.6	Clear	None
0906	10	400	—	4	5.21	0.239	0.98	6.67	13.9	139.4	clear	None
0911	15	400	50.01	6	5.12	0.245	—	7.13	14.0	139.2	clear	None
0916	20	400	—	8	5.09	0.245	1.66	7.15	14.0	139.4	clear	None
0921	25	400	50.02	10	5.03	0.246	0.39	7.45	14.0	140.4	Clear	None
0926	30	400	50.02	12	5.02	0.246	0.36	7.48	14.2	140.2	clear	None
0931	35	400	—	14	5.01	0.243	0.50	7.63	14.3	139.6	clear	None
0936	40	400	50.00	16	5.01	0.246	0.20	7.46	14.3	139.0	clear	None
0941	45	400	50.00	18	4.99	0.247	0.18	7.67	14.4	139.3	clear	None
0946	50	400	50.00	20	4.99	0.248	0.20	7.50	14.3	139.0	clear	None
0951	55	400	50.00	22	4.97	0.247	6.15	7.55	14.5	139.1	clear	None
0956	60	400	50.00	24	4.97	0.246	0.13	7.57	14.5	138.8	clear	None

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None
_____	_____	_____	_____
_____	_____	_____	_____

Notes: $TV = 298' - 50.02' = 247.98' \times (3/8" \text{ tubing vol}) = 247.98 \times 0.225 = 55.8 \text{ L} \approx 55 \text{ L} = TV$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2" = 0.16	2.5" = 0.26	3" = 0.37	3.5" = 0.50	4" = 0.65	6" = 1.47	3/8" = 0.006
--------------	-----------	-------------	-----------	-------------	-----------	-------------	-----------	-----------	--------------

Well Information

Well Location: <u>off of S. Broadway, Between 2 Basins Across from Lowes</u>	Well Locked at Arrival:	Yes	1	No
Condition of Well: <u>Good</u>	Well Locked at Departure:	Yes	1	No
Well Completion: <u>Flush Mount</u> / <u>Stick Up</u>	Key Number To Well:	<u>NA</u>		

Groundwater Sampling Log

Project No. 30169301.GWMI2

Well ID GM 17I

Date 4/11/23 Page 1 of 1

Project Name/Location OU2 Q2 2023 GW Sampling

Weather 50° Sunny

Measuring Pt. Description TOC

Screen Interval (ft-bmp) 100-120

Casing Diameter (in.) 4

Well Material PVC SS

Static Water Level (ft-bmp) 45.28

Total Depth (ft-bmp) 120

Water Column/ Gallons in Well 74.72

MP Elevation

Pump Intake (ft-bn) mid screen Purge Method non-dedicated

Sample Method LF+MP+TV

Pump On/Off 0856-1005

Volume Purged (gal) 22L

Peristaltic Submersib rediflow 6005ub
Other

Sample Time: Label GM 17I Replicate/
Start 0955 Code No. N/A
End 1005

Sampled by SV
SW

PID: 0.0ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
0900	0	400	45.24'	0	6.10	0.167	6.35	8.69	14.7	132.2	Clear	None
0905	5	400		2	6.54	0.162		8.93	15.1	128.2	"	"
0910	10	400	45.23	4	6.79	0.159	19.8	9.01	15.3	117.1	"	"
0915	15	400		6	7.13	0.183		9.23	15.4	112.3	"	"
0920	20	400	45.24	8	6.61	0.161	11.6	9.14	14.6	110.5	"	"
0925	25	400		10	6.53	0.162		9.15	14.9	107.4	"	"
0930	30	400	45.25	12	6.49	0.160	19.1	9.23	14.7	106.1	"	"
0935	35	400		14	6.49	0.162		9.16	14.5	103.8	"	"
0940	40	400	45.24	16	6.48	0.169	17.4	9.07	14.6	103.0	"	"
0945	45	400	45.23	18	6.48	0.162	16.8	8.90	14.4	102.6	"	"
0950	50	400	45.24	20	6.49	0.161	16.3	9.04	14.3	102.5	"	"

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes: TV = 120 - 45.28 = 74.72' * 0.01 = 0.75 gal = 3L

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: <u>off of Broadway</u>	Well Locked at Arrival: <u>Yes</u> / No
Condition of Well: <u>Good</u>	Well Locked at Departure: <u>Yes</u> / No
Well Completion: <u>Flush Mount</u> / Stick Up	Key Number To Well: <u> </u>

Groundwater Sampling Log

Project No 30110301 Gmwa Well ID Gm-37D Date 02/05/25
 Project Name/Location 022 G2 GW Sampling Weather Sunny 57°F
 Measuring Pt Description TOL Screen Interval (ft-bis) 242'-262' Casing Diameter (in) 4" Well Material PVC SS
 Static Water Level (ft-amp) 39.90' Total Depth (ft-bis) 262' Water Column/ Gallons in Well 222.1' / 144.3gal
 MP Elevation NM Pump Intake (ft-bis) 252' Purge Method Ureosub Sample Method MP+LF
 Pump On/Off 0932 Volume Purged (gal) 43.6L Peristaltic Submersible Other
 Sample Time Label Gm-37D Replicate L Code No NA (Split Samples w/ BWD) Sampled by SW/SH
 Start 1118 End 1122
 PID 7.6 ppm

Time	Minutes Elapsed	Flow Rate (gpm)	Depth to Water (ft)	Volume Purged (G)	pH (SU)	Cond (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Totalizer Reading (GSG)	Appearance
0933	0	400	39.89'	0	5.80	0.221	11.3	7.66	17.1	107.2	Clear None
0938	5	400	39.92	2	5.42	0.215	—	5.13	16.5	164.1	Clear None
0943	10	400	—	4	5.52	0.211	3.47	5.01	16.9	150.9	Clear None
0948	15	400	39.92	6	5.45	0.212	—	5.10	16.9	147.9	Clear None
0953	20	400	39.92	8	5.27	0.214	8.24	5.17	16.8	143.7	Clear None
0958	25	400	—	10	5.31	0.215	—	5.14	16.8	105.6	Clear None
1003	30	400	39.92	12	5.32	0.216	3.10	5.10	17.0	111.3	Clear None
1008	35	400	39.92	14	5.71	0.217	—	4.95	17.2	100.5	Clear None
1013	40	400	—	16	5.75	0.218	2.86	4.90	17.2	100.8	Clear None
1018	45	400	39.92	18	5.54	0.220	—	5.17	17.6	104.5	Clear None
1023	50	400	39.92	20	5.24	0.222	7.65	4.93	17.0	106.5	Clear None
1028	55	400	—	22	5.67	0.222	—	5.01	17.8	101.1	Clear None
1033	60	400	39.92	24	5.14	0.222	1.56	5.11	17.1	98.0	Clear None
1038	65	400	39.92	26	5.16	0.222	—	5.04	17.2	96.8	Clear None
1043	70	400	—	28	5.16	0.222	2.12	4.89	17.5	98.1	Clear None
1048	75	400	39.92	30	5.15	0.222	—	4.84	17.5	101.0	Clear None

Constituents Sampled	Container	Number	Preservative
<u>TOL</u>	<u>40ml vial</u>	<u>3</u>	<u>HCl</u>
<u>1,4 Dioxane</u>	<u>1L amber</u>	<u>2</u>	<u>None</u>

Notes
 $IV = 262' - 39.90' = 222.1' \times 0.01 \text{ gal/ft} = 2.22 \text{ gal} \times 3.785 \text{ L/gal} = 8.41 \text{ L}$

After well bleed air out and waited for fm value less than 2.0ppm. Proceeded with well bleed value at 0.0ppm
 * Tubing dropped down when arrived at well Shirley He expertly fished out of well.
 * Split Samples with Bernpage water district

Well Casing Volumes	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3" = 0.37	4" = 0.65	6" = 1.47	36" = 0.006
Gallons/Foot	1.25" = 0.06	2" = 0.16				1/2" = 0.01	

Well Information

Well Location	<u>192 N.W. Adhest, Bernpage, NY</u>	Well Locked at Arrival	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Condition of Well	<u>See well inspection log</u>	Well Locked at Departure	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Well Completion	<u>Flush Mouth / Stick Up</u>	Key Number To Well	<u>NA</u>	

Groundwater Sampling Log

Page 2 of 2

Project No 30169301-GMW12 Well ID 6M-37D Date 06/05/23
 Project Name/Location 002 @2 GW Sampling Weather Sunny 65°F
 Measuring Pt Description _____ Screen Interval (ft-els) _____ Casing Diameter (in) _____ Well Material PVC
 Static Water Level (ft bwp) _____ Total Depth (ft-bis) _____ Water Column Gallons / Well _____
 MP Elevation NM Pump Intake (ft-bis) _____ Pump Method _____ Penstaltic Submersible Dedicated Other _____
 Pump On/Off _____ Volume Pumped (gall) _____
 Sample Time Label 6M-37D Replicate/Code No _____
 Start 1118 End 1122 Sampled by SW/SH

SEE PAGE #1 FOR INFO.

PID _____

Time	Minutes Elapsed	Flow Rate (gpm)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Totalizer Reading (G)	Appearance	
											Color	Odor
1053	80	400	39.92	32	5.09	0.223	2.32	5.05	17.6	149.7	Clear	None
1058	85	400	—	34	5.08	0.223	—	5.05	17.5	152.1	Clear	None
1103	90	400	39.92	36	5.09	0.223	1.67	4.95	17.6	109.0	Clear	None
1108	95	400	39.92	38	5.11	0.223	—	4.98	17.6	109.8	Clear	None
1113	100	400	—	40	5.09	0.223	—	4.98	17.6	104.2	Clear	None

SW (with a large 'X' over the table area)

Constituents Sampled _____ Container _____ Number _____ Preservative _____

Notes **SEE PAGE #1 X (SW)**

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2" = 0.16	3" = 0.37	4" = 0.65	6" = 1.47	8" = 0.006
--------------	-----------	-------------	-----------	-----------	-----------	-----------	------------

Well Information

Well Location	<u>Beauregard NY</u>	Well Locked at Arrival	<u>Yes</u> / No
Condition of Well	<u>See well inspection form</u>	Well Locked at Departure	<u>Yes</u> / No
Well Completion	<u>Flush Mount / Stick Up</u>	Key Number To Well	<u>JA</u>

Groundwater Sampling Log

Project No. 30169301.GWMI2 Well ID Gm-215 Page 1 of 4
 Date 04/19/23
 Project Name/Location OU2 Q2 2023 GW Sampling Weather Cloudy 52°F
 Measuring Pt. TOC Screen Interval (ft-bmp) 63'-67' Casing Diameter (in.) 2" Well Material PVC SS
 Static Water Level (ft-bmp) 37.72' Total Depth (ft-bmp) 67' Water Column/ Gallons in Well 29.28' / 4.7gal
 MP Elevation _____ Pump Intake (ft-bn) 65.5' Purge Method non-dedicated Peristaltic Submersible rediflow Other _____ Sample Method 3 well volumes 3 WSV (SW)
 Pump On/Off 1053/ Volume Purged (gal) 164L (SW)
 Sample Time: Label Gm-215 Replicate/ Code No. NA Sampled by S. Wadson
 Start 1155 End 1150 P. Quintan
 PID: 0.0

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
initial 1054	0	1600	37.87'	0	9.52	0.155	76.5	2.62	12.2	215.7	Brown	None
1st 1107	13	1400 1000	37.86'	18	9.16	0.154	76.4 76.4	8.60	12.4	258.3	Cloudy Brown	None
2nd 1122	28	1400	37.87'	36	8.83	0.152	13.6	8.81	12.6	274.1	Clear	None
3rd 1140	46	1000	37.87'	54	8.65	0.154	12.7	8.67	12.8	282.8	Clear	None
Sudden Water												

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None
<u>*Rate was lowered to take VOC Sample (SW)</u>			

Notes:
 $\text{WV} = 67' - 37.72' = 29.28' \times 0.16 \text{ ft/gal} = 4.7 \text{ gal} \times 3.785 \text{ gal/ft} = 18 \text{ L} = 1 \text{ Well Vol.}$
 ~~$\text{WV} = 67' - 63' = 4 \text{ ft} \times 0.16 \text{ ft/gal} = 0.64 \text{ gal} = 2.4 \text{ gal} = 3 \text{ WSV}$~~

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: <u>Burchorn and Harrison Ave, Bethpage, NY</u>	Well Locked at Arrival: Yes / <input checked="" type="checkbox"/> No
Condition of Well: <u>1/3 bolts, no lock</u>	Well Locked at Departure: Yes / <input checked="" type="checkbox"/> No
Well Completion: <u>Flush Mount / Stick Up</u>	Key Number To Well: <u>NA</u>

For more info see well inspection form.

Groundwater Sampling Log

Project No. 30169301-GWM12 Well ID Gm-211
Gm-20(Su) Page 1 of 1
 Date 06/15/23
 Project Name/Location 0V2 @2 GW Sampling, 130-140' Weather Sunny 65°F
 Measuring Pt. Description TOC Screen Interval (ft-bop) 95-105' Casing Diameter (in.) 4" Well Material X PVC SS
 Static Water Level (ft-bmp) 40.02' Total Depth (ft-bmp) 105' 140' Water Column/ Gallons in Well 99.98 ft / 64.98 gal
 MP Elevation _____ Pump Intake (ft-bmp) mid screen Purge Method non-dedicated Bleeder Sample Method 3WSV below 3WSV + LF packer
 Pump On/Off 0838/1035 Volume Purged (gal) 79.95 PenStaltic _____ Submersible red flow Other _____
 Sample Time: Label Gm-211 Replicate/ Code No. NA Sampled by SW/PQ/SH/KK
 Start 1025 End 1035

PID: 0.0ppm

1WSV
2WSV
3WSV

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Redox (mV)	Appearance	
											Color	Odor
0845	0	800	35.80	0	8.07	0.1688	6.34	6.08	16.7	38.8	clear	None
0916	31	750	35.89	25	8.81	0.1588	3.93	6.91	16.0	10.9		
0949	64	750	36.61	49.75	8.87	0.1589	5.39	7.67	16.0	15.0		
1025	100	700	36.65	74.95	8.89	0.1590	5.20	7.09	16.1	17.3		
S	A	M	P	L	E	C	O	L	E	C	T	E

(Su)

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4-dioxane 8270 D SIM	1L amber	2	None

Notes:
 3WSV below packer: $140 - 130 = 10' \times 0.65 \text{ gal/ft} = 6.5 \text{ gal}$ (x 3WSV = 19.5 gal) = 73.8
 packer: $129 - 40.02 = 88.98 \times 0.43 = 38.26 + 50 = 88.26$

Well Casing Volumes	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
Gallons/Foot	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information	
Well Location: <u>HARRISON & N. Butehorn, Bethpage, NY</u>	Well Locked at Arrival: <u>Yes</u> / No
Condition of Well: <u>See well inspection form</u>	Well Locked at Departure: <u>Yes</u> / No
Well Completion: <u>Flush Mount</u> / Stick Up	Key Number To Well: <u>NA</u>

Groundwater Sampling Log

Project No. 30169301.GWM12 Well ID GM-21D2 Date 04/11/23 Page 1 of 1
 Project Name/Location OU2 Q2 2023 GW Sampling Weather partly sun, 48°F
 Measuring Pt. TOC Screen Interval (ft-bmp) 516-526' Casing Diameter (in.) 4" Well Material PVC SS
 Static Water Level (ft-bmp) 50.46' Total Depth (ft-bmp) 531' Water Column/ Gallons in Well 480.54' / 312.4gal
 MP Elevation _____ Pump Intake (ft-bmp) ~ 521' Purge Method non-dedicated Peristaltic Submersible Other Sample Method MP/LF+TV
 Pump On/Off 0907 | 1020 Volume Purged (gal) 37.5L Sampled by J. Woloski
 Sample Time: Label GM-21D2 Replicate/ Code No. NA P. Guinlan
 Start 1014 End 1020
 PID: 0.0ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
0909	0	500	50.44	0	6.29	0.149	5.78	8.54	10.8	313.6	Clear	None
0914	5	500	50.55	2.5	5.87	0.143	—	5.21	12.5	307.6	Clear	None
0919	10	800	—	5	5.95	0.145	21.5	7.62	13.3	274.4	Clear	None
0924	15	600	50.48	9	5.89	0.144	11.0	7.64	13.0	263.9	Clear	None
0929	20	600	—	12	5.85	0.144	8.25	7.67	13.2	269.4	Clear	None
0934	25	500	50.52	15	5.83	0.144	6.19	7.67	12.8	276.6	Clear	None
0939	30	500	—	17.5	5.80	0.144	0.13	7.60	12.7	282.7	Clear	None
0944	35	500	50.48	20	5.83	0.144	4.00	7.61	12.8	287.6	Clear	None
0949	40	500	50.46	22.5	5.83	0.143	4.30	7.61	12.7	293.4	Clear	None
0954	45	500	50.46	25	5.84	0.143	4.57	7.52	12.7	295.3	Clear	None
0959	50	500	50.46	27.5	5.87	0.143	3.87	7.58	12.7	296.3	Clear	None
1004	55	500	50.46	30	5.85	0.143	3.32	7.50	12.9	296.8	Clear	None
1009	60	500	50.46	32.5	5.84	0.142	3.31	7.52	12.6	297.7	Clear	None

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None
_____	_____	_____	_____
_____	_____	_____	_____

Notes: $TV = 531' - 50.46' = 480.54' \times 0.006 \text{ gal/ft} = 2.9 \text{ gal} \times 3.785 \text{ gal/L} = 11 \text{ L} = TV$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: <u>N. Bitchorn & Harrison Ave, Bethpage NY</u>	Well Locked at Arrival: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well: <u>Fair. 33 baits. concrete concrete not present</u>	Well Locked at Departure: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion: <input checked="" type="checkbox"/> Flush Mount / <input type="checkbox"/> Stick Up	Key Number To Well: <u>NA</u>

↳ See well inspection form for more detail.

Groundwater Sampling Log

Project No. 30169301.GWM12

Well ID GM-21D

Date 4-19-23

Project Name/Location OU2 Q2 2023 GW Sampling

Weather 55°F / 10 windcast

Measuring Pt. Description TOC

Screen Interval (ft-bmp) 278-283

Casing Diameter (in.) 4

Well Material PVC SS

Static Water Level (ft-bmp) 44.50

Total Depth (ft-bmp) 286

Water Column/ Gallons in Well 243.5 ft / 158 gal

MP Elevation ————

Pump Intake (ft-bn) mid screen

Purge Method non-dedicated

Sample Method 1TV + LF

Pump On/Off 10:00 / 11:10

Volume Purged (gal) 26L

Peristaltic
Submersible redflow Geosubs
Other

Sample Time: Label GM-21D
Start 11:05
End 11:10

Replicate/ Code No. nlc

Sampled by PG

PID: 0.01 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
10:01	0	900	44.50	0	4.68	0.123	2.10	4.90	12.4	244.2	Clear	none
10:06	5	400	44.54	2	4.76	0.123		6.42	12.7	258.4		
10:11	10	400		4	4.75	0.122		6.36	12.5	260.0		
10:16	15	400	44.54	6	4.75	0.122	3.21	6.30	12.5	265.3		
10:21	20	400		8	4.74	0.123		6.37	12.2	267.3		
10:26	25	400		10	4.76	0.123		6.24	12.9	269.3		
10:31	30	400	44.55	12	4.76	0.123	2.10	6.31	12.6	271.0		
10:36	35	400		14	4.73	0.122		6.35	12.4	275.4		
10:41	40	400	44.55	16	4.74	0.122	2.12	6.35	12.3	276.2		
10:46	45	400	44.55	18	4.73	0.123	2.02	6.33	12.3	276.8		
10:51	50	400	44.54	20	4.75	0.123		6.33	12.4	279.4		
10:56	55	400		22	4.74	0.123	5.58	6.34	12.6	280.1		
11:01	60	400	44.54	24	4.74	0.123	4.02	6.32	12.5	281.7	↓	↓

TV 2+

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes:

$288 - 44.50 = 243.5 \times 0.006 = 1.46 \times 3.785 = 5.5L:TV$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location:	<u>N. Butekera and Henscom</u>	Well Locked at Arrival:	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well:	<u>Good</u>	Well Locked at Departure:	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion:	<u>Flush Mount / Stick Up</u>	Key Number To Well:	

Groundwater Sampling Log

Page 1 of 1

Project No. 3016930 GNMIL Well ID GM-20I Date 06/15/23
 Project Name/Location OU2 Q2 GW sampling Weather Overcast 73°F
 Measuring Pt. Description Top of Casing Screen Interval (ft-bmp) 95'-105' Casing Diameter (in.) 4" (SW) Well Material PVC SS
 Static Water Level (ft-bmp) 38.53' Total Depth (ft-bmp) 105' Water Column/ Gallons in Well 44 ft x 66.47 ft / 44 gal
 MP Elevation Pump Intake (ft-bmp) Midscreen Purge Method Non-dedicated Backpack Peristaltic packer Submersible Sample Method 3WSV below packer
 Pump On/Off 1311/1440 Volume Purged (gal) (SW) 81 L Other
 Sample Time: Label GM-20I Replicate/ Code No. None Sampled by SW/PB/SH/KK
 Start SW 1440 End 1440

PID: 0.0ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
13:13	0	1000	36.44	0	9.29	0.1887	0.97	9.42	15.0	-110	Clear	None
1V 13:38	25	1000	37.08	25	9.95	0.18220	2.18	8.04	14.6	-36.2	↓	↓
2V 14:03	50	1000	37.02	50	9.98	0.1727	1.65	8.28	14.6	-36.8	↓	↓
3V 14:28	75	1000	36.98	75	10.07	0.1741	1.33	8.33	14.6	-38.8	↓	↓
S	A	m	P	L	E	C	O	L	L	E	C	T

Constituents Sampled	Container	Number	Preservative
VOCs 524.2	40 mL glass vial	3	HCl
1,4-Dioxane 522 SIM	250 mL amber bottle	2	NaHSO4

Notes:

Tubing Volume Equation: Volume (gal) = (Midscreen depth - static water level depth) x tubing conversion factor (gal/ft)
 wellscreen volume: $105' - 95' = 10' \times 0.65 \text{ gal/ft} = 6.5 \text{ gal} \times 3.7854 \text{ gal} = 25 \text{ L} = 1 \text{ WSV}$
 packer info: $94' - 38.53' = 55.47 \times 0.43 = 23.8521 + 50 = 74 \text{ psi}$
 75L = 3WSV

*Field Blank Required *Cone off early or day before
 3 successive readings should be within +/- 0.1 for pH, +/- 3 percent for Sp. Con., +/- 10 percent for DO, +/- 10 mv for ORP, +/- 10 percent for turbidity, and +/- 10 percent for temperature

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: <u>Butehorn + Harrison, Bethpage</u>	Well Locked at Arrival: <u>Yes</u> / No
Condition of Well: <u>See well inspection log</u>	Well Locked at Departure: <u>Yes</u> / No
Well Completion: <u>Flush Mount</u> / Stick Up	Key Number To Well: <u>NA</u>

Groundwater Sampling Log

Project No. 30169301 GWMIZ Well ID GM-20D
 Project Name/Location 02 02 GW Sampling
 Measuring Pt. Screen Casing Diameter (in.) 4"
 Description Top of Casing Interval (ft-bmp) 216'-226'
 Static Water Level (ft-bmp) 40.19' Total Depth (ft-bmp) 226'
 MP Elevation _____ Pump Intake (ft-bmp) Midscreen Water Column/ Gallons in Well 185 fr / 120 gal
 Pump On/Off 1205 / 1300 Volume Purged (L) 83L Purge Method Bladder packer
 Sample Time: Label GM-20D Replicate/ Code No. NA
 Start 12:07 End 12:00

Date 06/15/23
 Weather Sunny 73°F
 Well Material PVC SS
 Sample Method 3WSV below packer
 Sampled by SW/PA/SH/KK

PID: 0.0 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
12:06	0	1750	40.05	0	8.13	0.135	1.35	8.37	15.5	17.1	CRAR	none
12:19	13	1750	40.00	26	7.34	0.135	0.41	9.04	15.7	54.8	↓	↓
12:32	26	1750	40.00	49	7.07	0.134	0.38	9.04	15.7	57.6	↓	↓
12:48	42	1750	40.00	77	6.90	0.128	0.48	9.14	15.8	57.7	clear	none
S	A	M	P	L	E	C	0	L	L	E	c	T

Constituents Sampled	Container	Number	Preservative
VOCs 522-2 <u>8260 C</u>	40 mL glass vial	3	HCl
1,4- Dioxane 522 SIM <u>8270 D SIM</u>	250 mL amber bottle	2	NaHSO4

Notes: _____
 Tubing Volume Equation: Volume (gal) = (Midscreen depth - static water level depth) x tubing conversion factor (gal/ft)
 well volume: $226 - 216 = 10 \text{ ft} \times 0.65 \text{ gal/ft} = 6.5 \text{ gal} \times 3.785 \text{ L/gal} = 25 \text{ L} = 1 \text{ WSV}$
 Packer Info: $215' - 40.19' = 174.8 \times 0.43 = 75 + 50 = 125 \text{ psi}$

*Field Blank Required *Cone off early or day before
 3 successive readings should be within +/- 0.1 for pH, +/- 3 percent for Sp. Con., +/- 10 percent for DO, +/- 10 mv for ORP, +/- 10 percent for turbidity, and +/- 10 percent for temperature

Well Casing Volumes	1.5"	2.5"	3.5"	6"	3/8"
Gallons/Foot	0.04	0.09	0.16	0.37	0.06
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01

Well Information	Well Location:	Well Locked at Arrival:	Well Locked at Departure:	Key Number To Well:
Well Location:	<u>Arcadis & N. Briennan, Briennan, NY</u>	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No	<u>NA</u>
Condition of Well:	<u>see well inspection form</u>			
Well Completion:	<u>Flush Mount / Stick Up</u>			

Groundwater Sampling Log

Project No. 30169301.GWM12 Well ID GM-18I Date 6/12/23 Page 1 of 1

Project Name/Location 2023 OU2 Q2 GW Sampling Weather 68°F, cloudy

Measuring Pt. Description TOC Screen Interval (ft-bmp) 95-100 Casing Diameter (in.) 4 Well Material PVC SS

Static Water Level (ft-bmp) 43.13 Total Depth (ft-bmp) 105 Water Column/ Gallons in Well 61.87 ft / 40.2 gal

MP Elevation Pump Intake (ft-bn) midscreen Purge Method non-dedicated packer Sample Method 3WV below packer

Pump On/Off 0850 / 0957 Volume Purged (gal) 92 Peristaltic Submersible Other

Sample Time: Label GM-18I Replicate/ Code No. N/A Sampled by SH PQ
 Start 0950
 End 0957

PID: 0.0 ppm

1WV
2WV
3WV

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
0852	0	1600	39.79	0	4.68	0.172	4.48	8.78	16.2	147.8	clear	None
0909	17	1600	39.79	27.2	4.30	0.170	2.69	8.57	16.2	141.7	↓	↓
0926	34	1600	39.72	54.4	4.19	0.169	3.41	8.42	16.2	135.4	↓	↓
0943	51	1600	39.71	81.6	4.20	0.167	2.05	8.34	16.3	119.1	↓	↓

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes:
 WV: $(105 - 94) = 11 \times 0.65 = 7.15 \text{ gal} \times 3.785 = 27.1 \text{ L (1 WV B.P.)} \times 3 = 81.3 \text{ L}$
 Packer pressure: $(94 - 43.13) = 50.87 \text{ ft} \times 0.43 \text{ PSI/ft} = 21.9 \text{ psi} + 50 \text{ psi} = 71.87 \text{ psi}$

Well Casing Volumes	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
Gallons/Foot	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information	Well Location:	Well Locked at Arrival:
Well Location:	<u>700 Hicksville Rd</u>	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well:	<u>see well inspection log</u>	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion:	<u>Flush Mount / Stick Up</u>	Key Number To Well: <u>N/A</u>

Groundwater Sampling Log

Project No. 30169301-GMWI2 Well ID GM-3302

Date 06/06/23 Page 1 of 1

Project Name/Location 02 02 GW Sampling

Weather overcast 65°F

Measuring Pt. Description TOC Screen Interval (ft-bmp) 500-520 Casing Diameter (in.) 4"

Well Material PVC SS

Static Water Level (ft-bmp) 50.28' Total Depth (ft-bmp) 520 Water Column/ Gallons in Well 469.72 ft (305 gal)

MP Elevation 116.120 Pump Intake (ft-bn) 510 Purge Method non-dedicated Sample Method SWCV + LF + TV

Pump On/Off 116.120 Volume Purged (gal) 33 L Peristaltic Submersible geosub Other

Sample Time: Label GM-3302 Replicate/Code No. NA
Start 1210
End 1215

Sampled by SW/AT

PID: 0.0 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
1118	0	500	50.30	0	7.70	0.1488	2.28	8.81	20.3	57.6	clear	none
1123	5	1000	—	2.5	7.38	0.1439	—	6.70	17.8	153.9		
1128	10	500	50.31	7.5	8.20	0.1484	4.44	7.47	17.6	152.6		
1133	15	500	—	10	8.04	0.1459	—	7.45	17.7	160.0		
1138	20	500	50.31	12.5	7.76	0.1457	7.90	7.49	17.8	161.1		
1143	25	500	—	15	7.57	0.1457	—	7.57	17.9	161.2		
1148	30	500	50.29	17.5	7.28	0.1458	6.90	7.74	17.8	160.9		
1153	35	400	—	20	6.94	0.1464	—	7.23	18.9	156.7		
1158	40	400	50.29	22	6.87	0.1464	4.99	7.17	19.0	156.3		
1203	45	400	—	24	6.85	0.1463	7.31	7.37	19.1	155.9		
1208	50	400	50.29	26	6.73	0.1468	—	7.40	19.4	153.5	↓	↓

800

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 L amber	2	None

Notes:

TV = $520 \text{ ft} - 50.28 \text{ WL} = 469.72 \text{ ft} \times 0.006 \text{ gal/ft} = 2.81 \text{ gal} \times 3.785 \text{ L/gal} = 10.67 \text{ L TV}$

Well Casing Volumes	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
Gallons/Foot	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information	Well Location:	Well Locked at Arrival:	Yes	No
Well Location:	<u>RT 107 median, near Bldg 109 & Dunkin</u>	Well Locked at Arrival:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Condition of Well:	<u>Good</u>	Well Locked at Departure:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Well Completion:	<u>Flush Mobrt / Stick Up</u>	Key Number To Well:	<u>N/A</u>	

Groundwater Sampling Log

Project No 30169301 GWM12

Well ID GM-34D

Page 1 of 2
Date 04/13/23

Project Name/Location OU2 Q2 2023 GW Sampling

Weather Sunny 72°F

Measuring Pt Description TOC Screen Interval (ft-bmp) 309-319

Casing Diameter (in) 2"

Well Material X PVC SS

Static Water Level (ft-bmp) 15.38' Total Depth (ft-bmp) 319

Water Column/ Gallons in Well 303.62' / 197.4gal

MP Elevation Pump Intake (ft-bn) 314'

Purge Method dedicated

Sample Method MP/LF/TU

Pump On/Off 0858/ Volume Purged (gal) 35.2L

Peristaltic
Submersible
Other

Sample Time Label GM-34D Replicate/ Code No. NA SW
Start 1055
End 1058

Sampled by S. Woloson
S. Vlavianos

PID 0.0ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
0905	0	1050	15.38	0	9.18	0.305	3.71	2.31	15.5	145.2	clear	None
0910	5	1200	15.71	5.25	9.40	0.325	11.3	0.92	15.8	127.4	clear	None
0915	10	900		11.05	8.71	0.318		0.44	16.3	96.2	clear	mild
0920	15	200	15.40	15.15	8.30	0.317	3.38	0.92	18.8	87.0	clear	None
0925	20	200		16.25	7.70	0.312		1.84	20.0	86.6	clear	None
0930	25	200	15.35	17.25	7.54	0.311	3.26	1.80	20.1	86.7	clear	None
0935	30	200		18.25	7.28	0.307		2.17	20.4	86.5	clear	None
0940	35	200	15.35	19.25	7.13	0.311	2.39	2.25	21.0	87.9	clear	None
0945	40	200		20.25	7.00	0.315		1.85	21.2	88.0	clear	None
0950	45	200	15.35	21.25	6.95	0.310	2.52	1.45	21.2	89.1	clear	None
0955	50	200		22.25	7.46	0.275		1.84	21.5	77.1	clear	None
1000	55	200	15.45	23.25	8.05	0.263	1.64	0.88	20.3	57.0	clear	None
1005	60	1000		26.25	9.22	0.248		0.68	16.7	42.3	clear	None
1010	65	150		27.0	9.33	0.246		0.96	19.5	26.2	clear	None
1015	70	150	15.35	28.75	9.19	0.250	1.54	1.43	22.6	25.8	clear	None
1020	75	150		29.50	9.23	0.248		1.34	23.9	26.4	clear	None

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

~~MS/MSD taken on this well~~ sw Due to purge issues MS/MSD not taken.

Notes

* $TV = 319' - 15.38' = 303.62' \times 0.01 \text{ gal/ft} = 3.04 \text{ gal} \times 3.758 \text{ L/gal} = 11.5L = TV$
 * Initially rate was challenging to lower. Reached low flow with 6 cycle and ~30psi (also tough getting water up).

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: <u>Levittown Fire Department (water tower)</u>	Well Locked at Arrival: <u>Yes</u> / No
Condition of Well: <u>Good No leaks fair. Well okay, but pump issues</u>	Well Locked at Departure: <u>Yes</u> / No
Well Completion: <u>Flush Mount</u> / Stick Up	Key Number To Well: <u>NA</u>

Groundwater Sampling Log

Page 12 of 2

Project No 30169301 GWM12

Well ID GM-34D

Date 04/13/23

Project Name/Location OU2 Q2 2023 GW Sampling

Weather Sunny 72°F

Measuring Pt. Description TOC

Screen Interval (ft-bmp) 309-319'

Casing Diameter (in) 5" x 2"

Well Material X PVC SS

Static Water Level (ft-bmp) SEE PAGE #1

Total Depth (ft-bmp) 319'

Water Column/ Gallons in Well SEE PAGE #1

MP Elevation SEE PAGE #1

Pump Intake (ft-bp) 314'

Purge Method dedicated Bladder

Sample Method LF+TV

Pump #1

Volume Purged (gal) 35.2L

Penstaltic add flow

Sample Time Label GM-34D

Replicate/ Code No L
MS/MSD No REP SW
GM-34D

Sampled by S. Wadson
S. Vavianos

PID: 0.0ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Redox (mV)	Appearance	
											Color	Odor
1025	80	150	15.35	20.25	9.24	0.246	1.68	1.47	24.3	25.4	Clear	None
1030	85	150	15.35	31.0	9.23	0.245	2.19	1.41	24.0	24.2	Clear	None
1035	90	150	15.36	31.75	8.44	0.275	2.53	1.42	24.4	26.1	Clear	None
1040	95	150	15.36	32.5	7.43	0.300	—	1.30	24.4	30.3	Clear	None
1045	100	150	15.35	33.25	7.32	0.303	—	1.15	24.5	28.8	Clear	None
1050	105	150	15.35	34	7.35	0.298	2.49	1.18	24.5	23.4	Clear	None

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None
<u>MS/MSD (SW)</u>			

Notes:

- ★ ADDITIONAL NOTES: issues with stabilizing parameters. Alyssa got okay from Mike Wolfert to sample.
- ★ Temperature is likely high due to tubing in sunlight. Project team discussed high pH - OKAY TO sample.

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: <u>Levittown Fire Department, NY</u>	Well Locked at Arrival: <u>Yes</u> / No
Condition of Well: <u>Well okay Pump issues.</u>	Well Locked at Departure: <u>Yes</u> / No
Well Completion: <u>Flush Mount</u> / Stick Up	Key Number To Well: <u>NA</u>

Groundwater Sampling Log

Project No. 30169301 GWMI2 Well ID 8GM 3502 Date 4/19/23 Page 1 of 1
 Project Name/Location OU2 Q2 2023 GW Sampling Weather 50's°F, cloudy
 Measuring Pt. TOC Screen Interval (ft-bmp) 510-530 Casing Diameter (in.) 4 Well Material X PVC SS
 Static Water Level (ft-bmp) 42.25 Total Depth (ft-bmp) 530 Water Column/ Gallons in Well 487.75ft / 317.0 gal
 MP Elevation N/A Pump Intake (ft-bn) mid-screen Purge Method non-dedicated Sample Method TV + LOWFLOW
 Pump On/Off 0819 / 0920 Volume Purged (gal) 21 Peristaltic Submersib rediflow Other _____
 Sample Time: Label G13502 Replicate/ Code No. N/A Start 0915 End 0920 Sampled by S.H S.V
 PID: 0.2 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
0820	0	400	42.25	0	6.99	163.1	30.5	8.10	11.9	122.3	clear	None
0825	5	400	42.25	2	7.02	146.0	6.07	6.00	14.4	119.1		
0830	10	400	42.25	4	6.95	145.0		6.12	14.8	115.2		
0835	15	400		6	9.87	167.9	2.25	6.16	14.7	105.6		
0840	20	400	42.25	8	8.80	155.3		6.31	14.7	106.9		
0845	25	400		10	7.29	151.4	1.32	6.38	14.7	107.0		
0850	30	400	42.23	12	6.35	150.1		6.45	14.7	106.8		
0855	35	400	42.24	14	5.94	150.0	1.02	6.51	14.9	107.3		
0900	40	400	42.23	16	5.74	150.2	0.66	6.61	14.8	110.1		
0905	45	400	42.23	18	5.61	149.9	0.93	6.55	14.9	115.9		
0910	50	400	42.24	20	5.51	149.3	0.69	6.53	14.9	124.2	↓	↓

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None
Split Samples Bethpage EWD	40ml vial	2	HCL

Notes: TV: $520 - 42.25 = 477.75 \times .006 = 2.87 \text{ gal} \times 3.785 = 10.8 \text{ L}$

Well Casing Volumes	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
Gallons/Foot	1" = 0.04	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01
	1.25" = 0.06				

Well Information	Well Locked at Arrival:	Yes / No
Well Location: <u>ceil Pl. and Jean Ave</u>	Well Locked at Departure:	Yes / No
Condition of Well: <u>see well inspection log</u>	Key Number To Well:	<u>N/A</u>
Well Completion: <u>Flush Mount / Stick Up</u>		

Groundwater Sampling Log

Project No. 30169301.GWMI2

Well ID G1M 34D2

Weather 60° Sunny

Project Name/Location OU2 Q2 2023 GW Sampling

Well Material PVC SS

Measuring Pt. Description TOC

Screen Interval (ft-bmp) 510-520

Casing Diameter (in.) 4

Static Water Level (ft-bmp) 17.48

Total Depth (ft-bmp) 520

Water Column/ Gallons in Well 502.52

MP Elevation 1000

Pump Intake (ft-bmp) mid Screen

Purge Method non-dedicated

Sample Method MP/LF/TV

Pump On/Off 0858 / 1000

Volume Purged (gal) 232

Peristaltic Submersible redflow G60 Sub Other

Sampled by SV / SW

Sample Time: Label G1M 34D2 Replicate/ Start 0955 Code No. N/A End 1000

PID: 0.0

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
0900	0	600	17.46	0	9.45	0.1183	38.6	10.5	15.8	190.8	Clear	None
0905	5	400		3	8.18	0.1291		15.4	16.1	7.1	"	"
0910	10	400	17.45	5	7.45	0.158	16.9	2.81	16.2	9.5	"	"
0915	15	400		7	6.05	0.1603		3.01	16.2	103.9	"	"
0920	20	400	17.44	9	6.05	0.1604	14.3	3.07	16.2	104.5	"	"
0925	25	400		11	5.98	0.1586		3.12	16.4	120.5	"	"
0930	30	400	17.45	13	6.04	0.1628	7.15	2.81	16.4	105.5	"	"
0935	35	400	17.44	15	6.04	0.1615	7.03	2.86	16.4	104.5	"	"
0940	40	400	17.47	17	6.01	0.1611	6.11	3.04	16.4	101.9	"	"
0945	45	400	17.46	19	6.03	0.1609	5.89	3.10	16.4	107.8	"	"
0950	50	400	17.47	21	6.01	0.1600	5.88	3.09	16.6	101.5	"	"
			#		#		#					

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes: 520-1748 = 502.52 = 4.92
(1/4 tubing)

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: Behind Levittown FD Well Locked at Arrival: Yes / No

Condition of Well: Good Well Locked at Departure: Yes / No

Well Completion: Flush Mount / Stick Up Key Number To Well: _____

Groundwater Sampling Log

Project No. 30669501 Well ID GM 3602 Page 1 of 1
 Date 6/5/23
 Project Name/Location Bethpage CW2 Q2 GWS Weather 62° Clear
 Measuring Pt. Description TOC Screen Interval (ft-bmp) 520-540 Casing Diameter (in.) 4 Well Material PVC SS
 Static Water Level (ft-bmp) 39.26 Total Depth (ft-bmp) 540 Water Column/ Gallons in Well ~500'
 MP Elevation _____ Pump Intake (ft-bn) mid screen Purge Method non-dedicated Sample Method 3WV below Packer
 Pump On/Off 0948 1135 Volume Purged (gal) 160 L Peristaltic _____ Submersible rediflow _____ Other _____
 Sample Time: Label GM 3602 Replicate/ Code No. N/A Sampled by SV
~~0948~~ Start 1130 End 1135

1130 PID: 0.1 ppm

Depth to packer - 519'

I-
II-
III-

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
0951	0	1600	38.81	0	5.14	0.125	36.1	11.1	14.9	60.3	Clear	None
1024	32	1600	38.82	52	11.2	0.475	6.83	9.0	14.8	50.5	"	"
1055	64	1600	38.81	104	6.32	0.127	4.11	9.2	14.9	74.8	"	"
1127	96	1600	38.81	156	5.82	0.113	2.91	9.1	14.8	86.8	"	"

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL

Notes:
 $540 - 519 = 21' \times 0.65 = 13.65 \text{ gal} = 52 \text{ L}$
 $540 - 519 = 21' \times 0.43 = 9.03 + 25 = 35 \text{ PSI}$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: <u>15 Willow Ave</u>	Well Locked at Arrival: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well: <u>Good</u>	Well Locked at Departure: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion: <u>Flush Mount</u> / Stick Up	Key Number To Well: _____

Groundwater Sampling Log

Project No. 30669301 Well ID GM 3602 Date 6/5/23 Page 1 of 1
 Project Name/Location Bethpage CW2 Q2 GWS Weather 62° Clear
 Measuring Pt. TOC Screen Interval (ft-bmp) 520-540 Casing Diameter (in.) 4 Well Material X PVC SS
 Static Water Level (ft-bmp) 39.26 Total Depth (ft-bmp) 540 Water Column/ Gallons in Well ~500'
 MP Elevation _____ Pump Intake (ft-bn) mid screen Purge Method non-dedicated Sample Method 3WV below Packer
 Pump On/Off 0948 1135 Volume Purged (gal) 160 L Peristaltic _____
 Submersib rediflow _____ Other _____
 Sample Time: Label GM 3602 Replicate/ Code No. N/A Sampled by SV
~~0948~~ Start 1130 End 1135
 PID: 0.1 ppm Depth to packer - 519'

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
<u>0951</u>	<u>0</u>	<u>1600</u>	<u>38.81</u>	<u>0</u>	<u>5.14</u>	<u>0.125</u>	<u>36.1</u>	<u>11.1</u>	<u>14.9</u>	<u>60.3</u>	<u>Clear</u>	<u>None</u>
<u>I- 1024</u>	<u>32</u>	<u>1600</u>	<u>38.82</u>	<u>52</u>	<u>11.2</u>	<u>0.475</u>	<u>6.83</u>	<u>9.0</u>	<u>14.8</u>	<u>50.5</u>	<u>"</u>	<u>"</u>
<u>II- 1055</u>	<u>64</u>	<u>1610</u>	<u>38.81</u>	<u>104</u>	<u>6.32</u>	<u>0.127</u>	<u>4.11</u>	<u>9.2</u>	<u>14.9</u>	<u>74.8</u>	<u>"</u>	<u>"</u>
<u>III- 1127</u>	<u>96</u>	<u>1600</u>	<u>38.81</u>	<u>156</u>	<u>5.82</u>	<u>0.113</u>	<u>2.91</u>	<u>9.1</u>	<u>14.8</u>	<u>86.8</u>	<u>"</u>	<u>"</u>

Constituents Sampled	Container	Number	Preservative
<u>VOC's 8260 C</u>	<u>40ml Vial</u>	<u>3</u>	<u>HCL</u>

Notes:
 $540 - 519 = 21' \cdot 0.65 = 13.65 \text{ gal} = 52 \text{ L}$
 $540 - 519 = 21' \cdot 0.43 = 9.03 + 25 = 35 \text{ PSI}$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: <u>15 Willow Ave</u>	Well Locked at Arrival: <u>Yes</u> / No
Condition of Well: <u>Good</u>	Well Locked at Departure: <u>Yes</u> / No
Well Completion: <u>Flush Mount</u> / Stick Up	Key Number To Well: _____

Groundwater Sampling Log

Project No. 30169301.GWMI2 Well ID 6M-73D Page 1 of 1
 Date 4-10-23
 Project Name/Location OU2 Q2 2023 GW Sampling Weather 50°F Sunny
 Measuring Pt. Description TOC Screen Interval (ft-bmp) 411 - 414 Casing Diameter (in.) 4 Well Material PVC SS
 Static Water Level (ft-bmp) 44.42 Total Depth (ft-bmp) 411 Water Column/ Gallons in Well 366ft / 238 gal
 MP Elevation Pump Intake (ft-bn) mid-screen Purge Method non-dedicated Sample Method PC
 Pump On/Off 09:47/1055 Volume Purged (gal) 34L Peristaltic Submersib rediflow Other
 Sample Time: Label 6M-73D Replicate/ Code No. n/a Sampled by 1TV + 1R
 Start 1050 End 1055

PID: 0.0ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
09:50	0	1,000	44.44	0	5.33	0.321	13.6	8.71	14.2	264.2	clear	none
09:55	5	1,000		5	5.28	0.340		8.57	14.2	288.0		
10:00	10	1,000		10	5.27	0.342		8.59	14.2	306.2		
10:05	15	500	44.42	12.5	5.23	0.344	998	8.59	13.8	308.7		
10:10	20	500		15	5.17	0.343		8.45	14.0	314.4		
10:15	25	500		17.5	5.20	0.342		8.31	14.0	320.5		
10:20	30	500	44.42	20	5.22	0.342	940	8.33	14.0	321.7		
10:25	35	500		22.5	5.23	0.342		8.39	14.1	324.5		
10:30	40	500		25	5.23	0.341	721	8.42	14.1	325.1		
10:35	45	500	44.42	27.5	5.23	0.341	550	8.30	14.1	325.4		
10:40	50	500	44.42	30	5.21	0.342	433	8.32	14.2	330.2		
10:45	55	500	44.42	32.5	5.22	0.342	323	8.31	14.2	332.1		
10:50	60	SAMPLES										

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes: $411 - 44.42 = 366.58 \times 0.006 = 2.1 + 3.785 = 8.32L \cdot 1TV$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: <u>Awakey 109 Southborn</u>	Well Locked at Arrival: <u>Yes</u> / <u>No</u>
Condition of Well: <u>Good</u>	Well Locked at Departure: <u>Yes</u> / <u>No</u>
Well Completion: <u>Flush Mount</u> / <u>Stick Up</u>	Key Number To Well: <u> </u>

Project No. 30169301.GWMI2

Well ID GM-38D2

Page 1 of 1

Date 4/11/23

Project Name/Location OU2 Q2 2023 GW Sampling

Weather 60°F / Sun

Measuring Pt. Description TOC Screen Interval (ft-bmp) 475.495

Casing Diameter (in.) 4

Well Material X PVC SS

Static Water Level (ft-bmp) 39.91 Total Depth (ft-bmp) 495

Water Column/ Gallons in Well 455A / 295gal

MP Elevation Pump Intake (ft-bn) mid screen

Purge Method non-dedicated
Peristaltic
Submersible rediflow
Other

Sample Method ITV + LR

Pump On/Off 1204 / 1206 Volume Purged (gal) 276

Sample Time: Label GM-38D2 Replicate/ Code No. Split Sample
Start 1200
End 1205

Sampled by PC

PID: 0.0ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
11:05	0	800	40.10	0	4.72	0.118	5.20	0.68	15.3	312.8	clear	none
11:10	5	600		3	4.56	0.108		0.16	15.8	315.0		
11:15	10	500		5.5	4.60	0.110		0.11	16.1	312.7		
11:20	15	500	40.13	8	4.58	0.108	22.0	0.10	16.0	316.4		
11:25	20	500		10.5	4.56	0.108		0.08	16.0	318.6		
11:30	25	500		13	4.56	0.108		0.08	16.0	341.0		
11:35	30	500	40.13	15.5	4.44	0.108	13.9	0.07	16.1	341.1		
11:40	35	500		18	4.56	0.108		0.07	16.2	340.4		
11:45	40	500	40.133	20.5	4.55	0.108	10.4	0.06	16.1	341.4		
11:50	45	500	40.13	23	4.56	0.109	9.2	0.06	16.2	341.7		
11:55	50	500	40.13	25.5	4.57	0.108	8.0	0.05	16.1	341.5		
12:00	55	<u>2 SAMPLES</u>										

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes:
 $485 - 39.91 = 445.09 \times 0.006 = 2.6 \times 3.786 = \text{COL:TV}$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: Brooklyn and Archer Well Locked at Arrival: Yes / No

Condition of Well: Good Well Locked at Departure: Yes / No

Well Completion: Flush Mount / Stick Up Key Number To Well:

Groundwater Sampling Log

Project No. 30169301-GWMI2 Well ID GM-39DA ~~39DA37~~ Page 1 of 1
 Project Name/Location 02 Q2 GW Sampling Date 06/14/23
 Measuring Pt. Description TOL Screen Interval (ft-bls) 262'-282' Casing Diameter (in) 4" Weather Sunny 70°F
 Static Water Level (ft-bmp) 40.10' Total Depth (ft-bls) 282' Water Column/ Gallons in Well 241.9ft / 157.235gal Well Material X PVC SS
 MP Elevation NM Pump Intake (ft-bls) 232' Purge Method: Peristaltic Submersible Dedicated Booter Sample Method LF+TV
 Pump On/Off 0937 Volume Purged (gal) _____ Other _____
 Sample Time: Label GM-39DA Replicate/ Code No. None Start 1040 End 1050 Sampled by SW/SH/KK

PID: 361 ppm See cal. form

Time	Minutes Elapsed	Flow Rate (gpm)	Depth to Water (ft)	Volume Purged (G)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Totalizer Reading (USB)	Appearance	
											Color	Odor
0941	0	300	40.12	0	6.70	0.517	1.13	7.38	23.4	93.7	Clear	Strong
0946	5	300	—	1.5	6.83	0.152	—	4.47	19.3	60.0	Clear	Strong
0951	10	300	40.15	3	5.51	0.288	1.40	5.01	19.3	52.0	↓	↓
0956	15	300	—	4.5	5.31	0.448	—	5.55	19.2	37.1	↓	↓
1001	20	300	40.11	6.0	5.28	0.51	1.15	5.80	19.2	33.8	↓	↓
1006	25	300	—	7.5	5.17	0.620	—	6.14	18.9	33.4	↓	↓
1011	30	300	—	9.0	4.96	0.590	—	5.74	18.9	32.7	↓	↓
1016	35	300	40.13	10.5	4.85	0.520	0.85	6.08	18.7	28.6	↓	↓
1021	40	300	—	12.0	4.80	0.530	—	6.08	19.1	29.2	↓	↓
1026	45	300	40.13	13.5	4.93	0.530	0.52	6.00	19.5	30.7	↓	↓
1031	50	300	40.13	15.0	4.93	0.530	0.43	6.01	19.5	31.1	↓	↓
1036	55	300	40.13	16.5	4.96	0.530	0.38	5.99	19.1	32.8	↓	↓

Constituents Sampled	Container	Number	Preservative
<u>VOL 8260</u>	<u>40ml</u>	<u>3</u>	<u>HCl</u>
<u>1,4 Dioxane 8270 D SIM</u>	<u>2L amber</u>	<u>2</u>	<u>None</u>

Notes:

SN $282' - 40.10' = 241.9' \times 0.65 \text{ gal/ft} = 157.235 \text{ gal}$ WATER COLUMN / GAL IN WELL
 $TV = 282 - 40.10 = 241.9' \times 0.006 \text{ gal/ft} = 2 \text{ gal} \times 3.785 \text{ L/gal} = 8 \text{ L}$

Well Casing Volumes

Gallons/Foot
 1" = 0.04
 1.25" = 0.06

1.5" = 0.09
 2" = 0.16

2.5" = 0.26
 3" = 0.37

3.5" = 0.50
 4" = 0.65

6" = 1.47
 1/2" = 0.01

3/8" = 0.006

1/4" = 0.0025

Well Information

Well Location:	Well Locked at Arrival:	Yes	/	No
Condition of Well:	Well Locked at Departure:	Yes	/	No
Well Completion: <u>Flush Mount / Stick Up</u>	Key Number To Well:			

Groundwater Sampling Log

Page 4 of 2

Project No 30169301 Gmuleo Well ID Gm 3702

Date 06/05/23

Project Name/Location 02 G2 GW Sampling

Weather Sunny 65°F

Measuring Pt Description Screen Interval (ft) Casing Diameter (in)

Well Material PVC SS

Static Water Level (ft) Water Column/ Gallons in Well
 MP Elevation N/A Pump On/Off **SEE PAGE #1 FOR INFO.**

Sample Time Label Gm 3702 Replicate/ Start 1120 Code No End 1125

Sampled by SW/SH

PID First Page

Time	Minutes Elapsed	Flow Rate (gpm)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Totalizer Reading (G)	Appearance	
											Color	Odor
1052	80	400	40.80	32	5.49	0.185	14.4	4.51	17.0	1643	Clear	None
1057	85	400	40.79	34	5.46	0.185	—	5.53	17.0	1645	Clear	None
1102	90	400	40.79	36	5.44	0.185	11.0	4.46	17.2	1648	↓	↓
1107	95	400	40.79	38	5.41	0.185	11.5	4.46	17.1	1639	↓	↓
1112	100	400	40.79	40	5.40	0.184	10.1	4.46	17.3	1639	↓	↓

SW

Constituents Sampled Container Number Preservative

Notes **SEE PAGE #1 FOR INFO**

SW

Well Casing Volumes	1" - 0.04	1.5" - 0.09	2.5" - 0.26	3.5" - 0.50	6" - 1.47	3/8" - 0.008
Gallons/foot	1.25" - 0.06	2" - 0.16	3" - 0.37	4" - 0.65	1/2" - 0.01	

Well Information

Well Location SEE PAGE #1 Well Locked at Arrival Yes No

Condition of Well Well Locked at Departure Yes No

Well Completion Flush Mount Stick Up Key Number To Well

SW

Groundwater Sampling Log

Project No: 30169301 GMW12 Well ID: GM-37D2 Date: Sunny 57°F
 Project Name/Location: DUG Q2 2023 GW Sampling Weather: 06/05/23
 Measuring Pt Description: TOL Screen Interval (ft. bis): 310-390 Casing Diameter (in): 4 Well Material: X PVC SS
 Static Water Level (ft. bms): 40.76 Total Depth (ft. bis): 310 Water Column/ Gallons in Well: 349.76 ft / 227.3 gal
 MP Elevation: NM Pump Intake (ft. bis): next screen Purge Method: non-dechlorinated Penstaltic Submersible Dedicated gas sub Sample Method: MP/LF
 Pump On/Off: 0931 Volume Purged (gal): 42.8 Other: _____
 Sample Time Label: GM 37D2 Replicate Code No: N/A (split Sample w/ BWD) Sampled by: SH SW
 Start: 1120 End: 1125

PID 3k 4 ppm

ORP

Time	Minutes Elapsed	Flow Rate (mL/min)	Depth to Water (ft)	Volume Purged (gal)	pH (SU)	Cond (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Totalizer Reading (USG)	Appearance	
											Color	Odor
0932	0	400	40.77	0	6.07	0.166	11.1	6.10	16.3	146.5	cloudy	None
0937	5	400	40.78	2	5.45	0.165		5.47	16.7	151.5		
0942	10	400	—	4	5.36	0.166	10.0	5.32	16.4	164.6		
0947	15	400	40.78	10	5.30	0.169	—	5.00	16.5	177.9	↓	↓
0952	20	400	40.74	8	5.29	0.180	2.10	4.98	16.5	174.5	cloudy	None
0957	25	400	—	10	5.29	0.186	—	4.72	16.6	163.9	cloudy	None
1002	30	400	40.79	12	5.29	0.189	3.10	4.54	16.7	161.1	cloudy	None
1007	35	400	40.79	14	5.29	0.189	—	4.54	16.8	160.5	clear	None
1012	40	400	—	16	6.17	0.154/89	29.4	4.49	16.9	159.7	clear	None
1017	45	400	40.80	18	5.88	0.190	—	4.58	16.9	159.0	clear	None
1022	50	400	40.80	20	5.70	0.190	25.4	4.45	16.8	160.0	clear	None
1027	55	400	—	22	5.64	0.189	—	4.72	16.7	160.5	clear	None
1032	60	400	40.77	24	5.59	0.188	18.0	4.24	16.7	161.3	clear	None
1037	65	400	40.80	26	5.57	0.188	—	4.48	16.7	161.6	clear	None
1042	70	400	—	28	5.54	0.186	16.6	4.43	16.9	162.5	clear	None
1047	75	400	40.79	30	5.51	0.186	16.6	4.36	16.9	163.0	clear	None

Constituents Sampled	Container	Number	Preservative
VOCs			
1,4 Dioxane			

Notes

PID high reading; wait 10 min dropped to 0.0ppm
 $TV \ 390 - 4096 = 349.24 \times 0.1 = 34.9 \text{ gal} \times 3785 = 132 \text{ L}$
 * For well need air out before proceeding w/ pump installation. PID 0.0ppm, then Arcadis continued w/ installation.
 * Pump had clogged down in well, was fished out to proceed.
 * Split sample w/ BWD

Well Casing Volumes

Gallons/foot	1" - 0.04	1.5" - 0.09	2.5" - 0.28	3.5" - 0.50	6" - 1.47	3/8" - 0.006
	1.25" - 0.06	2" - 0.16	3" - 0.37	4" - 0.65	1/2" - 0.01	

Well Information

Well Location	<u>Central Ave and N Winthorst Ave</u>	Well Locked at Arrival	<u>Yes</u> / No
Condition of Well	<u>see well inspection log</u>	Well Locked at Departure	<u>Yes</u> / No
Well Completion	<u>Flush Mount</u> / Stick Up	Key Number To Well	<u>N/A</u>

Groundwater Sampling Log

Project No. 30169301.GWM12

Well ID GM-74D2

Page 1 of 1

Date 4/10/23
Weather 50° w/ wind/S

Project Name/Location OU2 Q2 2023 GW Sampling

Measuring Pt. Description TOC Screen Interval (ft-bmp) 542-562 Casing Diameter (in.) 4

Well Material PVC SS

Static Water Level (ft-bmp) 53.57 Total Depth (ft-bmp) 562 Water Column/ Gallons in Well 508.43

MP Elevation _____ Pump Intake (ft-bn) m/s screen Purge Method non-dedicated
Pump On/Off 1122 / 1230 Volume Purged (gal) 27L Peristaltic _____
Submersible rediflow GeoSiv Other _____

Sample Method 1F/MP/TV

Sample Time: Label Start 1225 End 1230 Replicate/ Code No. N/A

Sampled by SU / SW

PID: 0.0

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
11:25	0	1200	53.59	0	6.73	0.153	43.2	5.36	13.3	99.3	Clear	None
11:30	5	400		6	5.86	0.151		2.52	13.5	102.3	"	"
11:35	10	400	53.63	8	5.56	0.152	13.1	2.33	14.3	116.1	"	"
11:40	15	400		10	5.58	0.154		3.05	14.4	125.4	"	"
11:45	20	400	53.64	12	5.36	0.157	49.6	4.25	14.7	141.9	"	"
11:50	25	400		14	5.25	0.157		4.47	14.8	149.1	"	"
11:55	30	400	53.64	16	5.15	0.156	24.5	4.91	15.1	165.6	"	"
12:00	35	400		18	5.13	0.156		4.93	15.2	170.2	"	"
12:05	40	400	53.63	20	5.12	0.154	18.3	5.08	15.4	177.8	"	"
12:10	45	400	53.64	22	5.14	0.154	17.8	5.06	15.3	181.2	"	"
12:15	50	400	53.64	24	5.14	0.155	16.3	5.07	15.4	185.3	"	"
12:20	55	400	53.65	26	5.15	0.156	16.1	5.10	15.6	188.1	"	"

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes: TV = 562 - 53.57 = 508.43' = 11.34L 3/8"

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: <u>South Basin</u>	Well Locked at Arrival: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well: <u>Good</u>	Well Locked at Departure: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion: <u>Flush Mount</u> / Stick Up	Key Number To Well: <u>N/A</u>

Groundwater Sampling Log

Project No. 30169301.GWM2 Well ID GM-38D Date 4/11/23 Page 1 of 1

Project Name/Location OU2 Q2 2023 GW Sampling Weather 61°F, sunny

Measuring Pt. Description TOC Screen Interval (ft-bmp) 320-340 Casing Diameter (in.) 4 Well Material PVC SS

Static Water Level (ft-bmp) 38.73 Total Depth (ft-bmp) 340 Water Column/ Gallons in Well 301.27ft / 195.8 gal

MP Elevation N/A Pump Intake (ft-bn) midscreen Purge Method non-dedicated Sample Method TV + low flow

Pump On/Off 1102/1230 Volume Purged (gal) 44.0 L Peristaltic Submersible Rediflow Other

Sample Time: Label GM-38D Replicate/ Code No. REP04123SHZ Start 1225 End 1230 Sampled by S. He
P. Quinlan

PID: 0.0 ppm

low flow

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
1110	0	1300	38.72	0	5.61	0.096	1.50	4.3	15.6	60.5	clear	none
1115	5	1300		6.5	4.55	0.138		18.1	14.3	114.3		
1120	10	500		11.0	4.10	0.106	0.54	20.5	14.7	152.6		
1125	15	500	38.80	13.5	4.03	0.136		21.1	14.7	170.0		
1130	20	500		16.0	4.06	0.121	1.36	21.1	14.8	174.8		
1135	25	500	38.85	18.5	4.07	0.100		21.2	14.7	177.6		
1140	30	500		21.0	4.07	0.099	1.28	21.4	14.8	179.4		
1145	35	500	38.84	23.5	4.10	0.100		21.5	14.8	181.1		
1150	40	500		26.0	4.09	0.117	1.73	21.6	14.7	182.3		
1155	45	500		28.5	4.09	0.109		21.6	14.8	184.3		
1200	50	500	38.85	31.0	4.12	0.102	0.67	21.5	14.8	163.0		
1205	55	500		33.5	4.20	0.124	1.22	21.6	14.7	149.0		
1210	60	500	38.85	36.0	4.24	0.122	0.81	21.6	14.8	147.0		
1215	65	500	38.85	38.5	4.32	0.127	0.62	21.7	14.8	139.9		
1220	70	500	38.84	41.0	4.33	0.121	0.52	21.7	14.7	137.3		

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes: TV: 330 - 38.73 = 291.27 x .006 = 1.75 gal x 3.985 = 6.62 L

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: Broadway and Arthur Ave Well Locked at Arrival: Yes / No

Condition of Well: Fair Well Locked at Departure: Yes / No

Well Completion: Flush Mount / Stick Up Key Number To Well: _____

Groundwater Sampling Log

Project No. 30169301.GWM12 Well ID GM-74D3 Date 5/30/23 Page 1 of 1
 Project Name/Location 2023 OU2 Q2 GW Sampling Weather 60-70°F, sunny
 Measuring Pt. TOC Screen Interval (ft-bmp) 625-645 Casing Diameter (in.) 4" Well Material PVC SS
 Static Water Level (ft-bmp) 51.15 Total Depth (ft-bmp) 650 Water Column/ Gallons in Well 598.85 ft | 389.25 gal
 MP Elevation — Pump Intake (ft-br) 635 Purge Method non-dedicated Sample Method TV + LF
 Pump On/Off 1035/1159 Volume Purged (gal) 37L Sw Peristaltic Submersible Geosub Other
 Sample Time: Label GM-74D3 Replicate/ Code No. N/A Sampled by A.R. Hynes
 Start 1150 End 1159 S.W. Other — S. Woloson
 PID: 0.0 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
1040	0	900	51.15	0	7.82	0.649	—	4.54	15.2	191.6	Clear	None
1045	5	900	51.19	4.5	7.50	0.648	14.8	4.16	14.2	179.6	Clear	None
1050	10	900	—	9	6.58	0.032	—	3.56	14.3	198.5	Clear	None
1055	15	900	51.19	13.5	6.25	0.031	8.39	3.49	14.6	188.1	Clear	None
1100	20	900	—	18	6.06	0.034	—	5.10	14.6	178.8	Clear	None
1105	25	900	51.19	22.5	6.01	0.034	43.9	5.85	14.7	170.7	Clear	None
1110	30	900	—	27	5.94	0.034	—	6.36	14.6	165.7	Clear	None
1115	35	200	51.16	28	5.88	0.035	48.5	5.51	16.8	154.7	Clear	None
1120	40	200	51.17	29	5.82	0.035	45.5	5.53	17.4	153.9	Clear	None
1125	45	200	51.17	30	5.77	0.035	41.9	5.58	17.6	153.2	Clear	None
1130	50	200	51.17	31	5.77	0.035	45.1	5.54	18.1	152.5	Clear	None
1135	55	200	51.17	32	5.75	0.035	38.9	5.68	16.9	154.6	Clear	None
1140	60	200	51.17	33	5.73	0.035	38.6	5.67	17.8	153.2	Clear	None
1145	65	200	51.17	34	5.74	0.035	35.5	5.74	17.3	153.1	Clear	None

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes: TV = 650 ft depth - 51.15 ft static WL = 598.85 ft × 0.01 = 5.99 gal × 3.785 L/gal = 23.1 L
 Well buried months ago (date uncertain) by RW-21 construction activities - Alyssa + Sadie dug out. Buried under 5 inches dirt and gravel. ** 5 ft 3/8 tubing added

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location:	<u>South Basin, to left of dirt road, past fair, see well inspection well house 18</u>	Well Locked at Arrival:	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well:	<u>Flush Mount / Stick Up</u>	Well Locked at Departure:	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion:	<u>Flush Mount / Stick Up</u>	Key Number To Well:	<u>NA</u>

Groundwater Sampling Log

Project No. 30169301.GWMI2 Well ID GM-7303 Date 4-16-23 Page 1 of 1
 Project Name/Location OU2 Q2 2023 GW Sampling Weather 50°F/Sun
 Measuring Pt. Description TOC Screen Interval (ft-bmp) 635-650 Casing Diameter (in.) 4 Well Material PVC SS
 Static Water Level (ft-bmp) 46.25 Total Depth (ft-bmp) 655 Water Column/ Gallons in Well 608 ft / 395 gal
 MP Elevation Pump Intake (ft-bn) mid-level Purge Method non-dedicated Sample Method TVLR
 Peristaltic Submersib rediflow Other
 Pump On/Off 11:52 / 1305 Volume Purged (gal) 39L
 Sample Time: Label GM-7303 Replicate/ Code No. 464
 Start 13:10 End 1305

PID: 0-0 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
11:55	0	700	46.27	0	5.28	0.042	3.48	12.5	14.2	284.2	clear	none
12:00	5	700		3.5	5.44	0.046		16.9	15.4	263.0		
12:05	10	700		7	5.03	0.036		18.2	15.3	253.9		
12:10	15	700	46.30	10.5	5.02	0.036	4.71	18.4	15.9	246.2		
12:15	20	700		14	5.00	0.036		17.0	15.8	241.8		
12:20	25	700		17.5	4.97	0.036		17.3	15.1	246.8		
12:25	30	700	46.30	21	5.06	0.036	4.23	17.2	15.8	233.0		
12:30	35	400		23	5.03	0.036		17.1	16.4	234.9		
12:35	40	400		25	5.02	0.036		17.1	16.0	234.8		
12:40	45	400	46.31	27	5.03	0.036	4.03	16.0	15.3	219.9		
12:45	50	400	46.30	29	4.99	0.036	3.63	15.6	15.6	212.7		
12:50	55	400	46.30	31	4.98	0.036	3.16	15.0	15.4	210.5		
12:55	60	400	46.30	33	4.98	0.036	2.92	15.0	15.5	212.0		
13:00	65	400	46.30	35	4.99	0.036	3.39	14.8	15.5	219.1		
13:05	70	400	46.30	37	4.99	0.036	3.29	14.7	15.4	216.7		

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes: $6642 - 46.25 = 595.4 \times 0.01 = 5.954 \times 3.765 = 22.5 \text{ L: TV}$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: Midway South River Well Locked at Arrival: Yes / No

Condition of Well: Good Well Locked at Departure: Yes / No

Well Completion: (Flush Mouth) / Stick Up Key Number To Well:

Groundwater Sampling Log

Project No. 30169301.GWMI2

Well ID Gm-73D2

Page 1 of 1
Date 4/10/23

Project Name/Location OU2 Q2 2023 GW Sampling

Weather 47° F. Sunny

Measuring Pt. Description TOC
Screen Interval (ft-bmp) 532 - 552

Casing Diameter (in.) 4

Static Water Level (ft-bmp) 46.94
Total Depth (ft-bmp) 552

Water Column/Gallons in Well 505.06 ft / 328.3 gal

MP Elevation N/A
Pump Intake (ft-bn) 542 mid-screen

Purge Method non-dedicated Peristaltic Submersib rediflow

Pump On/Off 0953 / 1111
Volume Purged (gal) 38.5

Sample Method TV + lowflow

Sample Time: Label 1100
Start Gm-73D2
End 1111
Replicate/Code No. N/A

Sampled by S. He P. Quinlan

PID: 0.0 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
0953	0	800 mL	46.95	0	5.18	0.179	4.57	10.1	14.1	198.8	clear	None
0958	5	800 mL		4 L	4.96	0.149		12.2	14.1	203.2		
1003	10	800 mL		8 L	4.80	0.177	3.97	11.0	14.1	201.0		
1008	15	800 mL	46.96	12 L	4.80	0.179		11.7	14.1	192.6		
1013	20	650 mL		15.625	4.55	0.180	4.70	9.3	14.1	191.8		
1018	25	500 mL	46.96	18.5	4.82	0.181		12.8	14.0	177.3		
1023	30	500 mL		21	4.87	0.181	2.32	13.9	13.9	162.7		
1028	35	500 mL	46.96	23.5	4.91	0.182		14.5	13.8	153.3		
1033	40	500 mL		26	4.88	0.182		14.7	13.9	152.8		
1038	45	500 mL		28.5	4.81	0.183	1.10	14.7	14.0	157.4		
1043	50	500 mL	46.98	31	4.81	0.183		14.9	13.9	160.7		
1048	55	500 mL	46.97	33.5	4.83	0.183	1.09	15.0	14.0	163.9		
1053	60	500 mL	46.97	36	4.82	0.183	1.29	15.3	14.0	167.1		
1058	65	500 mL	46.98	38.5	4.81	0.183	1.07	15.3	14.1	169.5		

LOW FLOW

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes:
TV: $(542 - 46.94) = 495.06 \times 0.006 = 2.97 \text{ gal} \times 3.785 \text{ L/gal} = 11.24 \text{ L}$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: Building 109 South Basin
 Condition of Well: Fair
 Well Completion: Flush Mount / Stick Up

Well Locked at Arrival: Yes / No
 Well Locked at Departure: Yes / No
 Key Number To Well: _____

Groundwater Sampling Log

Page 1 of 1

Project No. 30169301.GWM12 Well ID GM-39DB Date 6/14/23
 Project Name/Location 2023 OU2 Q2 GW Sampling Weather 70°F, sunny
 Measuring Pt. Description Top of Casing Screen Interval (ft-bmp) 410-420 Casing Diameter (in.) 4 Well Material PVC SS
 Static Water Level (ft-bmp) 42.83 Total Depth (ft-bmp) 420 Water Column/ Gallons in Well 377.17 ft / 245.16 gal
 MP Elevation _____ Pump Intake (ft-bmp) Midscreen Purge Method: Non-dedicated Peristaltic Submersible Other _____ Sample Method LF/TV
 Pump On/Off 0937/1038 Volume Purged (gal) 24
 Sample Time: Label GM-39DB Replicate/ Code No. N/A Start 1030 End 1038 Sampled by SH SW

PID: 273.0 ppm * see cal. form

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
0938	0	700	42.91	0	5.38	0.029	2.73	1.77	16.8	156.6	Clear	None
0943	5	600	42.91	3.25	4.60	0.445		6.14	16.6	197.6		
0948	10	450		5.875	4.68	0.473	7.51	6.79	16.9	191.4		
0953	15	400	42.88	7.875	4.60	0.471		6.68	18.1	210.0		
0958	20	400		9.875	4.80	0.470	8.61	6.63	18.2	199.5		
1003	25	400	42.88	11.875	4.65	0.469		6.65	17.6	212.3		
1008	30	400		13.875	4.63	0.471	3.55	6.74	17.5	215.3		
1013	35	400	42.89	15.875	4.63	0.468		6.82	17.5	210.2		
1018	40	400	42.89	17.875	4.64	0.468	2.21	6.77	17.7	214.4		
1023	45	400	42.89	19.875	4.65	0.468	1.58	6.80	17.6	216.3		
1028	50	400	42.89	21.875	4.67	0.467	0.98	6.79	17.9	213.1	↓	↓

Constituents Sampled	Container	Number	Preservative
VOCs 5242 <u>8260C</u>	40 mL glass vial	3	HCl
1,4-Dioxane 522 SIM <u>8270 D SIM</u>	250 mL amber bottle	2	NHSC+ None

Notes:

Tubing Volume Equation: Volume (gal) = (Midscreen depth - static water level depth) x tubing conversion factor (gal/ft)
 $TV = 420 - 42.83 = 377.17 \times 0.006 = 2.26 \text{ gal} \times 3.785 = \underline{8.56 \text{ L Total}}$

*Field Blank Required *Cone off early or day before
 3 successive readings should be within +/- 0.1 for pH, +/- 3 percent for Sp. Con., +/- 10 percent for DO, +/- 10 mv for ORP, +/- 10 percent for turbidity, and +/- 10 percent for temperature.

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.25" = 0.06	1.5" = 0.09	2" = 0.16	2.5" = 0.26	3" = 0.37	3.5" = 0.50	4" = 0.65	6" = 1.47	3/8" = 0.006
--------------	-----------	--------------	-------------	-----------	-------------	-----------	-------------	-----------	-----------	--------------

Well Information

Well Location: MTA/LIRR Parking Lot Well Locked at Arrival: Yes / No
 Condition of Well: see well inspection log Well Locked at Departure: Yes / No
 Well Completion: Flush Mount / Stick Up Key Number To Well: N/A

Groundwater Sampling Log

Project No. 30169301.GWMI2

Well ID GM-7002

Page 1 of 1

Date 4-11-23

Project Name/Location O2 Q2 2023 GW Sampling

Weather 50°F / Clear

Measuring Pt. Description TOC Screen Interval (ft-bmp) 310-330

Casing Diameter (in.) 4

Well Material PVC SS

Static Water Level (ft-bmp) 41.80 Total Depth (ft-bmp) 330

Water Column/ Gallons in Well 288 ft / 187 gal

MP Elevation Pump Intake (ft-bn) mid screen

Purge Method non-dedicated - Dedicated

Sample Method 3 vol below packer

Pump On/Off 06:40/10:00 Volume Purged (gal) 150

Peristaltic Submersible Redflow Packer Other

Sample Time: Label GM-7002 Replicate/ Code No.
Start 0955
End 1000

Sampled by PQ SH

PID:

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
0842	0	1.50	41.70	0	4.56	0.090	3.98	2.40	14.9	317.8	clear	none
1v 0902	20	2.000	41.19	49	4.67	0.092	0.83	5.31	14.7	364.0		
2v 0922	40	2.000	41.09	100	4.61	0.092	0.76	5.36	14.7	373.4	✓	✓
3v 0951	61	2.000	41.09	148	4.60	0.092	0.71	5.38	14.7	388.5		

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes:
 $309 - 41.80 = 267.2 \times 0.43 = 114.8 + 50 = 164.8 \text{ psi}$
 $330 - 310 = 20 \times 0.65 = 13 \text{ gal} : 1 \text{ vol} / 49.2 \text{ L} \times 3 = 147.6 \text{ L} / 39 \text{ gal} = 3 \text{ vol}$

Well Casing Volumes	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
Gallons/Foot	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information	
Well Location: <u>Central Blvd, Ballpark (School)</u>	Well Locked at Arrival: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well: <u>Good</u>	Well Locked at Departure: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion: <u>Flush Mount</u> / <u>Stick Up</u>	Key Number To Well: <u> </u>

Groundwater Sampling Log

Project No. 30169301.GWMI2

Well ID GM-71DA

Page 1 of 1
Date 24/11/23

Weather Sunny 66°F

Well Material PVC SS

Project Name/Location OUE Q2 2023 GW Sampling

Measuring Pt. Description TOC Screen Interval (ft-bmp) 444'-464' Casing Diameter (in.) 4"

Static Water Level (ft-bmp) 42.23' Total Depth (ft-bmp) 464' Water Column/ Gallons in Well 421.77' / 274.2gal

MP Elevation Pump Intake (ft-bn) mid screen Purge Method non-dedicated Sample Method LF+TV

Pump On/Off 1157 / 1255 Volume Purged (gal) 221 Peristaltic Submersible rediflow / Gro Sub Other

Sample Time: Label GM-71DA Replicate/ Start 1205 Code No. NA End 1255 Sampled by SU / SW

PID: 0.0ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
1200	0	400	42.25	0	6.03	0.151	29.3	0.77	15.7	88.2	Clean	None
1205	5	400		25	6.15	0.150		0.35	16.1	113.2	"	"
1210	15	400	42.26	4	6.23	0.151	15.8	0.45	15.9	118.2	"	"
1215	20	400		6	6.40	0.154		0.59	16.0	128.1	"	"
1220	25	400	42.28	8	6.48	0.154	11.6	0.62	15.8	137.4	"	"
1225	30	400	42.27	10	5.35	0.155	9.55	0.64	16.0	139.1	"	"
1230	35	400	42.28	12	5.32	0.155	9.11	0.66	16.1	143.8	"	"
1235	40	400	42.28	14	5.31	0.156	6.31	0.67	16.0	145.5	"	"
1240	45	400	42.27	16	5.33	0.156	7.11	0.68	16.1	150.4	"	"
1245	50	400	42.28	18	5.31	0.155	7.05	0.69	16.1	149.5	"	"

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes: TV = 464' - 42.23' = 421.77' = 9.4L = TV

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	12" = 0.01	

Well Information

Well Location:	<u>21 Totten St S. Pershing (Corner)</u>	Well Locked at Arrival:	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well:	<u>Good 2-3 bolts - none tighten. Repair Bolts</u>	Well Locked at Departure:	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion:	<u>Flush Mount / Stick Up</u>	Key Number To Well:	<u>NA</u>

3/8ths

Groundwater Sampling Log

Project No. 30169301.GWMI2

Well ID GM-780

Date 4/13/23 Page 1 of 1

Project Name/Location OU2 Q2 2023 GW Sampling

Weather 85° Sunny

Measuring Pt. Description TOC

Screen Interval (ft-bmp) 280-290

Casing Diameter (in.) 4

Well Material PVC SS

Static Water Level (ft-bmp) 42.25

Total Depth (ft-bmp) 290

Water Column/ Gallons in Well 247.75'

MP Elevation 1146/1505

Pump Intake (ft-bmp) mid screen

Purge Method non-dedicated

Sample Method LF+TV+MP

Pump On/Off 1146/1505

Volume Purged (gal) 26L

Peristaltic Submersible Rediflow 6705UB Other

Sample Time: Label GM-79D

Replicate/ Code No. MS/MSD

Sampled by SU
SW

PID: 0.0

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
11:50	0	400	42.27	0	5.87	0.1226	26.8	8.41	19.3	227.2	Clear	None
11:55	5	400		2	5.37	0.1180		5.53	17.1	277.5	"	"
12:00	10	400	42.26	4	5.08	0.1231	19.4	6.58	17.4	291.5	"	"
12:05	15	400		6	5.61	0.1247		6.37	17.6	287.9	"	"
12:10	20	400	42.27	8	5.18	0.1253	14.6	6.31	17.3	290.9	"	"
12:15	25	400		10	5.27	0.1251		6.21	17.5	292.6	"	"
12:20	30	400	42.29	12	5.40	0.1259	19.0	6.33	17.7	297.2	"	"
12:25	35	400		14	5.23	0.1253		6.32	17.5	290.3	"	"
12:30	40	400	42.28	16	5.06	0.1255	18.4	6.38	17.8	305.6	"	"
12:35	45	400	42.27	18	5.16	0.1252	17.1	6.39	17.5	310.7	"	"
12:40	50	400	42.27	20	5.10	0.1254	13.74	6.43	17.6	304.6	"	"
12:45	55	400	42.26	22	5.13	0.1255	12.81	6.51	17.5	308.2	"	"
12:50	60	400	42.27	24	5.16	0.1257	11.11	6.49	17.6	310.1	"	"
			#	#	#							

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes: $290 - 42.25 = 247.75' = 5.4L$
3/8 tubing

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location:	<u>Central Avc Basin</u>	Well Locked at Arrival:	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well:	<u>Good</u>	Well Locked at Departure:	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion:	<input checked="" type="checkbox"/> Flush Mount <input type="checkbox"/> Stick Up	Key Number To Well:	<u>Key at Sunny's Desk</u>

Groundwater Sampling Log

Project No. 30169301.GWMI2 Well ID 6M-73D Page 1 of 1
 Date 4-10-23
 Project Name/Location OU2 Q2 2023 GW Sampling Weather 50°F Sunny
 Measuring Pt. Description TOC Screen Interval (ft-bmp) 411 - 414 Casing Diameter (in.) 4 Well Material PVC SS
 Static Water Level (ft-bmp) 44.42 Total Depth (ft-bmp) 411 Water Column/ Gallons in Well 366ft / 238 gal
 MP Elevation Pump Intake (ft-bn) mid-screen Purge Method non-dedicated Sample Method PC
 Pump On/Off 09:47/1055 Volume Purged (gal) 34L Peristaltic Submersib rediflow Other
 Sample Time: Label 6M-73D Replicate/ Code No. n/a Sampled by 1TV + 1R
 Start 1050 End 1055

PID: 0.0ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
09:50	0	1,000	44.44	0	5.33	0.321	13.6	8.71	14.2	264.2	clear	none
09:55	5	1,000		5	5.28	0.340		8.57	14.2	288.0		
10:00	10	1,000		10	5.27	0.342		8.59	14.2	306.2		
10:05	15	500	44.42	12.5	5.23	0.344	998	8.59	13.8	308.7		
10:10	20	500		15	5.17	0.343		8.45	14.0	314.4		
10:15	25	500		17.5	5.20	0.342		8.31	14.0	320.5		
10:20	30	500	44.42	20	5.22	0.342	940	8.33	14.0	321.7		
10:25	35	500		22.5	5.23	0.342		8.39	14.1	324.5		
10:30	40	500		25	5.23	0.341	7.21	8.42	14.1	325.1		
10:35	45	500	44.42	27.5	5.23	0.341	5.50	8.30	14.1	325.4		
10:40	50	500	44.42	30	5.21	0.342	4.33	8.32	14.2	330.2		
10:45	55	500	44.42	32.5	5.22	0.342	3.23	8.31	14.2	332.1		
10:50	60	SAMPLES										

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes: $411 - 44.42 = 366.58 \times 0.006 = 2.1 + 3.785 = 8.32L \cdot 1TV$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: <u>Awakey 109 Southborn</u>	Well Locked at Arrival: <u>Yes</u> / <u>No</u>
Condition of Well: <u>Good</u>	Well Locked at Departure: <u>Yes</u> / <u>No</u>
Well Completion: <u>Flush Mount</u> / <u>Stick Up</u>	Key Number To Well: <u> </u>

Groundwater Sampling Log

Project No. 30169301.GWM12

Well ID GM-780

Date 4/11/23 Page 1 of 1

Project Name/Location OU2 Q2 2023 GW Sampling

Weather 45° Wind / overcast

Measuring Pt. Description TOC

Screen Interval (ft-bmp) 354-364

Casing Diameter (in.) 4

Well Material PVC SS

Static Water Level (ft-bmp) 44.12

Total Depth (ft-bmp) 369

Water Column/ Gallons in Well 324.88 ft / 211.2 gal

MP Elevation N/A

Pump Intake (ft-bn) mid-screen

Purge Method non-dedicated

Sample Method MP/LF/TV

Pump On/Off 11/6/1225

Volume Purged (gal) 18 L

Peristaltic Submersible Rediflow Other

Sample Time: Label GM780 1225
Start 1215
End 1225

Replicate/ Code No. N/A

Sampled by SW SV S.He

PID: 0.0 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
1117	0	500 mL	44.01	0	5.47	551.4	1.06	6.30	16.9	156.9	clear	None
1122	5	250 mL		1.875	5.27	460.5		1.95	16.4	170.4		
1127	10	250 mL	44.0	3.125	5.08	450.9	2.00	2.84	17.3	180.4		
1132	15	250 mL		4.375	5.01	452.4		4.17	17.5	197.6		
1137	20	250 mL		5.625	4.98	472.2	2.16	5.06	17.4	207.9		
1142	25	250 mL	44.0	6.875	4.98	477.8		5.26	17.6	213.7		
1147	30	250 mL		8.125	4.99	480.7	1.46	5.40	17.5	219.0		
1152	35	250	43.89	9.375	4.98	483.5		5.68	17.6	223.0		
1157	40	250		10.625	4.97	484.5		5.66	17.7	226.0		
1202	45	250	43.88	11.875	4.98	484.7	1.39	5.78	17.5	228.7		
1207	50	250	43.88	13.125	4.98	484.5	0.97	5.78	17.6	231.1		
1212	55	250	43.88	14.375	4.99	484.4	1.39	5.82	17.7	233.0	↓	↓

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes:

$TV: 369 - 44.12 = 324.88 \times 0.01 = 3.25 \text{ gal} \times 3.785 = 12.3 \text{ L}$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: <u>Martha Blvd.</u>	Well Locked at Arrival: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well: <u>Good</u>	Well Locked at Departure: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion: <u>Flush Mount</u> <input checked="" type="checkbox"/> Stick Up	Key Number To Well:

Groundwater Sampling Log

Project No. 30169301.GWMI2 Well ID GM-7502 Date 6/06/23 Page 1 of 1
 Project Name/Location 2023 OU2 Q2 GW Sampling Weather 72°F, mostly sunny unhealthy Air
 Measuring Pt. Screen Casing 4 Well Material X PVC
 Description TOC Interval (ft-bmp) 505-525 Diameter (in.) 4 SS
 Static Water Level (ft-bmp) 37.37 Total Depth (ft-bmp) 525 Water Column/ Gallons in Well 487.63 ft / 316.96 gal
 MP Elevation Pump Intake (ft-bmp) m:discreet Purge Method non-dedicated Sample Method ITV
 Pump On/Off 1051/1150 Volume Purged (gal) Peristaltic LF
 Submersib Geosub Other
 Sample Time: Label GM-7502 Replicate/ Code No. Sampled by PC SH
 Start 1145 End 1150
 PID: 0.1 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
1053	0	400	37.37	0	5.56	0.123	0.99	5.15	18.0	171.1	clear	None
1058	5	500	37.37	2.25	5.05	0.124		4.60	17.7	176.3		
1103	10	500		4.75	4.64	0.126	0.59	6.28	17.3	178.0		
1108	15	400	37.38	7	4.52	0.127		5.66	17.9	179.4		
1113	20	400		9	4.45	0.127	2.26	5.71	17.9	173.6		
1118	25	400	37.38	11	4.36	0.128		5.47	17.9	189.2		
1123	30	400	37.39	13	4.31	0.127	0.41	5.43	18.1	195.2		
1128	35	400	37.39	15	4.20	0.128	0.53	5.77	18.1	198.9		
1133	40	400	37.39	17	4.14	0.129	0.64	5.52	18.2	199.8		
1138	45	400	37.38	19	4.12	0.129	0.55	5.54	18.4	200.8		
1143	50	400	37.38	21	4.10	0.129	0.57	5.53	18.4	200.8	↓	↓

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes:
 TV: $525 - 37.37 = 487.63 \times 0.006 = 2.92 \text{ gal} \times 3.785 = 11.06 \text{ L}$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	3/8" = 0.006
					1/2" = 0.01

Well Information

Well Location: RT 107 Median Strip across from BP Well Locked at Arrival: Yes / No

Condition of Well: Fair Well Locked at Departure: Yes / No

Well Completion: Flush Mount / Stick Up Key Number To Well: N/A

Groundwater Sampling Log

Project No. 30169301.GWM12

Well ID GM-74D2

Page 1 of 1

Date 4/10/23
Weather 50° w/ wind/S

Project Name/Location OU2 Q2 2023 GW Sampling

Measuring Pt. Description TOC Screen Interval (ft-bmp) 542-562 Casing Diameter (in.) 4

Well Material PVC SS

Static Water Level (ft-bmp) 53.57 Total Depth (ft-bmp) 562 Water Column/ Gallons in Well 508.43

MP Elevation _____ Pump Intake (ft-bn) m/s screen Purge Method non-dedicated
Pump On/Off 1122 / 1230 Volume Purged (gal) 27L Peristaltic _____
Submersible rediflow GeoSiv Other _____

Sample Method 1F/MP/TV

Sample Time: Label Start 1225 End 1230 Replicate/ Code No. N/A

Sampled by SU / SW

PID: 0.0

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
11:25	0	1200	53.59	0	6.73	0.153	43.2	5.36	13.3	99.3	Clear	None
11:30	5	400		6	5.86	0.151		2.52	13.5	102.3	"	"
11:35	10	400	53.63	8	5.56	0.152	13.1	2.33	14.3	116.1	"	"
11:40	15	400		10	5.58	0.154		3.05	14.4	125.4	"	"
11:45	20	400	53.64	12	5.36	0.157	49.6	4.25	14.7	141.9	"	"
11:50	25	400		14	5.25	0.157		4.47	14.8	149.1	"	"
11:55	30	400	53.64	16	5.15	0.156	24.5	4.91	15.1	165.6	"	"
12:00	35	400		18	5.13	0.156		4.93	15.2	170.2	"	"
12:05	40	400	53.63	20	5.12	0.154	18.3	5.08	15.4	177.8	"	"
12:10	45	400	53.64	22	5.14	0.154	17.8	5.06	15.3	181.2	"	"
12:15	50	400	53.64	24	5.14	0.155	16.3	5.07	15.4	185.3	"	"
12:20	55	400	53.65	26	5.15	0.156	16.1	5.10	15.6	188.1	"	"

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes: TV = 562 - 53.57 = 508.43' = 11.34L 3/8"

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: <u>South Basin</u>	Well Locked at Arrival: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well: <u>Good</u>	Well Locked at Departure: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion: <u>Flush Mount</u> / Stick Up	Key Number To Well: <u>N/A</u>

Groundwater Sampling Log

Project No. 30169301.GWM12 Well ID GM 711 Date 4/10/23 Page 1 of 1
 Project Name/Location OU2 Q2 2023 GW Sampling Weather 50° Windy/sunny
 Measuring Pt. TOC Screen Interval (ft-bmp) 94-114 Casing Diameter (in.) 4 Well Material PVC SS
 Static Water Level (ft-bmp) 41 14 Total Depth (ft-bmp) 114 Water Column/ Gallons in Well 72.86
 MP Elevation 1025 Pump Intake (ft-bn) mid screen Purge Method non-dedicated Sample Method MP/LF /TU
 Pump On/Off 0920-1025 Volume Purged (gal) 26L Peristaltic Submersible Flow Guard SW Other
 Sample Time: Label GM 711 Replicate/ Code No. N/A Other Sampled by SU / SW
 Start 1015 End 1025
 PID: 0.1

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
0920	0	1206	41.15	0	6.51	245.4	1.90	107.3	12.4	55.2	Clear	None
0925	5	400	41.15	4	6.09	244.3		106.3	12.2	53.1	"	"
0930	10	400	41.15	8	6.02	244.0	1.31	102.1	11.8	51.4	"	"
0935	15	400		10	6.01	251.3		89.1	11.7	41.3	"	"
0940	20	400	41.13	12	6.48	249.8	1.23	9.51	11.5	99.6	"	"
0945	25	400		14	6.78	249.6		9.53	11.6	108.9	"	"
0950	30	400	41.15	16	7.02	250.3	1.18	9.56	11.8	111.9	"	"
0955	35	400		18	7.19	251.1		9.59	11.2	112.6	"	"
1000	40	400	41.13	20	7.21	251.8	1.03	9.57	11.4	114.6	"	"
1005	45	400	41.14	22	7.24	252.1	1.11	9.53	11.3	115.1	"	"
1010	50	400	41.14	24	7.25	253.1	1.09	9.48	11.2	115.4	"	"
					#	#	#					

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes: TU = 114 - 41.14 = 72.86 = 1.65L

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.85	1/2" = 0.01	

Well Information

Well Location: <u>South Basin</u>	Well Locked at Arrival: <u>Yes</u> / No
Condition of Well: <u>Good</u>	Well Locked at Departure: <u>Yes</u> / No
Well Completion: <u>Flush Mount</u> / Stick Up	Key Number To Well: <u>N/A</u>

Groundwater Sampling Log

Project No. 30169301.GWMI2

Well ID Gm-73D2

Page 1 of 1
Date 4/10/23

Project Name/Location OU2 Q2 2023 GW Sampling

Weather 47° F. Sunny

Measuring Pt. Description TOC
Screen Interval (ft-bmp) 532 - 552

Casing Diameter (in.) 4

Well Material PVC
 SS

Static Water Level (ft-bmp) 46.94
Total Depth (ft-bmp) 552

Water Column/
Gallons in Well 505.06 ft / 328.3 gal

Sample Method TV + lowflow

MP Elevation N/A
Pump Intake (ft-bn) 542 mid-screen

Purge Method non-dedicated
Peristaltic
Submersib rediflow
Other _____

Pump On/Off 0953 / 1111
Volume Purged (gal) 38.5

Sampled by S. He
P. Quinlan

Sample Time: Label 1100
Start Gm-73D2
End 1111
Replicate/Code No. N/A

PID: 0.0 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
0953	0	800 mL	46.95	0	5.18	0.179	4.57	10.1	14.1	198.8	clear	None
0958	5	800 mL		4 L	4.96	0.149		12.2	14.1	203.2		
1003	10	800 mL		8 L	4.80	0.177	3.97	11.0	14.1	201.0		
1008	15	800 mL	46.96	12 L	4.80	0.179		11.7	14.1	192.6		
1013	20	650 mL		15.625	4.55	0.180	4.70	9.3	14.1	191.8		
1018	25	500 mL	46.96	18.5	4.82	0.181		12.8	14.0	177.3		
1023	30	500 mL		21	4.87	0.181	2.32	13.9	13.9	162.7		
1028	35	500 mL	46.96	23.5	4.91	0.182		14.5	13.8	153.3		
1033	40	500 mL		26	4.88	0.182		14.7	13.9	152.8		
1038	45	500 mL		28.5	4.81	0.183	1.10	14.7	14.0	157.4		
1043	50	500 mL	46.98	31	4.81	0.183		14.9	13.9	160.7		
1048	55	500 mL	46.97	33.5	4.83	0.183	1.09	15.0	14.0	163.9		
1053	60	500 mL	46.97 / 46.98	36	4.82	0.183	1.29	15.3	14.0	167.1		
1058	65	500 mL	46.98	38.5	4.81	0.183	1.07	15.3	14.1	169.5		

LOW FLOW

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes:
TV: $(542 - 46.94) = 495.06 \times 0.006 = 2.97 \text{ gal} \times 3.785 \text{ L/gal} = 11.24 \text{ L}$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: Building 109 South Basin

Condition of Well: Fair

Well Completion: Flush Mount / Stick Up

Well Locked at Arrival: Yes / No

Well Locked at Departure: Yes / No

Key Number To Well: _____

Groundwater Sampling Log

Project No. 30169301.GWMI2 Well ID GM-7303 Date 4-16-23 Page 1 of 1
 Project Name/Location OU2 Q2 2023 GW Sampling Weather 50°F/Sun
 Measuring Pt. Description TOC Screen Interval (ft-bmp) 635-650 Casing Diameter (in.) 4 Well Material PVC SS
 Static Water Level (ft-bmp) 46.25 Total Depth (ft-bmp) 655 Water Column/ Gallons in Well 608 ft / 395 gal
 MP Elevation Pump Intake (ft-bn) mid-level Purge Method non-dedicated Sample Method TVLR
 Peristaltic Submersible rediflow Other
 Pump On/Off 11:52 / 13:05 Volume Purged (gal) 39L
 Sample Time: Label GM-7303 Replicate/ Code No. 464 Sampled by PG JH
 Start 13:10 End 13:05

PID: 0-0 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
11:55	0	700	46.27	0	5.28	0.042	3.48	12.5	14.2	284.2	clear	none
12:00	5	700		3.5	5.44	0.046		16.9	15.4	263.0		
12:05	10	700		7	5.03	0.036		18.2	15.3	253.9		
12:10	15	700	46.30	10.5	5.02	0.036	4.71	18.4	15.9	246.2		
12:15	20	700		14	5.00	0.036		17.0	15.8	241.8		
12:20	25	700		17.5	4.97	0.036		17.3	15.1	246.8		
12:25	30	700	46.30	21	5.06	0.036	4.23	17.2	15.8	232.0		
12:30	35	400		23	5.03	0.036		17.1	16.4	234.9		
12:35	40	400		25	5.02	0.036		17.1	16.0	234.8		
12:40	45	400	46.31	27	5.03	0.036	4.03	16.0	15.3	219.9		
12:45	50	400	46.30	29	4.99	0.036	3.63	15.6	15.6	212.7		
12:50	55	400	46.30	31	4.98	0.036	3.16	15.0	15.4	210.5		
12:55	60	400	46.30	33	4.98	0.036	2.92	15.0	15.5	212.0		
13:00	65	400	46.30	35	4.99	0.036	3.39	14.8	15.5	219.1		
13:05	70	400	46.30	37	4.99	0.036	3.29	14.7	15.4	216.7		

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes:

$6642 - 46.25 = 595.4 \times 0.01 = 5.9 \times 3.765 = 22.5 \text{ L: TV}$

Well Casing Volumes

Gallons/Foot 1" = 0.04 1.5" = 0.09 2.5" = 0.26 3.5" = 0.50 6" = 1.47 3/8" = 0.006
 1.25" = 0.06 2" = 0.16 3" = 0.37 4" = 0.65 1/2" = 0.01

Well Information

Well Location: <u>Midway South River</u>	Well Locked at Arrival: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well: <u>Good</u>	Well Locked at Departure: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion: <u>(Flush Mouth) / Stick Up</u>	Key Number To Well: <u> </u>

Groundwater Sampling Log

Project No. 30169301.GWM12 Well ID GM-74D3 Date 5/30/23 Page 1 of 1
 Project Name/Location 2023 OU2 Q2 GW Sampling Weather 60-70°F, sunny
 Measuring Pt. TOC Screen Interval (ft-bmp) 625-645 Casing Diameter (in.) 4" Well Material PVC SS
 Static Water Level (ft-bmp) 51.15 Total Depth (ft-bmp) 650 Water Column/ Gallons in Well 598.85 ft | 389.25 gal
 MP Elevation — Pump Intake (ft-br) 635 Purge Method non-dedicated Sample Method TV + LF
 Pump On/Off 1035/1159 Volume Purged (gal) 37L Sw Peristaltic Submersible Geosub Other
 Sample Time: Label GM-74D3 Replicate/ Code No. N/A Sampled by A.R. Hynes
 Start 1150 End 1159 S.W. Other — S. Woloson
 PID: 0.0 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
1040	0	900	51.15	0	7.82	0.649	—	4.54	15.2	191.6	Clear	None
1045	5	900	51.19	4.5	7.50	0.648	14.8	4.16	14.2	179.6	Clear	None
1050	10	900	—	9	6.58	0.032	—	3.56	14.3	198.5	Clear	None
1055	15	900	51.19	13.5	6.25	0.031	8.39	3.49	14.6	188.1	Clear	None
1100	20	900	—	18	6.06	0.034	—	5.10	14.6	178.8	Clear	None
1105	25	900	51.19	22.5	6.01	0.034	43.9	5.85	14.7	170.7	Clear	None
1110	30	900	—	27	5.94	0.034	—	6.36	14.6	165.7	Clear	None
1115	35	200	51.16	28	5.88	0.035	48.5	5.51	16.8	154.7	Clear	None
1120	40	200	51.17	29	5.82	0.035	45.5	5.53	17.4	153.9	Clear	None
1125	45	200	51.17	30	5.77	0.035	41.9	5.58	17.6	153.2	Clear	None
1130	50	200	51.17	31	5.77	0.035	45.1	5.54	18.1	152.5	Clear	None
1135	55	200	51.17	32	5.75	0.035	38.9	5.68	16.9	154.6	Clear	None
1140	60	200	51.17	33	5.73	0.035	38.6	5.67	17.8	153.2	Clear	None
1145	65	200	51.17	34	5.74	0.035	35.5	5.74	17.3	153.1	Clear	None

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes: TV = 650 ft depth - 51.15 ft static WL = 598.85 ft × 0.01 = 5.99 gal × 3.785 L/gal = 23.1 L
 Well buried months ago (date uncertain) by RW-21 construction activities - Alyssa + Sadie dug out. Buried under 5 inches dirt and gravel. ** 5 ft 3/8 tubing added

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location:	<u>South Basin, to left of dirt road, past fair, see well inspection well house 18</u>	Well Locked at Arrival:	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well:	<u>Flush Mount / Stick Up</u>	Well Locked at Departure:	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion:	<u>Flush Mount / Stick Up</u>	Key Number To Well:	<u>NA</u>

Page 1 of 1
 Date 4/18/23
 Weather 45° overcast
 Well Material PVC SS

Groundwater Sampling Log

Project No. 30169301.GWM12 Well ID GM 781
 Project Name/Location OU2 Q2 2023 GW Sampling
 Measuring Pt. Screen Casing Diameter (in.) 4
 Description TOC Interval (ft-bmp) 90-110
 Static Water Level (ft-bmp) 42.52 Total Depth (ft-bmp) 110 Water Column/ Gallons in Well 67.48
 MP Elevation 101.0 Pump Intake (ft-bmp) mid Screen Purge Method non-dedicated
 Pump On/Off 0912/1005 Volume Purged (gal) 2.5 Peristaltic Submersible rediflow
 Sample Time: Label GM781 Replicate/ Code No. N/A
 Start 1010
 End 1015

Sample Method MP/LF/TV
 Sampled by SV
SL

PID: 0.0

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
0915	0	400	42.53	0	4.71	0.339	1.89	8.22	16.1	121.5	Clear	None
0920	5	400		2	5.39	0.77		8.31	16.3	134.2	"	"
0925	10	400	42.54	4	5.35	0.59	1.39	8.15	16.4	127.6	"	"
0930	15	400		6	5.22	0.89		8.16	16.5	126.7	"	"
0935	20	400	42.53	8	5.21	0.89	0.73	8.04	16.6	123.1	"	"
0940	25	400		10	5.21	0.89		8.08	16.5	120.9	"	"
0945	30	400	42.55	12	5.27	0.89	0.87	8.11	16.6	119.3	"	"
0950	35	400	42.55	14	5.33	0.89	0.59	8.16	16.4	118.6	"	"
0955	40	400	42.56	16	5.24	0.89	0.47	7.84	16.7	117.8	"	"
1000	45	400	42.55	18	5.21	0.89	0.39	8.12	16.6	116.4	"	"
1005	50	400	42.54	20	5.19	0.88	0.17	8.01	16.4	116.2	"	"
			#	#	#	#	#	#	#	#		

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None
Cr/Cd total / Dissolved	250 mL Plastic	Each	HNO3

Notes: $TV = 110 - 42.52 = 67.48 \times 0.01 = 0.675 \text{ gal} = 2.5 \text{ L}$

Well Casing Volumes

1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: <u>Martha Blvd</u>	Well Locked at Arrival: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well: <u>Good</u>	Well Locked at Departure: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion: <u>Flush Mount / Stick Up</u>	Key Number To Well: _____

Groundwater Sampling Log

Project No. 30169301 GWM12

Well ID GM-785

Page 1 of 1
Date 04/12/23

Project Name/Location O2U Q2 2023 GW Sampling

Weather Clear 68F

Measuring Pt. Description TOC Screen Interval (ft-bmp) 60-70 Casing Diameter (in.) 4"

Well Material PVC SS

Static Water Level (ft-bmp) 42.28 Total Depth (ft-bmp) 70 Water Column/ Gallons in Well 27.72' / 18gal

MP Elevation _____ Pump Intake (ft-bn) 65' Purge Method non-dedicated Peristaltic Submersible rediflow Other _____

Sample Method MP/LF/TV

Pump On/Off 0912 Volume Purged (gal) 41.25 L
Sample Time: Label GM-785 Replicate/ Code No. 5u
Start 1030 End 1040

Sampled by S. WILKINSON
S. Navianos

PID: 0.0ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
0915	0	1000	42.28	0	5.76	0.849	8.50	8.61	20.4	180.1	Clear	None
0920	5	350	—	5	5.53	0.715	8.69	7.13	16.4	180.0	Clear	None
0925	10	350	42.32	6.75	5.46	0.732	8.89	6.93	15.9	180.1	Clear	None
0930	15	350	—	8.5	5.49	0.937	8.20	6.94	16.3	179.2	Clear	None
0935	20	350	42.32	10.25	5.46	0.968	8.26	6.84	16.3	180.1	Clear	None
0940	25	350	—	12.00	5.46	0.979	6.95	6.83	16.3	181.0	Clear	None
0945	30	350	42.32	13.75	5.47	0.987	5.85	6.90	16.3	180.3	Clear	None
0950	35	350	—	15.5	5.48	0.986	—	6.91	16.4	181.1	Clear	None
0955	40	350	42.32	17.25	5.47	0.990	5.01	6.93	16.4	182.0	Clear	None
1000	45	600	—	20.25	5.50	0.996	—	—	—	—	Clear	None
1005	50	600	42.32	23.25	5.50	0.997	5.33	6.93	16.4	184.3	Clear	None
1010	55	600	42.32	26.25	5.49	0.997	5.69	6.85	16.5	185.3	Clear	None
1015	60	600	42.32	29.25	5.45	0.999	4.91	6.91	16.3	186.0	Clear	None
1020	65	600	42.32	32.25	5.50	1.002	4.46	6.85	16.4	186.3	Clear	None
1025	70	600	42.32	35.25	5.49	1.003	4.	6.88	16.4	187.2	Clear	None

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None
Cr/Cd - total/dissolved	250ml plastic	1 each	HNO3

Notes:
 $TV = 70' - 42.28' = 27.72' \times 0.01 \frac{\text{gal}}{\text{ft}} = 0.28 \times 3.785 = 1.05 \text{ L} = TV$ Got okay to Sample from Management.
 *could not get rate to go lower without stopping purge. Rate 600ml/min, was able to drop rate for VOC sample. (Su)

Well Casing Volumes	1"	1.5"	2"	2.5"	3"	3.5"	4"	6"	8"
Gallons/Foot	0.04	0.09	0.16	0.26	0.37	0.50	0.65	1.47	0.006
	1.25" = 0.06							1/2" = 0.01	

Well Information	Well Location:	Well Locked at Arrival:	Yes	No
	<u>3741 Martha Blvd, Bethpage, NY</u>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Condition of Well: <u>Fair.</u>	Well Locked at Departure:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Well Completion: <u>Flush Mount / Stick Up</u>	Key Number To Well: <u>N/A</u>		

Groundwater Sampling Log

Project No. 30169301.GWMI2

Well ID LM 7802

Page 1 of 1
Date 4/12/23
Weather 45° light Wind

Project Name/Location OU2 Q2 2023 GW Sampling

Measuring Pt. Description TOC Screen Interval (ft-bmp) 459-479 Casing Diameter (in.) 4

Well Material X PVC SS

Static Water Level (ft-bmp) 45.34 Total Depth (ft-bmp) 484 Water Column/ Gallons in Well 438.66

Sample Method LF/MP/TU

MP Elevation 11.76 Pump Intake (ft-bmp) mid screen Purge Method non-dedicated

Peristaltic flow head sub
Submersible flow head sub
Other _____

Pump On/Off 11:16 / 12:25 Volume Purged (gal) _____
Sample Time: Label GM-7802 Replicate/ Code No. N/A
Start 12:15
End 12:25

Sampled by SU
SH PQ, SW

PID: 0.0

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
11:20	0	400	45.36	0	5.88	0.130	1.14	12.1	16.8	183.4	Clear	None
11:25	5	400		2	5.20	0.126		9.6	16.9	199.9	"	"
11:30	10	400	45.37	4	4.95	0.128	1.11	9.7	17.3	198.3	"	"
11:35	15	400		8	4.88	0.128		9.9	17.4	190.9	"	"
11:40	20	400	45.40	10	4.75	0.128	1.05	9.7	17.6	185.5	"	"
11:45	25	400		12	4.69	0.129		9.7	17.6	180.5	"	"
11:50	30	400	45.41	14	4.63	0.129	0.96	9.6	17.8	179.0	"	"
11:55	35	400	45.40	16	4.57	0.129	0.99	9.6	17.8	177.6	"	"
12:00	40	400	45.41	18	4.50	0.130	0.97	9.5	17.8	177.0	"	"
12:05	45	400	45.41	20	4.56	0.130	0.89	9.4	17.9	177.6	"	"
12:10	50	400	45.42	22	4.54	0.130	0.93	9.6	17.9	176.8	"	"
			#		#		#					

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes: $TV = 484 - 45.34 = 438.66 \cdot 0.01 = 4.3866 \text{ gal} = 16.6 \text{ L}$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2" = 0.16	2.5" = 0.26	3" = 0.37	3.5" = 0.50	4" = 0.65	6" = 1.47	3/8" = 0.006
--------------	-----------	-------------	-----------	-------------	-----------	-------------	-----------	-----------	--------------

Well Information

Well Location: Martha Blvd

Condition of Well: Good

Well Completion: Flush Mount / Stick Up

Well Locked at Arrival: Yes / No

Well Locked at Departure: Yes / No

Key Number To Well: _____

Groundwater Sampling Log

Project No. 30169301.GWMI2 Well ID PLT MW 04 Page 1 of 1
 Date 4/18/23
 Project Name/Location OU2 Q2 2023 GW Sampling Weather 50°F, Mostly sunny
 Measuring Pt. Description TOC Screen Interval (ft-bmp) 41.5-56.5 Casing Diameter (in.) 2 Well Material X PVC SS
 Static Water Level (ft-bmp) 45.07 Total Depth (ft-bmp) 55.52 Water Column/ Gallons in Well 10.45 ft / 1.67 gal
 MP Elevation N/A Pump Intake (ft-bn) mid-screen Purge Method non-dedicated Sample Method 3WSV
 Pump On/Off 0759/0830 Volume Purged (gal) 34 Peristaltic Submersible rediflow Other Other
 Sample Time: Label PLT MW 04 Replicate/ Code No. N/A Start 0825 End 0830 Sampled by S.HC
 PID: 1.6 ppm

initial
1st WSV
2nd WSV
3rd WSV

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
0800	0	2600	45.17	0	5.73	0.304	26.5	12.0	14.5	167.5	clear	None
0804	4	1300	45.15	7.8	5.74	0.330	3.11	11.8	16.3	144.8	↓	↓
0809	9	1300	45.14	14.3	5.76	0.330	0.48	11.7	16.3	147.0	↓	↓
0812	12	1400	45.22	21.05	5.76	0.347	1.28	11.8	16.3	150.4	↓	↓
0820	20	1400	45.23	32.25	5.74	0.342	0.67	11.7	16.3	156.6	↓	↓

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D/SIM	1 Liter Amber	2	None
Cr total/Diss.	250ml Plastic	2	HNO3

Notes:
 $8 \text{ WV: } 55.52 - 45.07 = 10.45 \text{ ft} \times 0.16 = 1.672 \text{ [NWV]} \times 3 = 5.016 \text{ [3 WV]} \times 3.785 = 18.9 \text{ L}$
 $\text{WSV } 56.5 - 41.5 = 15.0 \text{ ft} \times 0.16 = 2.4 \text{ gal} = 10 \text{ L}$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: <u>MTA Police Parking Lot</u>	Well Locked at Arrival: <u>Yes</u> / No
Condition of Well: <u>Fair</u>	Well Locked at Departure: <u>Yes</u> / No
Well Completion: <u>Flush Mount</u> / Stick Up	Key Number To Well: <u>N/A</u>

Groundwater Sampling Log

Project No. 30169301.GWMI2 Well ID N-10624 Page 1 of 1
 Date 6-6-23
 Project Name/Location 2023 OU2 Q2 GW Sampling Weather 64°F / cloudy
 Measuring Pt. Description TOC Screen Interval (ft-bmp) 190-194 Casing Diameter (in.) 2 Well Material X PVC SS
 Static Water Level (ft-bmp) 33.29 Total Depth (ft-bmp) 194 Water Column/ Gallons in Well 160.7 ± 1.25 gal
 MP Elevation _____ Pump Intake (ft-bn) m. screen Purge Method non-dedicated Sample Method WSV + LFP
 Pump On/Off 11:49 / 12:05 Volume Purged (gal) _____ Peristaltic _____ Submersib Geosub _____ Other _____
 Sample Time: Label N-10624 Replicate/ Code No. n/a Sampled by PA SH
 Start 12:00 End 12:05
 PID: 0.2 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
11:50	0	800	31.15	0	8.97	0.462		0.65	14.9	102.6	clear	none
11:55	5	500	31.92	2.5	9.15	0.450	505	0.24	15.2	86.3	Grey	↓
11:00	10	500		5	9.17	0.455		0.19	15.9	69.2	Light Grey	↓
11:05	15	500		7.5	9.17	0.406		0.12	16.2	54.1	↓	Slight
11:10	20	500	32.02	10	9.06	0.225	Over range	0.70	16.4	47.7	Black/Grey	↓
11:15	25	500		12.5	8.81	0.174		3.03	16.3	44.8	↓	↓
11:20	30	500		15	8.89	0.180		5.32	16.4	54.4	↓	↓
11:25	35	500	32.05	17.5	8.87	0.181	92.0	5.37	16.3	58.0	Grey	↓
11:30	40	500		20	8.80	0.181		5.39	16.3	60.8	↓	↓
11:35	45	500	32.03	22.5	8.81	0.182	72.1	5.40	16.5	63.0	↓	↓
11:40	50	500		25	8.79	0.182		5.38	16.4	65.4	↓	↓
11:45	55	500	32.03	27.5	8.75	0.181	46.0	5.40	16.6	66.8	↓	↓
11:50	60	500	32.03	30	8.74	0.181	44.7	5.39	16.5	68.7	↓	↓
11:55	65	500	32.03	32.5	8.74	0.181	48.2	5.39	16.7	69.1	↓	↓

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes:
 $194 - 190 = 4 \times 0.16 = 0.64 + 3.785 = 2.92L : WSV$
 $194 - 33.29 = 160.71 \times 0.01 = 1.6 + 3.785 = 6.0L : TV$
8.5L Total

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: <u>Median across from BP</u>	Well Locked at Arrival: <u>Yes</u> / No
Condition of Well: <u>Good</u>	Well Locked at Departure: <u>Yes</u> / No
Well Completion: <u>Flush Mount</u> / Stick Up	Key Number To Well: _____

Groundwater Sampling Log

Project No. 30169301.GWMI2 Well ID MW-026F Page 1 of 1
 Date 6-13-23
 Project Name/Location 2023 OU2 Q2 GW Sampling Weather > 80°F / Sun
 Measuring Pt. Description TOC Screen Interval (ft-bmp) 49-59 Casing Diameter (in.) 4 Well Material X PVC SS
 Static Water Level (ft-bmp) 45.71 Total Depth (ft-bmp) 59 Water Column/ Gallons in Well 13.29 ft
 MP Elevation Pump Intake (ft-bn) midstream Purge Method non-dedicated Sample Method TV + LF/MP
 Pump On/Off 10:33/11:30 Volume Purged (gal) 27L Peristaltic Submersib Geosub Other
 Sample Time: Label MW-026F Replicate/ Code No. n/a Start 11:25 End 11:30 Sampled by PG
 PID: 0.0 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
10:34	0	500	45.71	0	6.47	0.552	18.0	8.91	19.5	165.2	Clear	None
10:39	5	500		2.5	6.38	0.60		7.31	19.8	160.7		
10:44	10	500		5	6.39	0.60		7.26	19.2	144.8		
10:49	15	500	45.73	7.5	6.43	0.61	12.5	7.33	19.3	131.5		
10:54	20	500		10	6.44	0.61		7.14	19.3	124.3		
10:59	25	500		12.5	6.45	0.61		7.06	19.9	117.7		
11:04	30	500		15	6.44	0.61		7.02	20.0	116.2		
11:09	35	500	45.74	17.5	6.44	0.62	8.8	7.22	20.5	110.8		
11:14	40	500	45.74	20	6.44	0.62	11.9	7.20	20.7	108.8		
11:19	45	500	45.73	22.5	6.42	0.62	11.7	7.23	20.1	104.6		
11:24	50	500	45.73	25	6.43	0.62	10.9	7.25	20.0	103.1	✓	↓

Constituents Sampled	Container	Number	Preservative
VOCs 8266-C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None
CO/CO ₂ Total and Dissolved	500 ml Plastic	2	HNO ₃

Notes:
 $59 - 45.71 = 13.29 \times 0.0025 = 0.03 + 3.785 = 0.12L TV$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: <u>Gold Coast Studios</u>	Well Locked at Arrival: <u>Yes</u> / No
Condition of Well: <u>Good</u>	Well Locked at Departure: <u>Yes</u> / No
Well Completion: <u>Flush Mount</u> / Stick Up	Key Number To Well: <u> </u>

Groundwater Sampling Log

Project No. 30169301.GWMI2

Well ID MW-016F

Date 6-17-23 Page 1 of 1

Project Name/Location 2023 OU2 Q2 GW Sampling

Weather 68°F cloudy

Measuring Pt. Description TOC Screen Interval (ft-bmp) 48-58 Casing Diameter (in.) 4

Well Material X PVC SS

Static Water Level (ft-bmp) 44.90 Total Depth (ft-bmp) 58 Water Column/ Gallons in Well 13.1 ft / 8.5 gal

MP Elevation — Pump Intake (ft-bn) midwell Purge Method non-dedicated
 Pump On/Off 08:44 / 09:35 Volume Purged (gal) 78L Peristaltic
Submersible Geosub
Other

Sample Method 3 wsv

Sample Time: Label MW-016F Replicate/ Code No. REP061223PCW
 Start 09:30
 End 09:35

Sampled by PCW

PID: 0.0 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
08:50	0	2,000	44.90	0	5.22	0.172	30.6	10.25	15.2	177.9	Clear	none
1v 09:03	13	2,000	44.94	25	6.35	0.172	5.91	8.20	15.2	145.7	↓	↓
2v 09:16	26	2,000	44.94	50	7.50	0.175	5.04	8.00	15.3	125.9	↓	↓
3v 09:29	39	2,000	44.95	75	7.52	0.177	4.77	8.03	15.3	119.1	↓	v

Constituents Sampled	Container	Number	Preservative
VOCs 8260 C	40ml Vial	3	NCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None
CA/CP Total and Dissolved	250 ml Fluoroc	2	HN03

Notes:
 $58-48 = 10 \times 0.65 = 6.5 \times 3.785 = 24.6L$
 $40sv \times 3 = 73.8L$
 $19.5 gal$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	<u>F=0.65</u>	1/2" = 0.01	

Well Information

Well Location: <u>By Calpine Tower</u>	Well Locked at Arrival: <u>Yes</u> / No
Condition of Well: <u>Good</u>	Well Locked at Departure: <u>Yes</u> / No
Well Completion: <u>Flush Mount</u> / Stick Up	Key Number To Well: <u> </u>

Groundwater Sampling Log

Project No. 30169301.GWMI2

Well ID HN-40I

Date 4/17/23 Page 1 of 1

Project Name/Location OU2 Q2 2023 GW Sampling

Weather 50° mist

Measuring Pt. Description TOC Screen Interval (ft-bmp) 108-118

Casing Diameter (in.) 4

Well Material PVC SS

Static Water Level (ft-bmp) 50.11 Total Depth (ft-bmp) 118.6

Water Column/ Gallons in Well 67.89 ft / 44.12 gal

MP Elevation N/A Pump Intake (ft-bn) mid-screen

Purge Method: non-dedicated Peristaltic Submersible rediflow Other

Sample Method TV + lowflow

Pump On/Off 0830/0930 Volume Purged (gal) 22

Sample Time: Label HN-40I Replicate/ Code No. N/A
 Start 0925
 End 0930

Sampled by S.He
S.V.

PID: 0.3 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
0832	0	400	50.11	0	8.37	69.4	13.4	9.27	13.1	224.3	clear	None
0837	5	450		2.125	7.85	460.3		7.69	14.8	124.8	cloudy	
0842	10	400	50.12	4.25	6.60	505.8	40.7	7.75	14.9	132.5		
0847	15	400	50.12	6.25	6.72	503.7		8.23	15.1	141.6		
0852	20	400		8.25	6.81	469.9	28.2	8.21	15.2	145.3		
0857	25	400	50.12	10.25	6.64	492.6		8.04	15.2	150.1	↓	
0902	30	400		12.25	6.68	492.1	17.1	8.00	15.2	153.2	clear	
0907	35	400	50.13	14.25	6.76	492.6		8.00	15.2	156.0	↓	
0912	40	400	50.13	16.25	6.77	485.0	12.5	8.06	15.4	157.0	↓	
0917	45	400	50.13	18.25	6.87	481.4	8.15	8.03	15.4	157.4	↓	
0922	50	400	50.13	20.25	6.82	479.3	7.72	7.91	15.4	157.9	↓	↓

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes:
 TV: $113 - 50.11 = 62.89 \times 0.01 = 0.6289 \text{ gal} \times 3.785 = 2.38 \text{ L}$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location:	<u>166th and 7th St</u>	Well Locked at Arrival:	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well:	<u>Good</u>	Well Locked at Departure:	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion:	<input checked="" type="checkbox"/> Flush Mount / <input type="checkbox"/> Stick Up	Key Number To Well:	<u>N/A</u>

Groundwater Sampling Log

Project No. 30169301.GWMI2

Well ID HN 40s

Date 4/17/23
Weather 50° mist
Well Material PVC SS

Project Name/Location OU2 Q2 2023 GW Sampling

Measuring Pt. Description TOC Screen Interval (ft-bmp) 49-59 Casing Diameter (in.) 4
Static Water Level (ft-bmp) 50.32 Total Depth (ft-bmp) 59 Water Column/ Gallons in Well ~9'

Sample Method 3WSV

MP Elevation _____ Pump Intake (ft-bn) mid screen Purge Method non-dedicated
Pump On/Off 0830 0915 Volume Purged (gal) 83L Peristaltic
Submersib rediflow
Other

Sampled by SV / SH

Sample Time: Label HN 40 Replicate/ Code No. N/A
Start 0920 End _____

PID: 0.0

initial
1WSV
2WSV
3WSV

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
0832	0	2500	50.35	0	7.27	0.215	7.53	6.2	16.1	161.4	Clear	None
0840	10	2500	50.33	25	6.62	0.228	5.43	7.8	16.2	160.6	"	"
0852	20	2500	50.36	50	9.01	0.229	3.48	8.1	16.2	164.7	"	"
0902	30	2500	50.38	75	5.97	0.242	3.59	8.0	16.2	168.7	"	"
0905		#									#	
0914 SV		#									#	
0915		#									#	

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes: $59 - 49 = 10' \times 0.65 = 6.5 \text{ gal} = 24.6 \text{ L} = 1 \text{ WSV}$ $3 \text{ WSV} = 74 \text{ L}$

Well Casing Volumes	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
Gallons/Foot	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.69	1/2" = 0.01	

Well Information		Well Locked at Arrival:	Yes	/	No
Well Location:	<u>144 7th St</u>	Well Locked at Departure:	Yes	/	No
Condition of Well:	<u>Good</u>	Key Number To Well:			
Well Completion:	<u>Flush Mount / Stick Up</u>				

Groundwater Sampling Log

Page 1 of 3

Project No. 30169301 GWMI2

Well ID GM-79I

Date 04/13/23

Project Name/Location OU2 Q2 2023 GW Sampling

Weather Sunny 82°F

Measuring Pt. Description TOC Screen Interval (ft-bmp) 170'-180'

Casing Diameter (in) 4"

Static Water Level (ft-bmp) 41.12' Total Depth (ft-bmp) 175'-180'

Water Column/ Gallons in Well 138.9' / 90.3 gal

MP Elevation Pump Intake (ft-bn) 175'

Purge Method Dedicated Peristaltic Submersible Other

Sample Method AF + TV

Pump On/Off 1146/ Volume Purged (gal) 15L

Sampled by S. Woloson S. Vlavianos

Sample Time Label GM-79I Replicate/ Start Code No End

PID: 0.0ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Redox (mV)	Appearance	
											Color	Odor
1150	200	0		0	5.77	0.177		9.80	17.0	113.3	Clear	None
1155	200	5	41.15	1	5.84	0.177	7.49	9.05	21.9	116.7	Clear	None
1200	10	200		2	5.46	0.181	2.56	7.71	21.2	133.0	Clear	None
1205	15	200	41.14	3	5.39	0.181		7.61	21.4	159.3	Clear	None
1210	20	200		4	5.37	0.184		7.28	21.2	171.6	Clear	None
1215	25	200	41.14	5	5.37	0.181	0.89	7.11	21.1	181.1	Clear	None
1220	30	200		6	5.37	0.180		8.04	21.3	189.0	Clear	None
1225	35	200	41.14	7	5.36	0.179	3.02	8.67	21.2	194.0	Clear	None
1230	40	200	41.14	8	5.37	0.180	3.74	8.16	21.6	199	Clear	None
1235	45	200	41.14	9	5.36	0.180		8.60	21.5	205.6	Clear	None
1240	50	200	41.14	10	5.38	0.178	0.95	8.55	21.7	207.3	Clear	None
1245	55	200	41.14	11	5.39	0.179	2.11	8.55	21.7	211.3	Clear	None
1250	60	200	41.14	12	5.36	0.179	1.39	8.50	21.3	211.9	Clear	None
1255	65	200	41.14	13	5.37	0.179	0.71	8.56	21.3	210.0	Clear	None

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes: *TV = 180' - 41.12' = 138.9' * (using var. Calc) = 13.1 L = TV

Well Casing Volumes	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
Gallons/Foot	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information	Well Locked at Arrival:	Yes	1	No
Well Location: Basin off of Central Ave	Well Locked at Departure:	Yes	1	No
Condition of Well: Good. Sanitary Seal missing.	Key Number To Well: Sunny's Desk			
Well Completion: Flush Mount / Stick Up				

Groundwater Sampling Log

Project No. 30169301.GWM12

Well ID HN-242

Page 1 of 1
Date 4-17-23

Project Name/Location OU2 Q2 2023 GW Sampling

Weather 55°F / Cloudy

Measuring Pt. Description TOC

Screen Interval (ft-bmp) 148-158

Casing Diameter (in.) 4

Well Material PVC SS

Static Water Level (ft-bmp) 53.48

Total Depth (ft-bmp) 158

Water Column/
Gallons in Well 104.52 / 67.9 gal

MP Elevation

Pump Intake (ft-bn) mid screen

Purge Method non-dedicated

Sample Method PC

Pump On/Off 08:15 / 09:20

Volume Purged (gal) 30L

Peristaltic
Submersible red flow 6250P
Other

Sample Time: Label HN-241
Start 09:15
End 09:19

Replicate/Code No. nil

Sampled by TV + LF

PID: 0.0 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
08:17	0	500	53.48	0	7.08	0.305	3.26	8.14	14.0	183.0	Clear	None
08:22	5	500		2.5	6.17	0.320		7.54	15.2	144.4		
08:27	10	500		5	6.11	0.330		7.56	15.1	180.7		
08:32	15	500	53.56	7.5	5.77	0.330	4.76	7.52	15.0	218.0		
08:37	20	500		10	5.65	0.331		7.54	15.1	243.2		
08:42	25	500		12.5	5.68	0.332		7.60	15.2	252.1		
08:47	30	500	53.58	15	5.68	0.331	9.02	7.48	15.2	260.0		
08:52	35	500		17.5	5.60	0.331		7.48	15.2	260.7		
08:57	40	500	53.57	20	5.56	0.331	6.39	7.19	15.2	270.6		
09:02	45	500	53.57	22.5	5.56	0.331	6.07	7.16	15.2	271.2		
09:07	50	500	53.57	25	5.56	0.332	5.08	7.16	15.3	272.2		
09:12	55	500	53.57	27.5	5.56	0.332	4.72	7.15	15.2	274.0	↓	↓
09:15	SAMPLE											

TV test

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes:

$158 - 53.48 = 104.52 \times 0.006 = 0.62 \times 3.785 = 2.37L: TV$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.66	1/2" = 0.01	

Well Information

Well Location: _____

Condition of Well: Good

Well Completion: Flush Mount / Stick Up

Well Locked at Arrival: Yes / No

Well Locked at Departure: Yes / No

Key Number To Well: _____

Groundwater Sampling Log

Project No. 30169301 LWM12 Well ID PLT1-MW-06 Page 1 of 1
 Date 4/18/23
 Project Name/Location OU2 Q2 2023 GW Sampling Weather 57° Sunny Windy
 Measuring Pt. Description TOC Screen Interval (ft-bmp) 47-62 Casing Diameter (in.) 2 Well Material PVC SS
 Static Water Level (ft-bmp) 46.21 Total Depth (ft-bmp) 61.52 Water Column/ Gallons in Well 15.31
 MP Elevation _____ Pump Intake (ft-bn) M. Screen Purge Method non-dedicated Peristaltic Submersible Rediflow Other _____ Sample Method 3 WSV
 Pump On/Off 0851 0910 Volume Purged (gal) 35L Sample Time: Label PLT1-MW-06 Replicate/ Code No. N/A Start 0906 End 0910 Sampled by SV SH
 PID: 0.1

3rd 4th 5th

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
0853	0	2600	46.23	0	5.67	0.63	6.14	12.6	14.6	155.8	Clear	None
0857	4	2600	46.25	10	5.56	0.66	3.53	12.7	14.9	163.5	"	"
0901	8	2600	46.24	20	5.61	0.66	1.13	12.7	14.9	161.8	"	"
0905	16	2600	46.29	30	5.63	0.66	0.73	12.8	14.9	161.4	"	"
		#			#			#				

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None
Cr Total / Diss	250 mL Plastic	2	HNO3

Notes: 62-47=15' = 0.16 = 24 gal = 9.1L = 1 WSV

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2" = 0.16	2.5" = 0.26	3" = 0.37	3.5" = 0.50	4" = 0.65	6" = 1.47	3/8" = 0.006	1/2" = 0.01
--------------	-----------	-------------	-----------	-------------	-----------	-------------	-----------	-----------	--------------	-------------

Well Information

Well Location: <u>loading dock by Optimvm</u>	Well Locked at Arrival: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well: <u>Good, poor manhole</u>	Well Locked at Departure: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion: <u>Flush Mount / Stick Up</u>	Key Number To Well: _____

Groundwater Sampling Log

Project No. 30169301.GWMI2 Well ID MW-3-1 Page 1 of 1
 Date 4-17-23
 Project Name/Location OU2 Q2 2023 GW Sampling Weather 55°F/Cloudy
 Measuring Pt. Description TOC Screen Interval (ft-bmp) 476-496 Casing Diameter (in.) 4 Well Material X PVC SS
 Static Water Level (ft-bmp) 61.99 Total Depth (ft-bmp) 501 Water Column/ Gallons in Well 439 gal / 285 gal
 MP Elevation Pump Intake (ft-bn) midscreen Purge Method non-dedicated Sample Method LF+TV
 Pump On/Off 11:04/12:10 Volume Purged (gal) 26L Peristaltic Submersib rediflow Other
 Sample Time: Label MW-3-1 Replicate/ Code No. n/a Sampled by PG, SV, S21
 Start 12:05 End 12:10

PID:

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
11:05	0	400	61.99	0	5.63	0.161	360	1.12	13.6	295.3	clear	none
11:10	5	400	62.10	2	6.14	0.162		0.34	13.6	284.7		
11:15	10	400	62.10	4	5.50	0.155		0.33	13.6	290.7		
11:20	15	400		6	5.46	0.156	256	0.32	13.5	292.6		
11:25	20	400		8	5.35	0.156		0.26	13.8	311.0		
11:30	25	400		10	5.35	0.158		0.39	13.8	305.0		
11:35	30	400	62.15	12	5.24	0.159	130	0.41	13.3	312.6		
11:40	35	400		14	5.22	0.159		0.40	13.6	325.5		
11:45	40	400		16	5.25	0.159		0.43	14.2	371.1		
11:50	45	400	62.17	18	5.27	0.159	12.5	0.49	14.2	390.1		
11:55	50	400	62.17	20	5.26	0.159	10.3	0.48	14.3	396.2		
12:00	55	400	62.16	22	5.24	0.159	8.1	0.48	14.3	393.8		
12:05	SAMPLE											

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes:

$501 - 61.99 = 439.01 \times 0.006 = 2.6 < 3.785 = 9.96L TV$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: <u>Calpine tubes</u>	Well Locked at Arrival: <u>Yes</u> / No
Condition of Well: <u>Good</u>	Well Locked at Departure: <u>Yes</u> / No
Well Completion: <u>Flush Mount</u> / Stick Up	Key Number To Well: <u> </u>

Groundwater Sampling Log

Project No. 30169301.GWM12 Well ID N-10627 Date 6/12/23 Page 1 of 2
 Project Name/Location OU2 Q2 GW sampling 2023 Weather 72°F, cloudy
 Measuring Pt. Description Top of Casing Screen Interval (ft-bmp) 290-295 Casing Diameter (in.) 4 Well Material x PVC SS
 Static Water Level (ft-bmp) 33.93 Total Depth (ft-bmp) 295 Water Column/ Gallons in Well 261.07 ft / 169.7 gal
 MP Elevation _____ Pump Intake (ft-bmp) Midscreen Purge Method: Non-dedicated _____ Sample Method 1WSV + LF/TV
 Pump On/Off 1049/1245 Volume Purged (gal) 46 Peristaltic _____ Submersible _____ Other _____
 Sample Time: Label N-10627 Replicate/ Code No. N/A Sampled by SH PQ
 Start 1240 End 1245

PID: 0.0ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
1055	0	400	35.09	0	6.12	0.128	34.3	3.16	18.1	44.6	Dark	None
missed parameter → 1100	5			2.5								
1105	10	600	35.44	5.5	8.76	0.124		2.07	20.6	145.1		
1110	15	250		7.5	8.77	0.136	69.4	2.04	20.2	131.2		
1115	20	400	35.68	9.5	8.69	0.137		1.98	20.4	122.6		
1120	25	400		11.5	9.00	0.142	62.7	1.96	21.7	105.9		
1125	30	400	35.85	13.5	9.17	0.144		2.20	22.3	94.8		
1130	35	400		15.5	9.27	0.144	71.0	2.08	20.5	95.8		
1135	40	400	35.89	17.5	9.43	0.145		1.43	21.2	104.1		
1140	45	400		19.5	9.42	0.145	68.8	1.44	21.2	106.7		
1145	50	250	35.88	20.75	9.50	0.144		1.38	22.4	109.5		
1150	55	400		22.75	9.60	0.144	92.7	1.57	21.4	106.8		
1155	60	400	36.23	24.75	9.59	0.143		1.07	20.8	131.5		
1200	65	300		26.5	9.89	0.143	83.9	1.09	21.8	127.0		
1205	70	400	36.14	28.25	10.03	0.143		1.31	21.1	108.7		
1210	75	500		30.5	9.98	0.142	74.6	1.20	20.3	135.6	↓	↓

Constituents Sampled	Container	Number	Preservative
VOCs 522 8260C	40 mL glass vial	3	HCl
1,4-Dioxane 522 SIM 8270 D SIM	250 mL amber bottle	2	NaHSO4 None

Notes: _____
 Tubing Volume Equation: Volume (gal) = (Midscreen depth - static water level depth) x tubing conversion factor (gal/ft) 1/2"
 WSV: $5 \times 0.65 = 3.25 \text{ gal} \times 3.785 = 12.3 \text{ L}$
 TV: $295 - 33.93 = 261.07 \times .01 = 2.6 \text{ gal} \times 3.785 = 9.88 \text{ L}$ 22.2 L Total high turbidity, fluctuating rate

*Field Blank Required *Cone off early or day before
 3 successive readings should be within +/- 0.1 for pH, +/- 3 percent for Sp. Con., +/- 10 percent for DO, +/- 10 mv for ORP, +/- 10 percent for turbidity, and +/- 10 percent for temperature.

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: <u>Rt 107 Median Strip across from BP</u>	Well Locked at Arrival: <u>Yes</u> / No
Condition of Well: <u>See well inspection log</u>	Well Locked at Departure: <u>Yes</u> / No
Well Completion: <u>Flush Mount</u> / Stick Up	Key Number To Well: <u>N/A</u>

Groundwater Sampling Log

Project No. 30169301.GWMI2 Well ID N-10627 Date 6/12/23

Project Name/Location 2023 OU2 Q2 GW Sampling Weather _____

Measuring Pt. TOC Screen Interval (ft-bmp) _____ Casing Diameter (in.) 4 Well Material X PVC _____ SS

Static Water Level (ft-bmp) _____ Total Depth (ft-bmp) _____ Water Column/ Gallons in Well _____

MP Elevation _____ Pump Intake (ft-bn) _____ Purge Method: non-dedicated Sample Method _____
Peristaltic
Submersible Geosub
Other _____

Pump On/Off _____ Volume Purged (gal) _____

Sample Time: Label N-10627 Replicate/ Code No. _____ Sampled by _____
 Start 1240
 End _____

PID: _____

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
1215	80	400	36.56	32.75	10.07	0.142	61.9	1.12	20.4	141.8	Cloudy	None
1220	85	400	36.54	34.75	10.11	0.142	71.4	1.12	20.8	143.0	↓	↓
1225	90	400	36.51	36.75	10.20	0.142	55.9	1.19	21.0	138.2	↓	↓
1230	95	400	36.50	38.75	10.17	0.141	48.6	1.17	20.9	140.8	↓	↓
1235	100	400	36.50	40.75	10.17	0.141	45.3	1.24	20.9	140.7	↓	↓

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1,4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes: SEE PAGE #1 FOR INFO

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: _____	Well Locked at Arrival: Yes / No
Condition of Well: _____	Well Locked at Departure: Yes / No
Well Completion: Flush Mount / Stick Up	Key Number To Well: _____

Groundwater Sampling Log

Project No 30191527.NAV12 Well ID BPOW1-2 Date 9/19/23
 Project Name/Location OU2 Q3 Groundwater Sampling - Resample Weather 75°F, sunny
 Measuring Pt. Description TOC Screen Interval (ft-bmp) 310-335 Casing Diameter (in) 4 Well Material PVC SS
 Static Water Level (ft-bmp) 33.25 Total Depth (ft-bmp) 335 Water Column/ Gallons in Well 301.75 ft / 196.13 gal
 MP Elevation — Pump Intake (ft-bmp) Midscreen Purge Method Dedicated Sample Method IWSV + TV + LF
 Pump On/Off 1240/1425 Volume Purged (gal) 72 Peristaltic Submersible bladder Other —
 Sample Time: Label BPOW1-2 Replicate/ Start 1420 Code No N/A End 1425 Sampled by A.R. Hynes
 PID: 0.0 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Redox (mV)	Appearance	
											Color	Odor
1240	0	600	33.35	0	4.42	0.151	3.78	5.70	16.8	167.6	Clear	None
1245	5	900		3	3.60	0.172		1.57	14.8	208.6		
1250	10	900	33.31	7.5	3.56	0.172	3.47	1.46	14.8	222.3		
1255	15	900		12	3.51	0.172		1.33	14.8	225.9		
1300	20	900	33.31	16.5	3.47	0.172	2.66	1.30	14.8	230.3		
1305	25	900		21	3.44	0.172		1.29	15.0	237.1		
1310	30	900	33.26	25.5	3.46	0.172	4.02	1.31	15.6	243.6		
1315	35	900		30	3.46	0.174		1.31	15.8	249.7		
1320	40	900	33.28	34.5	3.45	0.174	2.37	1.32	15.6	256.0		
1325	45	900		39	3.44	0.175		1.32	15.6	262.4		
1330	50	900	33.26	43.5	3.44	0.175	1.25	1.31	15.6	267.7		
1335	55	900		48	3.43	0.174		1.28	15.6	273.1		
1340	60	900	33.25	52.5	3.43	0.174	1.15	1.28	15.5	278.2		
1345	65	900		57	3.42	0.174		1.28	15.5	283.2		
1350	70	900	33.24	61.5	3.42	0.174	1.83	1.27	15.3	286.8		
1355	75	300	33.21	66	3.42	0.173	1.05	1.26	15.5	291.6	↓	↓

Low flow →

Constituents Sampled	Container	Number	Preservative
<u>1,4 Dioxane 522 SIM</u>	<u>250 mL amber</u>	<u>2</u>	<u>NaHSO4</u>

Notes *** Resampling for 1,4 Dioxane only**
 WSV: $25 \text{ ft screen} \times 0.065 \text{ gal/ft} = 1.625 \text{ gal} \times 3.785 \text{ L/gal} = 6.15 \text{ L WSV}$
 TV: $325 \text{ ft} - 33.25 = 291.75 \times 0.0025 = 0.73 \text{ gal} \times 3.785 \text{ L/gal} = 2.76 \text{ L}$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2" = 0.16	2.5" = 0.26	3" = 0.37	3.5" = 0.50	4" = 0.65	6" = 1.47	3/8" = 0.006	1/2" = 0.01
--------------	-----------	-------------	-----------	-------------	-----------	-------------	-----------	-----------	--------------	-------------

Well Information

Well Location	<u>Bruce Ln</u>	Well Locked at Arrival	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well	<u>2 1/2 bolts, stripped, fair</u>	Well Locked at Departure	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion	<u>Flush Mount / Stick Up</u>	Key Number To Well	

Groundwater Sampling Log

Page 2 of 2

Project No 301915T-NAVI2 Well ID BPOW1-2 Date 9/19/23
 Project Name/Location OU2 R3 Groundwater Sampling-Resample Weather 75°F, sunny
 Measuring Pt Description TOC Screen Interval (ft-bmp) 310-335 Casing Diameter (in.) 4 Well Material PVC SS
 Static Water Level (ft-bmp) 33.25 Total Depth (ft-bmp) 335 Water Column/ Gallons in Well 301.75 ft / 146.13 gal
 MP Elevation — Pump Intake (ft-bmp) Midscreen Purge Method: Dedicated Sample Method IWSV + TV + LF
 Pump On/Off 1240/1425 Volume Purged (gal) 72 Peristaltic Submersible bladder Other —
 Sample Time Label BPOW1-2 Replicate/ Code No N/A Sampled by A.R. Hynes
 Start 1420 End 1425 B. Monegro

PID: 0.0 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Redox (mV)	Appearance	
											Color	Odor
1400	80	300	33.20	67.5	3.41	0.174	0.96	1.13	16.3	294.1	Clear	None
1405	85	300	33.20	69	3.43	0.173	1.24	1.12	16.2	296.7	↓	↓
1410	90	300	33.20	70.5	3.44	0.172	1.22	1.10	16.0	300.1	↓	↓
1415	95	300	33.20	72	3.42	0.172	0.66	1.09	16.3	303.3	↓	↓

Constituents Sampled	Container	Number	Preservative
<u>1,4 Dioxane 522 SIM</u>	<u>250 mL amber</u>	<u>2</u>	<u>NaHSO4</u>

Notes * Resampling for 1,4 Dioxane only
 IWSV: 25ft screen x 0.165 gal/ft = 4.125 gal x 3.785 L/gal = 15.6 L IWSV
 TV: 325ft - 33.25 = 291.75 x 0.0025 = 0.73 gal x 3.785 L/gal = 2.76 L

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	<u>4" = 0.65</u>	1/2" = 0.01	

Well Information

Well Location	<u>Bruce Ln</u>	Well Locked at Arrival	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well	<u>2/2 bolts, stripped fair</u>	Well Locked at Departure	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion	<u>Flush Mount</u> / <u>Stick Up</u>	Key Number To Well	

Groundwater Sampling Log

Project No. 30191527.NAVI2

Well ID BPOW1-2

Date 8/30/2023

Project Name/Location 2023 Q3 OU2 GW Sampling

Weather 86°F / cloudy

Measuring Pt. Description TOC

Screen Interval (ft-bmp) 310-335

Casing Diameter (in.) 4"

Well Material PVC 2" casing
 SS

Static Water Level (ft-bmp) 35.47

Total Depth (ft-bmp) 335

Water Column/ Gallons in Well 299.53 ft / 194.69 gal

MP Elevation —

Pump Intake (ft-bmp) Midscreen

Purge Method Dedicated

Sample Method 1WSV + LF

Pump On/Off 9:48 / 11:25

Volume Purged (gal) 70

Peristaltic
Submersible Bladder

Sample Time: Label BPOW1-2

Replicate/ Code No. N/A

Sampled by KK, BM

PID: 0.0 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
0950	0	1050	35.47	0	4.58	0.170	1.21	2.01	15.10	262.10	Clear	None
0955	5			5.25	4.51	0.196		1.23	15.3	263.7		
1000	10			10.5	4.48	0.198		1.01	15.4	276.7		
1005	15		35.55	15.75	4.34	0.199	1.66	0.95	14.9	292.1		
1010	20			21	4.35	0.200		0.94	14.8	304.1		
1015	25			26.25	4.35	0.199		0.92	14.7	311.9		
1020	30		35.52	31.5	4.35	0.199	5.10	0.90	14.4	314.6		
1025	35			36.75	4.35	0.198		0.89	14.4	324.0		
1030	40			42	4.35	0.197		0.86	14.3	331.5		
1035	45		34.70	47.25	4.25	0.195	2.82	0.82	14.3	338.8		
1040	50			52.5	4.35	0.193		0.79	14.2	343.9		
1045	55			57.75	4.36	0.192		0.76	14.3	348.2		
1050	60	↓	34.25	63	4.37	0.190	2.29	0.71	14.2	350.2		
1055	65	250		64.25	4.37	0.188		0.71	16.0	348.6		
1100	70		33.90	65.5	4.38	0.188	1.30	0.70	16.8	346.8		
1105	75		33.85	66.75	4.39	0.187	0.96	0.68	16.9	344.5		
1110	80		34.80	68	4.39	0.186	1.04	0.66	17.0	352.1	↓	↓

Constituents Sampled	Container	Number	Preservative
VOC 524.2	40ml Vial	3	HCL
1,4 Dioxane 522 SIM	250ml Amber	2	NaHSO4

Notes:
 $335 - 310 = 25 \times 0.65 = 16.25 \text{ gal} \times 3.785 = 61.5 \text{ L}$
 $335 - 35.47 = 299.53 \times 0.0025 = .74 \times 3.785 = 2.8$
64.4 Total

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2" = 0.16	3" = 0.37	3.5" = 0.50	4" = 0.65	6" = 1.47	3/8" = 0.006	1/2" = 0.01	1/4" = 0.0025
--------------	-----------	-------------	-----------	-----------	-------------	-----------	-----------	--------------	-------------	---------------

Well Information

Well Location: <u>Bruce Ln</u>	Well Locked at Arrival: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Condition of Well: <u>Good</u>	Well Locked at Departure: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Well Completion: <u>Flush Mount</u> / Stick Up	Key Number To Well: <u> </u>

Groundwater Sampling Log

Project No. 30191527.NAVI2

Well ID BPOW1-4

Date 8/30/23 Page 1 of 2

Project Name/Location 2023 Q3 OU2 GW Sampling

Weather 85° Rainy

Measuring Pt. Description TOC Screen Interval (ft-bmp) 340-400 Casing Diameter (in.) 4"

Well Material X PVC SS

Static Water Level (ft-bmp) 15.55 Total Depth (ft-bmp) 405 Water Column/ Gallons in Well 384.45 ft / 249.89

MP Elevation — Pump Intake (ft-bn) Midscreen Purge Method Dedicated
 Pump On/Off 1205/1448 Volume Purged (gal) 160 Peristaltic —
 Submersib Bladder Other —

Sample Method 1WSV + LF

Sample Time: Label BPOW1-4 Replicate/ Code No. N/A
 Start 1438
 End 1448

Sampled by KL, BM

PID: 0.0ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
1208	0	1050	15.55	0	3.60	0.145	2.35	2.90	14.6	342.5	Clear	None
1213	5	1050		5.25	3.64	0.141		1.60	14.2	187.2		
1218	10	1200		11.25	3.64	0.142		1.48	13.8	200.6		
1223	15		15.42	17.25	3.64	0.141	7.67	2.02	13.9	216.9		
1228	20			23.25	3.66	0.140		1.91	13.9	230.1		
1233	25			29.25	3.66	0.141		1.89	14.0	231.1		
1238	30		15.48	35.25	3.66	0.142	7.03	1.93	14.1	232.4		
1243	35			41.25	3.67	0.140		1.90	14.0	233.3		
1248	40			47.25	3.67	0.140		1.86	13.6	233.4		
1253	45		15.48	53.25	3.68	0.141	5.20	1.86	14.0	233.4		
1258	50			59.25	3.68	0.141		1.84	13.7	229.6		
1303	55			65.25	3.68	0.141		1.84	13.9	229.5		
1308	60		15.48	71.25	3.69	0.141	3.37	1.80	13.8	231.5		
1313	65			77.25	3.69	0.141		1.76	14.0	232.0		
1318	70			83.25	3.69	0.140		1.73	13.9	232.0		
1323	75		15.46	89.25	3.69	0.140	1.21	1.72	14.0	232.0	↓	↓

Constituents Sampled	Container	Number	Preservative
VOC 524.2	40ml Vial	3	HCL
1,4 Dioxane 522 SIM	250ml Amber	2	NaHSO4

Notes:
 $400 - 340 = 60 \text{ ft} \times 0.65 \times 3.785 = 147.6 \text{ L}$
 $400 - 15.55 = 384.45 \times 0.0025 = 0.96 \times 3.785 = 3.64$
151.24 L Total

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006	0.0025
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01		

Well Information

Well Location:	<u>Langdon Rd - In water Basin</u>	Well Locked at Arrival:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Condition of Well:	<u>Good</u>	Well Locked at Departure:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Well Completion:	<u>Flush Mount</u> / <u>Stick Up</u>	Key Number To Well:		

Groundwater Sampling Log

Project No. 30191527.NAVI2

Well ID BPOWI-4

Date 8/30/23 Page 2 of 2

Project Name/Location 2023 Q3 OU2 GW Sampling

Weather 85° Rainy

Measuring Pt. Description TOC

Screen Interval (ft-bmp) 340-400

Casing Diameter (in.) 4"

Well Material X PVC SS

Static Water Level (ft-bmp) 15.55

Total Depth (ft-bmp) 405

Water Column/ Gallons in Well 384.45ft / 249.89

MP Elevation —

Pump Intake (ft-bn) Midscreen

Purge Method Dedicated

Sample Method 1WSV + LF

Pump On/Off 1205/1448

Volume Purged (gal) 160

Peristaltic —
Submersible Bladder —
Other —

Sample Time: Label BPOWI-4
Start 1438
End 1448

Replicate/ Code No. N/A

Sampled by KK, BM

PID: 0.0ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
1328	80	1200		95.25	3.70	0.140		1.75	13.9	232.3	Clear	None
1333	85	↓		101.25	3.70	0.139		1.73	14.0	231.8	↓	↓
1338	90	↓	15.42	107.25	3.70	0.139	2.17	1.72	13.9	231.9	↓	↓
1343	95	↓		113.25	3.70	0.140		1.75	13.9	231.6	↓	↓
1348	100	↓		119.25	3.70	0.140		1.70	14.0	232.4	↓	↓
1353	105	↓	15.42	125.25	3.71	0.139	2.37	1.69	13.7	232.7	↓	↓
1358	110	↓		131.25	3.71	0.140		1.70	14.0	232.4	↓	↓
1403	115	↓		137.25	3.71	0.140		1.77	14.0	231.5	↓	↓
1408	120	↓	15.43	143.25	3.71	0.140	3.04	1.75	14.1	230.8	↓	↓
1413	125	↓		149.25	3.71	0.141		1.76	14.3	231.8	↓	↓
LOWFLOW 1418	130	250		150.5	3.73	0.140		1.74	16.5	230.4	↓	↓
1423	135	↓	15.43	151.75	3.75	0.139	1.75	0.61	17.1	227.3	↓	↓
1428	140	↓	15.42	153	3.74	0.139	1.90	0.62	17.1	227.4	↓	↓
1433	145	↓	15.43	154.25	3.74	0.139	2.30	0.61	17.2	227.9	↓	↓

Constituents Sampled	Container	Number	Preservative
VOC 524.2	40ml Vial	3	HCL
1,4 Dioxane 522 SIM	250ml Amber	2	NaHSO4

Notes:
 $400 - 340 = 60\text{ft} \times 0.65 \times 3.785 = 147.6\text{L}$
 $400 - 15.55 = 384.45 \times 0.0025 = 0.96 \times 3.785 = 3.64$
151.24L Total

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	1/4" = 0.0025

Well Information

Well Location:	<u>Langdon Rd - In Water Basin</u>	Well Locked at Arrival:	<u>Yes</u> / No
Condition of Well:	<u>good</u>	Well Locked at Departure:	<u>Yes</u> / No
Well Completion:	<u>Flush Mount</u> / Stick Up	Key Number To Well:	

Groundwater Sampling Log

Project No 30191527.NAV12 Well ID BP0W1-4 Date 9/20/23
 Project Name/Location OU2 Q3 2023 GW Re-sample Weather 65°F, Sunny
 Measuring Pt Description TOC Screen Interval (ft-bmp) 340-400 Casing Diameter (in) 4 Well Material PVC SS
 Static Water Level (ft-bmp) 15.83 Total Depth (ft-bmp) 405 Water Column/ Gallons in Well 389.17 ft / 252.96 gal
 MP Elevation — Pump Intake (ft-bmp) midscreen Purge Method Dedicated Sample Method IWSV + LF
 Pump On/Off 1107 / 1450 Volume Purged (gal) 158.5 Peristaltic Submersible bladder Other —
 Sample Time: Label BP0W1-4 Replicate/ Code No N/A Sampled by A.R. Hynes
 Start 1445 End 1450 B. Monenegro
 PID 0.1 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Redox (mV)	Appearance	
											Color	Odor
1110	0	350	15.74	0	3.57	0.136	0.30	5.19	14.6	286.3	Clear	None
1115	5	1050		1.75	3.70	0.127		1.65	13.2	202.1		
1120	10	1050	15.72	7	3.68	0.129	0.64	1.99	13.0	156.2		
1125	15	1050		12.25	3.66	0.132		2.14	12.8	182.5		
1130	20	1050	15.70	17.5	3.65	0.132	3.28	2.13	12.9	185.1		
1135	25	1050		22.75	3.66	0.133		1.95	12.8	184.3		
1140	30	1050	15.73	28	3.66	0.132	3.41	2.00	12.7	184.6		
1145	35	1050		33.25	3.66	0.131		1.99	12.7	185.4		
1150	40	1050	15.70	38.5	3.66	0.131	5.27	1.99	12.7	185.5		
1155	45	1050		43.75	3.66	0.131		1.96	12.7	180.6		
1200	50	1050	15.74	49	3.66	0.131	0.63	1.82	12.7	182.2		
1205	55	1050		54.25	3.66	0.131		1.80	12.7	184.0		
1210	60	1050	15.68	59.5	3.66	0.131	2.37	1.73	12.7	183.7		
1215	65	1050		64.75	3.66	0.130		1.81	12.7	184.5		
1220	70	1050	15.65	70	3.66	0.130	0.25	1.81	12.7	185.2		
1225	75	1050		75.25	3.66	0.131		1.72	12.7	184.3	↓	↓

Constituents Sampled	Container	Number	Preservative
1, 4 Dioxane 522 SIM	250 mL Amber	2	NAHSO4

Notes * Some water in air line.

IWSV: 60 ft screen $400 - 340 = 60 \times 0.65 \times 3.785 = 147.6 \text{ L}$ 1509.5 L total
 $400 - 15.83 = 384.17 \times 0.88 \times 3.785 = 3.63 \text{ L}$
370 0.0026 35

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location	<u>Langdon Rd - In Water Basin</u>	Well Locked at Arrival	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well	<u>Good</u>	Well Locked at Departure	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion	<u>Flush Mount</u> / <u>Stick Up</u>	Key Number To Well	

Groundwater Sampling Log

Project No 30191527.NAV12 Well ID Browl-4 Date 9/20/23
 Project Name/Location OU2 Q3 2023 GW Re-sample Weather 65°F, Sunny
 Measuring Pt. Description TOC Screen Interval (ft-bmp) 340-400 Casing Diameter (in.) 4 Well Material X PVC SS
 Static Water Level (ft-bmp) 15.83 Total Depth (ft-bmp) 405 Water Column/ Gallons in Well 384.17 ft / 252.96 gal
 MP Elevation — Pump Intake (ft-bmp) Midscreen Purge Method Dedicated Sample Method IWSV+LF
 Pump On/Off 1107 / 1450 Volume Purged (gal) 158.5 Peristaltic bladder Submersible bladder Other —
 Sample Time Label Browl-4 Replicate/ Code No N/A Sampled by A.R. Hynes
 Start 1445 End 1450 B. Monegro
 PID 0.1 ppm

Pause in purge due to YSI issue (battery)

Low flow →

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Redox (mV)	Appearance	
											Color	Odor
1230	80	1050	15.65	80.5	3.66	0.132	3.82	1.72	12.7	183.4	Clear	None
1235	85	1050		85.75	3.66	0.131		1.72	12.7	184.1		
1240	90	1100	15.71	91.5	3.66	0.130	0.17	1.81	12.7	184.5		
1245	95	1100		97	3.66	0.132		1.86	12.7	181.2		
1330	140	400	15.59	99	3.69	0.132	3.27	1.70	13.7	258.2		
1335	145	1100		104.5	3.68	0.133		0.75	12.7	225.6		
1340	150	1100	15.64	110	3.67	0.134	1.28	1.76	12.7	211.2		
1345	155	1100		115.5	3.67	0.132		1.72	12.6	202.8		
1350	160	1100	15.62	121	3.67	0.133	1.65	1.74	12.7	198.4		
1355	165	1100		126.5	3.67	0.132		1.77	12.6	194.0		
1400	170	1100	15.60	132	3.67	0.131	0.97	1.74	12.6	194.6		
1405	175	1100		137.5	3.67	0.132		1.71	12.7	193.4		
1410	180	1100	15.59	143	3.67	0.132	1.61	1.67	12.7	190.9		
1415	185	400		148.5	3.67	0.130		1.60	12.7	192.2		
1420	190	400	15.53	150.5	3.68	0.130	0.32	1.67	13.7	190.9		
1425	195	400	15.53	152.5	3.69	0.130	4.14	0.60	13.7	191.2		

Constituents Sampled	Container	Number	Preservative
1,4 Dioxane 522 SIM	250 mL Amber	2	NAH2SO4

Notes See page 1

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location	<u>Langdon Rd - In Water Basin</u>	Well Locked at Arrival	<u>Yes</u> / No
Condition of Well	<u>Good</u>	Well Locked at Departure	<u>Yes</u> / No
Well Completion	<u>Flush Mount</u> / Stick Up	Key Number To Well	

Groundwater Sampling Log

Project No 30191527.NAV12 Well ID BPOW1-4 Date 9/20/23
 Project Name/Location OU2 Q3 2023 GW Re-sample Weather 65°F, Sunny
 Measuring Pt Description TOC Screen Interval (ft-bmp) 340-400 Casing Diameter (in.) 4 Well Material X PVC SS
 Static Water Level (ft-bmp) 15.83 Total Depth (ft-bmp) 405 Water Column/ Gallons in Well 389.17 ft / 252.96 gal
 MP Elevation — Pump Intake (ft-bmp) midscreen Purge Method Dedicated Sample Method JWSV + LF
 Pump On/Off 1107/1450 Volume Purged (gal) 158.5 Peristaltic Submersible bladder Other —
 Sample Time Label BPOW1-4 Replicate/ Code No. L N/A Sampled by A.R. Hynes
 Start 1445 End 1450 B. Monogro
 PID 0.1 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Redox (mV)	Appearance	
											Color	Odor
1430	200	400	15.49	154.5	3.68	0.131	0.40	0.49	13.9	191.0	Clear	None
1435	205	400	15.49	156.5	3.68	0.131	0.32	0.44	13.8	190.8	↓	↓
1440	210	400	15.49	158.5	3.68	0.131	1.45	0.41	13.6	190.3	↓	↓

Constituents Sampled	Container	Number	Preservative
<u>1,4 Dioxane 522 SIM</u>	<u>250 mL Amber</u>	<u>2</u>	<u>NaHSO4</u>

Notes see page 1

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location	<u>Langdon Rd ~ In Water Basin</u>	Well Locked at Arrival	<u>Yes</u> / No
Condition of Well	<u>Good</u>	Well Locked at Departure	<u>Yes</u> / No
Well Completion	<u>Flush Mount</u> / Stick Up	Key Number To Well	

Groundwater Sampling Log

Project No. 30191527.NAVI2

Well ID BPOW1-5

Date 8/29/2023

Project Name/Location 2023 Q3 OU2 GW Sampling

Weather 80°F / Rainy

Measuring Pt. TOC Screen Interval (ft-bmp) 600-650

Casing Diameter (in.) 4

Well Material X PVC SS

Static Water Level (ft-bmp) 16.91 Total Depth (ft-bmp) 655

Water Column/ Gallons in Well 633.09 gal / 411.5 gal

MP Elevation Pump Intake (ft-bmp) Microscreen

Purge Method Dedicated

Sample Method 1WSV + LF

Pump On/Off 200 / 1440 Volume Purged (gal) 135

Peristaltic Submersib Bladder

Sample Time: Label BPOW1-5 Replicate/ Code No. N/A

Sampled by KK, BM

Start 1430 End 1440

PID: 00ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
12:05	0	1080	16.91	0	5.33	0.042	16.8	3.94	15.12	176.9	Clear	None
12:10	5			5.25	3.56	0.041		1.41	15.14	311.2		
12:15	10			10.5	3.47	0.041		0.64	14.75	311.4	↓	
12:20	15		16.68	15.75	3.47	0.042	65.4	0.69	14.47	309.3	Cloudy	
12:25	20			21	3.51	0.042		0.57	14.57	304.4		
12:30	25			26.25	3.65	0.042		0.52	15.00	290.0		
12:35	30		16.85	31.5	3.78	0.041	53.2	0.51	14.83	278.8		
12:40	35			36.75	3.85	0.041		0.48	15.11	272.0		
12:45	40			42	3.97	0.041		0.47	14.64	261.0	↓	
12:50	45		16.84	47.25	4.00	0.040	44.8	0.46	14.56	253.9	Clear	
12:55	50			52.5	4.03	0.040		0.45	14.78	246.5		
13:00	55			57.75	4.18	0.040		0.45	14.44	235.5		
13:05	60		16.75	63	4.12	0.040	44.0	0.44	14.54	233.3		
13:10	65			68.25	4.21	0.040		0.44	14.56	225.3		
13:15	70			73.5	4.22	0.040		0.43	14.93	221.3		
13:20	75	✓	16.78	78.75	4.32	0.040	26.2	0.43	14.75	213.1	↓	↓

Constituents Sampled	Container	Number	Preservative
VOC 524.2	40ml Vial	3	HCL
1,4 Dioxane 522 SIM	250ml Amber	2	NaHSO4

Notes: 1WV
 $650-600 = 50 \times 0.65 = 32.5 \text{ gal} \times 3.785 = 123.01 \text{ L}$
 $650-16.91 = 633.09 \times 0.0025 = 1.58 \times 3.785 = 5.99$
129.2 Total

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	1/4" = 0.0025

Well Information

Well Location: Basin - Langdon Dr. Well Locked at Arrival: Yes / No

Condition of Well: good Well Locked at Departure: Yes / No

Well Completion: Flush Mount / Stick Up Key Number To Well:

Groundwater Sampling Log

Project No. 30191527.NAVI2

Well ID BPOW1-5

Date 8/29/2023 Page 2 of 2

Project Name/Location 2023 Q3 OU2 GW Sampling

Weather 80°F / rainy

Measuring Pt. Description TOC Screen Interval (ft-bmp) 600-650

Casing Diameter (in.) 4

Well Material PVC SS

Static Water Level (ft-bmp) 1691 Total Depth (ft-bmp) 655

Water Column/ Gallons in Well 63309 ft / 411.5 gal

MP Elevation Pump Intake (ft-bn) midscreen

Purge Method Dedicated Peristaltic Submersib Bladder Other

Sample Method 1WSV + LF

Pump On/Off 1200 / 1440 Volume Purged (gal) 135

Sample Time: Label BPOW1-5 Replicate/ Start 430 Code No. N/A End 440

Sampled by KK, BM

PID: 00 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
1325	80	1050		84	4.35	0.040		0.42	14.68	208.7		
1330	85			89.25	4.50	0.039		0.43	15.10	198.0		
1335	90		16.71	94.5	4.47	0.039	22.4	0.42	14.85	196.2	clear	None
1340	95			99.75	4.42	0.039		0.40	14.83	198.9		
1345	100			105	4.32	0.039		0.40	15.12	203.1		
1350	105		16.68	110.25	4.46	0.039	22.9	0.40	15.13	195.1		
1355	110			115.5	4.41	0.039		0.39	14.91	196.2		
1400	115			120.75	4.41	0.039		0.38	15.13	196.9		
1405	120	↓	16.65	126	4.36	0.039	18.6	0.38	15.47	198.8		
LOW FLOW	1410	250		127.25	4.75	0.039		0.39	18.92	175.7		
1415	130	↓	16.63	128.5	4.82	0.039	15.2	0.41	20.66	170.1		
1420	135	↓	16.63	127.75	4.85	0.040	19.9	0.44	20.18	166.5		
1425	140	↓	16.60	131	4.80	0.040	17.7	0.43	14.67	168.5	↓	↓

Constituents Sampled	Container	Number	Preservative
VOC 524.2	40ml Vial	3	HCL
1,4 Dioxane 522 SIM	250ml Amber	2	NaHSO4

Notes: $650 - 600 = 50 \times 0.65 = 32.5 \text{ gal} \times 3.785 = 123.01 \text{ L}$
 $650 - 16.91 = 633.09 \times 0.0025 = 1.58 \times 3.785 = 5.99$

129 L total

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006	7/4" = 0.0025
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01		

Well Information

Well Location: <u>Basin - Langdon pr</u>	Well Locked at Arrival: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well: <u>good</u>	Well Locked at Departure: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion: <input checked="" type="checkbox"/> Flush Mount / <input type="checkbox"/> Stick Up	Key Number To Well: <u> </u>

Groundwater Sampling Log

Project No 30191527.NAV12 Well ID BP0W1-5 Date 9/20/23
 Project Name/Location OU2 Q3 2023 GW Re-sample Weather 65°F, sunny
 Measuring Pt Description TOC Screen Interval (ft-bmp) 600-650 Casing Diameter (in.) 4 Well Material PVC SS
 Static Water Level (ft-bmp) 17.28 Total Depth (ft-bmp) 655 Water Column/ Gallons in Well 637.7 ft / 414.5 gal
 MP Elevation — Pump Intake (ft-bmp) midscreen Purge Method: Dedicated Sample Method WSV + TV + LF
 Pump On/Off 1104/1332 Volume Purged (gal) 134.7 Peristaltic Submersible bladder Other —
 Sample Time: Label BP0W1-5 Replicate/ Code No N/A Start 1328 End 1332 Sampled by A.R. Hynes
B. Monegro

PID 0.0 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Redox (mV)	Appearance	
											Color	Odor
1105	0	1000	17.21	0	4.50	0.029	20.0	4.61	13.9	215.2	clear	none
1110	5	1000	17.20	5	4.48	0.029	16.7	4.27	13.6	194.8		↓
1115	10	1000		10	3.96	0.029		1.27	13.0	238.9		slight
1120	15	1050	17.19	15.3	3.98	0.029	25.2	0.80	13.0	236.7		
1125	20	1050		20.6	4.02	0.029		0.64	13.0	208.1		
1130	25	1050	17.18	25.9	4.02	0.029	26.4	0.63	13.0	207.0		
1135	30	1050		31.1	4.03	0.029		0.60	13.0	201.1		
1140	35	1050	17.19	36.35	4.04	0.029	28.9	0.59	13.0	199.4		
1145	40	1050		41.6	4.06	0.029		0.57	12.9	194.6		
1150	45	1050	17.19	46.85	4.08	0.029	21.5	0.56	13.0	192.6		
1155	50	1050		52.1	4.08	0.029		0.56	12.9	191.0		
1200	55	1050	17.19	57.35	4.09	0.028	18.2	0.56	12.9	188.5		
1205	60	1050		62.6	4.12	0.028		0.55	12.9	183.1		
1210	65	1050	17.19	67.85	4.12	0.028	17.3	0.55	12.9	181.8		
1215	70	1050		73.1	4.12	0.028		0.54	12.9	179.2		
1220	75	1050	17.19	78.35	4.14	0.028	15.6	0.54	12.8	175.6	↓	↓

Constituents Sampled	# Resample for	Container	Number	Preservative
1,4 Dioxane	522 SIM	250 mL amber	2	NaHSO ₄

Notes
 WSV: $650 - 600 = 50 \times 0.65 = 32.5 \text{ gal} \times 3.785 \text{ L/gal} = 123 \text{ L WSV}$
 TV: $625 \text{ ft} - 17.28 \text{ static ft} = 607.72 \text{ ft} \times 0.0025 = 1.52 \text{ gal} \times 3.785 \text{ L/gal} = 5.75 \text{ L TV}$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.60	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location	<u>Basin 19 near 4 Langdon Rd, Plainedge</u>	Well Locked at Arrival	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well	<u>fair</u>	Well Locked at Departure	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion	<u>Flush Mount</u> / Stick Up	Key Number To Well	

Groundwater Sampling Log

Project No 30191527.NAV12 Well ID BPOW1-5 Date 9/20/23
 Project Name/Location 002 Q3 2023 GW Resample Weather 65°F, sunny
 Measuring Pt Description TAC Screen Interval (ft-bmp) 600-650 Casing Diameter (in) 4 Well Material PVC SS
 Static Water Level (ft-bmp) 17.28 Total Depth (ft-bmp) 655 Water Column/ Gallons in Well 637.7 ft / 414.5 gal
 MP Elevation — Pump Intake (ft-bmp) midscreen Purge Method Dedicated Sample Method INSV + TV + LF
 Pump On/Off 1104 / 1332 Volume Purged (gal) 134.7 Peristaltic Submersible bladder Other —
 Sample Time Label BPOW1-5 Replicate/ Code No N/A Sampled by A R Hynes
 Start 1328 End 1332 Other — B. Monegro

PID 0.0 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Redox (mV)	Appearance	
											Color	Odor
1225	80	1100	17.16	83.9	4.14	0.028		0.54	12.8	174.	clear	slight
1230	85	1100		89.4	4.14	0.028	9.20	0.54	12.8	173.2		
1235	90	1100	17.16	94.9	4.14	0.028		0.54	12.8	171.9		
1240	95	1100		100.4	4.16	0.028	7.79	0.54	12.9	171.2		
1245	100	1100		105.9	4.16	0.028		0.54	12.9	170.9		
1250	105	1100	17.11	111.4	4.15	0.028	7.90	0.54	12.9	170.3		
1255	110	1100		116.9	4.14	0.028		0.54	13.0	170.2		
1300	115	1200	17.08	122.65	4.15	0.028	8.03	0.53	13.1	169.1		
1305	120	1200		128.65	4.16	0.028		0.52	13.1	168.5		
1310	125	300	17.08	130.2	4.17	0.028	8.62	0.52	14.9	167.8		
1315	130	300	17.08	131.7	4.18	0.028	8.74	0.53	15.4	166.4		
1320	135	300	17.08	133.2	4.21	0.028	7.70	0.53	15.1	165.9		
1325	140	300	17.08	134.7	4.22	0.028	11.0	0.52	14.8	165.4		

Constituents Sampled	Container	Number	Preservative
<u>1,4 Dioxane S22 SIM</u>	<u>250 mL amber</u>	<u>2</u>	<u>NaHSO4</u>

Notes: NSV + TV = 128.75 L (see pg 1 for calc)

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2" = 0.16	2.5" = 0.26	3" = 0.37	3.5" = 0.50	4" = 0.65	6" = 1.47	3/8" = 0.006	1/2" = 0.01
--------------	-----------	-------------	-----------	-------------	-----------	-------------	-----------	-----------	--------------	-------------

Well Information

Well Location:	<u>Basin 19 near 4 Langdon Rd Plainedge</u>	Well Locked at Arrival:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Condition of Well:	<u>fair</u>	Well Locked at Departure:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Well Completion:	<u>Flush Mount / Stick Up</u>	Key Number To Well:		

Groundwater Sampling Log

Project No. 30191527.NAVI2 Well ID BPOW 3.3 Date 5-26-23 Page 1 of 2

Project Name/Location 2023 Q3 OU2 GW Sampling Weather 75° F Clear

Measuring Pt. TOC Screen Interval (ft-bmp) 280-620 Casing Diameter (in.) 4 Well Material PVC SS

Static Water Level (ft-bmp) 26.79 Total Depth (ft-bmp) 625 Water Column/ Gallons in Well 5874/378 gal

MP Elevation Pump Intake (ft-bn) Purge Method Dedicated Peristaltic Submersible Bladder Other Sample Method 1WSV + LF

Pump On/Off 11:00 / 12:55 Volume Purged (gal)

Sample Time: Label BPOW 3.3 Replicate/ Code No. Sampled by PK KK

Start 12:50 End 12:55

PID:

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
11:03	0	1,050	26.79	0	6.37	0.117	0.48	7.39	18.78	8.2	Clear	Slight
11:08	5	1,300		6.5	4.41	0.113		3.08	17.00	76.1		
11:13	10	1,300	26.95	13	4.38	0.112	1.79	3.00	16.49	79.2		
11:18	15			19.5	4.16	0.109		2.66	15.99	118.8		
11:23	20			26	4.06	0.110		2.15	15.76	148.8		
11:28	25			32.5	4.07	0.110		1.99	15.87	155.1		
11:33	30		26.98	39	4.14	0.110	2.19	1.55	15.89	159.1		
11:38	35			45.5	4.12	0.110		1.42	15.91	158.9		
11:43	40			52	4.17	0.110		1.31	15.96	158.7		
11:48	45		26.98	58.5	4.03	0.110	2.93	0.90	15.76	159.4		
11:53	50			65	4.21	0.110		0.93	15.77	159.5		
11:58	55			71.5	4.43	0.110		0.70	15.59	147.4		
12:03	60		26.99	78	4.44	0.110	3.00	0.50	15.83	147.3		
12:08	65			84.5	4.48	0.110		0.42	15.76	146.0		
12:13	70			91	4.46	0.110		0.30	15.89	147.2		
12:18	75		26.99	97.5	4.46	0.110	2.98	0.76	15.86	144.1		

Constituents Sampled	Container	Number	Preservative
VOC 524.2	40ml Vial	3	HCL
1,4 Dioxane 522 SIM	250ml Amber	2	NaHSO4

Notes:

$620 - 580 = 40 \times 0.165 = 26 + 3.765 = 98.46 = 100$

$620 - 26.74 = 593 + 0.0075 = 1.1 + 3.765 = 5.06 = 100$ Total

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: <u> </u>	Well Locked at Arrival: <u>Yes / No</u>
Condition of Well: <u> </u>	Well Locked at Departure: <u>Yes / No</u>
Well Completion: <u>Flush Mount / Stick Up</u>	Key Number To Well: <u> </u>

Groundwater Sampling Log

Project No. 30191527.NAVI2 Well ID BLOW 2-2 Page 1 of 1
 Project Name/Location 2023 Q3 OU2 GW Sampling Date 8-24-23
 Measuring Pt. Description TOC Screen Interval (ft-bmp) 455-495 Casing Diameter (in.) 2 Weather 75°F cloudy
 Static Water Level (ft-bmp) 25.84 Total Depth (ft-bmp) 495 Water Column/ Gallons in Well 469ft / 79gal Well Material PVC SS
 MP Elevation _____ Pump Intake (ft-bmp) midcrack Purge Method Dedicated Sample Method 1WSV + LF
 Pump On/Off 08:53 / 09:50 Volume Purged (gal) 40L Peristaltic _____ Submersible Bladder _____ Other _____
 Sample Time: Label BLOW 2-2 Replicate/ Code No. nlc Start 0945 End 0950 Sampled by PCJ KK

PID: 010 ppm

Lo Flow

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
0855	0	1,350	25.84	0	3.90	0.090	1.74	4.10	17.1	265.0	Clear	None
0900	5	1,250	26.02	6.25	4.15	0.092	2.22	0.59	16.0	235.5		
0905	10			13.5	4.14	0.080		0.51	15.7	202.5		
0910	15			20.25	4.13	0.080		0.51	15.6	184.0		
0915	20		26.04	27	4.09	0.080	2.88	0.50	15.5	173.6		
0920	25	450	25.92	29.25	4.09	0.080		0.43	17.3	165.4		
0925	30	450		31.5	4.10	0.080		0.32	17.3	158.5		
0930	35		25.92	33.75	4.11	0.080	2.46	0.50	17.3	153.3		
0935	40			36	4.11	0.080	2.31	0.48	17.4	150.3		
0940	45		25.91	38.25	4.12	0.080	1.72	0.50	17.2	146.5		

Constituents Sampled	Container	Number	Preservative
VOC 524.2	40ml Vial	3	HCL
1,4 Dioxane 522 SIM	250ml Amber	2	NaHSO4

Notes:
 $495 - 455 = 40 \times 0.16 = 6.4 + 3.785 = 24.2L$
 $495 - 25.84 = 46.9 + 0.0025 = 1.17 + 3.785 = 49.2L$
28L Total

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: <u>Glenn Rd and Horst Rd</u>	Well Locked at Arrival: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well: <u>Good</u>	Well Locked at Departure: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion: <u>Flush Mount</u> / Stick Up	Key Number To Well: _____

Groundwater Sampling Log

Project No. 30191527.NAVI2 Well ID BPOW2-1 Page 1 of 1
 Date 8/29/2023
 Project Name/Location 2023 Q3 OU2 GW Sampling Weather 80°F / cloudy
 Measuring Pt. Description TOC Screen Interval (ft-bmp) 360-400 Casing Diameter (in.) 2 Well Material PVC SS
 Static Water Level (ft-bmp) 23.29 Total Depth (ft-bmp) 400 Water Column/ Gallons in Well 376.7ft / 60.3gal
 MP Elevation — Pump Intake (ft-bmp) Mid screen Purge Method Dedicated Sample Method 1WSV + LF
 Pump On/Off 0859 / 1000 Volume Purged (gal) 35 Peristaltic Submersible Bladder Other
 Sample Time: Label BPOW2-1 Replicate/ Code No. MS/MSD Sampled by PQ, KK
 Start 0950 End 1000
 PID: 00ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
0900	0	1350	23.29	0	4.80	0.197	10.1	9.08	23.04	170.5	clear	slight
0905	5	↓		6.75	3.29	0.133		1.65	15.55	236.5	↓	↓
0910	10	↓		13.5	3.34	0.189		1.24	15.27	235.9	↓	↓
0915	15	↓	23.30	20.25	3.47	0.189	4.12	1.09	15.18	231.2	↓	↓
0920	20	↓		27	3.53	0.187		1.02	15.12	227.0	↓	↓
0925	25	300		28.5	3.57	0.185		0.97	15.12	225.3	↓	↓
0930	30	↓	23.31	30	3.88	0.182	10.2	0.92	17.02	213.3	↓	↓
0935	35	↓	23.30	31.5	3.94	0.181	2.96	0.88	17.18	210.6	↓	↓
0940	40	↓	23.29	33	3.93	0.180	11.9	0.87	17.17	211.7	↓	↓
0945	45	↓	23.29	34.5	3.91	0.179	2.75	0.81	17.17	212.2	↓	↓

low flow

Constituents Sampled	Container	Number	Preservative
VOC 524.2	40ml Vial	3	HCL
1,4 Dioxane 522 SIM	250ml Amber	2	NaHSO4

Notes:
 $400 - 360 = 40 \times 0.65 \times 0.16 = 16.4 \text{ gal} \times 3.785 = 24.8 \text{ L}$
 $400 - 23.29 = 376.71 \times 0.0025 = 0.94 \times 3.785 = 3.56 \text{ LTV}$
28.36L total

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: <u>Aloria Rd</u>	Well Locked at Arrival: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well: <u>Good</u>	Well Locked at Departure: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion: <u>Flush Mount</u> / <u>Stick Up</u>	Key Number To Well: _____

Groundwater Sampling Log

Project No. 30191527.NAVI2 Well ID BPDW1-6 Page 1 of 2
 Date 8/31/2023
 Project Name/Location 2023 Q3 OU2 GW Sampling Weather 80°F / sunny
 Measuring Pt. TOC Screen Interval (ft-bmp) 100-150 Casing Diameter (in.) 4" Well Material PVC SS
 Static Water Level (ft-bmp) 17.12 Total Depth (ft-bmp) 755 Water Column/ Gallons in Well 732.88 ft / 476.4 gal
 MP Elevation — Pump Intake (ft-bmp) Midscreen Purge Method Dedicated Peristaltic Submersible Bladder Other
 Pump On/Off 829 Volume Purged (gal) 135 Sample Method 1WSV + LF
 Sample Time: Label BPDW1-6 Replicate/ Code No. N/A Sampled by KK, BM
 Start 1040 End 1050
 PID: 0.0ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
830	0	1200	17.12	0	5.03	0.023	1.01	3.40	13.6	149.7	Clear	None
835	5			6	4.52	0.026		1.02	13.0	106.6		
840	10			12	4.28	0.027		0.33	12.9	158.6		
845	15		17.20	18	4.42	0.024	0.71	0.85	12.8	193.4		
850	20			24	4.56	0.024		1.29	12.9	211.8		
855	25			30	4.56	0.024		1.22	13.0	224.6		
900	30		17.21	36	4.55	0.025	0.53	1.19	12.9	241.9		
905	35			42	4.57	0.024		1.23	12.9	252.1		
910	40			48	4.68	0.023		1.27	13.0	260.8		
915	45		17.22	54	4.59	0.023	0.52	1.27	13.0	266.4		
920	50			60	4.60	0.023		1.26	12.9	272.0		
925	55			66	4.60	0.023		1.26	13.0	276.8		
930	60		17.23	72	4.61	0.023	0.53	1.29	12.9	279.9		
935	65			78	4.61	0.023		1.27	12.9	283.8		
940	70			84	4.61	0.023		1.28	12.8	286.2		
945	75	↓	17.21	90	4.61	0.023	0.65	1.26	12.9	289.2	↓	↓

Constituents Sampled	Container	Number	Preservative
VOC 524.2	40ml Vial	3	HCL
1,4 Dioxane 522 SIM	250ml Amber	2	NaHSO4

Notes: $750-100 = 50 \times 0.65 = 32.5 \times 3.785 = 123.03 \text{ L}$ 1WSV
 $TV = 750 - 17.12 = 732.88 \times 0.0025 = 1.83 \times 3.785 = 6.93$ 129.96 L Total

Well Casing Volumes	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
Gallons/Foot	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: Basin - Langdon Dr. Well Locked at Arrival: Yes / No
 Condition of Well: good Well Locked at Departure: Yes / No
 Well Completion: Flush Mount / Stick Up Key Number To Well: _____

Groundwater Sampling Log

Project No. 30191527.NAVI2 Well ID BPOWI-6 Date 8/31/2023 Page 2 of 2
 Project Name/Location 2023 Q3 OU2 GW Sampling Weather 80°F / Sunny
 Measuring Pt. TOC Screen Interval (ft-bmp) 700-750 Casing Diameter (in.) 4" Well Material X PVC SS
 Static Water Level (ft-bmp) 17.12 Total Depth (ft-bmp) 755 Water Column/ Gallons in Well 732.88 ft / 4764 gal
 MP Elevation ← Pump Intake (ft-bn) Midscreen Purge Method Dedicated Sample Method 1WSV + LF
 Pump On/Off 8:29 / 10:50 Volume Purged (gal) 138 Peristaltic Submersible Bladder Other Other
 Sample Time: Label BPOWI-6 Replicate/ Code No. N/A Start 10:40 End 10:50 Sampled by KK, BM

PID: 0.0 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
950	80	1200		96	4.61	0.023		1.26	12.9	291.6	Clear	None
955	85			102	4.61	0.023		1.26	12.9	293.1		
1000	90		17.2	108	4.61	0.023	0.47	1.25	12.8	295.5	Clear	None
1005	95			114	4.62	0.023		1.28	12.9	296.5		
1010	100			120	4.62	0.023		1.26	13.0	297.8		
1015	105	750	17.3	126	4.63	0.023	0.57	1.25	13.0	298.6		
1020	110	250		127.25	4.65	0.023	0.97	1.26	14.0	296.8		
1025	115		17.1	128.5	4.69	0.023	0.75	1.23	15.0	295.0		
1030	120		17.1	129.75	4.72	0.023	0.52	1.24	14.7	293.9		
1035	125		17.1	131	4.74	0.023	0.45	1.25	14.7	293.2		

Low flow →

Constituents Sampled	Container	Number	Preservative
VOC 524.2	40ml Vial	3	HCL
1,4 Dioxane 522 SIM	250ml Amber	2	NaHSO4

Notes: $750-700 = 50 \times 0.65 = 32.5 \times 3.785 = 123.03 L$ 129.96 L Total
 $TV = 750 - 17.12 = 732.88 \times 0.0025 = 1.83 \times 3.785 = 6.93$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: Basin-Langdon Dr Well Locked at Arrival: Yes / No

Condition of Well: good Well Locked at Departure: Yes / No

Well Completion: Flush Mount / Stick Up Key Number To Well: _____

Groundwater Sampling Log

Project No. 30191527.NAVI2 Well ID OPow 2-3 Page 1 of 1
 Date 8-29-23
 Project Name/Location 2023 Q3 OU2 GW Sampling Weather 75°F cloudy
 Measuring Pt. TOC Screen Interval (ft-bmp) 564-594 Casing Diameter (in.) 4 Well Material PVC SS
 Static Water Level (ft-bmp) 25.68 Total Depth (ft-bmp) 599 Water Column/ Gallons in Well 568ft / 369gal
 MP Elevation Pump Intake (ft-bn) mid-run Purge Method Dedicated Peristaltic Submersible Bladder Other Sample Method 1WSV + LF
 Pump On/Off 10:13 / 11:35 Volume Purged (gal)
 Sample Time: Label OPow 2-3 Replicate/ Code No. REPOB2423P01 Sampled by RL RK
 Start 11:30 End 11:35
 PID:

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
10:15	0	1,500	25.68	0	4.26	0.079	2.90	7.77	19.7	260.1	clear	none
10:20	5	1,500		7.5	4.70	0.069		0.88	16.7	62.5		slight
10:25	10	1,500		15	4.65	0.072		0.25	16.6	69.9		
10:30	15		24.3	22.5	4.64	0.073	0.67	0.20	16.7	95.6		
10:35	20			30	4.64	0.073		0.17	16.6	114.5		
10:40	25			37.5	4.65	0.073		0.15	16.6	126.3		
10:45	30		24.2	45	4.66	0.072	1.91	0.14	16.6	132.4		
10:50	35			52.5	4.66	0.072		0.14	16.6	135.6		
10:55	40			60	4.66	0.072		0.13	16.6	138.2		
11:00	45			67.5	4.66	0.072		0.13	16.6	140.9		
11:05	50	↓	24.2	75	4.66	0.072	1.68	0.12	16.7	143.0		
11:10	55	350		76.25	4.67	0.073		0.15	19.5	143.8		
11:15	60	350	25.22	78.5	4.69	0.073	1.79	0.15	20.1	147.2		
11:20	65	350	25.30	80.25	4.70	0.073	1.95	0.15	20.2	148.5		
11:25	70	350	25.30	82	4.70	0.073	1.88	0.15	20.3	148.9		

LOW FLOW

Constituents Sampled	Container	Number	Preservative
VOC 524.2	40ml Vial	3	HCL
1,4 Dioxane 522 SIM	250ml Amber	2	NaHSO4

Notes:
 $594 - 564 = 30 \times 0.65 = 19.5 + 2.785 = 73.8L$
 $594 - 25.68 = 568.3 + 0.0005 = 1.4 + 2.785 = 5.72L$
79L total

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: <u>Charlton and Hays Rd</u>	Well Locked at Arrival: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well: <u>Good</u>	Well Locked at Departure: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion: <input checked="" type="checkbox"/> Flush Mount / <input type="checkbox"/> Stick Up	Key Number To Well: <u> </u>

Groundwater Sampling Log

Project No 30191527.NAV12 Well ID BPDWI-6 Date 9/20/23
 Project Name/Location OU2 Q3 Navy GW Sampling - Resample Weather 60-70s °F, sunny
 Measuring Pt Description TOC Screen Interval (ft-bmp) 700-750 Casing Diameter (in.) 4 Well Material PVC SS
 Static Water Level (ft-bmp) 17.52 Total Depth (ft-bmp) 755 Water Column/ Gallons in Well 737.48 ft / 479.36 gal
 MP Elevation — Pump Intake (ft-bmp) midscreen Purge Method Dedicated Sample Method IWSV + TV + LF
 Pump On/Off 1354 / 1616 Volume Purged (gal) 142.5 Peristaltic Submersible Other
 Sample Time Label BPDWI-6 Replicate/ Start 1612 Code No N/A End 1616 Sampled by A.R. Hynes
B. Monegro
 PID 0.0 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Redox (mV)	Appearance	
											Color	Odor
1355	0	1100	17.50	0	4.13	0.025		2.22	13.6	126.4	clear	odor <i>strong</i>
1400	5	1100	17.50	5.5	4.08	0.025	1.77	1.17	13.5	148.9		
1405	10	1100		11	4.03	0.026		0.70	13.4	167.9		
1410	15	1100	17.51	16.5	4.24	0.024	0.96	1.17	13.2	179.4		
1415	20	1100		22	4.37	0.023		1.56	13.2	184.9		
1420	25	1100	17.51	27.5	4.36	0.023	0.99	1.56	13.3	197.0		
1425	30	1100		33	4.36	0.023		1.56	13.3	197.7		
1430	35	1100	17.51	38.5	4.37	0.023	1.00	1.60	13.1	202.8		
1435	40	1100		44	4.38	0.023		1.60	13.0	204.2		
1440	45	1100	17.50	49.5	4.36	0.023	0.85	1.57	13.0	210.1		
1445	50	1100		55	4.34	0.023		1.55	13.0	213.9		
1450	55	1100	17.50	60.5	4.34	0.023	0.70	1.56	13.0	216.0		
1455	60	1200		66.5	4.33	0.023		1.58	13.0	220.5		
1500	65	1200	17.50	72.5	4.32	0.023	0.59	1.58	13.0	224.1		
1505	70	1200		78.5	4.32	0.023		1.57	12.9	225.7		
1510	75	1200		84.5	4.32	0.023	0.62	1.64	12.9	227.6		

Constituents Sampled	Container	Number	Preservative
<u>1,4 Dioxane 522 SIM</u>	<u>250 mL amber</u>	<u>2</u>	<u>NaHSO₄</u>

Resampling event for Dioxane only

Notes
 WSV: 50 ft screen × 0.65 gal/ft = 32.5 gal × 3.785 L/gal = 123.01 L WSV → 129.7 L
 TV: 72.5 ft midscreen - 17.52 ft WL = 707.48 ft × 0.0025 gal/ft = 1.77 gal × 3.785 L/gal = 6.69 L

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: <u>Basin 19 near 4 Langdon Rd, Plainedge</u>	Well Locked at Arrival: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Condition of Well: <u>Flush Mount / Stick Up</u>	Well Locked at Departure: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Well Completion: <u>Flush Mount / Stick Up</u>	Key Number To Well: <u> </u>

Groundwater Sampling Log

Project No 30191527.NAV12 Well ID BPONI-6 Date 9/20/23
 Project Name/Location OU2 Q3 Navy GW Sampling + Resample Weather 100-70°F, sunny
 Measuring Pt Description TDC Screen Interval (ft-bmp) 700-750 Casing Diameter (in) 4 Well Material PVC SS
 Static Water Level (ft-bmp) 17.52 Total Depth (ft-bmp) 755 Water Column/ Gallons in Well 737.48 ft / 479.36 gal
 MP Elevation — Pump Intake (ft-bmp) midscreen Purge Method Dedicated Sample Method WSV + TV + LF
 Pump On/Off 1354/1616 Volume Purged (gal) 142.5 Peristaltic Submersible bladder Other —
 Sample Time: Label BPONI-6 Replicate/ Code No. N/A Sampled by A.R. Hynes
 Start 1612 End 1616

PID: 0.0 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Redox (mV)	Appearance	
											Color	Odor
1515	80	1200	17.50	90.5	4.33	0.023	0.42	1.63	12.9	229.2	clear	strong
1520	85	1200		96.5	4.34	0.022		1.63	12.8	233.1		
1525	90	1200	17.48	102.5	4.30	0.022	1.01	1.62	12.8	233.3		
1530	95	1200		108.5	4.35	0.022		1.62	12.8	237.2		
1535	100	1200	17.40	114.5	4.35	0.022	1.10	1.61	12.7	237.7		
1540	105	1200		120.5	4.35	0.022		1.60	12.7	240.9		
1545	110	1200	17.39	126.5	4.35	0.023	0.53	1.59	12.7	241.6		
1550	115	1200		132.5	4.37	0.023		1.59	12.8	241.3		
1555	120	500	17.31	135	4.37	0.023	0.77	1.59	13.4	247.1		
1600	125	500	17.31	137.5	4.37	0.023	0.85	1.59	13.7	244.2		
1605	130	500	17.31	140	4.38	0.023	0.82	1.61	13.7	244.4		
1610	135	500	17.31	142.5	4.38	0.023	0.61	1.60	13.6	245.2		

Switch to low flow
↘

Constituents Sampled	Container	Number	Preservative
<u>1,4 Dioxane 522 SIM</u>	<u>250 mL amber</u>	<u>2</u>	<u>NaHSO4</u>

Notes
WSV + TV = 129.7 L (see p. 1 for calc)

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location:	<u>Basin 19 near 4 Langdon Rd, Plainview</u>	Well Locked at Arrival:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Condition of Well:	<u>Good</u>	Well Locked at Departure:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Well Completion:	<input checked="" type="checkbox"/> Flush Mount	<input type="checkbox"/> Stick Up	Key Number To Well	

Groundwater Sampling Log

Project No 30191527 NAVI2 Well ID BPOW 4-2R

Date 9/19/23

Project Name/Location OU2 NAVY Groundwater Sampling

Weather 75°F, Sunny

Measuring Pt. Description TOC Screen Interval (ft-bmp) 725-765 Casing Diameter (in.) 4

Well Material PVC SS

Static Water Level (ft-bmp) 27.49 Total Depth (ft-bmp) 770 Water Column/ Gallons in Well 742.51 ft / 482.6 gal

MP Elevation _____ Pump Intake (ft-bmp) midscreen Purge Method Dedicated
 Pump On/Off 1528/1738 Volume Purged (gal) 107.75 Peristaltic Submersible Bladder Other _____

Sample Method 1 WSV+Lowflow+TV

Sample Time Label BPOW 4-2R Replicate/ Code No L
 Start 1733 End 1738 Code No N/A

Sampled by A.R. Hynes
B. Monegro

PID 0.1 ppm

Leak 200 mL/min Add L to rate (ARH)

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Redox (mV)	Appearance	
											Color	Odor
1530	0	1200	28.5	0	4.33	0.034	3.54	6.84	17.6	245.8	Clear	None
1535	5	1000	28.5	6	3.93	0.032	3.54	5.20	16.3	271.5		
1540	10	1000	27.5	10	3.69	0.034	1.30	4.27	15.5	283.6		
1545	15	1000		14	3.67	0.035		5.37	15.4	293.5		
1550	20	1000	27.45	21	3.59	0.035	1.48	6.22	15.3	305.3		
1555	25	1050		26	3.57	0.035		6.60	15.2	308.5		
1600	30	1050	27.41	31.25	3.56	0.035	1.45	6.42	15.2	311.9		
1605	35	1050		36.5	3.54	0.035		6.63	15.3	316.3		
1610	40	1050	27.43	41.75	3.54	0.035	1.39	6.40	15.3	318.0		
1615	45	1050		47	3.53	0.035		6.77	15.2	321.5		
1620	50	1050	27.41	52.25	3.52	0.035	1.34	6.80	15.2	324.3		
1625	55	1050		57.5	3.51	0.035		6.86	15.2	326.2		
1630	60	1050	27.40	62.75	3.50	0.036	0.96	6.79	15.2	328.4		
1635	65	1050		68	3.49	0.036		6.74	15.2	331.2		
1640	70	1050	27.37	73.25	3.48	0.035	2.22	6.44	15.1	333.7		
1645	75	1050		78.5	3.48	0.035		6.74	15.1	335.1		

Constituents Sampled	Resample for Dioxane only	Container	Number	Preservative
VOCS 5242 (ARH)		40 mL vial	3	HCl
1,4-Dioxane 522 SIM		250 mL glass amber	2	NaHSO4

Notes: Leak between dedicated water line and purge line. Leak in air line

Well Screen Volume (WSV) 40 foot screen x 0.65 gal/ft = 26 gal x 3.785 L/gal = 98.41 L WSV

Tubing Volume (TV) (745 ft - 27.49 static WL) x 0.01 gal/ft = 1.79 gal x 3.785 L/gal = 6.78 L

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.008
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location	34 Elm Drive West, Levittown, NY		Well Locked at Arrival	Yes	No
Condition of Well	2/3 bolts, fair		Well Locked at Departure	Yes	No
Well Completion	Flush Mount / Stick Up		Key Number To Well		

Groundwater Sampling Log

Project No. 30191527 NAVIZ Well ID BPOW 4-2R

Date 9/19/23

Project Name/Location OU2 NAVY Groundwater Sampling

Weather 75°F, Sunny

Measuring Pt. Description TOC Screen Interval (ft-bmp) 725-765 Casing Diameter (in) 4

Well Material PVC SS

Static Water Level (ft-bmp) 27.49 Total Depth (ft-bmp) 770 Water Column/ Gallons in Well 742.51 ft / 482.6 gal

MP Elevation - Pump Intake (ft-bmp) midscreen Purge Method Dedicated Peristaltic Submersib Bladder Other

Sample Method 1 WSV+Lowflow+TV

Pump On/Off 1528/1738 Volume Purged (gal) L 107.75

Sampled by A.R. Hynes
B. Mancio

PID 0.1 ppm

Had to swap YSI
low flow

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Redox (mV)	Appearance	
											Color	Odor
1650	80	1050	27.38	83.75	3.46	0.025	0.99	6.70	15.2	337.7	Clear	None
1655	85	1050		89	3.44	0.036		6.78	15.2	339.4		
1700	90	1050	27.34	94.25	3.44	0.036	2.04	6.47	15.2	340.5		
1705	95	1050		99.5	3.43	0.035		6.61	15.1	197.1		
1710	100	150	27.34	104.75	3.49	0.035	0.98	6.82	15.1	205.0		
1715	105	150	27.32	105.5	3.45	0.036	0.61	6.73	15.8	247.5		
1720	110	150	27.32	106.25	3.43	0.036	0.42	5.87	16.9	262.2		
1725	115	150	27.32	107	3.46	0.036	0.51	5.35	16.9	262.6		
1730	120	150	27.32	107.75	3.48	0.036	0.64	5.38	16.6	271.9		

Constituents Sampled	Container	Number	Preservative
VOCs 524-2	40 mL vial	3	HCl
1,4-Dioxane 522 SIM	250 mL glass amber	2	NaHSO4

Notes: Leak between dedicated water line and purge line. Leak in air line.

Well Screen Volume (WSV) 40 foot screen x 0.65 gal/ft = 26 gal x 3.785 L/gal = **98.41 L WSV**

Tubing Volume (TV) (745 ft - 27.49 static WL) x 0.01 gal/ft = 1.79 gal x 3.785 L/gal = **6.78 L**

Well Casing Volumes

1" = 0.04	1.5" = 0.09	2" = 0.16	2.5" = 0.26	3" = 0.37	3.5" = 0.50	4" = 0.65	6" = 1.47	3/8" = 0.006
-----------	-------------	-----------	-------------	-----------	-------------	-----------	-----------	--------------

Well Information * Weepback seen initially - likely due to pressure too high, vent away when lowered

Well Location	<u>34 Elm Drive West, Levittown, NY</u>	Well Locked at Arrival	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well	<u>2/3 bolts, fair</u>	Well Locked at Departure	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion	<u>Flush Mount / Stick Up</u>	Key Number To Well	

Groundwater Sampling Log

Project No. 30169301
 Project Name/Location _____

Well ID GIM 2102

Page 1 of 1
 Date 9/7/23
 Weather 91°F Humid

Measuring Pt. Description TOC
 Screen Interval (ft-bmp) 516-526
 Casing Diameter (in.) 4

Well Material X PVC
SS

Static Water Level (ft-bmp) 44.77
 Total Depth (ft-bmp) 531
 Water Column/ Gallons in Well 487 / 316 gal

Sample Method LF + TV

MP Elevation _____ Pump Intake (ft-br) Mid-Screen
 Purge Method: GeoSub
 Peristaltic _____
 Submersible _____
 Other _____

Pump On/Off 0904 Volume Purged (gal) 24 L
 Sample Time: Label GIM 2102 Replicate/ Code No. N/A
 Start 1010
 End 1025

Sampled by SU
BM

1010

PID: 0.4

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
0905	0	800	44.76	0	5.23	0.115	0.40	3.96	17.64	197.2	Clear	None
0910	5	800	44.86	4	3.78	0.118	8.37	3.23	16.47	263.8	"	"
0915	10	800	44.87	8	3.72	0.115	3.53	3.24	16.41	275.0	"	"
0920	15	800	44.87	12	3.81	0.115	1.49	3.02	16.36	250.9	"	"
0925	20	200	44.78	13	3.99	0.115	2.37	2.79	16.96	281.1	"	"
0930	25	200	44.81	14	4.40	0.115	1.27	2.43	18.62	266.9	"	"
0935	30	200	44.81	15	4.51	0.118	0.91	2.36	17.89	270.7	"	"
0940	35	200	44.81	16	4.42	0.120	1.09	2.18	17.33	283.2	"	"
0945	40	200	44.81	17	4.37	0.120	1.18	2.103	17.31	290.6	"	"
0950	45	200	44.81	18	4.36	0.119	1.19	1.98	17.22	295.5	"	"
0955	50	200	44.82	19	4.38	0.118	1.62	1.96	17.24	295.7	"	"
1000	55	200	44.83	20	4.39	0.118	1.51	1.94	17.25	296.1	"	"
1005	60	200	44.83	21	4.40	0.117	1.54	1.97	17.28	297.1	"	"

Constituents Sampled	Container	Number	Preservative
<u>1,4 Dioxane</u>	<u>2 1L amber</u>	<u>2</u>	<u>None</u>
<u>VOCs</u>	<u>3 40mL vial</u>	<u>3</u>	<u>17CL</u>

Notes: 531 - 44.77 = 487' = 11L

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: <u>N. Bytchark</u>	Well Locked at Arrival: <u>Yes</u> / No
Condition of Well: <u>Good</u>	Well Locked at Departure: <u>Yes</u> / No
Well Completion: <u>Flush Mount</u> / Stick Up	Key Number To Well: _____

Groundwater Sampling Log

Project No. 30191527.NAVI2 Well ID BPOW4-2R Date 8/31/2023 Page 1 of 2
 Project Name/Location 2023 Q3 OU2 GW Sampling Weather 80°F Sunny
 Measuring Pt. TOC Screen Interval (ft-bmp) 775-765 Casing Diameter (in.) 4 Well Material PVC SS
 Static Water Level (ft-bmp) 29.89 Total Depth (ft-bmp) 770 Water Column/ Gallons in Well 735.11 ft / 477.89 gal
 MP Elevation — Pump Intake (ft-bmp) Microscreen Purge Method Dedicated Peristaltic Submersible Bladder Other
 Pump On/Off 1128 Volume Purged (gal) 115 Sample Method 1WSV + LF
 Sample Time: Label BPOW42R Replicate/ Code No. N/A Sampled by KK, BM
 Start 13:40 End 13:50
 PID: DDppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
11:30	0	1200	29.89	0	5.69	0.044	5.17	6.13	16.52	118.5	Clear	None
11:35	5	↓		6	3.92	0.008		11.72	15.83	240.2		
11:40	10	↓		12	4.18	0.043		6.22	17.33	202.1		
11:45	15	750	29.87	18	4.65	0.044	3.21	5.23	17.21	214.1		
11:50	20	↓		21.75	4.55	0.046		5.78	17.02	224.5		
11:55	25	1200		25.5	4.21	0.046		6.83	16.22	247.2		
12:00	30		29.82	31.5	4.04	0.046	0.79	6.65	16.03	259.3		
12:05	35			37.5	4.19	0.046		6.18	16.11	258.4		
12:10	40			43.5	4.31	0.046		6.05	16.03	256.9		
12:15	45		29.81	49.5	4.34	0.046	1.72	6.15	15.96	260.8		
12:20	50			55.5	4.36	0.046		6.14	15.91	264.8		
12:25	55			61.5	4.38	0.046		6.18	16.07	267.0		
12:30	60		29.79	67.5	4.42	0.046	0.99	6.14	15.79	270.3		
12:35	65			73.5	4.37	0.045		6.11	15.88	273.9		
12:40	70			79.5	4.40	0.045		6.12	15.96	275.6		
12:45	75	↓	29.72	85.5	4.40	0.045	0.91	6.04	16.01	279.5	↓	↓

Constituents Sampled	Container	Number	Preservative
VOC 524.2	40ml Vial	3	HCL
1,4 Dioxane 522 SIM	250ml Amber	2	NaHSO4

Notes: $765 - 725 = 40 \times 0.65 = 26 \text{ gal} \times 3.785 = 98.4 \text{ L}$ 1 WV
 $765 - 29.89 = 735.11 \times 0.0025 = 1.84 \times 3.785 = 6.95$ **105.38 L Total**

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

1/4 = 0.0025

Well Information

Well Location: <u>34 Elm Drive, West</u>	Well Locked at Arrival: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well: <u>Good</u>	Well Locked at Departure: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion: <u>Flush Mount</u> / <u>Stick Up</u>	Key Number To Well: _____

Groundwater Sampling Log

Project No. 30191527.NAVI2 Well ID BPDW4-2R Page 12 of 21
 Date 8/31/2023
 Project Name/Location 2023 Q3 OU2 GW Sampling Weather 80°F / sunny
 Measuring Pt. Description TOC Screen Interval (ft-bmp) 725-765 Casing Diameter (in.) 4" Well Material X PVC SS
 Static Water Level (ft-bmp) 29.89 Total Depth (ft-bmp) 770 Water Column/ Gallons in Well 735.11 ft / 477.8 gal
 MP Elevation _____ Pump Intake (ft-bn) Midscreen Purge Method Dedicated Sample Method 1WSV + LF
 Pump On/Off 1128 Volume Purged (gal) 115 Peristaltic _____ Submersible Bladder _____ Other _____
 Sample Time: Label BPDW4-2R Replicate/ Code No. N/A Start 13:40 End 13:50 Sampled by KK, BM
 PID: 0.0 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
12:50	80	1200		91.5	4.44	0.045		6.05	16.05	278.5	Clear	None
12:55	85	↓		97.5	4.45	0.045		5.99	16.03	280.9		
13:00	90	↓	29.63	103.5	4.46	0.045	0.81	6.00	16.01	282.1		
low flow → 13:05	95	260		104.75	4.58	0.045	2.07	5.62	18.08	277.7		
13:10	100	↓	29.58	106	4.76	0.045	1.45	5.44	19.50	266.9		
13:15	105	↓	29.57	107.25	4.77	0.045	1.46	5.13	19.80	266.3		
13:20	110	↓	29.57	108.5	4.74	0.045	0.84	5.03	19.94	267.8		
13:25	115	↓	29.55	109.75	4.74	0.046	0.82	4.95	19.83	268.5		
13:30	120	↓	29.50	111	4.71	0.045	0.85	4.89	19.77	270.7		
13:35	125	↓	29.25	112.25	4.70	0.046	0.63	4.89	19.28	272.4	↓	↓

Constituents Sampled	Container	Number	Preservative
VOC 524.2	40ml Vial	3	HCL
1,4 Dioxane 522 SIM	250ml Amber	2	NaHSO4

Notes: $765 - 725 = 40 \times 0.65 = 26 \text{ gal} \times 3.785 = 98.4 \text{ L}$ $765 - 29.89 = 735.11 \times 0.0025 \times 1.84 \times 3.785 = 6.95$ **105.35 L Total**

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: <u>34 Elm Drive, West</u>	Well Locked at Arrival: <u>Yes</u> / No
Condition of Well: <u>good</u>	Well Locked at Departure: <u>Yes</u> / No
Well Completion: <u>Flush Mount</u> / Stick Up	Key Number To Well: _____

Groundwater Sampling Log

Project No. 30191527.NAVI2 Well ID BPOW4-1R Date 8/28/2023 Page 2 of 2
 Project Name/Location 2023 Q3 OU2 GW Sampling Weather 80° F / cloudy
 Measuring Pt. TOC Screen Interval (ft-bmp) 652-692 Casing Diameter (in.) 4 Well Material X PVC SS
 Static Water Level (ft-bmp) 29.82 Total Depth (ft-bmp) 697 Water Column/ Gallons in Well _____
 MP Elevation — Pump Intake (ft-bn) Midscreen Purge Method Dedicated Sample Method 1WSV + LF
 Pump On/Off 1318 / 1505 Volume Purged (gal) 115 Peristaltic Submersible Bladder Other _____
 Sample Time: Label BPOW4-1R Replicate/ Code No. N/A Sampled by PQ, KK
 Start 1455 End 1505
 PID: 0.0ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
1440	80	400	27.12	107.5	4.88	0.072	3.02	15.03	17.23	236.9	Clear	Slight
1445	85	↓	27.13	109.5	4.89	0.072	0.64	15.05	17.23	235.8	↓	↓
1450	90	↓	27.13	111.5	4.88	0.071	1.02	15.58	17.24	236.1	↓	↓

Constituents Sampled	Container	Number	Preservative
VOC 524.2	40ml Vial	3	HCL
1,4 Dioxane 522 SIM	250ml Amber	2	NaHSO4

Notes: IWV
 $692 - 652 = 40\text{ft} \times 0.65 = 26\text{gal} \times 3.785 = 98.41\text{L}$
 $692 - 29.82 = 662.18 \times 0.0025 = 1.66 \times 3.785 = 6.27\text{L TV}$
104.67 Total

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006	1/2" = 0.01
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65			

14" = 0.0025

Well Information

Well Location: <u>2 Elm Dr</u>	Well Locked at Arrival: <u>Yes</u> / No
Condition of Well: <u>Good</u>	Well Locked at Departure: <u>Yes</u> / No
Well Completion: <u>Flush Mount</u> / Stick Up	Key Number To Well: _____

Groundwater Sampling Log

Project No. 30191527.NAVI2

Well ID BPOW4-1R

Page 1 of 2
Date 8/28/2023

Project Name/Location 2023 Q3 OU2 GW Sampling

Weather 80°F / cloudy

Measuring Pt. Description TOC Screen Interval (ft-bmp) 652-692

Casing Diameter (in.) 4

Well Material PVC SS

Static Water Level (ft-bmp) 29.82 Total Depth (ft-bmp) 697

Water Column/ Gallons in Well 662.18 A / 430 gal

MP Elevation — Pump Intake (ft-bn) Midscreen

Purge Method Dedicated

Sample Method 1WSV + LF

Pump On/Off 1318 / 1505 Volume Purged (gal) 115

Peristaltic Submersible Bladder Other

Sample Time: Label BPOW4-1R Replicate/ Start 1455 Code No. N/A End 1505

Sampled by PD, KK

PID: 0.0 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
1320	0	1200	29.82	0	5.01	0.071	1.93	2.14	16.61	173.6	clear	slight
1325	5	1500		6	4.89	0.070		0.72	16.21	188.9		
1330	10			13.5	4.89	0.078		3.94	15.40	242.1		
1335	15		29.91	21	4.97	0.073	1.01	0.24	15.79	226.3		
1340	20			28.5	4.67	0.034		0.15	15.17	233.4		
1345	25			36	4.65	0.069		0.25	15.12	232.6		
1350	30		29.91	43.5	4.73	0.069	2.34	0.27	15.15	232.5		
1355	35			51	4.76	0.069		0.20	15.14	233.8		
1400	40			58.5	4.79	0.068		0.34	15.15	233.7		
1405	45		28.62	66	4.79	0.069	2.30	0.34	15.10	239.8		
1410	50			73.5	4.74	0.070		0.79	15.14	239.2		
1415	55			81	4.75	0.070		2.82	15.17	238.2		
1420	60		27.5	88.5	4.75	0.070	2.32	6.57	15.12	243.1		
1425	65			96	4.73	0.067		7.55	15.13	243.5		
1430	70			103.5	4.72	0.069		8.01	15.13	244.1		
1435	75	400	27.5	105.5	5.01	0.072	3.62	13.69	17.20	230.0		

LOWFLOW

Constituents Sampled	Container	Number	Preservative
VOC 524.2	40ml Vial	3	HCL
1,4 Dioxane 522 SIM	250ml Amber	2	NaHSO4

Notes:
 $692 - 652 = 40 \text{ ft} \times 0.65 = 26 \text{ gal} \times 3.785 = 98.41 \text{ L}$
 $692 - 29.82 = 662.18 \times 0.0025 = 1.66 \times 3.785 = 6.27 \text{ L TV}$
104.67 L TOTAL

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006	1/4" = 0.0025
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01		

Well Information

Well Location: <u>2 Elm Dr</u>	Well Locked at Arrival: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well: <u>Good</u>	Well Locked at Departure: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion: <u>Flush Mount</u> / Stick Up	Key Number To Well: <u>—</u>

Groundwater Sampling Log

Project No. 30191527.NAVI2 Well ID BPOW3-4 Date 8/28/2023 Page 1 of 2
 Project Name/Location 2023 Q3 OU2 GW Sampling Weather 80°F / cloudy
 Measuring Pt. TOC Screen Interval (ft-bmp) 640-690 Casing Diameter (in.) 4 Well Material X PVC SS
 Static Water Level (ft-bmp) 28.57 Total Depth (ft-bmp) 695 Water Column/ Gallons in Well 661.4 ft / 429.9 gal
 MP Elevation — Pump Intake (ft-bn) MIDSCREEN Purge Method Dedicated Sample Method 1WSV + LF
 Pump On/Off 0850 / 1112 Volume Purged (gal) 135 Peristaltic Bladder Other —
 Sample Time: Label BPOW3-4 Replicate/ Code No. N/A Start 1102 End 1112 Sampled by PQ, KK
 PID: 0.0

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
0852	0	1200	28.57	0	4.87	0.064	2.23	2.86	16.0	229.0	Clear	None
0857	5			6	4.79	0.064		0.48	15.8	247.0		
0902	10			12	4.64	0.064		0.35	15.7	267.9		
0907	15		28.61	18	4.36	0.064	1.56	0.31	15.8	289.4		
0912	20			24	4.34	0.064		0.32	15.6	292.0		
0917	25			30	4.35	0.064		0.28	15.5	296.1		
0922	30		28.63	36	4.35	0.064	1.30	0.26	15.4	299.1		
0927	35			42	4.36	0.064		0.25	15.5	311.6		
0932	40			48	4.38	0.065		0.25	15.5	312.1		
0937	45		28.55	54	4.39	0.065	1.97	0.24	15.5	316.4		
0942	50			60	4.39	0.065		0.24	15.5	319.4		
0947	55			66	4.40	0.065		0.23	15.5	321.5		
0952	60			72	4.40	0.065		0.22	15.5	323.2		
0957	65		28.33	78	4.40	0.065	1.74	0.22	15.5	323.9		
1002	70			84	4.41	0.066		0.22	15.4	327.8		
1007	75			90	4.41	0.066		0.21	15.5	328.6		

Constituents Sampled	Container	Number	Preservative
VOC 524.2	40ml Vial	3	HCL
1,4 Dioxane 522 SIM	250ml Amber	2	NaHSO4

Notes: $690 - 640 = 50 \times 0.065 = 32.5 \times 3.785 = 123L$ 1WV
 $690 - 28.57 = 661.43 \times 0.0025 = 1.65 \times 3.785 = 6.25L TV$ 129.7 TOTAL

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006	7/4" = 0.0025
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01		

Well Information

Well Location: <u>491 Seamen's Neck Rd - In recharge basin</u>	Well Locked at Arrival: <u>Yes</u> / No
Condition of Well: <u>Good</u>	Well Locked at Departure: <u>Yes</u> / No
Well Completion: <u>Flush Mount</u> / Stick Up	Key Number To Well: <u> </u>

Groundwater Sampling Log

Project No. 30191527.NAVI2

Well ID BPOW34

Date 8/28/2023 Page 2 of 2

Project Name/Location 2023 Q3 OU2 GW Sampling

Weather 80°F / cloudy

Measuring Pt. Description TOC Screen Interval (ft-bmp) 640-690 Casing Diameter (in.) 4

Well Material X PVC SS

Static Water Level (ft-bmp) 28.57 Total Depth (ft-bmp) 695 Water Column/ Gallons in Well 661.4H / 429.9 gal

MP Elevation — Pump Intake (ft-bn) Midscreen Purge Method Dedicated
 Pump On/Off 0850/1112 Volume Purged (gal) 135 Peristaltic —
 Submersib Bladder Other —

Sample Method 1WSV + LF

Sample Time: Label BPOW34 Replicate/ Code No. N/A
 Start 1102 End 1112

Sampled by PQ, KK

PID: 0.0ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
1012	80	1200	28.33	96	4.40	0.066		0.20	15.4	328.0	Clear	None
1017	85			102	4.40	0.066		0.20	15.4	330.8		
1022	90		28.01	108	4.40	0.066	1.05	0.19	15.5	333.5		
1027	95			114	4.41	0.066		0.19	15.4	333.9		
1032	100			120	4.41	0.066		0.19	15.4	331.1		
1037	105		27.93	126	4.42	0.066	1.74	0.19	15.4	331.1		
LOW FLOW 1042	110	250		127.25	4.43	0.066		0.18	15.5	330.8		
1047	115		27.85	128.50	4.47	0.066	1.10	0.22	17.7	327.3		
1052	120		27.85	129.75	4.50	0.066	1.22	0.22	17.6	325.9		
1057	125		27.84	131	4.51	0.066	1.15	0.22	17.6	325.9		

Constituents Sampled	Container	Number	Preservative
VOC 524.2	40ml Vial	3	HCL
1,4 Dioxane 522 SIM	250ml Amber	2	NaHSO4

Notes: $690 - 640 = 50 \times 0.65 = 32.5 \times 3.785 = 123L$ 1 WV
 $690 - 28.57 = 661.43 \times 0.0025 = 1.65 \times 3.785 = 6.25L TV$ 129L total

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	1/4" = 0.0025

Well Information

Well Location: 491 Seaman's Neck Rd - In Recharge Basin Well Locked at Arrival: Yes / No

Condition of Well: Good Well Locked at Departure: Yes / No

Well Completion: Flush Mount / Stick Up Key Number To Well: _____

Groundwater Sampling Log

Project No. 30169301.GWMI2

Well ID GM-18D

Date 10/26/23 Page 1 of 1

Project Name/Location OU2 Q4 2023 GW Sampling

Weather 60°F, sunny

Measuring Pt. Description TOC Screen Interval (ft-bmp) 290-300

Casing Diameter (in.) 4

Well Material PVC SS

Static Water Level (ft-bmp) 43.97

Total Depth (ft-bmp) 300

Water Column/ Gallons in Well 54"/35gal

MP Elevation -

Pump Intake (ft-bn) Midstream

Purge Method non-dedicated

Sample Method LF+TV

Pump On/Off 1035/1148

Volume Purged (gal) 240

Peristaltic Submersible Other

Sample Time: Label Start 1140 End 1146

Replicate/ Code No. N/A

Sampled by AMK

PID: 0.0

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
1037	0	400	44.59	0.0	5.21	0.124	0	18.15	19.69	219.0	Clear	None
1042	5	400		0.0	5.36	0.119	0.98	20.17	17.53	229.4	ll	ll
1047	10	400		4.0	5.44	0.119		25.28	17.51	234.7	ll	ll
1052	15	400	44.58	6.0	5.44	0.119		25.43	17.48	242.1	ll	ll
1057	20	400		8.0	5.45	0.119	0.86	27.45	17.52	246.5	ll	ll
1102	25	400		10.0	5.44	0.119		27.66	17.61	250.7	ll	ll
1107	30	400	44.50	12.0	5.44	0.119		27.83	17.75	255.0	ll	ll
1112	35	400		14.0	5.45	0.119	0.91	27.97	17.85	257.4	ll	ll
1117	40	400		16.0	5.45	0.119		28.10	17.93	261.2	ll	ll
1122	45	400	44.48	18.0	5.44	0.119	0.24	28.06	17.91	263.6	ll	ll
1127	50	400	44.48	20.0	5.41	0.119	0.29	28.03	17.82	266.8	ll	ll
1132	55	400	44.47	22.0	5.42	0.119	0.71	27.99	17.81	269.4	ll	ll
1137	60	400	44.46	24.0	5.43	0.119	0.63	27.96	17.80	271.4	ll	ll

x+tv

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	6	HCL
1-4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes:
 $300 - 43.97 = 256.03 \times 0.006 = 1.53618 \times 3.785 = 5.8144$
 * Likely a problem with YSI, even after calibration. High DO.

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: Parking lot across from MTA with FedEx cars Well Locked at Arrival: Yes / No

Condition of Well: Good Well Locked at Departure: Yes / No

Well Completion: Flush Mount / Stick Up Key Number To Well: _____

Groundwater Sampling Log

Project No. 30169301-1 Nav1 Well ID BLOW 2-2 Date 11/2/23 Page 1 of 1
 Project Name/Location O2U Q4 2023 GW Sampling Weather 30°F, Sunny
 Measuring Pt. Description TOC Screen Interval (ft-bmp) 455-495 Casing Diameter (in.) 2 Well Material PVC SS
 Static Water Level (ft-bmp) 19.35 Total Depth (ft-bmp) 495 Water Column/ Gallons in Well 475/17 gal
 MP Elevation - Pump Intake (ft-bn) Midsection Purge Method non-dedicated Sample Method IWSV + TV
 Pump On/Off 0857/0953 Volume Purged (gal) 38.57L Peristaltic Submersible Other
 Sample Time: Label BLOW 2-2 Replicate/ Start 0945 Code No. N/A End 0952 Sampled by ANH, PG
 PID: 0.0

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
0858	0	600		3.0	3.34	0.060		3.8	13.5	195.8	Clear	N/A
0903	5	600		6.0	3.52	0.056	overrun	1.38	13.3	200.4	"	"
0908	10	1000	19.35	10.0	3.6	0.056		1.07	13.7	194.3	"	"
0913	15	1000		15.0	3.66	0.056		0.96	13.4	182.0	"	"
0918	20	1000		20.0	3.67	0.057		0.94	13.3	177.2	"	"
0923	25	1000	19.39	25.0	3.69	0.057		0.94	13.3	173.9	"	"
0928	30	1000		30.0	3.73	0.057		0.94	12.6	169.2	"	"
0933	35	500	19.38	33.75	3.74	0.057		0.68	12.5	166.2	"	"
0938	40	500	19.38	36.25	3.74	0.057		0.65	12.9	164.1	"	"
0943	45	500	19.38	38.75	3.75	0.057		0.67	12.9	162.7	"	"

Constituents Sampled	Container	Number	Preservative
VOC's 6260 <u>524.2</u>	40ml Vial	3	HCL
1-4 Dioxane 8270 <u>522 SIM</u>	1 Liter Amber	2	None

Notes

No X.16 = 64 gal + 1.2 gal = 7.6 gal x 3.785 = 28.8 L
NOTE: Turbidity meter not functioning properly during sampling, permission granted to sample

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	<u>2" = 0.16</u>	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: Globe / Hammer Well Locked at Arrival: Yes / No
 Condition of Well: Good Well Locked at Departure: Yes / No
 Well Completion: Flush Mount / Stick Up Key Number To Well: _____

Location ID:	BPOW 3-3	Date(s):	2023-10-30	Work Order(s):	2023 - Q4 Groundwater Monitoring		
Client:	Northrop Grumman	Facility:	OU2	Facility Location:	Bethpage, NY, United States Update	Area:	Default Site
Weather(°F):	FOG, T:57.61 °F, rH:92%, Clouds: 100%, Wind:0mph N			Field Technician:	Stephen Vlavianos		
Measuring Pt. Description:	Top of Inner Casing	Screen Setting (ft-bgs):	580.00-620.00	Casing Diameter (in):	4.00	Well Casing Material:	PVC
Static Water Level (ft-bmp):	20.94	Total Depth (ft-bmp):	620	Water Column(ft):	599.06	Gallons in Well: 391.07	
Depth to Product (ft-bmp):	NA	Pump Intake Depth(ft-bmp):	600	Purge Method:	Low Flow	Purging Equipment:	Dedicated Pump
Purge Start Time:	10:13	Total Volume Purged (gallons):	29.1	Sample ID:	BPOW3-3	Sample Time:	11:30
Purge End Time:	11:30	Well Volumes Purged (total):	0.07	Replicate Type / Replicate ID:	NA / NA	Water Quality Meter/ ID:	YSI 600XLM V2 / 18904

Scope of work completed? Yes

Time	Total Elapsed (min)	Flow Rate	Flow Rate Unit	Depth to Water (ft)	pH (S.U.)	Specific Conductivity (mS/cm ^e)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
10:15	0	3500	mL/min	20.94	5.62	0.053	3.89	49.26	15.21	134.6	Clear	No Odor
10:20	5	3000	mL/min	20.94	5.08	0.103	3.87	42.37	15.1	0.8	Clear	No Odor
10:25	10	1500	mL/min	20.95	5.03	0.103	2.88	39.31	14.87	4.8	Clear	No Odor
10:30	15	1500	mL/min	20.95	5	0.103	1.13	28.81	14.85	28.1	Clear	No Odor
10:35	20	1500	mL/min	20.95	5	0.103	0.103	21.55	14.85	48.4	Clear	No Odor
10:40	25	1500	mL/min	20.98	5	0.102	0.29	18.22	14.84	54	Clear	No Odor
10:45	30	1500	mL/min	20.97	5.01	0.101	0.29	16.41	14.83	61.2	Clear	No Odor
10:50	35	1500	mL/min	20.93	5	0.101	0.38	13.84	14.84	64.4	Clear	No Odor
10:50	35	1500	mL/min	20.93	5.01	0.101	0.38	15.06	14.81	62.7	Clear	No Odor
10:55	40	1500	mL/min	20.92	4.97	0.101	0.46	12.92	14.81	67.1	Clear	No Odor
11:00	45	1500	mL/min	20.93	4.98	0.101	0.46	11.73	14.79	68.1	Clear	No Odor
11:05	50	1500	mL/min	20.92	4.96	0.1	0.42	11.59	14.79	69.2	Clear	No Odor
11:10	55	400	mL/min	20.93	5	0.1	0.52	11.04	14.85	68.9	Clear	No Odor
11:15	60	400	mL/min	20.91	5.02	0.101	0.48	10.61	14.45	68.5	Clear	No Odor
11:20	65	400	mL/min	20.91	5.02	0.1	0.51	10.34	14.72	69.3	Clear	No Odor
11:25	70	400	mL/min	20.91	5.03	0.1	0.52	10.24	14.79	68.9	Clear	No Odor

Constituent Sampled	Container	Number	Preservative
1,2,4-Trichlorobenzene (VOCs)	Clear Glass	3	
1,4-Dioxane (8270C)	Amber Glass	2	

Comments: None

Well Information:

Well Labeled Properly: yes

Is Well in Good Condition? good

Well Inspection Comments: NA

- ft-bmp = feet below measuring point
- in = inches
- ft = feet
- mL/min = milliliters per minute
- uS/cm = microSiemens per centimeter
- NTU = Nephelometric Turbidity Unit
- mg/L = milligrams per liter
- S.U = standard units
- mS/cm = milli

Location ID:	BPOW 2-1	Date(s):	2023-11-02	Work Order(s):	2023 - Q4 Groundwater Monitoring		
Client:	Northrop Grumman	Facility:	OU2	Facility Location:	Bethpage, NY, United States Update	Area:	Default Site
Weather(°F):	CLEAR, T:36.64 °F, rH:83%, Clouds: 0%, Wind:5.01mph W-NW			Field Technician:	Patrick Quinlan		
Measuring Pt. Description:	Top of Inner Casing	Screen Setting (ft-bgs):	360.00-400.00	Casing Diameter (in):	2.00	Well Casing Material:	PVC
Static Water Level (ft-bmp):	19.34	Total Depth (ft-bmp):	400	Water Column(ft):	380.66	Liters in Well:	235.16
Depth to Product (ft-bmp):	NA	Pump Intake Depth(ft-bmp):	Midscreen	Purge Method:	Low Flow	Purging Equipment:	Dedicated Bladder
Purge Start Time:	NA	Total Volume Purged (liters):	40	Sample ID:	BPOW2-1	Sample Time:	09:50
Purge End Time:	09:45	Well Volumes Purged (total):	0.17	Replicate Type / Replicate ID:	Duplicate / REP11223PQ1	Water Quality Meter/ ID:	YSI Pro DSS / NA
Scope of work completed?	Yes						

Time	Total Elapsed (min)	Flow Rate	Flow Rate Unit	Depth to Water (ft)	pH (S.U.)	Specific Conductivity (mS/cm ^e)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
08:46	0	900	mL/min	19.34	3.34	0.123	3.49	9.22	13.5	167.8	Clear	No Odor
08:51	5	900	mL/min	19.34	3.89	0.097	3.49	0.8	14.3	175.8	Clear	No Odor
08:56	10	900	mL/min	19.34	3.9	0.094	3.49	0.74	14.3	174.3	Clear	No Odor
09:01	15	900	mL/min	19.35	3.94	0.082	2.18	0.44	14.2	162.5	Clear	No Odor
09:06	20	900	mL/min	19.35	3.94	0.082	2.18	0.35	14.2	158.1	Clear	No Odor
09:11	25	900	mL/min	19.35	3.96	0.081	2.18	0.27	14.1	153.4	Clear	No Odor
09:16	30	450	mL/min	19.35	3.97	0.081	2.18	0.23	13.9	147.9	Clear	No Odor
09:21	35	450	mL/min	19.33	3.97	0.081	2.18	0.21	14	144.5	Clear	No Odor
09:26	40	450	mL/min	19.33	3.97	0.081	2.18	0.19	14	141.9	Clear	No Odor
09:31	45	450	mL/min	19.33	3.97	0.08	2.18	0.17	13.9	137.7	Clear	No Odor
09:36	50	450	mL/min	19.33	3.97	0.081	2.18	0.17	13.9	136.7	Clear	No Odor
09:41	55	450	mL/min	19.33	3.97	0.081	2.18	0.17	14	135.4	Clear	No Odor

Constituent Sampled	Container	Number	Preservative
VOCs (524.2)	Clear Glass	3	HCL
1,4-Dioxane (EPA 522)	Amber Glass	2	NaHSO4

Comments: None

Well Information:

Well Labeled Properly: NA

Is Well in Good Condition? NA

Well Inspection Comments: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
uS/cm = microSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
S.U = standard units
mS/cm = milli

Location ID:	BPOW 1-6	Date(s):	2023-10-30	Work Order(s):	2023 - Q4 Groundwater Monitoring	
Client:	Northrop Grumman	Facility:	OU2	Facility Location:	Bethpage, NY, United States Update	Area: Default Site
Weather(°F):	MIST, T:60.12 °F, rH:89%, Clouds: 100%, Wind:3.44mph SW			Field Technician:	Shirley He	
Measuring Pt. Description:	Top of Inner Casing	Screen Setting (ft-bgs):	700.00-750.00	Casing Diameter (in):	4.00	Well Casing Material: PVC
Static Water Level (ft-bmp):	13.77	Total Depth (ft-bmp):	755	Water Column(ft):	741.23	Liters in Well: 1823.6
Depth to Product (ft-bmp):	NA	Pump Intake Depth(ft-bmp):	Midscreen	Purge Method:	Low Flow	Purging Equipment: Dedicated Bladder
Purge Start Time:	12:27	Total Volume Purged (liters):	138	Sample ID:	BPOW1-6	Sample Time: 14:25
Purge End Time:	14:22	Well Volumes Purged (total):	NA	Replicate Type / Replicate ID:	NA / NA	Water Quality Meter/ ID: / NA
Scope of work completed?	Yes					

Time	Total Elapsed (min)	Flow Rate	Flow Rate Unit	Depth to Water (ft)	pH (S.U.)	Specific Conductivity (mS/cm²)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
12:28	0	1350	mL/min	13.79	5.19	0.023	3.44	2.35	13.7	81.4	Clear	No Odor
12:33	5	1350	mL/min	13.79	4.75	0.024	3.44	0.41	13.5	115.8	Clear	No Odor
12:38	10	1350	mL/min	13.79	4.97	0.024	3.44	0.47	13.4	126.3	Clear	No Odor
12:43	15	1350	mL/min	13.8	5.16	0.022	2.98	1.17	13.7	138.3	Clear	No Odor
12:48	20	1350	mL/min	13.8	5.21	0.022	2.98	1.36	13.5	147.1	Clear	No Odor
12:53	25	1350	mL/min	13.8	5.2	0.022	2.98	1.31	13.4	155.4	Clear	No Odor
12:58	30	1350	mL/min	13.8	5.2	0.022	1.21	1.23	13.4	164	Clear	No Odor
13:03	35	1350	mL/min	13.8	5.21	0.022	1.21	1.21	13.4	168.5	Clear	No Odor
13:08	40	1410	mL/min	13.8	5.21	0.021	1.21	1.24	13.3	173.6	Clear	No Odor
13:13	45	1440	mL/min	13.8	5.2	0.021	2.42	1.23	13.3	179.2	Clear	No Odor
13:18	50	1440	mL/min	13.8	5.2	0.021	2.42	1.21	13.2	181.5	Clear	No Odor
13:23	55	1440	mL/min	13.8	5.22	0.021	2.42	1.24	13.3	185.2	Clear	No Odor
13:28	60	1440	mL/min	13.82	5.21	0.021	3.65	1.25	13.2	188.3	Clear	No Odor
13:33	65	1500	mL/min	13.82	5.21	0.021	3.65	1.24	13.2	191.4	Clear	No Odor
13:38	70	1500	mL/min	13.82	5.21	0.021	3.65	1.22	13.2	194	Clear	No Odor
13:43	75	1500	mL/min	13.88	5.22	0.021	1.82	1.25	13.2	196.9	Clear	No Odor
13:48	80	1500	mL/min	13.88	5.21	0.021	1.82	1.22	13.1	199	Clear	No Odor
13:53	85	1500	mL/min	13.88	5.21	0.021	1.82	1.22	13.1	201.5	Clear	No Odor
13:58	90	1500	mL/min	13.88	5.21	0.021	2.26	1.22	13.1	203.6	Clear	No Odor
14:02	94	400	mL/min	13.82	5.23	0.021	0.9	1.24	14.4	203.9	Clear	No Odor
14:07	99	300	mL/min	13.82	5.25	0.022	0.82	1.2	14.9	204.7	Clear	No Odor
14:12	104	300	mL/min	13.82	5.25	0.022	1.27	1.21	14.9	206.5	Clear	No Odor
14:17	109	300	mL/min	13.82	5.25	0.022	1.38	1.22	14.8	208.5	Clear	No Odor
14:22	114	300	mL/min	13.82	5.25	0.022	0.99	1.22	14.8	209.8	Clear	No Odor

Constituent Sampled	Container	Number	Preservative
VOCs (524.2)	Clear Glass	3	HCL
1,4 Dioxane (522SIM)	Amber Glass	2	NaHSO4

Comments: None

Well Information:

Well Labeled Properly: yes

Is Well in Good Condition? good

Well Inspection Comments: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
uS/cm = microSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
S.U = standard units
mS/cm = milli

Groundwater Sampling Form



Location ID:	BPOW 1-5	Date(s):	2023-10-30	Work Order(s):	2023 - Q4 Groundwater Monitoring	
Client:	Northrop Grumman	Facility:	OU2	Facility Location:	Bethpage, NY, United States Update	Area: Default Site
Weather(°F):	FOG, T:59.68 °F, rH:89%, Clouds: 100%, Wind:3mph W-SW			Field Technician:	Patrick Quinlan	
Measuring Pt. Description:	Top of Inner Casing	Screen Setting (ft-bgs):	600.00-650.00	Casing Diameter (in):	4.00	Well Casing Material: PVC
Static Water Level (ft-bmp):	13.5	Total Depth (ft-bmp):	655	Water Column(ft):	641.5	Liters in Well: 1585.22
Depth to Product (ft-bmp):	NA	Pump Intake Depth(ft-bmp):	Midscreen	Purge Method:	Low Flow	Purging Equipment: Dedicated Bladder
Purge Start Time:	11:45	Total Volume Purged (liters):	128	Sample ID:	BPOW 1-5	Sample Time: 13:30
Purge End Time:	13:25	Well Volumes Purged (total):	0.08	Replicate Type / Replicate ID:	MS/MSD / BPOW 1-5	Water Quality Meter/ ID: YSI Pro DSS / NA
Scope of work completed?	Yes					

Time	Total Elapsed (min)	Flow Rate	Flow Rate Unit	Depth to Water (ft)	pH (S.U.)	Specific Conductivity (mS/cm ^e)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
11:49	0	1200	mL/min	13.5	4.22	0.021	9.51	7.55	14.6	248.1	Clear	No Odor
11:54	5	1200	mL/min	13.5	4.22	0.019	9.51	1	13.7	266.6	Clear	No Odor
11:59	10	1200	mL/min	13.5	4.3	0.018	9.51	0.74	13.3	269.1	Clear	No Odor
12:04	15	1800	mL/min	13.53	4.31	0.018	44.7	0.75	13.3	269.5	Clear	No Odor
12:09	20	1800	mL/min	13.53	4.31	0.017	44.7	0.69	13.4	270.7	Clear	No Odor
12:14	25	1800	mL/min	13.53	4.3	0.017	44.7	0.65	13.2	273.2	Clear	No Odor
12:19	30	1800	mL/min	13.53	4.3	0.017	37.7	0.65	13.2	273.3	Clear	No Odor
12:24	35	1800	mL/min	13.53	4.29	0.017	37.7	0.64	13.2	270.8	Clear	No Odor
12:29	40	1800	mL/min	13.54	4.29	0.017	20.1	0.62	13.2	264.6	Clear	No Odor
12:34	45	1800	mL/min	13.54	4.28	0.017	20.1	0.61	13	256.7	Clear	No Odor
12:39	50	1800	mL/min	13.54	4.29	0.017	20.1	0.6	13	253.3	Clear	No Odor
12:44	55	1800	mL/min	13.54	4.29	0.017	15.9	0.58	13	248.7	Clear	No Odor
12:49	60	1800	mL/min	13.54	4.29	0.017	15.9	0.59	13	243.8	Clear	No Odor
12:54	65	1800	mL/min	13.54	4.3	0.017	15.9	0.58	13	240.3	Clear	No Odor
12:59	70	400	mL/min	13.54	4.31	0.017	10.1	0.58	14.2	236.8	Clear	No Odor
13:04	75	400	mL/min	13.52	4.37	0.018	10.1	0.6	14	229.6	Clear	No Odor
13:09	80	400	mL/min	13.52	4.37	0.018	10.1	0.6	14	228.9	Clear	No Odor
13:14	85	400	mL/min	13.52	4.37	0.018	9.69	0.6	14	228.6	Clear	No Odor
13:19	90	400	mL/min	13.52	4.36	0.018	9.43	0.6	14.2	228.8	Clear	No Odor
13:24	95	400	mL/min	13.52	4.36	0.018	9.01	0.6	14.1	228.8	Clear	No Odor

Constituent Sampled	Container	Number	Preservative
VOCs (524.2)	Clear Glass	3	HCL
1,4-Dioxane (EPA 522)	Amber Glass	2	NaHSO4

Comments: None

Well Information:

Well Labeled Properly: NA

Is Well in Good Condition? NA

Well Inspection Comments: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
uS/cm = microSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
S.U = standard units
mS/cm = milli

Location ID:	BPOW 1-2	Date(s):	2023-11-02	Work Order(s):	2023 - Q4 Groundwater Monitoring		
Client:	Northrop Grumman	Facility:	OU2	Facility Location:	Bethpage, NY, United States Update	Area:	Default Site
Weather(°F):	CLEAR, T:45.28 °F, rH:57%, Clouds: 0%, Wind:3mph N			Field Technician:	Shirley He		
Measuring Pt. Description:	Top of Inner Casing	Screen Setting (ft-bgs):	274.00-314.00	Casing Diameter (in):	4.00	Well Casing Material:	PVC
Static Water Level (ft-bmp):	32.63	Total Depth (ft-bmp):	335	Water Column(ft):	302.37	Liters in Well:	747.19
Depth to Product (ft-bmp):	NA	Pump Intake Depth(ft-bmp):	Midscreen	Purge Method:	Volumetric	Purging Equipment:	Dedicated Bladder
Purge Start Time:	11:47	Total Volume Purged (liters):	110	Sample ID:	BPOW 1-2	Sample Time:	13:40
Purge End Time:	13:40	Well Volumes Purged (total):	0.15	Replicate Type / Replicate ID:	NA / NA	Water Quality Meter/ ID:	Hach 2100-Q, YSI 600 XLM Sonde 1.65 inch / NA

Scope of work completed? Yes

Time	Total Elapsed (min)	Flow Rate	Flow Rate Unit	Depth to Water (ft)	pH (S.U.)	Specific Conductivity (mS/cm²)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
11:48	0	750	mL/min	32.79	4.81	0.178	1.17	14.71	13.91	217	Clear	Moderate
11:53	5	1200	mL/min	32.79	4.73	0.193	1.17	13.12	13.65	223.4	Clear	Moderate
11:58	10	1200	mL/min	32.48	4.74	0.193	1.17	11.85	13.51	226.5	Clear	Moderate
12:03	15	1080	mL/min	32.48	4.74	0.193	3.47	10.52	13.52	232.2	Clear	Moderate
12:08	20	1080	mL/min	32.48	4.74	0.192	3.47	9.35	13.27	237	Clear	Moderate
12:13	25	1080	mL/min	32.05	4.73	0.191	1.95	7.87	13.37	243.7	Clear	Moderate
12:18	30	1080	mL/min	32.05	4.71	0.191	1.95	7.36	13.47	246.6	Clear	Moderate
12:23	35	1080	mL/min	32.35	4.71	0.19	1.95	6.28	13.34	251.3	Clear	Moderate
12:28	40	1080	mL/min	32.48	4.71	0.189	2.07	5.75	13.39	254.2	Clear	Moderate
12:33	45	1080	mL/min	32.48	4.71	0.187	2.07	5.03	13.44	256.3	Clear	Moderate
12:38	50	1080	mL/min	32.48	4.72	0.185	2.07	4.44	13.46	257.3	Clear	Moderate
12:43	55	1080	mL/min	32.6	4.72	0.182	1.33	3.83	13.44	257.8	Clear	Moderate
12:48	60	1080	mL/min	32.6	4.75	0.181	1.33	3.84	13.38	256.6	Clear	Moderate
12:53	65	1080	mL/min	32.6	4.71	0.179	1.33	3.29	13.35	257.1	Clear	Moderate
12:58	70	1080	mL/min	32.68	4.72	0.176	0.85	2.87	13.33	257	Clear	Moderate
13:03	75	1080	mL/min	32.68	4.71	0.174	0.85	2.58	13.38	256.6	Clear	Moderate
13:08	80	1080	mL/min	32.68	4.71	0.172	0.85	2.34	13.33	255.3	Clear	Moderate
13:13	85	1080	mL/min	32.72	4.72	0.17	0.5	2.05	13.3	254.2	Clear	Moderate
13:18	90	1080	mL/min	32.72	4.71	0.169	0.5	1.91	13.28	253.3	Clear	Moderate
13:23	95	400	mL/min	32.7	4.74	0.169	0.67	1.76	13.73	251.2	Clear	Moderate
13:28	100	400	mL/min	32.7	4.71	0.169	0.58	1.57	13.77	250.5	Clear	Moderate
13:33	105	400	mL/min	32.68	4.71	0.168	0.42	1.53	13.96	250.5	Clear	No Odor
13:38	110	400	mL/min	32.68	4.72	0.168	0.37	1.5	14.07	251.2	Clear	Moderate

Constituent Sampled	Container	Number	Preservative
VOCs (524.2)	Clear Glass	3	HCL
1,4 Dioxane (522SIM)	Amber Glass	2	NaHSO4

Comments: None

Well Information:

Well Labeled Properly: yes

Is Well in Good Condition? good

Well Inspection Comments: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
uS/cm = microSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
S.U = standard units
mS/cm = milli

Groundwater Sampling Form



Location ID:	BPOW 1-4	Date(s):	2023-10-30	Work Order(s):	2023 - Q4 Groundwater Monitoring		
Client:	Northrop Grumman	Facility:	OU2	Facility Location:	Bethpage, NY, United States Update	Area:	Default Site
Weather(°F):	CLOUDS, T:56.59 °F, rH:93%, Clouds: 100%, Wind:1.01mph N			Field Technician:	Patrick Quinlan		
Measuring Pt. Description:	Top of Inner Casing	Screen Setting (ft-bgs):	340.00-400.00	Casing Diameter (in):	4.00	Well Casing Material:	PVC
Static Water Level (ft-bmp):	13.26	Total Depth (ft-bmp):	405	Water Column(ft):	391.74	Liters in Well:	968.04
Depth to Product (ft-bmp):	NA	Pump Intake Depth(ft-bmp):	Midscreen	Purge Method:	Low Flow	Purging Equipment:	Dedicated Bladder
Purge Start Time:	NA	Total Volume Purged (liters):	150	Sample ID:	BPOW 1-4	Sample Time:	11:35
Purge End Time:	11:30	Well Volumes Purged (total):	0.15	Replicate Type / Replicate ID:	NA / NA	Water Quality Meter/ ID:	YSI Pro DSS / NA

Scope of work completed? Yes

Time	Total Elapsed (min)	Flow Rate	Flow Rate Unit	Depth to Water (ft)	pH (S.U.)	Specific Conductivity (mS/cm ^e)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
09:44	0	1500	mL/min	13.26	3.49	0.089	2.23	2.48	13.6	216.9	Clear	No Odor
09:49	5	1500	mL/min	13.26	3.47	0.091	2.23	1.8	13.1	196.4	Clear	No Odor
09:54	10	1500	mL/min	13.26	3.49	0.092	2.23	2.6	13	203.4	Clear	No Odor
09:59	15	1500	mL/min	13.26	3.37	0.091	2.23	5	13.4	236.5	Clear	No Odor
10:04	20	1500	mL/min	13.3	4.2	0.091	0.94	3.8	13.3	233.1	Clear	No Odor
10:09	25	1500	mL/min	13.3	3.46	0.091	0.94	3.11	13.1	229.1	Clear	No Odor
10:14	30	1800	mL/min	13.3	3.32	0.088	0.94	3.1	12.7	247.4	Clear	No Odor
10:19	35	1800	mL/min	13.32	3.33	0.082	2.24	3	12.7	247	Clear	No Odor
10:24	40	1800	mL/min	13.32	3.35	0.084	2.24	2.89	12.7	253	Clear	No Odor
10:29	45	1800	mL/min	13.32	3.35	0.086	2.24	2.82	12.7	254.1	Clear	No Odor
10:34	50	1800	mL/min	13.35	3.35	0.084	3.19	2.78	12.6	255.7	Clear	No Odor
10:39	55	1800	mL/min	13.35	3.37	0.085	3.19	2.75	12.7	257.8	Clear	No Odor
10:44	60	1800	mL/min	13.35	3.36	0.086	3.19	2.73	12.7	258.5	Clear	No Odor
10:49	65	1800	mL/min	13.31	3.37	0.083	1.9	2.52	12.6	259.8	Clear	No Odor
10:54	70	1800	mL/min	13.31	3.37	0.084	1.9	2.5	12.6	261.1	Clear	No Odor
10:59	75	1800	mL/min	13.31	3.37	0.085	1.9	2.48	12.6	261.6	Clear	No Odor
11:04	80	1800	mL/min	13.3	3.37	0.085	7.96	2.22	12.7	262.3	Clear	No Odor
11:09	85	450	mL/min	13.3	3.47	0.09	7.96	2.5	14.1	260.3	Clear	No Odor
11:14	90	450	mL/min	13.3	3.48	0.09	1.33	2.48	14.3	256.5	Clear	No Odor
11:19	95	450	mL/min	13.28	3.5	0.09	0.91	2.48	14.3	254.2	Clear	No Odor
11:24	100	450	mL/min	13.28	3.51	0.091	0.88	2.48	14.5	249.9	Clear	No Odor
11:29	105	450	mL/min	13.28	3.51	0.091	0.77	2.47	14.4	244.4	Clear	No Odor

Constituent Sampled	Container	Number	Preservative
VOCs (524.2)	Clear Glass	3	HCL
1,4-Dioxane (EPA 522)	Amber Glass	2	NaHSO4

Comments: None

Well Information:

Well Labeled Properly: yes

Is Well in Good Condition? good

Well Inspection Comments: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
uS/cm = microSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
S.U = standard units
mS/cm = milli

Location ID:	BPOW 3-2	Date(s):	2023-11-02	Work Order(s):	2023 - Q4 Groundwater Monitoring
Client:	Northrop Grumman	Facility:	OU2	Facility Location:	Bethpage, NY, United States Update
Area:	Default Site				
Weather(°F):	CLEAR, T:37.4 °F, rH:81%, Clouds: 0%, Wind:3mph W-NW			Field Technician:	Stephen Vlavianos
Measuring Pt. Description:	Top of Inner Casing	Screen Setting (ft-bgs):	604.50-644.50	Casing Diameter (in):	4.00
Well Casing Material:	PVC				
Static Water Level (ft-bmp):	24.44	Total Depth (ft-bmp):	516	Water Column(ft):	491.56
Gallons in Well:	320.89				
Depth to Product (ft-bmp):	NA	Pump Intake Depth(ft-bmp):	Midscreen	Purge Method:	Low Flow
Purging Equipment:	Dedicated Bladder				
Purge Start Time:	08:52	Total Volume Purged (gallons):	32	Sample ID:	BPOW3-2
Sample Time:	11:10				
Purge End Time:	11:10	Well Volumes Purged (total):	0.10	Replicate Type / Replicate ID:	/ /
Water Quality Meter/ ID:	Horiba U-52 / 51859				
Scope of work completed?	N/A				

Time	Total Elapsed (min)	Flow Rate	Flow Rate Unit	Depth to Water (ft)	pH (S.U.)	Specific Conductivity (mS/cm²)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
08:55	0	900	mL/min	24.45	6.07	0.252	23.9	13.43	12.65	157	Clear	No Odor
09:00	5	900	mL/min	24.44	5.36	0.264	23.9	12.28	12.81	209	Clear	No Odor
09:05	10	900	mL/min	24.44	3.83	0.257	2.3	12.39	12.75	335	Clear	No Odor
09:10	15	900	mL/min	24.44	4.03	0.293	2.3	11.94	12.78	339	Clear	No Odor
09:15	20	900	mL/min	24.43	4.15	0.293	61	11.97	12.85	304	Clear	No Odor
09:20	25	900	mL/min	24.43	4.1	0.293	61	12.75	13.06	304	Clear	No Odor
09:25	30	900	mL/min	24.42	3.86	0.254	52.1	12.1	13.06	317	Clear	No Odor
09:30	35	900	mL/min	24.43	4.09	0.186	34.7	11.83	12.8	326	Clear	No Odor
09:35	40	900	mL/min	24.45	3.88	0.141	34.3	12.69	13.06	322	Clear	No Odor
09:40	45	900	mL/min	24.44	4.07	0.126	34.7	12.14	12.98	339	Clear	No Odor
09:45	50	900	mL/min	24.46	3.92	0.188	31.5	12.43	13.29	340	Clear	No Odor
09:50	55	900	mL/min	24.47	3.95	0.19	31.5	12.33	13.15	325	Clear	No Odor
09:55	60	900	mL/min	24.45	3.96	0.138	31.4	12.78	13.28	330	Clear	No Odor
10:00	65	900	mL/min	24.47	3.69	0.14	42.5	12.13	13.3	345	Clear	No Odor
10:05	70	900	mL/min	24.47	4.19	0.122	43.4	12.26	13.26	332	Clear	No Odor
10:10	75	900	mL/min	24.47	4.11	0.124	31.4	12.59	13.34	335	Clear	No Odor
10:15	80	900	mL/min	24.47	4.12	0.121	35.7	11.69	13.39	338	Clear	No Odor
10:20	85	900	mL/min	24.47	3.85	0.185	32.5	12.86	13.56	325	Clear	No Odor
10:25	90	900	mL/min	24.47	4.14	0.139	32.5	12.56	13.5	320	Clear	No Odor
10:30	95	900	mL/min	24.47	4.16	0.191	32.5	11.85	13.55	332	Clear	No Odor
10:35	100	900	mL/min	24.47	4.18	0.189	35.9	11.85	13.54	321	Clear	No Odor
10:40	105	900	mL/min	24.47	4.25	0.11	45.9	11.85	13.59	328	Clear	No Odor
10:45	110	900	mL/min	24.47	4.23	0.116	16.9	12.28	13.62	323	Clear	No Odor
10:50	115	400	mL/min	24.43	4.22	0.118	16.89	11.82	13.61	328	Clear	No Odor
10:50	115	400	mL/min	24.42	4.23	0.116	16.91	12.22	13.58	324	Clear	No Odor
10:55	120	400	mL/min	24.43	4.26	0.118	16.11	11.82	13.75	323	Clear	No Odor
10:59	124	400	mL/min	24.45	4.29	0.115	16.01	11.83	13.57	319	Clear	No Odor
11:05	130	400	mL/min	24.46	4.22	0.117	15.98	11.79	13.45	322	Clear	No Odor

Constituent Sampled	Container	Number	Preservative
VOC (524.2)	Clear Glass	3	HCL
1,4-Dioxane (8270C)	Amber Glass	2	NaHSO4

Comments: None

Well Information:

Well Labeled Properly: yes

Is Well in Good Condition? good

Well Inspection Comments: NA

ft-bmp = feet below measuring point
 in = inches
 ft = feet
 mL/min = milliliters per minute
 uS/cm = microSiemens per centimeter
 NTU = Nephelometric Turbidity Unit
 mg/L = milligrams per liter
 S.U = standard units
 mS/cm = milli

Location ID:	BPOW 3-1	Date(s):	2023-11-02	Work Order(s):	2023 - Q4 Groundwater Monitoring	
Client:	Northrop Grumman	Facility:	OU2	Facility Location:	Bethpage, NY, United States Update	Area: Default Site
Weather(°F):	CLEAR, T:36.3 °F, rH:84%, Clouds: 0%, Wind:1.01mph NW			Field Technician:	NA	
Measuring Pt. Description:	Top of Inner Casing	Screen Setting (ft-bgs):	436.50-476.50	Casing Diameter (in):	4.00	Well Casing Material: PVC
Static Water Level (ft-bmp):	23.67	Total Depth (ft-bmp):	516	Water Column(ft):	492.33	Liters in Well: 1216.61
Depth to Product (ft-bmp):	NA	Pump Intake Depth(ft-bmp):	Midscreen	Purge Method:	Volumetric	Purging Equipment: Dedicated Bladder
Purge Start Time:	08:38	Total Volume Purged (liters):	114	Sample ID:	NA	Sample Time: NA
Purge End Time:	10:57	Well Volumes Purged (total):	0.09	Replicate Type / Replicate ID:	NA	Water Quality Meter/ ID: Hach 2100-Q,YSI 600 XLM Sonde 1.65 inch / NA

Scope of work completed? Yes

Time	Total Elapsed (min)	Flow Rate	Flow Rate Unit	Depth to Water (ft)	pH (S.U.)	Specific Conductivity (mS/cm²)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
08:40	0	700	mL/min	23.86	3.7	0.262	0.94	24.4	13.92	244.7	Clear	No Odor
08:45	5	900	mL/min	23.86	3.92	0.248	0.94	65	13.51	229.9	Clear	Slight
08:50	10	900	mL/min	23.86	3.9	0.257	0.94	65	13.41	217.5	Clear	Slight
08:55	15	1200	mL/min	24.01	3.91	0.262	23	65	13.74	217.1	Clear	Slight
09:00	20	900	mL/min	24.01	3.91	0.262	23	63.99	13.85	212.6	Clear	Slight
09:05	25	900	mL/min	24.01	3.91	0.262	23	52.22	13.57	204.8	Clear	Slight
09:10	30	900	mL/min	23.94	3.92	0.262	4.41	41.86	13.64	197	Clear	Slight
09:15	35	900	mL/min	23.94	3.9	0.262	4.41	34.51	13.82	192.6	Clear	Slight
09:20	40	900	mL/min	23.94	3.92	0.262	4.41	27.91	13.76	186.7	Clear	Slight
09:25	45	900	mL/min	23.93	3.9	0.262	5.73	19.55	13.98	181.7	Clear	Slight
09:30	50	900	mL/min	23.93	3.91	0.262	5.73	18.51	13.92	180.7	Clear	Slight
09:35	55	900	mL/min	23.93	3.9	0.261	5.73	15.01	14.11	176.6	Clear	Slight
09:40	60	900	mL/min	23.93	3.91	0.262	3.51	12.56	14.13	172.8	Clear	Slight
09:45	65	900	mL/min	23.93	3.91	0.262	3.51	12.07	14.16	172.2	Clear	Slight
09:55	75	900	mL/min	23.93	3.9	0.262	3.51	10.16	14.13	169.8	Clear	Slight
10:00	80	900	mL/min	23.93	3.89	0.262	1.63	8.5	14.23	166.8	Clear	Slight
10:05	85	900	mL/min	23.93	3.89	0.262	1.63	7.45	14.23	164.3	Clear	Slight
10:10	90	900	mL/min	23.93	3.89	0.261	1.63	6.44	14.21	162.1	Clear	Slight
10:15	95	900	mL/min	23.93	3.87	0.262	0.39	5.79	14.22	160.4	Clear	Slight
10:20	100	900	mL/min	23.92	3.88	0.264	0.39	2.51	14.17	159.2	Clear	Slight
10:25	105	900	mL/min	23.92	3.86	0.262	0.39	2.29	14.35	158.8	Clear	Slight
10:30	110	900	mL/min	23.92	3.86	0.261	5.39	2.21	14.5	158	Clear	Slight
10:35	115	400	mL/min	23.81	3.86	0.26	0.63	2.13	14.42	156.9	Clear	Slight
10:40	120	400	mL/min	23.78	3.87	0.261	0.69	1.84	14.52	155.8	Clear	Slight
10:45	125	400	mL/min	23.78	3.84	0.26	0.92	1.82	14.67	156.8	Clear	Slight
10:50	130	400	mL/min	23.78	3.86	0.261	1.52	1.7	14.74	157.8	Clear	Slight
10:55	135	400	mL/min	23.78	3.83	0.26	1.7	1.69	14.84	159.2	Clear	Slight

Constituent Sampled	Container	Number	Preservative
VOC (524.2)	Clear Glass	3	HCL
1,4 Dioxane (522SIM)	Amber Glass	2	None

Comments: None

Well Information:

Well Labeled Properly: yes

Is Well in Good Condition? good

Well Inspection Comments: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
uS/cm = microSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
S.U = standard units
mS/cm = milli

Location ID:	BPOW 2-3	Date(s):	2023-11-02	Work Order(s):	2023 - Q4 Groundwater Monitoring		
Client:	Northrop Grumman	Facility:	OU2	Facility Location:	Bethpage, NY, United States Update	Area:	Default Site
Weather(°F):	CLEAR, T:41.9 °F, rH:69%, Clouds: 0%, Wind:4.61mph N			Field Technician:	Patrick Quinlan		
Measuring Pt. Description:	Top of Inner Casing	Screen Setting (ft-bgs):	564.00-594.00	Casing Diameter (in):	4.00	Well Casing Material:	PVC
Static Water Level (ft-bmp):	18.56	Total Depth (ft-bmp):	599	Water Column(ft):	580.44	Liters in Well:	1434.34
Depth to Product (ft-bmp):	NA	Pump Intake Depth(ft-bmp):	Midscreen	Purge Method:	Low Flow	Purging Equipment:	Dedicated Bladder
Purge Start Time:	10:55	Total Volume Purged (liters):	80	Sample ID:	NA	Sample Time:	NA
Purge End Time:	11:59	Well Volumes Purged (total):	0.06	Replicate Type / Replicate ID:	NA / NA	Water Quality Meter/ ID:	YSI Pro DSS / NA

Scope of work completed? Yes

Time	Total Elapsed (min)	Flow Rate	Flow Rate Unit	Depth to Water (ft)	pH (S.U.)	Specific Conductivity (mS/cm ^e)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
10:59	0	1350	mL/min	18.56	4.18	0.06	0.57	10.7	13	170.7	Clear	No Odor
11:04	5	1800	mL/min	18.56	4.75	0.057	0.57	1.02	14.5	65	Clear	No Odor
11:09	10	1800	mL/min	18.56	4.75	0.057	0.57	0.58	14.4	29.4	Clear	No Odor
11:14	15	1800	mL/min	18.57	4.72	0.057	0.7	0.31	14.4	43.1	Clear	No Odor
11:19	20	1800	mL/min	18.57	4.72	0.057	0.7	0.27	14.3	52.7	Clear	No Odor
11:24	25	1800	mL/min	18.57	4.72	0.057	0.7	0.24	14.3	61.7	Clear	No Odor
11:29	30	1800	mL/min	18.57	4.72	0.057	0.27	0.22	14.3	68.2	Clear	No Odor
11:34	35	1800	mL/min	18.57	4.72	0.057	0.27	0.21	14.3	72.4	Clear	No Odor
11:39	40	1800	mL/min	18.58	4.72	0.057	0.27	0.19	13.3	75.5	Clear	No Odor
11:44	45	300	mL/min	18.58	4.73	0.056	0.23	0.22	13.1	80.3	Clear	No Odor
11:49	50	300	mL/min	18.57	4.72	0.056	1.11	0.22	13.2	82.4	Clear	No Odor
11:54	55	300	mL/min	18.57	4.72	0.056	0.76	0.23	13.2	85	Clear	No Odor
11:59	60	300	mL/min	18.57	4.72	0.056	1.69	0.23	13.2	87	Clear	No Odor

Constituent Sampled	Container	Number	Preservative
VOC (524.2)	Clear Glass	3	HCL
1,4 Dioxane (522SIM)	Amber Glass	2	NaHSO4

Comments: None

Well Information:

Well Labeled Properly: NA

Is Well in Good Condition? NA

Well Inspection Comments: NA

ft-bmp = feet below measuring point
 in = inches
 ft = feet
 mL/min = milliliters per minute
 uS/cm = microSiemens per centimeter
 NTU = Nephelometric Turbidity Unit
 mg/L = milligrams per liter
 S.U = standard units
 mS/cm = milli

Location ID:	BPOW 4-1R	Date(s):	2023-11-06	Work Order(s):	2023 - Q4 Groundwater Monitoring		
Client:	Northrop Grumman	Facility:	OU2	Facility Location:	Bethpage, NY, United States Update	Area:	Default Site
Weather(°F):	CLEAR, T:45.95 °F, rH:71%, Clouds: 0%, Wind:5.75mph N-NE			Field Technician:	Shirley He		
Measuring Pt. Description:	Top of Inner Casing	Screen Setting (ft-bgs):	652.00-692.00	Casing Diameter (in):	4.00	Well Casing Material:	PVC
Static Water Level (ft-bmp):	24.73	Total Depth (ft-bmp):	697	Water Column(ft):	672.27	Liters in Well:	1661.26
Depth to Product (ft-bmp):	NA	Pump Intake Depth(ft-bmp):	Midscreen	Purge Method:	Volumetric	Purging Equipment:	Dedicated Bladder
Purge Start Time:	08:08	Total Volume Purged (liters):	116	Sample ID:	BPOW 4-1R	Sample Time:	10:00
Purge End Time:	09:59	Well Volumes Purged (total):	0.07	Replicate Type / Replicate ID:	NA / NA	Water Quality Meter/ ID:	Hach 2100-Q, YSI Pro DSS / NA
Scope of work completed?	Yes						

Time	Total Elapsed (min)	Flow Rate	Flow Rate Unit	Depth to Water (ft)	pH (S.U.)	Specific Conductivity (mS/cm²)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
08:09	0	1500	mL/min	24.98	4.9	0.049	0	7.46	14.1	176.7	Clear	No Odor
08:14	5	1350	mL/min	24.98	4.92	0.048	0	4.07	13.9	193.8	Clear	No Odor
08:19	10	1500	mL/min	24.98	5.5	0.049	0	14.35	14.1	292.1	Clear	No Odor
08:24	15	1500	mL/min	25.16	5.19	0.047	0	4.8	13.8	295.4	Clear	No Odor
08:29	20	1350	mL/min	25.16	4.84	0.046	0	9	13.9	291.4	Clear	No Odor
08:34	25	1350	mL/min	25.16	4.96	0.043	0.02	12.96	13.9	292	Clear	No Odor
08:39	30	1350	mL/min	25.21	4.8	0.047	0.02	5.66	14	293.7	Clear	No Odor
08:44	35	1350	mL/min	25.21	4.81	0.047	0.02	5.7	13.9	294.2	Clear	No Odor
08:49	40	1350	mL/min	25.21	4.81	0.047	0.02	5.27	13.9	295.3	Clear	No Odor
08:54	45	1350	mL/min	25.14	5.05	0.031	0	11.32	14	301.9	Clear	No Odor
08:59	50	1350	mL/min	25.14	4.84	0.047	0	7.88	14.4	305.5	Clear	No Odor
09:04	55	1050	mL/min	25.14	4.8	0.048	0	5.97	14.1	305.4	Clear	No Odor
09:09	60	1050	mL/min	25.38	4.81	0.047	0	5.9	13.9	306.5	Clear	No Odor
09:14	65	1050	mL/min	25.38	4.81	0.047	0	5.83	13.9	307.6	Clear	No Odor
09:19	70	1050	mL/min	25.38	4.81	0.047	0	5.89	13.9	309.4	Clear	No Odor
09:24	75	1050	mL/min	25.48	4.81	0.048	0	5.65	14	311.3	Clear	No Odor
09:29	80	1050	mL/min	25.48	4.82	0.048	0	5.63	14.1	312.2	Clear	No Odor
09:34	85	1050	mL/min	25.48	4.82	0.048	0	5.82	14	313.7	Clear	No Odor
09:39	90	300	mL/min	25.49	4.83	0.048	0	5.81	14.2	314.9	Clear	No Odor
09:44	95	300	mL/min	25.49	4.83	0.048	0	4.98	14.4	315.7	Clear	No Odor
09:49	100	300	mL/min	25.49	4.83	0.048	0	5.06	14.9	316.6	Clear	No Odor
09:54	105	300	mL/min	25.49	4.84	0.048	0	4.96	14.8	317.8	Clear	No Odor
09:59	110	300	mL/min	25.52	4.84	0.048	0	4.9	14.8	319	Clear	No Odor

Constituent Sampled	Container	Number	Preservative
VOCs (524.2)	Clear Glass	3	HCL
1,4-Dioxane (522SIM)	Amber Glass	2	NaHSO4

Comments: None

Well Information:

Well Labeled Properly: yes

Is Well in Good Condition? good

Well Inspection Comments: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
uS/cm = microSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
S.U = standard units
mS/cm = milli

Location ID:	BPOW 3-4	Date(s):	2023-10-30	Work Order(s):	2023 - Q4 Groundwater Monitoring	
Client:	Northrop Grumman	Facility:	OU2	Facility Location:	Bethpage, NY, United States Update	Area: Default Site
Weather(F):	FOG, T:58.01 °F, rH:92%, Clouds: 100%, Wind:1.01mph NW			Field Technician:	Shirley He	
Measuring Pt. Description:	Top of Inner Casing	Screen Setting (ft-bgs):	640.00-690.00	Casing Diameter (in):	4.00	Well Casing Material: PVC
Static Water Level (ft-bmp):	22.68	Total Depth (ft-bmp):	695	Water Column(ft):	672.3	Liters in Well: 1654
Depth to Product (ft-bmp):	NA	Pump Intake Depth(ft-bmp):	Midscreen	Purge Method:	Volumetric	Purging Equipment: Dedicated Bladder
Purge Start Time:	09:39	Total Volume Purged (liters):	137	Sample ID:	BPOW 3-4	Sample Time: 11:45
Purge End Time:	11:44	Well Volumes Purged (total):	NA	replicate Type / Replicate ID:	NA / NA	Water Quality Meter/ ID: YSI Pro DSS,Hach 2100-Q / NA
Scope of work completed?	Yes					

Time	Total Elapsed (min)	Flow Rate	Flow Rate Unit	Depth to Water (ft)	pH (S.U.)	Specific Conductivity (mS/cm²)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
09:41	0	600	mL/min	22.69	6.88	0.072	0.43	2.9	13.63	-58.5	Clear	No Odor
09:46	5	700	mL/min	22.65	10.12	0.07	0.43	2.05	13.55	-63.3	Clear	No Odor
09:51	10	860	mL/min	22.65	11.02	0.069	0.43	1.76	13.46	-64.6	Clear	No Odor
09:56	15	1020	mL/min	22.68	11.7	0.07	1.77	1.54	13.35	-66	Clear	No Odor
10:01	20	1020	mL/min	22.68	11.94	0.07	1.77	1.45	13.32	-66.4	Clear	No Odor
10:06	25	1020	mL/min	22.68	12.14	0.07	1.77	1.35	13.31	-66.1	Clear	No Odor
10:11	30	1350	mL/min	22.68	12.34	0.07	2.39	1.17	13.14	-66.2	Clear	No Odor
10:16	35	1350	mL/min	22.68	12.54	0.071	2.39	1.11	13.12	-67	Clear	No Odor
10:21	40	1350	mL/min	22.68	12.57	0.071	2.11	1.01	13.11	-66.9	Clear	Moderate
10:26	45	1380	mL/min	22.68	12.88	0.07	2.11	0.94	13.09	-67.4	Clear	No Odor
10:31	50	1350	mL/min	22.68	12.94	0.071	2.11	0.89	13.08	0.89	Clear	Moderate
10:36	55	1350	mL/min	22.68	13.2	0.071	1.93	0.79	13.07	-67.7	Clear	Moderate
10:41	60	1350	mL/min	22.68	13.44	0.071	1.93	0.74	13.05	-68	Clear	Slight
10:46	65	1350	mL/min	22.68	13.5	0.071	1.93	0.7	13.05	-69.6	Clear	Moderate
10:51	70	1350	mL/min	22.68	13.75	0.071	1.5	0.64	13.05	-68.8	Clear	Slight
10:56	75	1350	mL/min	22.68	5.01	0.071	1.5	0.62	13.03	-68.8	Clear	Slight
11:01	80	1350	mL/min	22.68	5.17	0.071	1.5	0.57	13.02	-69.2	Clear	Slight
11:06	85	1350	mL/min	22.68	5.25	0.071	1.12	0.51	13.01	-69.2	Clear	Slight
11:11	90	1350	mL/min	22.68	5.25	0.071	1.12	0.5	13	-69.2	Clear	No Odor
11:16	95	1350	mL/min	22.68	5.15	0.071	1.12	0.46	13	-68.8	Clear	No Odor
11:21	100	1350	mL/min	22.68	5.23	0.071	1.31	0.43	12.98	-69.9	Clear	Slight
11:26	105	1350	mL/min	22.68	5.24	0.071	1.31	0.41	12.97	-69.7	Clear	Slight
11:29	108	200	mL/min	22.68	5.24	0.071	1.57	0.39	13.23	-70.1	Clear	Slight
11:34	113	200	mL/min	22.68	5.32	0.071	1.18	0.37	13.8	-69.8	Clear	Slight
11:39	118	200	mL/min	22.68	5.35	0.071	1.12	0.35	13.94	-70.7	Clear	No Odor
11:44	123	200	mL/min	22.69	5.4	0.071	0.69	0.33	13.95	-69.9	Clear	Slight

Constituent Sampled	Container	Number	Preservative
VOCs (524.2)	Clear Glass	3	HCL
1,4 Dioxane (522SIM)	Amber Glass	2	NaHSO4

Comments: None

Well Information:

Well Labeled Properly: NA

Is Well in Good Condition? NA

Well Inspection Comments: NA



Description: NA

ft-bmp = feet below measuring point
in = inches
ft = feet
mL/min = milliliters per minute
uS/cm = microSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
S.U = standard units
mS/cm = milli

Location ID:	BPOW 4-2R	Date(s):	2023-11-06	Work Order(s):	2023 - Q4 Groundwater Monitoring		
Client:	Northrop Grumman	Facility:	OU2	Facility Location:	Bethpage, NY, United States Update	Area:	Default Site
Weather(°F):	CLEAR, T:52.34 °F, rH:65%, Clouds: 0%, Wind:5.99mph E-SE			Field Technician:	Patrick Quinlan		
Measuring Pt. Description:	Top of Inner Casing	Screen Setting (ft-bgs):	725.00-765.00	Casing Diameter (in):	4.00	Well Casing Material:	PVC
Static Water Level (ft-bmp):	25.64	Total Depth (ft-bmp):	770	Water Column(ft):	744.36	Liters in Well:	1839.4
Depth to Product (ft-bmp):	NA	Pump Intake Depth(ft-bmp):	Midscreen	Purge Method:	Low Flow	Purging Equipment:	
Purge Start Time:	NA	Total Volume Purged (liters):	105	Sample ID:	BPOW 4-2R	Sample Time:	11:45
Purge End Time:	11:43	Well Volumes Purged (total):	0.06	Replicate Type / Replicate ID:	MS/MSD / BPOW 4-2R	Water Quality Meter/ ID:	YSI Pro DSS / NA
Scope of work completed?	Yes						

Time	Total Elapsed (min)	Flow Rate	Flow Rate Unit	Depth to Water (ft)	pH (S.U.)	Specific Conductivity (mS/cm ^e)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
10:23	0	1200	mL/min	25.64	4.98	0.033	1.33	7.07	15.6	297.4	Clear	No Odor
10:28	5	1500	mL/min	25.57	4.89	0.033	1.23	2.3	14.8	301.9	Clear	No Odor
10:33	10	1500	mL/min	25.57	5.1	0.013	1.23	10.8	14.5	329.5	Clear	No Odor
10:38	15	1500	mL/min	25.57	4.84	0.03	6.01	7.57	14.8	327.2	Clear	No Odor
10:43	20	1500	mL/min	25.57	4.77	0.028	6.01	6.67	14.7	325.5	Clear	No Odor
10:48	25	1500	mL/min	25.66	4.75	0.028	6	6.66	14.8	325.2	Clear	No Odor
10:53	30	1500	mL/min	25.66	4.74	0.027	6	6.51	14.8	326	Clear	No Odor
10:58	35	1500	mL/min	25.66	4.74	0.027	6	6.56	14.7	327.4	Clear	No Odor
11:03	40	1500	mL/min	25.66	4.74	0.027	5.76	6.58	14.7	329.4	Clear	No Odor
11:08	45	1500	mL/min	25.66	4.75	0.027	5.76	6.56	14.7	331.2	Clear	No Odor
11:13	50	1500	mL/min	25.66	4.76	0.027	5.76	6.52	14.7	332.7	Clear	No Odor
11:18	55	1500	mL/min	25.66	4.76	0.027	5.04	6.57	14.7	334.8	Clear	No Odor
11:23	60	1500	mL/min	25.66	4.76	0.027	5.04	6.44	14.7	326	Clear	No Odor
11:28	65	450	mL/min	25.66	4.76	0.027	4.58	6.54	15.1	336.6	Clear	No Odor
11:33	70	450	mL/min	25.62	4.76	0.027	4.58	4.91	15.2	336.3	Clear	No Odor
11:38	75	450	mL/min	25.62	4.76	0.027	4.35	4.9	15.1	336.5	Clear	No Odor
11:43	80	450	mL/min	25.62	4.76	0.027	4.09	4.9	15.2	337.2	Clear	No Odor

Constituent Sampled	Container	Number	Preservative
VOCs (524.2)	Clear Glass	3	HCL
1,4-Dioxane (EPA 522)	Amber Glass	2	NaHSO4

Comments: None

Well Information:

Well Labeled Properly: NA

Is Well in Good Condition? NA

Well Inspection Comments: NA

ft-bmp = feet below measuring point
 in = inches
 ft = feet
 mL/min = milliliters per minute
 uS/cm = microSiemens per centimeter
 NTU = Nephelometric Turbidity Unit
 mg/L = milligrams per liter
 S.U = standard units
 mS/cm = milli

Location ID:	GM-15D2	Date(s):	2023-10-24	Work Order(s):	2023 - Q4 Groundwater Monitoring		
Client:	Northrop Grumman	Facility:	OU2	Facility Location:	Bethpage, NY, United States Update	Area:	Default Site
Weather(°F):	CLEAR, T:55.18 °F, rH:73%, Clouds: 0%, Wind:3.44mph E			Field Technician:	Patrick Quinlan		
Measuring Pt. Description:	Top of Inner Casing	Screen Setting (ft-bgs):	536.00-556.00	Casing Diameter (in):	4.00	Well Casing Material:	PVC
Static Water Level (ft-bmp):	48.06	Total Depth (ft-bmp):	556	Water Column(ft):	507.94	Liters in Well:	1255.18
Depth to Product (ft-bmp):	NA	Pump Intake Depth(ft-bmp):	Midscreen	Purge Method:	Low Flow	Purging Equipment:	Submersible Pump
Purge Start Time:	10:30	Total Volume Purged (liters):	32	Sample ID:	GM-15D2	Sample Time:	11:45
Purge End Time:	11:43	Well Volumes Purged (total):	0.03	Replicate Type / Replicate ID:	Duplicate / REP102423PQ / REP102423PQ1	Water Quality Meter/ ID:	YSI Pro DSS / NA

Scope of work completed? Yes

Time	Total Elapsed (min)	Flow Rate	Flow Rate Unit	Depth to Water (ft)	pH (S.U.)	Specific Conductivity (mS/cm ^e)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
10:36	0	400	mL/min	48.09	4.9	0.069	1.16	4.99	17	197.9	Clear	No Odor
10:41	5	400	mL/min	48.09	4.81	0.068	1.16	3.37	17.8	208.6	Clear	No Odor
10:46	10	400	mL/min	48.09	4.82	0.068	1.16	2.4	17.8	213.9	Clear	No Odor
10:51	15	400	mL/min	48.1	4.89	0.065	3.07	2.26	17.9	214.2	Clear	No Odor
10:56	20	400	mL/min	48.1	4.95	0.066	3.07	4.3	17.8	218	Clear	No Odor
11:01	25	400	mL/min	48.1	4.94	0.067	3.07	5.38	17.8	224.8	Clear	No Odor
11:06	30	400	mL/min	48.1	4.93	0.067	3.91	5.77	18	227.2	Clear	No Odor
11:11	35	400	mL/min	48.1	4.93	0.068	3.91	6.44	18.1	232.2	Clear	No Odor
11:16	40	400	mL/min	48.1	4.91	0.068	3.91	6.45	18.1	236.5	Clear	No Odor
11:21	45	400	mL/min	48.1	4.9	0.068	2.75	6.46	18.1	241.9	Clear	No Odor
11:26	50	400	mL/min	48.11	4.88	0.069	2.75	6.46	18.2	244.7	Clear	No Odor
11:31	55	400	mL/min	48.11	4.87	0.069	2.28	6.43	18.2	249.2	Clear	No Odor
11:36	60	400	mL/min	48.11	4.86	0.069	2.02	6.43	18.3	250	Clear	No Odor
11:41	65	400	mL/min	48.11	4.86	0.069	2	6.45	18.4	253	Clear	No Odor

Constituent Sampled	Container	Number	Preservative
VOC (EPA 8260)	Clear Glass	3	HCL
1,4-Dioxane (8270C)	Amber Glass	2	None

Comments: None

Well Information:

Well Labeled Properly: NA

Is Well in Good Condition? NA

Well Inspection Comments: NA

ft-bmp = feet below measuring point
 in = inches
 ft = feet
 mL/min = milliliters per minute
 uS/cm = microSiemens per centimeter
 NTU = Nephelometric Turbidity Unit
 mg/L = milligrams per liter
 S.U = standard units
 mS/cm = milli

Location ID:	GM-15D	Date(s):	2023-10-24	Work Order(s):	2023 - Q4 Groundwater Monitoring		
Client:	Northrop Grumman	Facility:	OU2	Facility Location:	Bethpage, NY, United States Update	Area:	Default Site
Weather(°F):	CLEAR, T:55.38 °F, rH:74%, Clouds: 0%, Wind:3.44mph E			Field Technician:	Shirley He		
Measuring Pt. Description:	Top of Inner Casing	Screen Setting (ft-bgs):	332.00-342.00	Casing Diameter (in):	4.00	Well Casing Material:	PVC
Static Water Level (ft-bmp):	46.67	Total Depth (ft-bmp):	342	Water Column(ft):	295.3	Liters in Well:	726.5
Depth to Product (ft-bmp):	NA	Pump Intake Depth(ft-bmp):	Midscreen	Purge Method:	Low Flow	Purging Equipment:	Submersible Pump
Purge Start Time:	10:35	Total Volume Purged (liters):	25	Sample ID:	GM-15D	Sample Time:	11:35
Purge End Time:	11:32	Well Volumes Purged (total):	NA	Replicate Type / Replicate ID:	NA / NA	Water Quality Meter/ ID:	YSI Pro DSS,Hach 2100-Q / NA
Scope of work completed?	Yes						

Time	Total Elapsed (min)	Flow Rate	Flow Rate Unit	Depth to Water (ft)	pH (S.U.)	Specific Conductivity (mS/cm ^e)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
10:37	0	400	mL/min	46.72	6.32	0.174	3.14	8.1	16.5	176.5	Clear	No Odor
10:42	5	400	mL/min	46.69	5.26	0.124	3.14	1.01	16.6	214.9	Clear	No Odor
10:47	10	400	mL/min	46.69	5.05	0.169	3.14	6.56	16.9	229.5	Clear	No Odor
10:52	15	400	mL/min	46.68	4.98	0.18	8.21	8.15	17	238.5	Clear	No Odor
10:57	20	400	mL/min	46.68	4.96	0.183	8.21	8.75	16.9	246.9	Clear	No Odor
11:02	25	400	mL/min	46.68	4.95	0.183	8.21	8.85	16.9	251.9	Clear	No Odor
11:07	30	400	mL/min	46.69	4.94	0.183	4.6	8.89	17.1	254.8	Clear	No Odor
11:12	35	400	mL/min	46.69	4.95	0.182	4.6	8.91	17.1	256.5	Clear	No Odor
11:17	40	400	mL/min	46.69	4.95	0.182	3.35	8.92	17.2	259.6	Clear	No Odor
11:22	45	400	mL/min	46.69	4.94	0.182	2.96	8.93	17.2	261.7	Clear	No Odor
11:27	50	400	mL/min	46.69	4.94	0.181	3.4	8.93	17.3	263.4	Clear	No Odor
11:32	55	400	mL/min	46.69	4.94	0.181	3.39	8.96	17.2	264.7	Clear	No Odor

Constituent Sampled	Container	Number	Preservative
VOCs (SW8260)	Clear Glass	3	HCL
1,4 Dioxane (8270DSIM)	Amber Glass	2	None

Comments: None

Well Information:

Well Labeled Properly: yes

Is Well in Good Condition? good

Well Inspection Comments: 2/2 bolts



Description: NA

- ft-bmp = feet below measuring point
- in = inches
- ft = feet
- mL/min = milliliters per minute
- uS/cm = microSiemens per centimeter
- NTU = Nephelometric Turbidity Unit
- mg/L = milligrams per liter
- S.U = standard units
- mS/cm = milli

Groundwater Sampling Log

Project No. 30169301.GWML2 Well ID GM 15I Page 1 of 1
 Date 10/24/23
 Project Name/Location 012-042023 Gw Sampling Weather 60°F, sunny
 Measuring Pt. Screen 95-105 Casing Diameter (in.) 4 Well Material PVC SS
 Description TOC Interval (ft-bmp) 95-105 Water Column/Gallons in Well 105/3gal
 Static Water Level (ft-bmp) 44.32 Total Depth (ft-bmp) 103.8 Purge Method: 600-ub Sample Method LTv+LF
 MP Elevation — Pump Intake (ft-br) Mid-Screen Other —
 Pump On/Off 1041/1100 Volume Purged (gal) 24.0 Peristaltic Submersible Other —
 Sample Time: Label GM-15I Replicate/Code No. MS/MSD Sampled by ANH
 Start 1144
 End 1157
 PID: 0.0

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
1042	0	400		0	6.44	0.544		8.66	16.46	196.7	Clear	none
1047	5	400		2.0	5.92	0.574	7.61	7.67	16.21	215.8	"	"
1052	10	400	44.50	4.0	5.88	0.609		7.52	16.60	216.3	"	"
1057	15	400		6.0	5.87	0.615		7.35	16.61	217.6	"	"
1102	20	400		8.0	5.90	0.596	5.87	7.27	16.64	216.6	"	"
1107	25	400	44.48	10.0	5.89	0.597		7.12	16.84	216.9	"	"
1112	30	400		12.0	5.88	0.600		7.17	16.80	217.1	"	"
1117	35	400		14.0	5.88	0.600	1.68	6.99	16.76	216.5	"	"
1122	40	400	44.49	16.0	5.88	0.597		6.93	16.82	216.1	"	"
1127	45	400		18.0	5.87	0.600	0.98	6.91	16.81	216.0	"	"
1132	50	400		20.0	5.87	0.600	0.82	6.94	16.80	215.8	"	"
1137	55	400	44.50	22.0	5.87	0.600	0.83	6.93	16.79	216.1	"	"
1142	60	400		24.0	5.88	0.600	0.76	6.91	16.79	215.9	"	"

Constituents Sampled	Container	Number	Preservative
<u>VOCs 8260 C</u>	<u>40 mL vials</u>		<u>HCL</u>
<u>1-4 Dioxane 8270 DSIM</u>	<u>1 L Amber</u>		<u>None</u>

Notes: 105 - 44.32 = 60.68 x 0.01 = 0.6068 x 3.785 = 2.291

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2" = 0.16	2.5" = 0.26	3" = 0.37	3.5" = 0.50	4" = 0.65	6" = 1.47	3/8" = 0.006	1/2" = 0.01
--------------	-----------	-------------	-----------	-------------	-----------	-------------	-----------	-----------	--------------	-------------

Well Information

Well Location: 600 Well Locked at Arrival: Yes / No
 Condition of Well: Good Well Locked at Departure: Yes / No
 Well Completion: Flush Mount / Stick Up Key Number To Well: _____

Groundwater Sampling Log

Project No. 30169301

Well ID GM 15SR

Page 1 of 1
Date 10/24/23

Project Name/Location _____

Weather Clear

Measuring Pt. Description TOC

Screen Interval (ft-bmp) 70 80

Casing Diameter (in.) 4

Well Material PVC SS

Static Water Level (ft-bmp) 44.89

Total Depth (ft-bmp) 80

Water Column/ Gallons in Well 35.11 / 23 gal

MP Elevation _____

Pump Intake (ft-br) Mid-Screen

Purge Method: Geo Sub

Sample Method 3WV

Pump On/Off 1145-1200

Volume Purged (gal) 270 L

Peristaltic Submersible Other _____

Sample Time: Label GM 15SR
Start 1155
End 1200

Replicate/ Code No. N/A

Sampled by SU AH

1155

PID: 00

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Redox (mV)	Appearance	
											Color	Odor
Initial - 10:46	0	4000	44.84	0	9.99	0.862	20.6	10.2	14.71	43.5	Clear	None
I - 11:08	22	4000	44.84	88	9.87	0.936	3.30	9.02	14.74	44.8	Clear	None
II - 11:30	44	4000	44.85	176	9.73	0.942	1.92	8.06	14.75	46.1	"	"
III - 11:52	66	4000	44.86	265	9.71	0.941	0.98	7.22	14.83	48.8	"	"

Constituents Sampled	Container	Number	Preservative
<u>VOCS</u>	<u>40 mL VOA</u>	<u>3</u>	<u>HCL</u>
<u>1,4 Dioxane</u>	<u>1/4 Amber</u>	<u>2</u>	<u>None</u>

Notes: 80 - 44.84 = 35.11' = 228 gal = 86.4 L = 1wv 3wv = 260 L

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: <u>Beck page</u>	Well Locked at Arrival: <u>Yes / No</u>
Condition of Well: <u>Good</u>	Well Locked at Departure: <u>Yes / No</u>
Well Completion: <u>Flush Mount / Stick Up</u>	Key Number To Well: _____

Groundwater Sampling Log

Project No. 30169301.GWM12

Well ID GM-17I

Page 1 of
Date 10/17/23

Project Name/Location OU2 Q4 2023 GW Sampling

Weather 50°F, cloudy

Measuring Pt. Description TOC

Screen Interval (ft-bmp) 100-120
Casing Diameter (in.) 4

Well Material PVC SS

Static Water Level (ft-bmp) 44.78

Total Depth (ft-bmp) 120
Water Column/ Gallons in Well

MP Elevation

Pump Intake (ft-bn) Midscreen Purge Method non-dedicated 6005-ub
Sample Method MP+LF+LW

Pump On/Off 0903

Volume Purged (gal)

Sample Time: Label Start 1007 End 1016

Replicate/ Code No. n/a

Sampled by AMH

PID: 0.1WH10.0BZ

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
0905	0	500	44.79	0.0	5.95	0.116		9.02	16.5	174.0	Clear	n/a
0910	5	500	44.79	2.5	5.96	0.116	88.9	9.03	16.6	174.8	Clear	n/a
0915	10	500		5.0	6.00	0.116		9.01	16.3	177.4	"	"
0920	15	500	44.78	7.5	6.02	0.116		9.00	16.4	179.6	"	"
0925	20	500		10.0	6.03	0.116	158	9.00	16.7	81.6	"	"
0930	25	500		12.5	6.07	0.116		9.02	16.8	82.8	"	"
0935	30	500	44.79	15.0	6.05	0.116		9.01	16.9	183.9	"	"
0940	35	500		17.5	6.05	0.116	109	9.01	17.0	85.0	"	"
0945	40	500		20.0	6.06	0.116	89.0	9.01	17.1	85.6	"	"
0950	45	500	44.79	22.5	6.06	0.116	77.3	9.01	17.0	86.8	"	"
0955	50	500		25.0	6.06	0.116	61.0	9.01	17.1	88.7	"	"
1000	55	500	44.79	27.5	6.06	0.116	51.0	9.01	17.1	88.7	"	"
1005	60	500	44.79	30.0	6.06	0.116	15.4	9.01	17.2	189.3	Clear	na

Constituents Sampled
VOC's 8260 C
1-4 Dioxane 8270 D SIM

Container
40ml Vial 26
1 Liter Amber 2

Number
26
2

Preservative
HCL
None

Notes:

$120 - 44.78 = 75.22 \times 0.01 = 0.7522 \times 3.785 = 2.847L$

Well Casing Volumes
Gallons/Foot
1" = 0.04
1.25" = 0.06
2" = 0.16
3" = 0.37
3.5" = 0.50
4" = 0.69
6" = 1.47
3/8" = 0.06
1/2" = 0.01

Well Information
Well Location: Colpine, across from Applebee's
Condition of Well: Flush Mount / Stick Up

Well Locked at Arrival: Yes / No
Well Locked at Departure: Yes / No
Key Number To Well:

Groundwater Sampling Log

Project No. 30169301.GWMI2 Well ID GM-17D Date 10-17-23 Page 1 of 1

Project Name/Location OU2 Q4 2023 GW Sampling Weather 60°F/50%

Measuring Pt. Screen Casing 4 Well Material X PVC
 Description TOC Interval (ft-bmp) 278-298 Diameter (in.) 4 SS

Static Water Level (ft-bmp) 49.54 Total Depth (ft-bmp) 298 Water Column/ Gallons in Well 238ft/154gal

MP Elevation --- Pump Intake (ft-bn) mid-screen Purge Method non-dedicated Sample Method MP/LF

Pump On/Off 09:02/10:05 Volume Purged (gal) 250 Peristaltic Submersib. Geotech Other ---

Sample Time: Label GM-17D Replicate/ Start 10:05 Code No. N/A End 10:05 Sampled by PG

PID: 010000

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
09:03	0	850	49.54	0	4.81	0.212	1.38	8.16	16.74	153.7	clear	none
09:08	5	400		2	4.99	0.206		7.89	16.98	134.2		
09:13	10	400		4	5.00	0.207		7.91	16.55	132.2		
09:18	15			6	5.02	0.207		7.88	16.45	129.3		
09:23	20		49.56	8	5.02	0.207	5.57	7.95	16.58	128.0		
09:28	25			10	5.02	0.207		8.04	16.69	128.6		
09:33	30			12	5.01	0.207		8.06	16.80	127.2		
09:38	35		49.56	14	5.01	0.207	3.04	8.06	16.72	127.4		
09:43	40			16	5.02	0.207		8.05	16.84	126.8		
09:48	45		49.56	18	5.01	0.207	2.34	8.15	16.76	126.3		
09:53	50		49.56	20	5.00	0.206	2.70	8.15	16.74	126.5		
09:58	55	✓	49.56	22	5.00	0.207	2.15	8.17	16.79	126.3	↓	↓

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1-4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes:
 $298 - 49.54 = 238.4 + 0.556 = 1.43 + 7.85 = 5.4L:TV$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: West Basin Well Locked at Arrival: Yes / No

Condition of Well: Good Well Locked at Departure: Yes / No

Well Completion: Flush Mount / Stick Up Key Number To Well: _____

Groundwater Sampling Log

Project No. 30169301.GWM12

Well ID AN-42I

Page 1 of 1

Date 11-17-23

Project Name/Location OU2 Q4 2023 GW Sampling

Weather 62°F/65m

Measuring Pt. Description TOC

Screen Interval (ft-bmp) 109-110

Casing Diameter (in.) 4

Well Material PVC SS

Static Water Level (ft-bmp) 52.00

Total Depth (ft-bmp) 110

Water Column/ Gallons in Well 53ft / 34.4gal

MP Elevation

Pump Intake (ft-bn) L mid-screen

Purge Method non-dedicated

Sample Method APLF

Pump On/Off 11:40 / 12:50

Volume Purged (gal) 34L

Peristaltic Submersib. GeoSub

Other

Sample Time: Label AN-42I
Start 12:45
End 12:50

Replicate/ Code No. NA

Sampled by PCJ

PID: 011ppn

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
11:41	0	500	52.03	0	12.50	2.094	41.9	6.00	15.95	60.5	clear	none
11:46	5	500		2.5	12.52	2.010		5.90	16.17	56.8		
11:51	10			5	12.49	1.878		5.78	16.80	51.6		
11:56	15		52.05	7.5	12.48	1.862		5.75	16.84	51.1		
12:01	20		52.05	10	12.45	1.747	39.1	5.75	16.52	49.3		
12:06	25			12.5	12.43	1.672		5.75	16.31	47.9		
12:11	30			15	12.35	1.455		5.73	16.46	44.6		
12:16	35		52.05	17.5	12.33	1.455	27.4	5.72	16.69	43.7		
12:21	40			20	12.29	1.450		5.70	16.91	42.6		
12:26	45			22.5	12.29	1.450		5.71	16.93	42.3		
12:31	50		52.05	25	12.28	1.449	21.3	5.70	16.79	40.9		
12:36	55		52.06	27.5	12.28	1.449	18.2	5.72	16.86	39.9		
12:41	60		52.06	30	12.27	1.448	10.2	5.72	16.99	38.4		

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1-4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes:

$109 - 52.00 = 57 \times 0.006 = 0.3 + 3.785 = 1.2L:TV$

Well Casing Volumes

Gallons/Foot	1" = 0.04	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: <u>Sample and 7th St</u>	Well Locked at Arrival: <u>Yes</u> / No
Condition of Well: <u>Good</u>	Well Locked at Departure: <u>Yes</u> / No
Well Completion: <u>Flush Mount</u> / Stick Up	Key Number To Well: <u> </u>

Groundwater Sampling Log

Project No. 30169301.GWMI2 Well ID GM-38D2 Page 1 of 1
 Project Name/Location OU2 Q4 2023 GW Sampling Date 10-27-23
 Measuring Pt. Screen Weather 59°F/110%
 Description TOC Interval (ft-bmp) 475-495 Casing Diameter (in.) 4 Well Material X PVC SS
 Static Water Level (ft-bmp) 40.67 Total Depth (ft-bmp) 495 Water Column/ Gallons in Well 444 gal / 25 gal
 MP Elevation --- Pump Intake (ft-bmp) mid screen Purge Method non-dedicated Sample Method MP/LF
 Pump On/Off 08:52 / 10:00 Volume Purged (gal) 28 Peristaltic Submersib. GeoSub Other ---
 Sample Time: Label GM-38D2 Replicate/ Code No. --- Start 09:59 End 10:00
 PID: Clappa Sampled by PCJ

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
08:54	0	400	40.67	0	4.28	0.127	5.28	3.40	14.2	249.3	clear	none
08:59	5	400		2	4.41	0.122		0.85	14.2	250.8		
09:04	10			4	4.42	0.110		0.55	14.3	252.2		
09:09	15			6	4.39	0.105		0.29	14.3	256.6		
09:14	20		40.78	8	4.39	0.105	12.1	0.23	14.3	258.7		
09:19	25			10	4.39	0.105		0.20	14.4	260.0		
09:24	30			12	4.39	0.104		0.16	14.4	261.3		
09:29	35		40.78	14	4.39	0.105	7.03	0.14	14.4	262.3		
09:34	40			16	4.39	0.105		0.14	14.4	262.8		
09:39	45			18	4.40	0.105		0.13	14.3	262.2		
09:44	50		40.79	20	4.40	0.106	6.43	0.11	14.5	264.5		
09:49	55		40.79	22	4.40	0.106	5.91	0.10	14.5	265.3		
09:54	60	✓	40.79	24	4.40	0.106	4.96	0.10	14.5	266.5		

Constituents Sampled

Constituents	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1-4 Dioxane 8270 D SIM	1 Liter Amber	2	None
THF	40ml Vial	3	HCL

Notes:
 $495 - 40.67 = 444.33 + 0.006 = 2.6 + 3.785 = 10.1:TV$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	8" = 0.006

Well Information

Well Location: Arthur Ave and Broadway
 Condition of Well: Good
 Well Completion: Flush Mount / Stick Up
 Well Locked at Arrival: Yes / No
 Well Locked at Departure: Yes / No
 Key Number To Well: _____

Groundwater Sampling Log

Project No. 30169301.GWM12 Well ID GM-3502 Date 10-23-23 Page 1 of 1

Project Name/Location OU2 Q4 2023 GW Sampling Weather 55°F/Sun

Measuring Pt. Description TOC Screen Interval (ft-bmp) 510-530 Casing Diameter (in.) 4 Well Material PVC SS

Static Water Level (ft-bmp) 39.87 Total Depth (ft-bmp) 530 Water Column/ Gallons in Well 480ft/312gal

MP Elevation --- Pump Intake (ft-bn) midstream Purge Method non-dedicated Sample Method MP/LE

Pump On/Off 1050/1205 Volume Purged (gal) --- Peristaltic --- Submersible Gedubb Other ---

Sample Time: Label GM-3502 Replicate/ Code No. nlq Start 12:00 End 12:05 Sampled by PG SA

PID: 50ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
10:51	0	300	39.87	0	6.33	0.104	Over	9.25	15.4	209.9	Clear	none
10:56	5	300		1.5	6.58	0.103		8.02	15.3	205.2		
11:01	10			3	6.79	0.103		8.05	15.9	202.2		
11:06	15			4.5	9.12	0.112		8.08	16.3	163.0		
11:11	20		39.90	6	9.58	0.116	Over	8.10	16.2	152.2		
11:16	25			7.5	9.97	0.121		8.14	16.1	142.6		
11:21	30			9	9.21	0.111		8.28	16.3	153.6		
11:26	35		39.91	10.5	8.77	0.109	1.74	8.30	16.5	163.3		
11:31	40			12	8.41	0.109		8.31	16.3	171.2		
11:36	45			13.5	7.73	0.108		8.31	16.5	185.9		
11:41	50		39.91	15	6.90	0.108	1.32	8.34	16.3	202.4		
11:46	55			16.5	6.33	0.107	1.21	8.35	16.4	212.4		
11:51	60		39.90	18	6.30	0.107	0.88	8.40	16.7	219.9		
11:56	65	✓	39.90	19.5	6.27	0.107	0.79	8.39	16.6	220.0	✓	✓

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1-4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes:
 $530 - 39.87 = 480.1 + 0.006 = 2.8 + 2.785 = 10.96 \text{ TV}$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	3/8" = 0.006

Well Information

Well Location: Carl and Jean Ave

Condition of Well: Good

Well Completion: Flush Mount / Stick Up

Well Locked at Arrival: Yes / No

Well Locked at Departure: Yes / No

Key Number To Well: ---

Location ID:	GM-33D2	Date(s):	2023-10-26	Work Order(s):	2023 - Q4 Groundwater Monitoring		
Client:	Northrop Grumman	Facility:	OU2	Facility Location:	Bethpage, NY, United States Update	Area:	Default Site
Weather(°F):	CLEAR, T:63.82 °F, rH:71%, Clouds: 0%, Wind:4.61mph SW			Field Technician:	Shirley He		
Measuring Pt. Description:	Top of Inner Casing	Screen Setting (ft-bgs):	500.00-520.00	Casing Diameter (in):	4.00	Well Casing Material:	PVC
Static Water Level (ft-bmp):	44.86	Total Depth (ft-bmp):	520	Water Column(ft):	475.14	Liters in Well:	1168.9
Depth to Product (ft-bmp):	NA	Pump Intake Depth(ft-bmp):	Midscreen	Purge Method:	Low Flow	Purging Equipment:	Submersible Pump
Purge Start Time:	10:02	Total Volume Purged (liters):	26	Sample ID:	GM-33D2	Sample Time:	11:05
Purge End Time:	11:04	Well Volumes Purged (total):	NA	Replicate Type / Replicate ID:	NA / NA	Water Quality Meter/ ID:	/ NA

Scope of work completed? Yes

Time	Total Elapsed (min)	Flow Rate	Flow Rate Unit	Depth to Water (ft)	pH (S.U.)	Specific Conductivity (mS/cm ^e)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
10:04	0	600	mL/min	44.87	7.55	0.111	10.3	8.41	17	113.7	Clear	No Odor
10:09	5	500	mL/min	44.87	8.55	0.111	10.3	8.67	17.3	104.2	Clear	No Odor
10:14	10	500	mL/min	44.87	8.28	0.109	10.3	8.75	17.4	113.3	Clear	No Odor
10:19	15	350	mL/min	44.9	7.31	0.107	26.9	8.84	17.9	125.6	Clear	No Odor
10:24	20	350	mL/min	44.9	6.88	0.106	26.9	8.88	18	129.8	Clear	No Odor
10:29	25	350	mL/min	44.9	6.71	0.106	16.7	8.91	18.1	135.3	Clear	No Odor
10:34	30	350	mL/min	44.9	6.62	0.106	16.7	8.9	18.2	138.7	Clear	No Odor
10:39	35	350	mL/min	44.9	6.53	0.106	16.7	8.91	18.2	143.9	Clear	No Odor
10:44	40	350	mL/min	44.91	6.44	0.106	9.24	8.89	18.3	149.5	Clear	No Odor
10:49	45	350	mL/min	44.91	6.39	0.106	5.05	8.88	18.3	153.8	Clear	No Odor
10:54	50	350	mL/min	44.91	6.37	0.107	4.25	8.88	18.4	157.2	Clear	No Odor
10:59	55	350	mL/min	44.91	6.34	0.107	3.66	8.87	18.6	160.9	Clear	No Odor
11:04	60	350	mL/min	44.91	6.3	0.107	3.79	8.86	18.6	163.8	Clear	No Odor

Constituent Sampled	Container	Number	Preservative
VOCs (SW8260)	Clear Glass	3	HCL
1,4-Dioxane (8270C)	Amber Glass	2	None

Comments: None

Well Information:

Well Labeled Properly: yes

Is Well in Good Condition? good

Well Inspection Comments: 2 out of 3 bolts

ft-bmp = feet below measuring point
 in = inches
 ft = feet
 mL/min = milliliters per minute
 uS/cm = microSiemens per centimeter
 NTU = Nephelometric Turbidity Unit
 mg/L = milligrams per liter
 S.U = standard units
 mS/cm = milli

Groundwater Sampling Log

Project No. 30169301.GWMI2 Well ID GM-38D Date 10/23/23 Page 1 of 1
 Project Name/Location OU2 Q4 2023 GW Sampling Weather 50's-60's F, sunny
 Measuring Pt. Description TOC Screen Interval (ft-bmp) 320-340 Casing Diameter (in.) 4 Well Material X PVC SS
 Static Water Level (ft-bmp) 38.86 Total Depth (ft-bmp) 340 Water Column/ Gallons in Well 301.14ft / 195.74gal
 MP Elevation _____ Pump Intake (ft-bn) midscreen Purge Method non-dedicated Sample Method MP/LF
 Pump On/Off 0851 / 1007 Volume Purged (gal) 4 Peristaltic Submersib. _____ Other _____
 Sample Time: Label GM-38D Replicate/ Code No. N/A Sampled by SH PQ
 Start 1000 End 1007

PID: 0.0 ppm (WH) 0.0 ppm (BZ)

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
0854	0	700	38.98	0	6.40	0.118	2.55	7.00	14.0	163.8	Clear	None
0859	5	700		3.5	4.77	0.116		2.28	13.8	179.8	"	"
0904	10	200		5.75	4.08	0.132		2.15	13.4	204.8	"	"
0909	15	100	38.94	6.5	4.03	0.136	1.71	2.16	13.2	208.9	"	"
0914	20	240		7.35	4.01	0.139		2.15	13.0	217.4	"	"
0919	25	240		8.55	4.01	0.140		2.17	13.5	224.2	"	"
0924	30	320	38.96	9.95	4.03	0.141	1.99	2.21	13.1	228.7	"	"
0929	35	340		11.6	4.02	0.139		2.13	13.6	236.1	"	"
0934	40	320	38.96	13.25	4.02	0.139	5.00	2.13	13.6	240.7	"	"
0939	45	320	38.96	14.85	4.02	0.141	1.72	2.18	13.6	244.9	"	"
0944	50	320	38.97	16.45	4.02	0.137	1.64	2.07	13.8	249.8	"	"
0949	55	320	38.96	18.05	4.03	0.139	0.78	2.14	13.8	254.6	"	"
0954	60	320	38.96	19.65	4.04	0.138	1.30	2.13	13.9	257.6	"	"
0959	65	320	38.96	21.25	4.05	0.137	2.30	2.00	13.8	261.6	"	"

TV

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1-4 Dioxane 8270 D SIM	1 Liter Amber	2	None
Tetrahydrofuran (THF)	40mL Vial	3	HCL

Notes:
 TV: $340 - 38.86 = 301.14 \text{ ft} \times 0.06 = 1.81 \text{ gal} \times 3.785 = 6.84 \text{ L Total}$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location:	<u>Broadway and Arthur Ave</u>	Well Locked at Arrival:	<input checked="" type="checkbox"/> Yes / No
Condition of Well:	<u>Fair</u>	Well Locked at Departure:	<input checked="" type="checkbox"/> Yes / No
Well Completion:	<u>Flush Mount</u> / Stick Up	Key Number To Well:	<u>N/A</u>

Groundwater Sampling Log

Project No. 30169301.GWM12 Well ID GM-3402 Date 10/19/23 Page 1 of 1

Project Name/Location OU2 Q4 2023 GW Sampling Weather 60°F, Sunny

Measuring Pt. Description TOC Screen Interval (ft-bmp) 510-520 Casing Diameter (in.) 4 Well Material PVC SS

Static Water Level (ft-bmp) 17.51 Total Depth (ft-bmp) 520 Water Column/ Gallons in Well 507

MP Elevation - Pump Intake (ft-bn) 1298 Purge Method non-dedicated bore sub Sample Method LFTV

Pump On/Off 1298/1351 Volume Purged (gal) 27L Peristaltic Submersib. - Other -

Sample Time: Label GM-3402 Replicate/ Code No. N/A Start 1342 End 1350 Sampled by ANH

PID: 0.1 m / 0.1 B₂

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
1240	0	600		0	6.44	0.198	15.6	2.72	17.4	191.6	Clear	n/a
1245	5	600	17.85	3.0	6.47	0.148		0.91	17.5	178.1	"	"
1250	10	400		5.5	7.50	0.146	27.7	0.50	17.6	158.5	"	"
1255	15	400		7.5	7.19	0.137		0.66	17.7	22.0	"	"
1300	20	400	17.50	9.5	5.94	0.137		1.34	17.7	58.9	"	"
1305	25	400		11.5	5.82	0.137	44.6	1.46	17.6	72.1	"	"
1310	30	400		13.5	5.77	0.138		1.52	17.5	79.7	"	"
1315	35	400	17.52	15.5	5.74	0.138		1.56	17.5	83.9	"	"
1320	40	400		17.5	5.72	0.139	23.7	1.58	17.4	87.7	"	"
1325	45	400		19.5	5.69	0.139	20.3	1.59	17.4	92.4	"	"
1330	50	400	17.50	21.5	5.65	0.140	18.5	1.59	17.4	94.4	"	"
1335	55	400		23.5	5.67	0.140	12.5	1.58	17.4	97.2	"	"
1340	60	400	17.50	25.5	5.66	0.140	13.4	1.57	17.4	100.2	"	"

ktvhit
shimrite

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	66	HCL
1-4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes: $Tv = 520 - 17.51 = 502.49 \times 0.006 = 3.014 \times 3.785 = 11.41L$

Well Casing Volumes

Gallons/Foot: 1" = 0.04, 1.25" = 0.06, 1.5" = 0.09, 2" = 0.16, 2.5" = 0.26, 3" = 0.37, 3.5" = 0.60, 4" = 0.66, 6" = 1.47, 8" = 0.006, 1/2" = 0.01

Well Information

Well Location: Behind Lovittown Fire Station

Condition of Well: Good

Well Completion: Push Mount / Stick Up

Well Locked at Arrival: Yes / No

Well Locked at Departure: Yes / No

Key Number To Well: -

Groundwater Sampling Log

Project No. 30169301.GWMI2 Well ID GM-340 Page 1 of 1
 Date 10-19-23
 Project Name/Location OU2 Q4 2023 GW Sampling Weather 65°F/44
 Measuring Pt. TOC Screen Interval (ft-bmp) 309-319 Casing Diameter (in.) 2 Well Material PVC SS
 Static Water Level (ft-bmp) 15.09 Total Depth (ft-bmp) 319 Water Column/ Gallons in Well 298ft/47gal
 MP Elevation --- Pump Intake (ft-bn) mid screen Purge Method Dedicated Peristaltic Submersib. Other Sample Method MP/LF
 Pump On/Off 13:01/14:20 Volume Purged (6 gal) 31
 Sample Time: Label GM-340 Replicate/ Code No. n/a Sampled by PQ
 Start 14:15 End 14:20
 PID: 0.0 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
13:15	0	500	15.09	0	9.20	0.147	13.0	1.19	16.4	347.1	clear	slight
13:20	5	500		2.5	9.01	0.160		1.25	16.5	340.9		
13:25	10			5	9.08	0.177		1.33	16.5	106.3		
13:30	15		15.20	7.5	9.30	0.178		1.29	16.5	92.3		
13:35	20		15.20	10	8.51	0.180	6.65	1.40	16.5	90.5		
13:40	25			12.5	7.70	0.181		1.54	16.5	95.5		
13:45	30			15	6.97	0.184		1.62	16.6	101.9		
13:50	35		15.21	17.5	6.85	0.183	4.27	1.64	16.5	103.0		
13:55	40			20	6.88	0.184		1.64	16.4	105.8		
14:00	45		15.21	22.5	6.88	0.184	4.00	1.63	16.5	106.2		
14:05	50		15.20	25	6.87	0.185	3.82	1.62	16.4	105.1		
14:10	55		15.20	27.5	6.86	0.185	2.21	1.61	16.4	103.8		

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1-4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes: $314 - 15.09 = 298.9 + vol = 29 + 17.86 = 11.36 \pm 0.1$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.08	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: Levittown Fire House Well Locked at Arrival: Yes / No
 Condition of Well: Good Well Locked at Departure: Yes / No
 Well Completion: Flush Mount / Stick Up Key Number To Well: _____

Location ID:	GM-21D2	Date(s):	2023-10-25	Work Order(s):	2023 - Q4 Groundwater Monitoring		
Client:	Northrop Grumman	Facility:	OU2	Facility Location:	Bethpage, NY, United States Update	Area:	Default Site
Weather(°F):	CLEAR, T:63.77 °F, rH:69%, Clouds: 0%, Wind:8.05mph S			Field Technician:	Shirley He		
Measuring Pt. Description:	Top of Inner Casing	Screen Setting (ft-bgs):	516.00-526.00	Casing Diameter (in):	4.00	Well Casing Material:	PVC
Static Water Level (ft-bmp):	45.45	Total Depth (ft-bmp):	531	Water Column(ft):	345.1	Liters in Well:	849.1
Depth to Product (ft-bmp):	NA	Pump Intake Depth(ft-bmp):	Midscreen	Purge Method:	Low Flow	Purging Equipment:	Dedicated Pump
Purge Start Time:	11:23	Total Volume Purged (liters):	22	Sample ID:	GM-21D2	Sample Time:	12:25
Purge End Time:	12:24	Well Volumes Purged (total):	NA	Replicate Type / Replicate ID:	NA / NA	Water Quality Meter/ ID:	Hach 2100-Q, YSI Pro DSS / NA

Scope of work completed? Yes

Time	Total Elapsed (min)	Flow Rate	Flow Rate Unit	Depth to Water (ft)	pH (S.U.)	Specific Conductivity (mS/cm ^e)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
11:24	0	300	mL/min	45.53	5.7	0.101	1.7	4.55	17.1	222.9	Clear	No Odor
11:29	5	300	mL/min	45.53	5.46	0.1	1.7	4.25	17.9	223.4	Clear	No Odor
11:34	10	300	mL/min	45.53	5.46	0.101	1.7	3.86	18.4	223.6	Clear	No Odor
11:39	15	300	mL/min	45.54	5.52	0.099	5.38	3.97	18.6	223.1	Clear	No Odor
11:44	20	300	mL/min	45.54	5.62	0.098	5.38	4.46	18.8	218.1	Clear	No Odor
11:49	25	300	mL/min	45.54	5.83	0.105	5.38	6.05	19.1	202.4	Clear	No Odor
11:54	30	300	mL/min	45.55	5.93	0.107	44.4	7.05	19	190.4	--	No Odor
11:59	35	300	mL/min	45.55	5.96	0.108	46.6	7.51	19.1	184.1	--	No Odor
12:04	40	300	mL/min	45.55	5.97	0.109	46.6	7.86	19.2	180	--	No Odor
12:09	45	300	mL/min	45.54	5.98	0.11	34.7	8.21	19.1	177.6	Clear	No Odor
12:14	50	300	mL/min	45.54	5.98	0.11	31.2	8.38	19.3	177.1	Clear	No Odor
12:19	55	300	mL/min	45.54	5.97	0.111	27	8.47	19.5	177.1	Clear	No Odor
12:24	60	300	mL/min	45.54	5.95	0.111	25.3	8.56	19.3	177.9	Clear	No Odor

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane (8270C)	Amber Glass	2	None
VOCs (SW8260)	Clear Glass	3	HCL

Comments: None

Well Information:

Well Labeled Properly: yes

Is Well in Good Condition? good

Well Inspection Comments: NA

ft-bmp = feet below measuring point
 in = inches
 ft = feet
 mL/min = milliliters per minute
 uS/cm = microSiemens per centimeter
 NTU = Nephelometric Turbidity Unit
 mg/L = milligrams per liter
 S.U = standard units
 mS/cm = milli

Groundwater Sampling Log

Project No. 30169301 GWM12

Well ID GM18I

Date 10/26/23 Page 1 of 1

Project Name/Location OU2 Q4 2023 GW Sampling

Weather 60° Sunny

Measuring Pt. Description TOC

Screen Interval (ft-bmp) 95-100

Casing Diameter (in.) 4

Well Material PVC SS

Static Water Level (ft-bmp) 42.82

Total Depth (ft-bmp) 105

Water Column/ Gallons in Well 63' / 40 gal

3WV below

MP Elevation 1109

Pump Intake (ft-bn) MP Screen Purge Method non-dedicated

Sample Method LF + TV (D)

Pump On/Off 1109

Volume Purged (gal) 70L

Peristaltic Submersible Other

Puckin

Sample Time: Label GM18I

Replicate/ Code No. N/A

Sampled by Sv, ArrH

Start 1210

End 1215

PID: 0.4

1210

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Redox (mV)	Appearance	
											Color	Odor
<u>I- 11 11</u>	<u>0</u>	<u>1600</u>	<u>40.57</u>	<u>0</u>	<u>8.89</u>	<u>0.169</u>	<u>4.75</u>	<u>19.74</u>	<u>15.36</u>	<u>4105</u>	<u>Clear</u>	<u>None</u>
<u>II- 11 29</u>	<u>18</u>	<u>1600</u>	<u>40.57</u>	<u>29</u>	<u>8.39</u>	<u>0.156</u>	<u>1.60</u>	<u>10.76</u>	<u>14.31</u>	<u>52.4</u>	<u>"</u>	<u>"</u>
<u>III- 11 47</u>	<u>36</u>	<u>1600</u>	<u>40.57</u>	<u>58</u>	<u>9.89</u>	<u>0.155</u>	<u>1.99</u>	<u>7.92</u>	<u>14.23</u>	<u>54.3</u>	<u>"</u>	<u>"</u>
<u>12 05</u>	<u>54</u>	<u>1600</u>	<u>40.57</u>	<u>86</u>	<u>10.11</u>	<u>0.154</u>	<u>2.24</u>	<u>7.16</u>	<u>14.27</u>	<u>54.6</u>	<u>"</u>	<u>"</u>

Constituents Sampled	Container	Number	Preservative
<u>VOC's 8260 C + THF</u>	<u>40ml Vial</u>	<u>68</u>	<u>HCL</u>
<u>1-4 Dioxane 8270 D SIM</u>	<u>1 Liter Amber</u>	<u>2</u>	<u>None</u>

Notes: $(105 - 94) \cdot 0.65 = 7.15 \text{ gal} \cdot 3.785 = 27.1 \text{ L} = 1 \text{ WVBP}$
 $94 - 42.22 = 51.78' \cdot 0.43 \text{ psi/ft} = 22.25 \text{ psi} + 50 = 72.25$

Well Casing Volumes	1" = 0.04	1.5" = 0.09	2" = 0.16	2.5" = 0.26	3" = 0.37	3.5" = 0.50	4" = 0.65	5" = 0.85	6" = 1.47	8" = 2.50
---------------------	-----------	-------------	-----------	-------------	-----------	-------------	-----------	-----------	-----------	-----------

Well Information	
Well Location: <u>700 Hicksville Rd</u>	Well Locked at Arrival: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well: <u>Good</u>	Well Locked at Departure: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion: <u>Flush Mount / Stick Up</u>	Key Number To Well: <u>2</u>

Groundwater Sampling Log

Project No. 30169301.GWML2 Well ID GM 73D Date 10/23/23 Page 1 of 1
 Project Name/Location 012 Q4 2023 GW Sampling Weather 50°F, Sunny
 Measuring Pt. Description TOC Screen Interval (ft-bmp) 401-411 Casing Diameter (in.) 4 Well Material PVC SS
 Static Water Level (ft-bmp) 42.81 Total Depth (ft-bmp) 411 Water Column/ Gallons in Well 372
 MP Elevation - Pump Intake (ft-bn) mbsurea Purge Method non-dedicated Geosub Sample Method 3WSV + LF
 Pump On/Off 0914/1032 Volume Purged (gal) 2g Peristaltic Submersib rediflow Other
 Sample Time: Label GM73D/R Replicate/ Code No. REP102323AH1 Sampled by ANH
 Start 1020 End 1032
 PID: 0.1WN/a.0B2

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
0918	0	500		2.5	5.22	0.202		4.41	16.01	186.1	Clear	none
0923	5	400	42.84	4.5	5.23	0.163		4.64	16.12	208.7	11	11
0928	10	400		6.5	4.68	0.173	23.5	6.44	16.14	248.6	11	11
0933	15	400		8.5	4.74	0.190		7.63	16.23	260.3	11	11
0938	20	400	42.83	10.5	4.76	0.193		7.99	16.17	265.9	11	11
0943	25	400		12.5	4.76	0.195	10.0	8.09	16.22	275.6	11	11
0948	30	400		14.5	4.78	0.197		8.21	16.14	278.8	11	11
0953	35	400	42.83	16.5	4.75	0.197		8.23	16.17	280.3	11	11
0958	40	400		18.5	4.75	0.198	11.6	8.26	16.13	296.5	11	11
1003	45	400		20.5	4.77	0.198	4.88	8.33	16.12	299.4	11	11
1008	50	400	42.83	22.5	4.78	0.198	2.11	8.29	16.25	299.8	11	11
1013	55	400		24.5	4.76	0.198	2.38	8.32	16.21	299.6	11	11
1018	60	400		26.5	4.76	0.198	1.01	8.33	16.24	299.3	11	11

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	212	HCL
1-4 Dioxane 8270 DSIM	1 Liter Amber	4	none

Notes: 411-42.81 - 368.19 X 3.562 4L

Well Casing Volumes					
Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	3/8" = 0.006

Well Information		Well Locked at Arrival:	
Well Location:	<u>Basin behind engineer building</u>	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Condition of Well:	<u>Good</u>	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Well Completion:	<u>Flush Mount / Stick Up</u>	Key Number To Well:	

Groundwater Sampling Log

Project No. 30169301.GWM12

Well ID GM 7303

Date 10/23/23 Page 1 of 1

Project Name/Location OU2 Q4 2023 GW Sampling

Weather 50°F, Sunny

Measuring Pt. Description TOC

Screen Interval (ft-bmp) 635-650

Casing Diameter (in.) 4

Well Material PVC SS

Static Water Level (ft-bmp) 42.63

Total Depth (ft-bmp) 650

Water Column/ Gallons in Well 600

MP Elevation —

Pump Intake (ft-bn) midscreen

Purge Method non-dedicated

Sample Method TU+LP

Pump On/Off 1129

Volume Purged (gal) 24.0

Peristaltic Submersib.
Other

Sample Time: Label 6m-7303
Start 12:33
End 12:42

Replicate/ Code No. N/A

Sampled by AMH

PID: 0.0 WH/0.0 BZ

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU/APP)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
1131	0	400		0	5.56	0.047	0.047	7.54	17.30	147.7	Clear	None
1136	5	400		2.0	5.82	0.050	2.70	4.45	16.21	199.5	"	"
1141	10	400	42.70	4.0	5.49	0.039		3.84	16.06	218.8	"	"
1146	15	400		6.0	5.35	0.039		4.12	16.03	225.1	"	"
1151	20	400		8.0	5.39	0.039	5.05	5.32	16.02	227.8	"	"
1156	25	400	42.70	10.0	5.36	0.040		6.77	16.01	233.1	"	"
1201	30	400		12.0	5.35	0.041		7.52	16.02	238.5	"	"
1206	35	400		14.0	5.32	0.041	10.1	7.40	16.00	242.8	"	"
1211	40	400	42.70	16.0	5.31	0.041		8.19	16.02	247.1	"	"
1216	45	400		18.0	5.29	0.041	6.81	8.29	16.01	250.5	"	"
1221	50	400		20.0	5.28	0.042	6.65	8.33	15.99	253.2	"	"
1226	55	400	42.70	22.0	5.25	0.042	6.39	8.35	15.99	258.1	"	"
1231	60	400		24.0	5.25	0.042	3.91	8.35	15.99	258.6	"	"

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	6	HCL
1-4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes: $T_v = 650 - 42.63 = 607.37 \times 0.01 = 6.07 \times 3.785 = 22.91$

Well Casing Volumes	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
Gallons/Foot	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	3/8" = 0.06

Well Information	Well Locked at Arrival:	Yes	/	No
Well Location: <u>Basin behind engineering building</u>	Well Locked at Departure:	Yes	/	No
Condition of Well: <u>good</u>	Key Number To Well:			
Well Completion: <u>Flush Mount / Stick Up</u>				

Location ID:	GM-73D2	Date(s):	2023-10-23	Work Order(s):	2023 - Q4 Groundwater Monitoring		
Client:	Northrop Grumman	Facility:	OU2	Facility Location:	Bethpage, NY, United States Update	Area:	Default Site
Weather(°F):	CLEAR, T:50.23 °F, rH:71%, Clouds: 0%, Wind:13.8mph N-NW			Field Technician:	Stephen Vlavianos		
Measuring Pt. Description:	Top of Inner Casing	Screen Setting (ft-bgs):	532.00-552.00	Casing Diameter (in):	4.00	Well Casing Material:	PVC
Static Water Level (ft-bmp):	41.24	Total Depth (ft-bmp):	552	Water Column(ft):	510.76	Gallons in Well: 333.42	
Depth to Product (ft-bmp):	NA	Pump Intake Depth(ft-bmp):	542	Purge Method:	Low Flow	Purging Equipment:	Submersible Pump
Purge Start Time:	09:20	Total Volume Purged (gallons):	3.5	Sample ID:	GM-73D2	Sample Time:	10:30
Purge End Time:	10:40	Well Volumes Purged (total):	0.01	Replicate Type / Replicate ID:	NA / NA	Water Quality Meter/ ID:	YSI 600 XLM Sonde 1.65 inch / R10941
Scope of work completed?	Yes						

Time	Total Elapsed (min)	Flow Rate	Flow Rate Unit	Depth to Water (ft)	pH (S.U.)	Specific Conductivity (mS/cm ^e)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
09:25	0	200	mL/min	41.23	6.08	0.39	2.35	10.85	13.68	20.9	Clear	No Odor
09:30	5	300	mL/min	41.23	5.47	0.373	2.35	6.03	13.92	20.3	Clear	No Odor
09:35	10	200	mL/min	41.24	5.02	0.356	4.3	5.78	13.88	17.8	Clear	No Odor
09:40	15	200	mL/min	41.25	4.08	0.363	4.3	6.87	13.88	12.8	Clear	No Odor
09:45	20	200	mL/min	41.25	3.6	0.371	35.8	7.32	13.92	10.8	Clear	No Odor
09:50	25	200	mL/min	41.26	3.37	0.374	35.8	7.55	13.93	10.3	Clear	No Odor
09:55	30	200	mL/min	41.26	3.62	0.373	25.1	9	13.59	9	Clear	No Odor
10:00	35	200	mL/min	41.26	3.74	0.377	25.1	8.13	13.96	8.7	Clear	No Odor
10:05	40	200	mL/min	41.27	3.76	0.38	16.2	8.15	13.98	7.8	Clear	No Odor
10:10	45	200	mL/min	41.25	3.7	0.383	16.9	8.13	14.02	8.2	Clear	No Odor
10:15	50	200	mL/min	41.26	3.74	0.385	16.1	8.2	13.96	7.4	Clear	No Odor
10:20	55	200	mL/min	41.27	3.69	0.386	16.1	8.09	13.99	7.1	Clear	No Odor
10:25	60	200	mL/min	41.27	3.69	0.388	16.4	8.07	14.05	6.8	Clear	No Odor

Constituent Sampled	Container	Number	Preservative
Vinyl chloride (EPA 8260)	Clear Glass	3	
1,4-Dioxane (8270C)	Amber Glass	2	

Comments: 552-41.24 is 510.76 ft is 5 liters

Well Information:

Well Labeled Properly: yes

Is Well in Good Condition? good

Well Inspection Comments: All good

ft-bmp = feet below measuring point
 in = inches
 ft = feet
 mL/min = milliliters per minute
 uS/cm = microSiemens per centimeter
 NTU = Nephelometric Turbidity Unit
 mg/L = milligrams per liter
 S.U = standard units
 mS/cm = milli

Location ID:	GM-39DB	Date(s):	2023-10-25	Work Order(s):	2023 - Q4 Groundwater Monitoring		
Client:	Northrop Grumman	Facility:	OU2	Facility Location:	Bethpage, NY, United States Update	Area:	Default Site
Weather(°F):	CLEAR, T:53.29 °F, rH:81%, Clouds: 0%, Wind:6.91mph SW			Field Technician:	Stephen Vlavianos		
Measuring Pt. Description:	Top of Inner Casing	Screen Setting (ft-bgs):	410.00-420.00	Casing Diameter (in):	4.00	Well Casing Material:	PVC
Static Water Level (ft-bmp):	39.02	Total Depth (ft-bmp):	420	Water Column(ft):	380.98	Gallons in Well: 248.7	
Depth to Product (ft-bmp):	NA	Pump Intake Depth(ft-bmp):	Midscreen	Purge Method:	Low Flow	Purging Equipment:	Dedicated Pump
Purge Start Time:	08:21	Total Volume Purged (gallons):	4.222	Sample ID:	GM-39DB	Sample Time:	09:07
Purge End Time:	09:07	Well Volumes Purged (total):	0.02	Replicate Type / Replicate ID:	NA / NA	Water Quality Meter/ ID:	YSI 600 XLM Sonde 1.65 inch / 18904

Scope of work completed? Yes

Time	Total Elapsed (min)	Flow Rate	Flow Rate Unit	Depth to Water (ft)	pH (S.U.)	Specific Conductivity (mS/cm ^c)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
08:22	0	400	mL/min	39.03	5.77	0.247	2.13	5.82	16.23	203.1	Clear	No Odor
08:27	5	400	mL/min	39.03	5.37	0.369	2.13	7.21	15.34	233.6	Clear	No Odor
08:32	10	400	mL/min	43.12	5.15	0.391	7.39	8.27	15.44	244.9	Clear	No Odor
08:37	15	400	mL/min	39.13	5.16	0.388	7.39	7.66	15.59	253.5	Clear	No Odor
08:42	20	400	mL/min	39.1	5.17	0.387	6.53	7.18	15.67	258.5	Clear	No Odor
08:47	25	400	mL/min	39.09	5.17	0.386	3.65	6.78	15.66	265.3	Clear	No Odor
08:52	30	400	mL/min	39.09	5.17	0.386	4.24	6.64	15.65	267.3	Clear	No Odor
08:57	35	400	mL/min	39.08	5.17	0.386	3.23	6.31	15.69	270.4	Clear	No Odor
09:02	40	400	mL/min	39.08	5.17	0.386	3.33	6.03	15.7	270.5	Clear	No Odor

Constituent Sampled	Container	Number	Preservative
VOC (8260C)	Clear Glass	3	HCL
1,4-Dioxane (8270C)	Amber Glass	2	None

Comments: None

Well Information:

Well Labeled Properly: yes

Is Well in Good Condition? good

Well Inspection Comments: NA

ft-bmp = feet below measuring point
 in = inches
 ft = feet
 mL/min = milliliters per minute
 uS/cm = microSiemens per centimeter
 NTU = Nephelometric Turbidity Unit
 mg/L = milligrams per liter
 S.U = standard units
 mS/cm = milli

Location ID:	GM-39DA	Date(s):	2023-10-25	Work Order(s):	2023 - Q4 Groundwater Monitoring		
Client:	Northrop Grumman	Facility:	OU2	Facility Location:	Bethpage, NY, United States Update	Area:	Default Site
Weather(°F):	CLEAR, T:57.65 °F, rH:77%, Clouds: 0%, Wind:9.22mph SW			Field Technician:	Stephen Vlavianos		
Measuring Pt. Description:	Top of Inner Casing	Screen Setting (ft-bgs):	262.00-282.00	Casing Diameter (in):	4.00	Well Casing Material:	PVC
Static Water Level (ft-bmp):	37.82	Total Depth (ft-bmp):	282	Water Column(ft):	244.18	Gallons in Well: 159.4	
Depth to Product (ft-bmp):	NA	Pump Intake Depth(ft-bmp):	Midscreen	Purge Method:	Low Flow	Purging Equipment:	Dedicated Bladder
Purge Start Time:	09:27	Total Volume Purged (gallons):	4.6	Sample ID:	GM-39DA	Sample Time:	10:20
Purge End Time:	10:19	Well Volumes Purged (total):	0.03	Replicate Type / Replicate ID:	NA / NA	Water Quality Meter/ ID:	YSI 600 XLM Sonde 1.65 inch / 10941
Scope of work completed?	Yes						

Time	Total Elapsed (min)	Flow Rate	Flow Rate Unit	Depth to Water (ft)	pH (S.U.)	Specific Conductivity (mS/cm ^e)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
09:30	0	200	mL/min	37.85	5.56	0.229	39.7	4.63	17	254.3	Clear	No Odor
09:35	5	200	mL/min	37.82	6.16	0.344	1.53	4.59	18.19	199.5	Clear	No Odor
09:40	10	200	mL/min	37.82	6.21	0.212	1.53	4.03	17.62	19.6	Clear	No Odor
09:45	15	200	mL/min	37.87	6.11	0.174	0.8	3.61	17.51	28.1	Clear	No Odor
09:50	20	200	mL/min	37.87	5.86	0.229	0.8	3.71	17.53	5	Clear	No Odor
09:55	25	200	mL/min	37.88	5.74	0.261	0.62	3.73	17.64	6.2	Clear	No Odor
10:00	30	200	mL/min	37.82	5.66	0.298	0.5	3.92	17.64	15.2	Clear	No Odor
10:05	35	200	mL/min	37.87	5.62	0.297	0.48	4.06	17.79	19.5	Clear	No Odor
10:10	40	200	mL/min	37.89	5.62	0.299	0.32	3.99	17.84	20.8	Clear	No Odor
10:15	45	200	mL/min	37.91	5.62	0.3	0.34	4.02	17.97	21.6	Clear	No Odor

Constituent Sampled	Container	Number	Preservative
VOC (8260C)	Clear Glass	3	HCL
1,4-Dioxane (8270C)	Amber Glass	2	None

Comments: 282-37.82=244' X 0.006=1.464gal

Well Information:

Well Labeled Properly: yes

Is Well in Good Condition? good

Well Inspection Comments: NA

ft-bmp = feet below measuring point
 in = inches
 ft = feet
 mL/min = milliliters per minute
 uS/cm = microSiemens per centimeter
 NTU = Nephelometric Turbidity Unit
 mg/L = milligrams per liter
 S.U = standard units
 mS/cm = milli

Groundwater Sampling Log

Project No. 30169301.GWMI2 Well ID GM-74D Page 1 of 1
 Date 11-16-23
 Project Name/Location OU2 Q4 2023 GW Sampling Weather 80°F/50%
 Measuring Pt. TOC Screen Interval (ft-bmp) 295-305 Casing Diameter (in.) 4 Well Material X PVC SS
 Static Water Level (ft-bmp) 45.13 Total Depth (ft-bmp) 305 Water Column/ Gallons in Well 254ft / 165gal
 MP Elevation Pump Intake (ft-bn) midstream Purge Method non-dedicated Sample Method MP/LP
 Pump On/Off 11:30 / 11:45 Volume Purged (30) 346 Peristaltic Submersib. Geosub Other
 Sample Time: Label GM-74D Replicate/ Code No. N/A Sampled by PCJ
 Start 11:40 End 11:45
 PID: 0.0ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
10:34	0	900	45.13	0	4.55	0.084	6.47	2.68	16.37	109.6	clear	none
10:43	5	500		2.5	4.27	0.070		1.69	16.53	146.0		
10:48	10	500		5	4.19	0.069		1.54	16.71	170.5		
10:53	15			7.5	4.23	0.075		2.40	16.65	184.5		
10:58	20		45.16	10	4.24	0.076	3.79	2.47	16.69	192.1		
11:03	25			12.5	4.27	0.085		4.32	16.82	173.3		
11:08	30			15	4.39	0.086		4.25	16.82	171.0		
11:13	35		45.17	17.5	4.44	0.087	1.39	4.58	16.82	164.2		
11:18	40			20	4.46	0.088		3.00	16.75	160.5		
11:23	45		45.17	22.5	4.46	0.088		5.02	16.60	158.0		
11:28	50		45.17	25	4.46	0.088	1.42	5.02	16.73	156.1		
11:33	55		45.17	27.5	4.46	0.088	1.50	5.04	16.90	156.7		
11:38	60	✓	45.16	30	4.48	0.088	0.90	5.05	16.87	154.3	✓	✓

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1-4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes:
 $300 - 45.13 = 254.87 \times 0.006 = 1.529 \times 3.785 = 5.78 \text{ LITR}$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: South Barn Well Locked at Arrival: Yes / No
 Condition of Well: Good Well Locked at Departure: Yes / No
 Well Completion: Flush Mount / Stick Up Key Number To Well:

Groundwater Sampling Log

Project No. 30169301.GWMI2

Well ID GM-7472

Page 1 of 1
Date 10/16/23

Project Name/Location OU2 Q4 2023 GW Sampling

Weather 60°F / Sun

Measuring Pt. TOC
Description

Screen Interval (ft-bmp) 542-562

Casing Diameter (in.) 4

Well Material PVC
 SS

Static Water Level (ft-bmp) 53.20

Total Depth (ft-bmp) 562

Water Column/
Gallons in Well 4964 / 3.23 gal

MP Elevation —————

Pump Intake (ft-bn) submers

Purge Method non-dedicated

Sample Method MP/LF

Pump On/Off 18:52 / 10:00

Volume Purged (gal) 30L

Peristaltic Submersib. Geosub
Other _____

Sample Time: Label GM-7472
Start 0950
End 10:50

Replicate/
Code No. REP101623901

Sampled by PCJ

PID: 0.0ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
06:53	0	500	53.22	0	4.97	0.109	9.78	3.16	16.10	161.9	Clear	none
08:58	5	500		2.5	5.21	0.108		3.82	16.07	133.2		
09:03	10			5	5.21	0.113		5.68	16.24	104.0		
09:08	15			7.5	5.03	0.116		5.98	16.25	108.2		
09:13	20		53.25	10	4.95	0.117	36.1	6.42	16.65	108.8		
09:18	25			12.5	4.94	0.117		6.45	16.65	108.6		
09:23	30			15	4.92	0.117		6.43	16.59	108.1		
09:28	35		53.25	17.5	4.89	0.118	17.6	6.50	16.66	111.2		
09:33	40			20	4.87	0.118		6.55	16.48	112.4		
09:38	45		53.25	22.5	4.86	0.118	16.1	6.51	16.43	112.8		
09:43	50		53.25	25	4.86	0.118	15.2	6.49	16.41	112.2		
09:48	55		53.25	27.5	4.86	0.117	14.3	6.51	16.42	115.0	✓	✓

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1-4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes:
 $552 - 53.29 = 498.8 \times 0.006 = 2.99 + 3.745 = 11.3 L / TV$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: South Basin

Condition of Well: Good

Well Completion: Flush Mount / Stick Up

Well Locked at Arrival: Yes / No

Well Locked at Departure: Yes / No

Key Number To Well: _____

Groundwater Sampling Log

Page 1 of 1
 Date 12/16/23
 Weather 60°F, Sunny
 Well Material X PVC SS

Project No. 20418750 Field-GWM12-30/69301 Well ID GWM12 6m-74I

Project Name/Location 2023 OU3.2 GW Sampling

Measuring Pt. Description TOC Screen Interval (ft-bmp) 94-114 Casing Diameter (in.) 4
 Static Water Level (ft-bmp) 36.45 Total Depth (ft-bmp) 114 Water Column/Gallons in Well 77ft / 50gal
 MP Elevation 1155 Pump Intake (ft-bn) Midscreen Purge Method non-dedicated 60% sub
 Pump On/Off 1155 Volume Purged (gal) _____ Peristaltic Submersib rediflow Other _____

Sample Method 3WV + LF
 Sampled by ANH

Sample Time: Label Start 1257 End _____ Replicate/Code No. N/A

PID: 0.0WH / 0.0B2

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Redox (mV)	Appearance	
											Color	Odor
1155	0	300	36.62	0	5.64	0.157		9.94	17.6	233.1	Clear	n/a
1200	5	300		1.5	6.02	0.158		9.94	18.2	227.3	"	"
1205	10	300		3.0	6.18	0.159	1.38	9.94	18.6	223.4	"	"
1210	15	300	36.53	4.5	6.28	0.160		9.94	18.9	218.6	"	"
1215	20	300		6.0	6.37	0.159		9.94	18.8	214.9	"	"
1220	25	300		7.5	6.42	0.160	0.56	9.94	18.7	213.0	"	"
1225	30	300	36.52	9.0	6.68	0.159		9.97	18.6	209.9	"	"
1230	35	300		10.5	6.48	0.160		9.97	18.8	208.8	"	"
1235	40	300		12.0	6.42	0.160	1.11	9.98	18.9	207.3	"	"
1240	45	300	36.52	13.5	6.39	0.158	0.61	9.94	17.7	206.4	"	"
1245	50	300		15.0	6.38	0.159	0.82	9.98	18.5	206.6	"	"
1250	55	300		16.5	6.33	0.160	0.76	9.96	18.6	205.3	"	"
1255	60	300	36.51	18.0	6.32	0.160	0.72	9.95	18.6	204.9	"	"

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	2	HCL
1-4 Arotemp 8270 0.5m	1 L Amber	2	n/a

Notes:

$114 - 36.45 = 77.55 \text{ X } 0.01 = 0.7755 \text{ X } 3.785 = 2.93 \text{ L}$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	7.2" = 0.01	

Well Information

Well Location: South Basin
 Condition of Well: Good
 Well Completion: Flush Mount / Stick Up
 Well Locked at Arrival: Yes / No
 Well Locked at Departure: Yes / No
 Key Number To Well: _____

Groundwater Sampling Log

Project No. 30169301.GWM12 Well ID GM-74 D3 Page 1 of 1
 Project Name/Location OU2 Q4 2023 GW Sampling Date 10/16/23
 Measuring Pt. Description TOC Screen Interval (ft-bmp) 625-645 Casing Diameter (in.) 4 Weather 50°F, Sunny
 Static Water Level (ft-bmp) 50.37 Total Depth (ft-bmp) 645 Water Column/Gallons in Well 514.2 / 324 gal Well Material X PVC SS
 MP Elevation _____ Pump Intake (ft-bn) midstream Purge Method non-dedicated 600 sub Sample Method 1 TV + LF
 Pump On/Off 9:00/10:16 Volume Purged (gal) 24.0L Peristaltic Submersib X Other _____
 Sample Time: Label 1002 Replicate/Code No. n/a End 1015 Sampled by ANM, PA
 PID: 0.3um / 0.082

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
0900	0	400	50.40	0	6.67	0.070		4.04	15.4	275.3	Clear	n/a
0905	5	400		2.0	6.67	0.071	10.2	3.55	15.3	272.5	"	"
0910	10	400		4.0	6.67	0.057		3.46	15.7	262.6	"	"
0915	15	400	50.41	6.0	6.67	0.056		3.55	16.2	256.1	"	✓
0920	20	400		8.0	6.66	0.055	9.81	3.79	16.0	249.8	"	"
0925	25	400		10.0	6.60	0.055		3.84	16.5	245.3	"	"
0930	30	400	50.40	12.0	6.67	0.055		4.20	16.0	239.6	"	"
0935	35	400		14.0	6.67	0.055	24.4	4.76	15.9	236.6	"	"
0940	40	400		16.0	6.67	0.054		5.21	15.8	226.5	"	"
0945	45	400	50.40	18.0	6.67	0.054	28.6	5.46	15.8	221.9	"	"
0950	50	400		20.0	6.67	0.054	29.3	5.48	16.7	215.7	"	"
0955	55	400		22.0	6.66	0.054	29.4	5.52	16.9	213.9	"	"
1000	60	400	50.40	24.0	6.67	0.054	29.3	5.55	16.9	212.6	"	"

Sample

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	6	HCL
1-4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes: $645 - 50.37 = 594.63 \times 0.01 = 5.9463 \times 3.789 = 22.5L$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2" = 0.16	2.5" = 0.26	3" = 0.37	3.5" = 0.50	4" = 0.65	6" = 1.47	8" = 0.006
--------------	-----------	-------------	-----------	-------------	-----------	-------------	-----------	-----------	------------

Well Information

Well Location: <u>South Basin</u>	Well Locked at Arrival: <u>Yes</u> / No
Condition of Well: <u>good</u>	Well Locked at Departure: <u>Yes</u> / No
Well Completion: <u>Flush Mount</u> / Stick Up	Key Number To Well: _____

Location ID:	GM-75D2	Date(s):	2023-10-26	Work Order(s):	2023 - Q4 Groundwater Monitoring		
Client:	Northrop Grumman	Facility:	OU2	Facility Location:	Bethpage, NY, United States Update	Area:	Default Site
Weather(°F):	CLEAR, T:57.15 °F, rH:88%, Clouds: 0%, Wind:3.44mph N			Field Technician:	Stephen Vlavianos		
Measuring Pt. Description:	Top of Inner Casing	Screen Setting (ft-bgs):	505.00-525.00	Casing Diameter (in):	4.00	Well Casing Material:	PVC
Static Water Level (ft-bmp):	34.26	Total Depth (ft-bmp):	562	Water Column(ft):	527.74	Gallons in Well: 344.51	
Depth to Product (ft-bmp):	NA	Pump Intake Depth(ft-bmp):	Midscreen	Purge Method:	Low Flow	Purging Equipment:	Submersible Pump
Purge Start Time:	08:33	Total Volume Purged (gallons):	6.8	Sample ID:	GM-75D2	Sample Time:	09:30
Purge End Time:	09:30	Well Volumes Purged (total):	0.02	Replicate Type / Replicate ID:	NA / NA	Water Quality Meter/ ID:	YSI 600 XLM Sonde 1.65 inch / 10941
Scope of work completed?	Yes						

Time	Total Elapsed (min)	Flow Rate	Flow Rate Unit	Depth to Water (ft)	pH (S.U.)	Specific Conductivity (mS/cm ²)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
08:36	0	400	mL/min	34.27	5.86	0.09	29.7	21.51	14.46	212.2	Clear	No Odor
08:41	5	400	mL/min	34.27	5.2	0.126	1.87	13.66	15.28	210.7	Clear	No Odor
08:46	10	400	mL/min	34.27	4.98	0.127	1.77	12.99	15.46	223.8	Clear	No Odor
08:51	15	400	mL/min	34.23	5.03	0.131	1.74	17.87	15.53	232.8	Clear	No Odor
08:56	20	400	mL/min	34.34	5.02	0.155	2.77	21.25	15.7	240.3	Clear	No Odor
09:01	25	400	mL/min	34.33	5.01	0.168	2.75	22.69	15.84	246.3	Clear	No Odor
09:06	30	400	mL/min	34.34	4.99	0.177	2.04	24.65	15.91	249.9	Clear	No Odor
09:11	35	400	mL/min	34.38	4.96	0.194	0.62	26.77	16.03	250.2	Clear	No Odor
09:16	40	400	mL/min	34.35	4.96	0.193	0.58	26.89	16.12	250.4	Clear	No Odor
09:21	45	400	mL/min	34.34	4.95	0.195	0.75	24.97	16.21	250.8	Clear	No Odor
09:26	50	400	mL/min	34.36	4.95	0.196	0.68	24.89	16.29	256.3	Clear	No Odor

Constituent Sampled	Container	Number	Preservative
VOC (8260C)	Clear Glass	3	HCL
1,4-Dioxane (8270C)	Amber Glass	2	None

Comments: 562-34.26 is 528' which in 3/8ths tubing is 12L for TV

Well Information:

Well Labeled Properly: yes

Is Well in Good Condition? good

Well Inspection Comments: NA

ft-bmp = feet below measuring point
 in = inches
 ft = feet
 mL/min = milliliters per minute
 uS/cm = microSiemens per centimeter
 NTU = Nephelometric Turbidity Unit
 mg/L = milligrams per liter
 S.U = standard units
 mS/cm = milli

Groundwater Sampling Log

Project No. 30169301.GWMI2

Well ID GM-780

Date 10/25/03 Page 1 of 1

Project Name/Location OU2 Q4 2023 GW Sampling

Weather 60° 15 wind

Measuring Pt. Description TOC Screen Interval (ft-bmp) 354-364

Casing Diameter (in.) 4

Well Material PVC SS

Static Water Level (ft-bmp) 42.59 Total Depth (ft-bmp) 364

Water Column/ Gallons in Well 70/140

MP Elevation - Pump Intake (ft-bn) mid screen

Purge Method non-dedicated

Sample Method LF + TV

Pump On/Off 1108 Volume Purged (gal) -

Peristaltic Submersib. Other

Sample Time: Label GM-780 Replicate/ Code No. MS/MS0
Start 12:22
End 12:22

Sampled by AVH

PID: 0.0

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
1110	0	400		0	5.47	0.342		1.56	16.45	140.0	Clear	none
1115	5	400		2.0	5.33	0.298	2.37	2.27	16.66	217.0	"	"
1120	10	400	42.63	4.0	5.34	0.293		3.76	16.96	221.7	"	"
1125	15	400		6.0	5.33	0.294		4.10	17.11	224.9	"	"
1130	20	400		8.0	5.33	0.294	1.64	3.91	17.29	227.5	"	"
1135	25	400	42.62	10.0	5.34	0.294		3.73	17.52	229.4	"	"
1140	30	400		12.0	5.33	0.295		3.46	17.55	229.9	"	"
1145	35	400		14.0	5.32	0.296	1.29	3.32	17.74	228.5	"	"
1150	40	400	42.61	16.0	5.31	0.295		3.18	17.68	227.5	"	"
1155	45	400	42.61	18.0	5.31	0.295	0.84	3.14	17.77	227.3	"	"
1200	50	400	46.61	20.0	5.31	0.295	0.86	3.11	17.46	228.0	"	"
1205	55	400	46.61	22.0	5.31	0.295	3.14	3.09	17.47	228.7	"	"
1210	60	400	46.61	24.0	5.31	0.295	5.82	3.07	17.42	228.6	"	"

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	36	HCL
1-4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes: $364 - 42.59 = 321.41 \times 0.01 = 32141 \times 3.785 = 12.165L$

Well Casing Volumes	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
Gallons/Foot	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information	Well Location:	Well Locked at Arrival:	Yes	/	No
Condition of Well:	<u>Martha Blvd / Fidler Ln</u>		<input checked="" type="checkbox"/>	/	<input type="checkbox"/>
Well Completion:	<u>600</u>	Well Locked at Departure:	<input checked="" type="checkbox"/>	/	<input type="checkbox"/>
	<u>Flush Mount / Stick Up</u>	Key Number To Well:			

Groundwater Sampling Log

Project No. 30169301.GWM12

Well ID GM-7802

Date 10/25/23 Page 1 of 1

Project Name/Location OU2 Q4 2023 GW Sampling

Weather 61° Sunny

Measuring Pt. Description TOC

Screen Interval (ft-bmp) 477 459-367

Casing Diameter (in.) 4

Well Material X PVC SS

Static Water Level (ft-bmp) 43.47

Total Depth (ft-bmp) 370 484

Water Column/ Gallons in Well 326.53 440.53

MP Elevation 111

Pump Intake (ft-bn) m/s Screen Purge Method non-dedicated

Sample Method LETV

Pump On/Off 111

Volume Purged (gal) 20L

Peristaltic Submersib GroSub
Other _____

Sample Time: Label GM 7802 Replicate/

Start 1205 Code No. N/A

End 1210

Sampled by SU

1205

PID: 0.3 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
1115	0	400	43.49	0	4.49	0.195	1.23	70.6	15.8	52.5	Clear	None
1120	5	400		2	8.48	0.122		9.06	15.78	48.4	"	"
1125	10	400	43.52	4	8.57	0.119	0.66	8.28	16.11	53.3	"	"
1130	15	400		6	8.42	0.118		8.01	16.35	53.8	"	"
1135	20	400	43.53	8	8.47	0.118	1.04	7.97	16.39	53.9	"	"
1140	25	400		10	8.53	0.119		7.90	16.45	53.7	"	"
1145	30	400	43.54	12	8.52	0.119	0.55	7.87	16.60	53.7	"	"
1150	35	400	43.53	14	8.61	0.119	0.48	7.86	16.64	54.1	"	"
1155	40	400	43.54	16	8.58	0.119	0.74	7.81	16.66	53.9	"	"
1200	45	400	43.53	18	8.62	0.119	0.69	7.78	16.67	53.7	"	"

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1-4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes:
 $370 - 43.47 = 326.53 \times 0.01 = 3.2653 \times 3.785 = 12.35$
 $484 - 43.47 = 440.53 \times 0.01 = 4.41 \times 3.785 = 17.4$

Well Casing Volumes

Gallons/foot	1" = 0.04	1.25" = 0.06	1.5" = 0.09	2" = 0.16	2.5" = 0.26	3" = 0.37	3.5" = 0.50	4" = 0.65	6" = 1.47	8" = 0.006
--------------	-----------	--------------	-------------	-----------	-------------	-----------	-------------	-----------	-----------	------------

Well Information

Well Location: <u>Bethpage NY</u>	Well Locked at Arrival: <u>Yes</u> / No
Condition of Well: <u>Good</u>	Well Locked at Departure: <u>Yes</u> / No
Well Completion: <u>Flush Mount</u> / Stick Up	Key Number To Well: _____

Groundwater Sampling Log

Project No. 30169301.GWMI2 Well ID GM-79D Page 1 of 1
 Date 10-19-23
 Project Name/Location O2U Q4 2023 GW Sampling Weather 60°F Sun
 Measuring Pt. TOC Screen Interval (ft-bmp) 280-29 Casing Diameter (in.) 4 Well Material PVC SS
 Static Water Level (ft-bmp) 42.10 Total Depth (ft-bmp) 290 Water Column/ Gallons in Well 2424/157.64
 MP Elevation Pump Intake (ft-bn) mid screen Purge Method non-dedicated Sample Method MP/LF
 Pump On/Off 10:01 / 11:10 Volume Purged (gal) 705 Peristaltic Submersib. Geosub Other
 Sample Time: Label GM-79D Replicate/ Code No. Sampled by PQ, AMH
 Start 11:05 End 11:10

PID: 0 ppm

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
10:01	0	500	42.10	0.0	5.74	0.138	42.5	7.96	14.44	155.4	clear	none
10:06	5	500		2.5	5.00	0.096		6.83	14.84	144.6	↓	↓
10:11	10	500		5.0	4.85	0.096		6.18	14.85	128.8	↓	↓
10:16	15	500	42.13	7.5	4.80	0.096	73.0	6.16	14.87	127.3	↓	↓
10:21	20	500		10.0	4.76	0.096		6.21	14.91	127.8	cloudy	↓
10:26	25	500		12.5	4.73	0.096		6.18	14.91	127.5	↓	↓
10:31	30			15	4.71	0.096		6.21	14.99	128.8	↓	↓
10:36	35		42.13	17.5	4.72	0.095	40.6	6.39	15.06	127.8	clear	↓
10:41	40			20	4.70	0.095		6.35	14.98	128.4	↓	↓
10:46	45			22.5	4.68	0.095		6.38	15.08	130.2	↓	↓
10:51	50		42.13	25	4.67	0.095	28.0	6.37	15.14	131.6	↓	↓
10:56	55		42.13	27.5	4.67	0.095	26.0	6.36	15.13	132.1	↓	↓
11:01	60		42.13	30	4.65	0.095	22.8	6.36	15.07	133.2	↓	↓

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	3	HCL
1-4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes: 285 - 42.10 = 242.9 + 0.006 = 1.48 ± 2.785 = 5.5L TV

Well Casing Volumes	1" = 0.04	1.25" = 0.06	1.5" = 0.09	2" = 0.16	2.5" = 0.26	3" = 0.37	3.5" = 0.50	4" = 0.65	6" = 1.47	8" = 3.35	3/8" = 0.006	1/2" = 0.01
---------------------	-----------	--------------	-------------	-----------	-------------	-----------	-------------	-----------	-----------	-----------	--------------	-------------

Well Information

Well Location: Central Ave Basin Well Locked at Arrival: Yes / No
 Condition of Well: Good Well Locked at Departure: Yes / No
 Well Completion: Flush Mount / Stick Up Key Number To Well:

Groundwater Sampling Log

Project No. 30169301.GWMI2

Well ID 6M-79I

Date 10/19/23 Page 1 of 1

Project Name/Location OU2 Q4 2023 GW Sampling

Weather 60°F, Sunny

Measuring Pt. Description TOC Screen Interval (ft-bmp) 170-180 Casing Diameter (in.) 4

Well Material PVC SS

Static Water Level (ft-bmp) 40.17 Total Depth (ft-bmp) 180 Water Column/ Gallons in Well 142.08

MP Elevation _____ Pump Intake (ft-bp) max screen Purge Method non-dedicated Del

Sample Method LF + TV

Pump On/Off 10327/1147 Volume Purged (gal) 25.21

Peristaltic _____
Submersible _____
Other _____

Sample Time: Label 6M-79I Replicate/ Start 1135 Code No. N/A End 1146

Sampled by ANH, PG

PID: 0.0 NH, 0.0 BZ

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (°C)	Redox (mV)	Appearance	
											Color	Odor
1033	0	400		0	5.50	0.122		11.06	15.1	214.9	clear	none
1038	5	400	40.20	2.0	5.04	0.134		9.89	14.9	235.3	"	"
1043	10	400		4.0	4.97	0.142	4.06	9.39	15.0	234.0	"	"
1048	15	400		6.0	4.97	0.141		9.36	15.0	232.4	"	"
1053	20	400	40.21	8.0	4.97	0.140		9.33	15.0	231.9	"	"
1058	25	400		10.0	4.97	0.139	1.25	9.30	15.0	231.8	"	"
1103	30	400		12.0	4.95	0.138		9.31	15.0	232.8	"	"
1108	35	400	40.20	14.0	4.97	0.137		9.31	15.0	233.6	"	"
1113	40	400		16.0	4.97	0.136	2.00	9.39	15.1	235.0	"	"
1118	45	400		18.0	4.97	0.136		9.42	15.0	236.2	"	"
1123	50	400	40.20	20.0	4.98	0.135	1.88	9.40	15.0	237.8	"	"
1128	55	400		22.0	4.98	0.135	2.12	9.45	15.0	239.9	"	"
1133	60	400		24.0	4.98	0.134	2.15	9.47	15.1	240.6	"	"

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	26	HCL
1-4 Dioxane 8270 D SIM	1 Liter Amber	2	None

Notes: TV = 180 - 40.17 = 139.83 gal @ 1.347 = 187.5 L
Dedicated, need MHO, compressor, well head furthest back in Basin entrance

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: Basin on Central Ave.

Condition of Well: Good

Well Completion: Flush Mount / Stick Up

Well Locked at Arrival: Yes / No

Well Locked at Departure: Yes / No

Key Number To Well: _____

Groundwater Sampling Log

Project No. 30109301 Well ID PLT1 MW06 Page 1 of 1
 Date 10/24/23
 Project Name/Location 002 GWS Weather 600F, sunny
 Measuring Pt. Screen Interval (ft-bmp) 47-62 Casing Diameter (in.) 2 Well Material PVC SS
 Description TOC
 Static Water Level (ft-bmp) 44.73 Total Depth (ft-bmp) 62 Water Column/ Gallons in Well 17.27' / 2.76 gal
 MP Elevation - Pump Intake (ft-br) Mid-Screen Purge Method Geosub Sample Method 3 WSV
 Pump On/Off 0940 1000 Volume Purged (gal) 35L Peristaltic Submersible Other
 Sample Time: Label NW06 Replicate/ Code No. n/a Sampled by ANH
 Start 0955 End 1000
 PID: 00

0955

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
I 0941	0	3000	44.75	0	6.47	0.660	25.6	10.33	16.6	58.1	Clear	None
II 0945	4	3000	44.76	11	6.19	0.662	7.7	10.16	16.85	189.1	"	"
III 0949	8	3000	44.75	22	6.18	0.659	2.63	9.89	16.96	202.1	"	"
III 0953	12	3000	44.78	33	6.17	0.658	1.66	9.74	16.91	209.4	"	"

Constituents Sampled	Container	Number	Preservative
VOCs 8260	40 mL Vial	3	HCL
1,4 Dioxane 8270	1L Amber	2	None
Metals, total / Dissolved	500 mL HDPE	2	HNO3

Notes: $62 - 44.73 = 17.27 \times 0.16 = 2.76 \times 3.765 = 10.46 \times 3 = 31.4L$

Well Casing Volumes
 Gallons/Foot: 1" = 0.04, 1.5" = 0.09, 2" = 0.16, 2.5" = 0.26, 3" = 0.37, 3.5" = 0.50, 4" = 0.65, 6" = 1.47, 8" = 0.006, 12" = 0.01

Well Information

Well Location: <u>MTA police parking lot</u>	Well Locked at Arrival: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well: <u>Good</u>	Well Locked at Departure: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion: <u>Flush Mount</u> / <input type="checkbox"/> Stick Up	Key Number To Well: <u> </u>

Location ID:	N-10631R	Date(s):	2023-10-26	Work Order(s):	2023 - Q4 Groundwater Monitoring		
Client:	Northrop Grumman	Facility:	OU2	Facility Location:	Bethpage, NY, United States Update	Area:	Default Site
Weather(°F):	CLOUDS, T:59.13 °F, rH:84%, Clouds: 61%, Wind:3mph W-SW			Field Technician:	Patrick Quinlan		
Measuring Pt. Description:	Top of Inner Casing	Screen Setting (ft-bgs):	63.00-67.00	Casing Diameter (in):	2.00	Well Casing Material:	PVC
Static Water Level (ft-bmp):	41.98	Total Depth (ft-bmp):	67	Water Column(ft):	25.02	Liters in Well:	15.46
Depth to Product (ft-bmp):	NA	Pump Intake Depth(ft-bmp):	Midscreen	Purge Method:	Low Flow	Purging Equipment:	Submersible Pump
Purge Start Time:	8:45	Total Volume Purged (liters):	18	Sample ID:	N-10631R	Sample Time:	09:20
Purge End Time:	09:15	Well Volumes Purged (total):	1.16	Replicate Type / Replicate ID:	Duplicate / REP102623PQ1	Water Quality Meter/ ID:	YSI Pro DSS / NA
Scope of work completed?	Yes						

Time	Total Elapsed (min)	Flow Rate	Flow Rate Unit	Depth to Water (ft)	pH (S.U.)	Specific Conductivity (mS/cm ^e)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
08:49	0	500	mL/min	41.98	6.11	0.262	601	8.37	16.5	135	Clear	No Odor
08:54	5	500	mL/min	42	5.92	0.263	317	8.33	16.8	124.1	Clear	No Odor
08:59	10	500	mL/min	42	5.83	0.26	71.1	8.33	16.8	134.3	Clear	No Odor
09:04	15	500	mL/min	42.01	5.84	0.258	46	8.93	16.8	137.2	Clear	No Odor
09:09	20	500	mL/min	42	5.85	0.258	26.1	8.91	16.9	138.6	Clear	No Odor
09:14	25	500	mL/min	42	5.86	0.257	19.4	8.91	16.9	138.1	Clear	No Odor

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane (8270C)	Amber Glass	2	None
VOCs (SW8260)	Clear Glass	3	HCL
Chromium, total (6010),Chromium, total dissolved (6010B), Cadmium	Plastic	2	Sulfuric Acid

Comments: None

Well Information:

Well Labeled Properly: NA

Is Well in Good Condition? NA

Well Inspection Comments: NA

ft-bmp = feet below measuring point
 in = inches
 ft = feet
 mL/min = milliliters per minute
 uS/cm = microSiemens per centimeter
 NTU = Nephelometric Turbidity Unit
 mg/L = milligrams per liter
 S.U = standard units
 mS/cm = milli

Location ID:	PLT1MW-05	Date(s):	2023-10-24	Work Order(s):	2023 - Q4 Groundwater Monitoring		
Client:	Northrop Grumman	Facility:	OU2	Facility Location:	Bethpage, NY, United States Update	Area:	Default Site
Weather(°F):	CLEAR, T:47.61 °F, rH:91%, Clouds: 0%, Wind:3.44mph N-NE			Field Technician:	Shirley He		
Measuring Pt. Description:	Top of Inner Casing	Screen Setting (ft-bgs):	38.00-58.00	Casing Diameter (in):	2.00	Well Casing Material:	PVC
Static Water Level (ft-bmp):	42.06	Total Depth (ft-bmp):	58	Water Column(ft):	15.9	Liters in Well:	9.6
Depth to Product (ft-bmp):	NA	Pump Intake Depth(ft-bmp):	Midscreen	Purge Method:	Low Flow	Purging Equipment:	Submersible Pump
Purge Start Time:	9:04	Total Volume Purged (liters):	40	Sample ID:	PLT1MW-05	Sample Time:	09:30
Purge End Time:	09:28	Well Volumes Purged (total):	NA	Replicate Type / Replicate ID:	NA / NA	Water Quality Meter/ ID:	Hach 2100-Q, YSI Pro DSS / NA

Scope of work completed? Yes

Time	Total Elapsed (min)	Flow Rate	Flow Rate Unit	Depth to Water (ft)	pH (S.U.)	Specific Conductivity (mS/cm ^e)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
09:09	0	2000	mL/min	42.06	5.68	0.46	253	9.24	15.3	177.1	Brown	No Odor
09:15	6	2000	mL/min	42.12	5.9	0.444	60.7	6.54	16.6	179.1	Clear	No Odor
09:21	12	2000	mL/min	42.09	5.89	0.437	9.99	6.44	16.5	181.3	Clear	No Odor
09:27	18	2000	mL/min	42.09	5.89	0.438	4	6.41	16.5	183.4	Clear	No Odor

Constituent Sampled	Container	Number	Preservative
VOCs (SW8260)	Clear Glass	3	HCL
1,4-Dioxane (8270C)	Amber Glass	2	None

Comments: None

Well Information:

Well Labeled Properly: yes

Is Well in Good Condition? poor

Issues: Flushmount - Bolts Needed, Measuring Point Not Marked, Flushmount - Bolts Need Replacement

Well Inspection Comments: NA



Description: NA

ft-bmp = feet below measuring point
 in = inches
 ft = feet
 mL/min = milliliters per minute
 uS/cm = microSiemens per centimeter
 NTU = Nephelometric Turbidity Unit
 mg/L = milligrams per liter
 S.U = standard units
 mS/cm = milli

Location ID:	MW3-1	Date(s):	2023-10-26	Work Order(s):	2023 - Q4 Groundwater Monitoring		
Client:	Northrop Grumman	Facility:	OU2	Facility Location:	Bethpage, NY, United States Update	Area:	Default Site
Weather(°F):	CLEAR, T:71.4 °F, rH:60%, Clouds: 0%, Wind:5.75mph W-SW			Field Technician:	Patrick Quinlan		
Measuring Pt. Description:	Top of Inner Casing	Screen Setting (ft-bgs):	476.00-496.00	Casing Diameter (in):	4.00	Well Casing Material:	PVC
Static Water Level (ft-bmp):	61.07	Total Depth (ft-bmp):	507	Water Column(ft):	445.93	Liters in Well:	1101.95
Depth to Product (ft-bmp):	NA	Pump Intake Depth(ft-bmp):	Midscreen	Purge Method:	Low Flow	Purging Equipment:	Submersible Pump
Purge Start Time:	12:12	Total Volume Purged (liters):	30	Sample ID:	MW-3-1	Sample Time:	13:15
Purge End Time:	13:10	Well Volumes Purged (total):	0.03	Replicate Type / Replicate ID:	NA / NA	Water Quality Meter/ ID:	YSI Pro DSS / NA
Scope of work completed?	Yes						

Time	Total Elapsed (min)	Flow Rate	Flow Rate Unit	Depth to Water (ft)	pH (S.U.)	Specific Conductivity (mS/cm ^e)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
12:15	0	500	mL/min	61.07	5.83	0.129	2.56	6.35	17.8	77.5	Clear	No Odor
12:20	5	500	mL/min	61.21	5.51	0.118	2.56	0.66	18	128.1	Clear	No Odor
12:25	10	500	mL/min	61.21	5.33	0.116	2.56	0.77	18	139.9	Clear	No Odor
12:30	15	500	mL/min	61.21	5.09	0.112	2.56	0.65	18	157.5	Clear	No Odor
12:35	20	500	mL/min	61.23	5.03	0.111	8.14	0.55	18.1	174.8	Clear	No Odor
12:40	25	500	mL/min	61.23	4.98	0.11	8.14	0.53	18.2	192.3	Clear	No Odor
12:45	30	500	mL/min	61.23	4.93	0.111	8.14	0.63	18.2	203.4	Clear	No Odor
12:50	35	500	mL/min	61.21	4.9	0.113	4.71	0.62	18.1	204.9	Clear	No Odor
12:55	40	500	mL/min	61.21	4.89	0.111	4.01	0.63	18.1	207	Clear	No Odor
13:00	45	500	mL/min	61.21	4.89	0.111	2.68	0.65	18.2	208.4	Clear	No Odor
13:05	50	500	mL/min	61.21	4.9	0.112	2.55	0.68	18.1	214.3	Clear	No Odor
13:10	55	500	mL/min	61.21	4.9	0.112	3.7	0.67	18.1	213	Clear	No Odor

Constituent Sampled	Container	Number	Preservative
VOC (8260C)	Clear Glass	3	HCL
1,4-Dioxane (8270C)	Amber Glass	2	None

Comments: None

Well Information:

Well Labeled Properly: NA

Is Well in Good Condition? NA

Well Inspection Comments: NA

ft-bmp = feet below measuring point
 in = inches
 ft = feet
 mL/min = milliliters per minute
 uS/cm = microSiemens per centimeter
 NTU = Nephelometric Turbidity Unit
 mg/L = milligrams per liter
 S.U = standard units
 mS/cm = milli

Location ID:	MW-2GF	Date(s):	2023-10-25	Work Order(s):	2023 - Q4 Groundwater Monitoring		
Client:	Northrop Grumman	Facility:	OU2	Facility Location:	Bethpage, NY, United States Update	Area:	Default Site
Weather(°F):	CLEAR, T:53.46 °F, rH:81%, Clouds: 0%, Wind:6.91mph SW			Field Technician:	Shirley He		
Measuring Pt. Description:	Top of Inner Casing	Screen Setting (ft-bgs):	49.00-59.00	Casing Diameter (in):	4.00	Well Casing Material:	PVC
Static Water Level (ft-bmp):	44.36	Total Depth (ft-bmp):	59.5	Water Column(ft):	15.1	Liters in Well:	37.2
Depth to Product (ft-bmp):	NA	Pump Intake Depth(ft-bmp):	Midscreen	Purge Method:	Low Flow	Purging Equipment:	Submersible Pump
Purge Start Time:	08:27	Total Volume Purged (liters):	12	Sample ID:	MW-2GF	Sample Time:	09:15
Purge End Time:	09:13	Well Volumes Purged (total):	NA	Replicate Type / Replicate ID:	NA / NA	Water Quality Meter/ ID:	Hach 2100-Q, YSI Pro DSS / NA
Scope of work completed?	Yes						

Time	Total Elapsed (min)	Flow Rate	Flow Rate Unit	Depth to Water (ft)	pH (S.U.)	Specific Conductivity (mS/cm ^c)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
08:28	0	200	mL/min	44.36	6.48	0.367	10.1	10.35	16.7	189	Clear	No Odor
08:33	5	200	mL/min	44.36	6.26	0.41	10.1	10.29	16.5	184.6	Clear	No Odor
08:38	10	200	mL/min	44.36	6.27	0.412	10.1	10.19	16.9	181.8	Clear	No Odor
08:43	15	200	mL/min	44.36	6.28	0.404	6.04	10.03	16.8	175.9	Clear	No Odor
08:48	20	200	mL/min	44.36	6.28	0.401	6.04	10	16.8	174.3	Clear	No Odor
08:53	25	200	mL/min	44.36	6.29	0.4	6.04	9.94	16.8	170.8	Clear	No Odor
08:58	30	200	mL/min	44.36	6.29	0.4	5.78	9.88	16.9	167.9	Clear	No Odor
09:03	35	200	mL/min	44.36	6.29	0.399	6.06	9.85	17	166	Clear	No Odor
09:08	40	200	mL/min	44.36	6.29	0.396	7.01	9.81	17	163.5	Clear	No Odor
09:13	45	200	mL/min	44.35	6.29	0.395	6.05	9.77	17.1	161.3	Clear	No Odor

Constituent Sampled	Container	Number	Preservative
VOCs (SW8260)	Clear Glass	3	HCL
1,4-Dioxane (8270C)	Amber Glass	2	None

Comments: None

Well Information:

Well Labeled Properly: no

Is Well in Good Condition? poor

Issues: Measuring Point Not Marked,Dedicated tubing falls down well

Well Inspection Comments: NA

ft-bmp = feet below measuring point
 in = inches
 ft = feet
 mL/min = milliliters per minute
 uS/cm = microSiemens per centimeter
 NTU = Nephelometric Turbidity Unit
 mg/L = milligrams per liter
 S.U = standard units
 mS/cm = milli

Location ID:	MW-1GF	Date(s):	2023-10-25	Work Order(s):	2023 - Q4 Groundwater Monitoring		
Client:	Northrop Grumman	Facility:	OU2	Facility Location:	Bethpage, NY, United States Update	Area:	Default Site
Weather(°F):	CLEAR, T:59.16 °F, rH:75%, Clouds: 0%, Wind:9.22mph SW			Field Technician:	Patrick Quinlan		
Measuring Pt. Description:	Top of Inner Casing	Screen Setting (ft-bgs):	48.00-58.00	Casing Diameter (in):	4.00	Well Casing Material:	PVC
Static Water Level (ft-bmp):	44.18	Total Depth (ft-bmp):	58	Water Column(ft):	13.82	Liters in Well:	34.15
Depth to Product (ft-bmp):	NA	Pump Intake Depth(ft-bmp):	Midscreen	Purge Method:	Low Flow	Purging Equipment:	Submersible Pump
Purge Start Time:	9:50	Total Volume Purged (liters):	79	Sample ID:	MW-01GF	Sample Time:	10:25
Purge End Time:	10:20	Well Volumes Purged (total):	2.31	Replicate Type / Replicate ID:	Duplicate / REP102523PQ1	Water Quality Meter/ ID:	YSI Pro DSS / NA

Scope of work completed? Yes

Time	Total Elapsed (min)	Flow Rate	Flow Rate Unit	Depth to Water (ft)	pH (S.U.)	Specific Conductivity (mS/cm ^e)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
09:55	0	3000	mL/min	44.2	5.32	0.109	13.6	11.6	15.8	180	Clear	No Odor
10:03	8	3000	mL/min	44.25	5.26	0.109	5.71	11.62	15.8	191.7	Clear	No Odor
10:11	16	3000	mL/min	44.25	5.24	0.11	2.82	12.59	15.8	202.4	Clear	No Odor
10:20	25	3000	mL/min	44.25	5.23	0.111	2.22	11.54	15.8	212.7	Clear	No Odor

Constituent Sampled	Container	Number	Preservative
1,4-Dioxane (8270C)	Amber Glass	2	None
Chromium, total (6010),Chromium, total dissolved (6010B),Cadmium	Plastic	2	Sulfuric Acid

Comments: None

Well Information:

Well Labeled Properly: NA

Is Well in Good Condition? NA

Well Inspection Comments: NA

ft-bmp = feet below measuring point
 in = inches
 ft = feet
 mL/min = milliliters per minute
 uS/cm = microSiemens per centimeter
 NTU = Nephelometric Turbidity Unit
 mg/L = milligrams per liter
 S.U = standard units
 mS/cm = milli

Groundwater Sampling Log

Project No. 30169301.GWMI2

Well ID Hw 425

Date _____

Project Name/Location OU2 Q4 2023 GW Sampling

Weather 10/17/23

Measuring Pt. TOC Screen Interval (ft-bmp) 50-60 Casing Diameter (in.) 4

Well Material PVC SS

Static Water Level (ft-bmp) 52.83 Total Depth (ft-bmp) 60 Water Column/ Gallons in Well _____

MP Elevation _____ Pump Intake (ft-bn) _____ Purge Method non-dedicated 6 resub

Sample Method 3 WV

Pump On/Off 1233 Volume Purged (gal) _____ Peristaltic _____ Submersib _____ Other _____

Sample Time: Label Start 1330 Replicate/ Code No. N/A End _____

Sampled by ANF

PID: 0.0WH/0.0BZ

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
1235	0	400	52.85	0	5.98	0.272		9.61	17.1	206.7	Clear	N/A
1243	5	400		2.0	5.90	0.272	20.0	9.61	17.1	209.7	ll	ll
1248	10	1000		7.0	5.85	0.266		9.57	16.9	216	ll	?
1253	15	2000	52.40		5.77	0.254		9.46	16.3	195.9	ll	ll
1259	21	2000	52.40	25.3	5.63	0.253	7.96	9.26	16.1	207.9	Clear	N/A
1314	36	2000	52.91	4.9	5.49	0.260	5.49	9.12	15.9	216.6	ll	ll
1328	50	2000	52.92	74.2	5.40	0.192	3.70	9.03	16.1	219.7	ll	ll

1V
2V
3V
Sample
1330

(8H)

Constituents Sampled	Container	Number	Preservative
VOC's 8260 C	40ml Vial	<u>56</u>	HCL
1-4 Dioxane 8270 D SIM	1 Liter Amber	<u>2</u>	None

Notes:

60-52.83

$0.65 \times 10 = 6.5 \times 3.785 \times 3 = 73.8L$
1WV = 24.6L

Well Casing Volumes	1" = 0.04	1.5" = 0.09	2" = 0.16	3" = 0.37	3.5" = 0.50	4" = 0.65	6" = 1.47	3/8" = 0.006
Gallons/Foot	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	6" = 1.47	3/8" = 0.006		

Well Information

Well Location:	_____	Well Locked at Arrival:	Yes / No
Condition of Well:	_____	Well Locked at Departure:	Yes / No
Well Completion:	Flush Mount / Stick Up	Key Number To Well:	_____

Groundwater Sampling Log

Project No. 30169301 Well ID PLT1-MW 04 Date 10/24/23 Page 1 of 1
 Project Name/Location Booth page NX Ouz Q4 GWS Weather 55°F, sunny
 Measuring Pt. Screen Interval (ft-bmp) 41.5-56.5 Casing 2 Well Material X PVC
 Description TOC Diameter (in.) 2 SS
 Static Water Level (ft-bmp) 43.15 Total Depth (ft-bm) 56.5 Water Column/ Gallons in Well 3941
 MP Elevation Pump Intake (ft-br) Mid-Screen Purge Method: Peristaltic Sample Method 3 wsv
 Pump On/Off 853-0915 Volume Purged (gal) 30L Submersible
 Sample Time: Label PLT1 MW04 Replicate/ Code No. Other
 Start 0907 End 0915 Code No. N/A Sampled by ANH
 PID: 0.1

1V
2V
3V
*sample

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft)	Volume Purged (L)	pH (SU)	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance	
											Color	Odor
0856	5	2000	43.18	10L	6.36	0.601	1.11	9.36	15.94	191.7	Clear	none
0902	9	2000	43.17	18L	6.36	0.654	1.03	9.37	15.93	186.7	ll	ll
0905	13	2000	43.18	26L	6.37	0.602	0.57	9.35	15.93	191.4	ll	ll

Constituents Sampled	Container	Number	Preservative
VOC 8260C	40 mL vial	3	HCL
1-4 Dioxane 8270 Dsim	1 L for Amber	2	None

Notes: $56.5 - 43.15 = 13.35 \times 0.16 = 2.136 \times 3.785 = 8.08 \text{ L} \times 3 \text{ wsv} = 24.25$

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47	3/8" = 0.006
	1.25" = 0.06	2" = 0.18	3" = 0.37	4" = 0.65	1/2" = 0.01	

Well Information

Well Location: <u>MIA police department lot</u>	Well Locked at Arrival: <u>Yes</u> / No
Condition of Well: <u>good</u>	Well Locked at Departure: <u>Yes</u> / No
Well Completion: <u>Flush Mount</u> / Stick Up	Key Number To Well: <u> </u>

Chain of Custody Logs



ACCUTEST

GW
TB
FB

CHAIN OF CUSTODY
SGS Accutest New Jersey - Dayton
2235 Route 130, Dayton, NJ 08810
TEL: 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

Program 2

PAGE 1 OF 1

FED-EX Tracking # **C#5-NG** Bottle Order Control # **MM-02123-190**
Accutest Quote # _____ Accutest Job # **JD60780**

Client / Reporting Information		Project Information				Requested Analysis (see TEST CODE sheet)												Matrix Codes
Company Name Arcadis		Project Name OU2 Outpost & Monitoring Wells Northrop Grumman Wells OU2 -Bethpage, New York				VC82802NG36GW+40												DW - Drinking Water GW - Ground Water WW - Waste Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank
Street Address 2 Huntington Quad, Suite 1S10		Street 3040 Pk. GWM13																
City State Zip Melville NY 11747		Billing Information (if different from Report to) Company Name Arcadis, U.S., Inc.																
Phone # 631-391-5247		Street Address 630 Plaza Drive, Suite 600																
Sample(s) Name(s) Stephen V. Williams		Client/Purchase Order # 917-574-6202				City State Zip Highlands Ranch, CO 80129												LAB USE ONLY 1508
MEOH/DI Vol #		Date				Collection												
Field ID / Point of Collection		Time				Sampled by												
1 TR022323SV1		2/28/23				Metro # of bottles												
2 GIM-2102		2/23/23				1915												
3 FB022323SV1		2/23/23				0800												
Turnaround Time (Business days)		Approved By (Accutest PM) / Date:				Data Deliverable Information												Comments / Special Instructions
<input type="checkbox"/> Std. 15 Business Days <input checked="" type="checkbox"/> Std. 10 Business Days (by Contract only) <input type="checkbox"/> 10 Day RUSH <input type="checkbox"/> 5 Day RUSH <input type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY Emergency & Rush TIA data available VIA Link						<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> NYASP Category A <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> NYASP Category B <input type="checkbox"/> FULLT1 (Level 3+4) <input type="checkbox"/> State Forms <input type="checkbox"/> NJ Reduced <input checked="" type="checkbox"/> EDD Format-EQUIS 7 Arcadis <input type="checkbox"/> Commercial "C" <input checked="" type="checkbox"/> Other COMMC+												
Sample Custody must be documented below each time samples change possession, including courier delivery.																		
Relinquished by Sampler: 1 Stephen V. Williams		Date Time: 2/23/23 1400		Received By: 1 [Signature]		Relinquished By: 2 [Signature]		Date Time: 2/23 1400		Received By: 2 [Signature]								
Relinquished by:		Date Time:		Received By:		Relinquished By:		Date Time:		Received By:								
5												<input type="checkbox"/> Intact Preserved where applicable On Ice Cooler Temp. 2-1 <input type="checkbox"/> Not Intact						

5.1
5

JD60780: Chain of Custody

Page 1 of 2





ACCUTEST

CHAIN OF CUSTODY

SGS Accutest New Jersey - Dayton
2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

Program 1A or 1B

(circle 1 or both indicate which samples to which program below)

PAGE 1 OF 1

FED-EX Tracking: mm-03-23-190
Accutest Quote #: JD 60601
Accutest Job #

Client / Reporting Information, Project Information, Requested Analysis, Matrix Codes, Collection table, Turnaround Time, Data Deliverable Information, Sample Custody, and other administrative sections.

5.1
5

SGS COURIER

3.8

JD60601: Chain of Custody

Page 1 of 2





ACCUTEST

CHAIN OF CUSTODY

SGS Accutest New Jersey - Dayton
2235 Route 130, Dayton, NJ 08810
TEL: 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

Program 2

PAGE 1 OF 1

FED-EX Tracking # 1000
Accutest Quote #
Matrix Order Control # MM-032823-40
Accutest Job # JD64112

Client / Reporting Information, Project Information, Requested Analysis, Matrix Codes, Collection table, Data Deliverable Information, Sample Custody, and Refinishing sections.

SGS COURIER

SGS COURIER

28 CIP
R-40

JD64112: Chain of Custody

Page 1 of 2





ACCUTEST

GRP
FB
TB

CHAIN OF CUSTODY
SGS Accutest New Jersey - Dayton
2235 Route 130, Dayton, NJ 08810
TEL: 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

Program 2

PAGE 1 OF 1

FED-EX Tracking # **COC #S-NG** Bottle Order Control # **YMA-044413-SR**
Account Quote # **5264173** Account Job #

Client / Reporting Information		Project Information		Requested Analysis (see TEST CODE sheet)												Matrix Codes
Company Name Arcadis		Project Name OU2 Outpost & Monitoring Wells														DW - Drinking Water GW - Ground Water WW - Waste Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank
Street Address 2 Huntington Quad, Suite 1S10		Street Bethpage														
City State Zip Meville NY 11747		City State Bethpage NY														
Project Contact Alyssa Hynes, alyssa.hynes@arcadis.com		Project # 30169301.GWM13														
Billing Information (if different from Report to)		Company Name Arcadis, U.S., Inc.		VC82602NG36GW-40												LAB USE ONLY
Street Address 630 Plaza Drive, Suite 600		Street Address Highlands Ranch, CO 80129														
City State Zip Highlands Ranch, CO 80129		City State Zip Highlands Ranch, CO 80129														
Attention: Accounts Payable		Attention: Accounts Payable														
Turnaround Time (Business days)		Data Deliverable Information		Comments / Special Instructions												
<input type="checkbox"/> Std. 15 Business Days <input checked="" type="checkbox"/> Std. 10 Business Days (by Contract only) <input type="checkbox"/> 10 Day RUSH <input type="checkbox"/> 5 Day RUSH <input type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY Emergency & Rush T/A data available VIA Lablink		Approved By (Accutest PM): / Date: _____ <input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> FULLT1 (Level 3+4) <input type="checkbox"/> NJ Reduced <input type="checkbox"/> Commercial "C" <input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> State Forms <input checked="" type="checkbox"/> EDD Format-EQuIS 7 Arcadis <input checked="" type="checkbox"/> Other COMMC+ Commercial "A" = Results Only Commercial "B" = Results + QC Summary NJ Reduced = Results + QC Summary + Partial Raw data		SGS COURIER												

Account Sample #	Field ID / Point of Collection	MEQ/MDI Val #	Date	Time	Sampled by	Matrix	# of bottles	HC	NaOH	PHOS	HSO4	NO3	DI Water	MEQ	EMCORE	NaOH	
1	T0042423 PC1		4-24-23		PG	TD	2	2									
2	F0042423 PC1			07:30	PG	FB	2	2									
3	GM-200			08:35	PG	GW	3	1									

Relinquished by Sampler:	Date Time:	Received By:	Received By:	Relinquished By:	Date Time:	Received By:	Received By:
1	4-24-23	1	1	2	4-24-23 17:00	2	2
3		3	3	4		4	4
5		5	5				

JD64427: Chain of Custody
Page 1 of 2



5.1
5

38

3.8



ACCUTEST

CHAIN OF CUSTODY
SGS Accutest New Jersey - Dayton
2235 Route 130, Dayton, NJ 08910
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

Program 2

PAGE 1 OF 1

FED-EX Tracking #
Accutest Quote #
Bottle Order Control #
Accutest Job #

Client / Reporting Information, Project Information, Requested Analysis, Matrix Codes, Collection table, Turnaround Time, Data Deliverable Information, Comments / Special Instructions, Chain of Custody table.

5.1
5

JD63981: Chain of Custody

Page 1 of 2





ACCUTEST

GW
FB
TB

CHAIN OF CUSTODY

SGS Accutest New Jersey - Dayton
2235 Route 130, Dayton, NJ 08810
TEL: 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

Program 2

PAGE 1 OF 1

FEDEX Tracking #	Billie Crowe Control #
Accutest Quote # mm-02123-190	Accutest Job # JD 64060

Client / Reporting Information		Project Information		Requested Analysis (see TEST CODE sheet)												Matrix Codes
Company Name Arcadis Street Address 2 Huntington Quad, Suite 1S10 City State Zip Melville NY 11747 Project Contact Alyssa Hynes, alyssa.hynes@arcadis.com Phone # 631-391-5211 Cell # 631-297-1466 Sample(s) Name(s) Kot Ordian Phone # 631-297-2485		Project Name: OU2 Outpost & Monitoring Wells Street Northrop Grumman Wells OU2 -Bathpage, New York Billing Information (if different from Report to) Company Name Bethpage NY Project # 30169301.GWMI3 Client/Purchase Order # 30169301.GWMI3 Project Manager Art Zahradnik Attention: Accounts Payable		Requested Analysis (see TEST CODE sheet) (Grid with columns for various analysis codes and checkboxes)												Matrix Codes DW - Drinking Water GW - Ground Water WW - Waste Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank
Street Address 2 Huntington Quad, Suite 1S10 City State Zip Melville NY 11747 Project Contact Alyssa Hynes, alyssa.hynes@arcadis.com Phone # 631-391-5211 Cell # 631-297-1466 Sample(s) Name(s) Kot Ordian Phone # 631-297-2485		Street Northrop Grumman Wells OU2 -Bathpage, New York Billing Information (if different from Report to) Company Name Bethpage NY Project # 30169301.GWMI3 Client/Purchase Order # 30169301.GWMI3 Project Manager Art Zahradnik Attention: Accounts Payable		Requested Analysis (see TEST CODE sheet) (Grid with columns for various analysis codes and checkboxes)												Matrix Codes DW - Drinking Water GW - Ground Water WW - Waste Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank

Turnaround Time (Business days)		Data Deliverable Information		Comments / Special Instructions	
<input type="checkbox"/> Std. 15 Business Days <input checked="" type="checkbox"/> Std. 10 Business Days (by Contract only) <input type="checkbox"/> 10 Day RUSH <input type="checkbox"/> 5 Day RUSH <input type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY Emergency & Rush TIA data available VIA Lablink		Approved By (Accutest PM) / Date: <input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> FULL T1 (Level 3+4) <input type="checkbox"/> NJ Reduced <input type="checkbox"/> Commercial "C" Commercial "A" = Results Only Commercial "B" = Results + QC Summary NJ Reduced = Results + QC Summary + Partial Raw data		Comments / Special Instructions T8041223PG1 - HN-242 T8041223 Initial Assessment EA-2B Label Verification	
Sample Custody must be documented below each time samples change possession, including courier delivery.					
Relinquished by Sampler: 1 Date Time: 4-17-23/1300 Received By: 1 Date Time: 4-17-23/1300	Relinquished by Sampler: 2 Date Time: 4-17-23/1445 Received By: 2 Date Time: 4-17-23/1445	Relinquished by Sampler: 3 Date Time: 4-17-23/1445 Received By: 3 Date Time: 4-17-23/1445	Relinquished by Sampler: 4 Date Time: 4-17-23/1445 Received By: 4 Date Time: 4-17-23/1445	Relinquished by Sampler: 5 Date Time: 4-17-23/1445 Received By: 5 Date Time: 4-17-23/1445	Custody Seal # <input type="checkbox"/> Intact <input type="checkbox"/> Not Intact Preserved where applicable <input type="checkbox"/> On Ice <input checked="" type="checkbox"/> Cooler Temp.

SGS COURIER

4.9



5.1
5



ACCUTEST

GW TB

CHAIN OF CUSTODY

SGS Accutest New Jersey - Dayton
2235 Route 130, Dayton, NJ 08810
TEL: 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

Program 1A or 1B

(circle 1 or both indicate which samples to which program below)

PAGE 1 OF 1

FED-EX Tracking: m M-04623-225
Accutest Quote #: JD64836
Accutest Job #

Client / Reporting Information, Project Information, Requested Analysis (see TEST CODE sheet), Matrix Codes, Accutest Sample #, Field ID / Point of Collection, Date, Time, Sampled by, Matrix, # of bottles, etc.

SGS COURIER

Turnaround Time (Business days), Data Deliverable Information, Comments / Special Instructions, Initial Assessment, Label Verification, Sample Custody must be documented below each time samples change possession, including courier delivery.

SGS COURIER

4.7

JD64836: Chain of Custody

Page 1 of 2



51 5



ACCUTEST

GW TB

CHAIN OF CUSTODY

SGS Accutest New Jersey - Dayton
2235 Route 130, Dayton, NJ 08810
TEL: 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

Program 1A or 1B
(circle 1 or both indicate which samples to which program below)

PAGE 1 OF 1

FED-EX Tracking:
Accutest Quote #:
Bottle Order Control #:
Accutest Job #:

Client / Reporting Information, Project Information, Requested Analysis, Matrix Codes, Turnaround Time, Data Deliverable Information, Sample Custody, and Laboratory Use Only sections.

5.1 5

JD67515: Chain of Custody

Page 1 of 2





ACCUTEST

GW
FB
TB

CHAIN OF CUSTODY

SGS Accutest New Jersey - Dayton
2235 Route 130, Dayton, NJ 08810
TEL: 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

Program 2

PAGE 1 OF 1

FED-EX Tracking #	OC 15	Bottle Order Control #	mm-04673-220
Accutest Quote #		Accutest Job #	JD 66618

Client / Reporting Information		Project Information		Requested Analysis (see TEST CODE sheet)												Matrix Codes	
Company Name Arcadis Street Address 2 Huntington Quad, Suite 1S10 City State Zip Melville NY 11747 Project Contact Alyssa Hynes, alyssa.hynes@arcadis.com Phone # 631-391-5211 Sampler(s) Name(s) Pat Quinlan		Project Name: OU2 Outpost & Monitoring Wells Northrop Grumman Wells OU2 -Bethpage, New York Street City State Bethpage NY Company Name Arcadis, U.S., Inc. Street Address 630 Plaza Drive, Suite 600 City State Zip Highlands Ranch, CO 80129 Attention: Accounts Payable		VC82602NG36GW+40												DW - Drinking Water GW - Ground Water WW - Waste Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank	
Accutest Sample #	Field ID / Point of Collection	MEONDA Val #	Date	Time	Sampled By	Matrix	# of bottles	HCl	MICH	MUO3	H2SO4	HNO3	DI Water	MICH	ENCOBE	NALCOA	LAB USE ONLY
1	TB053023PQ1		5-20-23		PQ	TB	2										X
2	TB053023SW1				SW	TB	2										X
3	FW053023PQ1			07:30	PQ	FW	3										X
4	FW-03			09:45	PQ	FW	3										X
5	GM-13D			11:30	SW	GM	3										X
6	GM-74D3			11:50	SW	GM	3										X

Turnaround Time (Business days) <input type="checkbox"/> Std. 15 Business Days <input checked="" type="checkbox"/> Std. 10 Business Days (by Contract only) <input type="checkbox"/> 10 Day RUSH <input type="checkbox"/> 5 Day RUSH <input type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY <small>Emergency & Rush T/A data available VIA Lablink</small>	Approved By (Accutest PM): / Date: 	Data Deliverable Information <input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> FULLT1 (Level 3+4) <input type="checkbox"/> NJ Reduced <input type="checkbox"/> Commercial "C" <input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> State Forms <input checked="" type="checkbox"/> EDD Format-EquiS 7 Arcadis <input checked="" type="checkbox"/> Other COMMC+ <small>Commercial "A" = Results Only Commercial "B" = Results + QC Summary NJ Reduced = Results + QC Summary + Partial Raw data</small>	Comments / Special Instructions TB053023PQ1 with FW-03 + GM-13D TB053023SW1 with GM-74D3 rha Assessment TB
---	---	---	--

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by: Pat Quinlan Date Time: 5-20-23 / 1530 Received By: JPB Date Time: 5-20-23 / 1700	Relinquished by: Date Time: Received By: Date Time:	Relinquished by: Date Time: Received By: Date Time:	Relinquished by: Date Time: Received By: Date Time:
--	--	--	--

Custody Seal # Intact Not Intact Preserved where applicable Cooler Temp.

5.1 IR-40





ACCUTEST

CW TB

CHAIN OF CUSTODY

SGS Accutest New Jersey - Dayton
2235 Route 130, Dayton, NJ 08810
TEL: 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

Program 1A or 1B

(circle 1 or both indicate which samples to which program below)

664476904777

PAGE 1 OF 1

FED-EX Tracking COC #4-Navy

Batch Order Control #

Accutest Quote #

Accutest Job #

JD67520

Form containing Client/Reporting Information, Project Information, Requested Analysis, Matrix Codes, Collection table, Data Deliverable Information, and Chain of Custody table.

5.1 5

ARC 2A

JD67520: Chain of Custody

Page 1 of 2





ACCUTEST

CHAIN OF CUSTODY

SGS Accutest New Jersey - Dayton
2235 Route 130, Dayton, NJ 08810
TEL: 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

Program 2

PAGE 1 OF 1

EX Tracking #
Accident Quote #
Accident Job # JD67583
Bottle Order Control #

Client / Reporting Information Project Information Requested Analysis (see TEST CODE sheet) Matrix Codes

Company Name: Arcadis
Project Name: OU2 Outpost & Monitoring Wells
Northrop Grumman Wells OU2 -Bethpage, New York
Street Address: 2 Huntington Quad, Suite 1S10
City: Melville NY
State: NY
Zip: 11747
Project # 30169301.GWMI3
Client/Purchase Order #
Billing Information (if different from Report to)
Company Name: Arcadis, U.S., Inc.
Street Address: 630 Plaza Drive, Suite 600
City: Highlands Ranch, CO
State: CO
Zip: 80129
Project Manager: Art Zahradnik
Attention: Accounts Payable

Table with columns: Accutest Sample #, Field ID / Point of Collection, MEQ/HR Val #, Date, Time, Sampled by, Matrix, # of bottles, and various chemical analysis columns (HC, NH3, HNO3, HPO4, NH4, DI Water, MEQ, ENCORE, NALSON). Includes handwritten entries for samples 1, 2F, 3F, and 4F.

Turnaround Time (Business days) Data Deliverable Information Comments / Special Instructions

Turnaround Time options: Std. 15 Business Days, Std. 10 Business Days (by Contract only), 10 Day RUSH, 5 Day RUSH, 3 Day EMERGENCY, 2 Day EMERGENCY, 1 Day EMERGENCY.
Data Deliverable Information: Commercial 'A' (Level 1), Commercial 'B' (Level 2), FULL T1 (Level 3+4), NJ Reduced, Commercial 'C', NYASP Category A, NYASP Category B, State Forms, EDD Format-EQuIS 6, Other COMMC.

Sample Custody table with columns: Relinquished by, Date Time, Received By, Relinquished By, Date Time, Received By. Includes handwritten signatures and dates.

Emergency & Rush T/A data available VIA Lablink
Sample Custody must be documented below each time samples change possession, including courier delivery.
Intact / Not Intact
Preserved where applicable
Op Jet
Cooler Temp. 5.2 C

5.1
5

JD67583: Chain of Custody

Page 1 of 3



SQ 1690

Program 2



CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

ID#: _____

Lab Work Order #
P2 NG ONCT MW Part 1 and 2

Page 1 of 1

Contact & Company Name: Alyssa Hynes - Task Manager Address: Two Huntington Quad-Suite 1S10 City: Melville NY 11747 State: NY Zip: 11747 Project Name/Location (City, State): Ouz-Northrop Gurnman, Bethpage, NY Sampler's Print Name: <i>Stephen Van Ginos</i>		Telephone: 1.631.391.5211 wk/ 1.516.297.1466 cell Fax: E-mail Address: Alyssa.Hynes@arcadis.com Project #: 30169301.GWMI3 Sampler's Signature: <i>[Signature]</i>		Preservative Filtered (✓) # of Containers Container Information PARAMETER ANALYSIS & METHOD 1,4-dioxane 8270D SIM		Preservation Key: A. H ₂ SO ₄ B. HCL C. HNO ₃ D. NaOH E. None F. Other: G. Other: H. Other: Matrix Key: SO - Soil W - Water T - Tissue SE - Sediment SL - Sludge A - Air NL - NAP/JOI SW - Sample Wipe Other: GW	
Sample ID	Collection Date	Time	Type (✓)	Comp	Grab	Matrix	REMARKS
F3041023PG1	4/10/23	0730	✓			W	
GM-74E	↑	1015	✓			W	
GM-74D	↑	1055	✓			W	
GM-74D2	↑	1225	✓			W	
GM-73D	↑	1050	✓			W	
GM-73D2	↑	1100	✓			W	
GM-73	↑	1310	✓			W	

Special QA/QC Instructions (✓):

Special Instructions/Comments:
 SVOC extracted by CCLE
 EDD-ARCADIS_EQUIS (4-File) file format)

Lab Name: Katahdin Analytical Labs <input type="checkbox"/> Cooler packed with ice (✓) Shipping Tracking #: _____ Sample Receipt: Normal TAT-10 business days Condition/Cooler Temp: _____		Relinquished By Printed Name: <i>Stephen Van Ginos</i> Signature: <i>[Signature]</i> Firm/Courier: <i>Arcadis</i> Date/Time: <i>4/10/23</i>		Received By Printed Name: <i>Evan Price</i> Signature: <i>[Signature]</i> Firm/Courier: <i>Katahdin</i> Date/Time: <i>4/11/23 1000</i>		Relinquished By Printed Name: Signature: Firm/Courier: Date/Time:		Laboratory Received By Printed Name: Signature: Firm: Date/Time:	
---	--	---	--	--	--	---	--	--	--

20730826 CoC-AR Form 08.27.2015

Distribution: WHITE - Laboratory returns with results

YELLOW - Lab copy

PINK - Retained by Arcadis

Input

AW

MM-04623-225

PN

SGS

ACCUTEST

CHAIN OF CUSTODY

Program 1A or 1B

PAGE 1 OF 1

SGS Accutest New Jersey - Dayton
2235 Route 130, Dayton, NJ 08810
TEL: 732-329-0200 FAX: 732-329-3499/3
www.sgs.com

FED-EX Tracking #
COC #4-Navy
Bole Order Control #
Account Quote #
Account Job #

Form containing Client/Reporting Information, Project Information, Requested Analysis, Matrix Codes, Collection table, Turnaround Time, Data Deliverable Information, and Sample Custody sections.

5.1 5

JD67601: Chain of Custody

Page 1 of 3





ACCUTEST

CHAIN OF CUSTODY

SGS Accutest New Jersey - Dayton
2235 Route 130, Dayton, NJ 08810
TEL: 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

Program 2

PAGE 1 OF 1

FED-EX Tracking COC #5-NG
Accutest Quote #
Matrix Order Control # NJM-032823-40
Accutest Job # JD67639

Client / Reporting Information, Project Information, Requested Analysis (see TEST CODE sheet), Matrix Codes. Includes company details for Arcadis and project details for OU2 Outpost & Monitoring Wells.

Table with columns: Acctest Sample #, Field ID / Point of Collection, MEQ/DN Viol #, Date, Time, Sampled by, Matrix, # of bottles, etc. Includes handwritten entries for samples 1, 2, and 3.

Turnaround Time (Business days), Data Deliverable Information, Comments / Special Instructions. Includes checkboxes for service levels and delivery options.

Relinquished by, Date Time, Received By, Date Time. Includes handwritten signatures and dates for sample handovers.

5.1 5

JD67639: Chain of Custody

Page 1 of 2





CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Program 2

Lab Work Order # P2 NG ONCT MW Part 1 and 2

SQ 1853

Page 1 of 1

ID#:

Contact & Company Name: Alyssa Hynes - Task Manager		Telephone: 1.631.391.5211 wk/ 1.516.297.1466 cell
Address: Two Huntington Quad-Suite 1S10		Fax:
City Melville	State NY	Zip 11747
E-mail Address: Alyssa.Hynes@arcadis.com		
Project #: 30199301.GWMI3		
Sampler's Printed Name: Stephen Vlavianos		
Signature: <i>[Signature]</i>		

Sample ID	Collection		Matrix	Remarks
	Date	Time		
FB041923SV 1	4/19/23	0730	FB	
GM-2/D	↓	1105	GW	
GM-21/D2	↓	1014	GW	
GM-21S	↓	1145	GW	
GM-35D2	↓	0915	GW	

Special Instructions/Comments:
SVOC extracted by CCLE
EDD-ARCADIS_EQUIS (EQUIS-7 (4-File) file format)

Special QA/QC instructions(✓):

Lab Name: Katahdin Analytical Labs	Relinquished By Printed Name: Stephen Vlavianos Signature: <i>[Signature]</i>	Received By Printed Name: Evan Price Signature: <i>[Signature]</i>	Relinquished By Printed Name: _____ Signature: _____	Laboratory Received By Printed Name: _____ Signature: _____
<input checked="" type="checkbox"/> Cooler packed with ice (✓)	Firm/Counter: ARCADIS	Firm/Counter: Katahdin	Firm/Counter: _____ Date/Time: 4/20/23 0945	Firm/Counter: _____ Date/Time: _____
Sample Receipt: Normal TAT-10 business days	Condition/Cooler Temp: _____			

20730826 CoC-AR Form 08.27.2015

Distribution: WHITE - Laboratory returns with results YELLOW - Lab copy PINK - Retained by Arcadis



CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Program 2

Lab Work Order # P2 NG ONCT MW Part 1 and 2

SQ 1745

Page 1 of 1

ID#:

Contact & Company Name: Alyssa Hynes - Task Manager Address: Two Huntington Quad-Suite 1S10 City: Melville NY 11747 State: NY Zip: 11747 E-mail Address: Alyssa.Hynes@arcadis.com		Telephone: 1.631.391.5211 wk/ 1.516.297.1466 cell Fac:		
Project Name/Location (City, State): OU2-Northrop Grumman, Bethpage, NY		Project #: 30169301.GWMI3		
Sampler's Printed Name: <i>Alyssa Hynes</i>		Sampler's Signature: 		
Sample ID	Collection		Type (✓)	Matrix
	Date	Time	Comp	Grab
F3041223	4/12/23	07:36	✓	SW
GM-78I		10:10	✓	GW
GM-78S		10:30	✓	GW
GM-78D		12:20	✓	GW
GM-78D2		12:15	✓	GW
1,4-dioxane 8270D SIM				
REMARKS				

Keys

Preservation Key:
 A. H₂SO₄
 B. HCL
 C. HNO₃
 D. NaOH
 E. None
 F. Other: _____
 G. Other: _____
 H. Other: _____

Container Information Key:
 1. 40 ml Vial
 2. 1 L Amber
 3. 250 ml Plastic
 4. 500 ml Plastic
 5. Encore
 6. 2 oz. Glass
 7. 4 oz. Glass
 8. 8 oz. Glass
 9. Other: _____
 10. Other: _____

Matrix Key:
 SE - Sediment
 SW - Sludge
 A - Air
 NL - NAPL/Oil
 SW - Sample Wipe
 Other: GW

Special QA/QC Instructions (✓):

Special Instructions/Comments:
 SVOC extracted by CCLE
 EDD-ARCADIS_EQUIS (EQUIS-7 (4-File) file format)

Laboratory Information and Receipt		Relinquished By		Received By		Relinquished By		Laboratory Received By	
Lab Name:	Katahdin Analytical Labs	Printed Name:	John O'Brien	Printed Name:	Evan Price	Printed Name:		Printed Name:	
<input checked="" type="checkbox"/> Cooler packed with ice (✓)	<input type="checkbox"/> Intact <input type="checkbox"/> Not Intact	Signature:		Signature:		Signature:		Signature:	
Sample Turnaround Requirements:	Normal TAT-10 business days	Firm:	Arcadis	Firm/Courier:	Katahdin	Firm/Courier:		Firm:	
Shipping Tracking #:		Date/Time:	4-12-23 1500	Date/Time:	4/13/23 0925	Date/Time:		Date/Time:	

20750828 Ccvc AR Form 08.27.2015

Distribution: **WHITE** - Laboratory returns with results **YELLOW** - Lab copy **PINK** - Retained by Arcadis

SQ 1773

Program 2



CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Lab Work Order # P2 NG ONCT MW Part 1 and 2

ID#: _____ Page 1 of 1

Contact & Company Name: Alyssa Hynes - Task Manager Address: Two Huntington Quad-Suite 1S10 City: Melville NY 11747 State: NY Zip: 11747 E-mail Address: Alyssa.Hynes@arcadis.com		Telephone: 1.631.391.5211 wk/ 1.516.297.1466 cell Fac:				
Project Name/Location (City, State): OUZ-Northrop Grumman, Bethpage, NY		Project #: 30169301.GWMI3				
Sampler's Printed Name: Stephen Vavinos		Sampler's Signature: 				
Sample ID	Collection Date	Time	Type (✓)	Comp	Grab	Matrix
FB041323SVL	4/13/21	0730	✓			GW
GM-3402		0955	✓			GW
GM-340		1055	✓			GW
GM-79I		1300	✓			GW
GM-79D		1755	✓			GW
REMARKS MS/MSD on GM-79D						

Preservation Key:
 A. H₂O₂
 B. HCL
 C. HNO₃
 D. NaOH
 E. None
 F. Other: _____
 G. Other: _____
 H. Other: _____

Container Information Key:
 1. 40 ml Vial
 2. 1 L Amber
 3. 250 ml Plastic
 4. 500 ml Plastic
 5. Encore
 6. 2 oz. Glass
 7. 4 oz. Glass
 8. 8 oz. Glass
 9. Other: _____
 10. Other: _____

Matrix Key:
 SE - Sediment
 SL - Sludge
 A - Air
 SO - Soil
 W - Water
 T - Tissue
 NL - NAP/JOil
 SW - Sample Wipo
 Other: GW

Keys

Container Information:
 Filtered (✓)
 # of Containers
 Container Information

PARAMETER ANALYSIS & METHOD
 1,4-dioxane
 8270D SIM

Special QA/QC Instructions (✓):

Laboratory Information and Receipt		Relinquished By		Received By		Relinquished By	
Lab Name: Katahdin Analytical Labs	Cooler Custody Seal (✓) <input checked="" type="checkbox"/> Intact <input type="checkbox"/> Not Intact	Printed Name: Stephen Vavinos	Signature: 	Printed Name: Gyan Price	Signature: 	Printed Name: Gyan Price	Signature:
Sample Receipt: Normal TAT-10 business days	Condition/Cooler Temp: _____	Firm: ARCADIS	Date/Time: 4/13	Firm/Courier: Katahdin	Signature: 	Firm: Katahdin	Signature:
Shipping Tracking #:				Date/Time: 4/12 3:00S		Date/Time: 4/12 3:00S	

Special Instructions/Comments:
 SVOC extracted by CCLE
 EDD-ARCADIS_EQUIS (EQUIS-7 (4-File) file format)

Distribution:
 WHITE - Laboratory returns with results
 YELLOW - Lab copy
 PINK - Retained by Arcadis



CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Program 2

Lab Work Order #
P2 NG ONCT MW Part 1 and 2

ID#: SQ2975

Page 1 of 1

Contact & Company Name: Alyssa Hynes - Task Manager Address: Two Huntington Quad-Suite 1S10 City: Melville NY 11747 State: NY Zip: 11747 E-mail Address: Alyssa.Hynes@arcadis.com Project #: 30169301.GWMI3 Sampler's Printed Name: <i>Bob O'Brien</i> Sampler's Signature: <i>[Signature]</i>		Telephone: 1.631.391.5211 wk/ 1.516.297.1466 cell Fax: E:	
Send Results to: Alyssa Hynes - Task Manager Two Huntington Quad-Suite 1S10 Melville NY 11747 State: NY Zip: 11747 E-mail Address: Alyssa.Hynes@arcadis.com Project #: 30169301.GWMI3 Sampler's Printed Name: <i>Bob O'Brien</i> Sampler's Signature: <i>[Signature]</i>		Preservative Filtered (✓) # of Containers Container Information	
Sample ID F13061223901 GN-180 GM-16I N-10027		PARAMETER ANALYSIS & METHOD 1,4-dioxane 8270D SIM	
Collection Date: 6-12-23 07:30 Time: 0945 0950 12:40 Type (✓) Comp: ✓ Grab: ✓ Matrix: W GW GW GW		REMARKS	
Special Instructions/Comments: SVOC extracted by CCLE EDD-ARCADIS_EQUIS (EQUIS-7 (4-File) file format)			
Lab Name: Katahdin Analytical Labs <input checked="" type="checkbox"/> Cooler packed with ice (✓)		Received By Printed Name: <i>Jack Bruce</i> Signature: <i>[Signature]</i> Firm/Counter: KAS Date/Time: 6/14/23 0945	
Sample Receipt: Normal TAT-10 business days Shipping Tracking #:		Relinquished By Printed Name: <i>Bob O'Brien</i> Signature: <i>[Signature]</i> Firm/Counter: Arcadis Date/Time: 6-14-23 17:30	
Condition/Cooler Temp:		Laboratory Received By Printed Name: _____ Signature: _____ Firm: _____ Date/Time: _____	

Special QA/QC Instructions (✓):



CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Program 2

Lab Work Order #
P2 NG ONCT MW Part 1 and 2

ID#:
SQ3016

Page 1 of 1

Contact & Company Name: Alyssa Hynes - Task Manager Address: Two Huntington Quad-Suite 1S10 City: Melville State: NY Zip: 11747 E-mail Address: Alyssa.Hynes@arcadis.com		Telephone: 1.631.391.5211 wk/1.516.297.1466 cell Fax:		Preservation Filtered (✓) # of Containers Container Information		Keys Container Information Key: 1. 40 ml Vial 2. 1 L Amber 3. 250 ml Plastic 4. 500 ml Plastic 5. Encore 6. 2 oz. Glass 7. 4 oz. Glass 8. 8 oz. Glass 9. Other: _____ 10. Other: _____ Preservation Key: A. H ₂ SO ₄ B. HCl C. HNO ₃ D. NaOH E. None F. Other: _____ G. Other: _____ H. Other: _____ Matrix Key: SO - Soil W - Water T - Tissue SE - Sediment SL - Sludge A - Air NL - NAPL/Oil SW - Sample Wipe Other: <u>GW</u>					
PARAMETER ANALYSIS & METHOD						REMARKS					
1,4-dioxane 8270D SIM											
Project Name/Location (City, State): OU2-Northrop Grumman, Bethpage, NY		Project #: 30169301.GWM13		Sampler's Printed Name: Sadie Wolson							
Sample ID	Collection Date	Time	Type (✓)		Matrix						
			Comp	Grab							
GM-39DA	06/14/23	1040	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	W						
GM-39DB	06/14/23	1030	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	W						
<input type="checkbox"/> Special QA/QC Instructions (✓):											
Special Instructions/Comments: SVOC extracted by CCLE EDD-ARCADIS_EQUIS (EQUIS-7 (4-File) file format)						Relinquished By Printed Name: SADIE WOLSON Signature: Sadie Wolson Firm: Arcadis Date/Time: 06/14/23 / 1500					
Laboratory Information and Receipt Lab Name: Katahdin Analytical Labs <input checked="" type="checkbox"/> Cooler packed with ice (✓) <input type="checkbox"/> Intact <input type="checkbox"/> Not Intact Sample Receipt: Condition/Cooler Temp: _____						Received By Printed Name: Jacob Bruce Signature: Jacob Bruce Firm/Co./Ref: KAS Date/Time: 6/15/23 0900					
Shipping Tracking #: _____						Relinquished By Printed Name: _____ Signature: _____ Firm: _____ Date/Time: _____					
Distribution:						Laboratory Received By Printed Name: _____ Signature: _____ Firm: _____ Date/Time: _____					



ID#: SQ3017

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Program 2

Lab Work Order # P2 NG ONCT MW Part 1 and 2

Page 1 of 1

Contact & Company Name: Alyssa Hynes - Task Manager Address: Two Huntington Quad-Suite 1S10 City: Melville NY 11747 State: NY Zip: 11747 E-mail Address: Alyssa.Hynes@arcadis.com		Telephone: 1.631.391.5211 wk/ 1.516.297.1466 cell Fac:	Preservative Filtered (✓) E
Project Name/Location (City, State): OU2-Northrop Grumman, Bethpage, NY		Project #: 30169301.GWMI3	# of Containers 2
Sampler's Printed Name: Pat Quisenberry		Sampler's Signature: <i>Pat Quisenberry</i>	Container Information 2

Sample ID	Collection		Type (✓)		Matrix	REMARKS
	Date	Time	Comp	Grab		
F8061323P01	11-13	0730		J	N	1,4-dioxane 8270D SIM
MW-016F		09:30		J	GW	
MW-026F		11:25		J	GW	
REP061323P01				J	GW	

Special Instructions/Comments:
 SVOC extracted by GCLE
 EDD-ARCADIS_EQUIS (EQUIS-7 (4-File) file format)

Lab Name: Katahdin Analytical Labs <input checked="" type="checkbox"/> Cooler packed with ice (✓)		Relinquished By: Printed Name: Pat Quisenberry Signature: <i>Pat Quisenberry</i> Firm/Courier: Arcadis Date/Time: 11-13-13 14:30	
Sample Receipt: Normal TAT-10 business days Shipping Tracking #:		Received By: Printed Name: Jacob Bruce Signature: <i>Jacob Bruce</i> Firm/Courier: KAS Date/Time: 6/15/23 0920	
Condition/Cooler Temp:		Laboratory Received By: Printed Name: Signature: Firm: Date/Time:	

20730826 Cdc AR Form 08.27.2015

Distribution: WHITE - Laboratory returns with results YELLOW - Lab copy PINK - Retained by Arcadis



ACCUTEST

GW

CHAIN OF CUSTODY

SGS Accutest New Jersey - Dayton
2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

Program 1A or 1B
(circle 1 or both indicate which samples to which program below)

FED-EX Tracking COC #4-Navy Bottle Order Control #
Accutest Quote # Accutest Job # J173287

Client / Reporting Information, Project Information, Requested Analysis (see TEST CODE sheet), Matrix Codes, Accutest Sample #, Field ID / Point of Collection, Date, Time, Sampled by, Matrix, # of bottles, HCl, NaOH, HNO3, H2SO4, DI Water, MEQH, ENCORE, NaHSO4, LAB USE ONLY

Turnaround Time (Business days), Data Deliverable Information, Comments / Special Instructions, Initial Assessment MB3B, Label Verification

Sample Custody must be documented below each time samples change possession, including courier delivery. Relinquished by Sampler, Date Time, Received By, Relinquished By, Date Time, Received By, Custody Seal #, Intact, Not intact, Preserved where applicable, On Ice, Cooler Temp.



ACCUTEST

GW TB

CHAIN OF CUSTODY

SGS Accutest New Jersey - Dayton
2235 Route 130, Dayton, NJ 08810
TEL: 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

Program 1A 1B
(circle 1 or both indicate which apply in program below)

PAGE 1 OF 1

FED-EX Tracking # 644NAV
Accutest Quote #
Accutest Job # JD 71780

Client / Reporting Information Project Information Requested Analysis (see TEST CODE sheet) Matrix Codes

Company Name: Arcadis
Project Name: AGMNYM72080 // OU2 Navy Outpost & Monitoring Wells
Street Address: 2 Huntington Quad, Suite 1S10
City: Melville NY
Project # 3042604-NAVA
Client Purchase Order # 20191627-NAV13
Project Manager: Art Zahradnik
Attention: Accounts Payable

Table with columns: Accutest Sample #, Field ID / Point of Collection, MECH/DI Val #, Date, Time, Sampled by, Matrix, # of bottles, and various chemical analysis columns (PQ, TB, GW, etc.). Includes handwritten entries for samples 1-4.

Turnaround Time (Business days)
Data Deliverable Information
Comments / Special Instructions
Initial Assessment: ABSP
Label Verification

Sample Custody must be documented below each time samples change possession, including courier delivery.
Relinquished by: Lyra Kraus
Received by: J. M. ...
Date Time: 8/28/23

8.7C IR 40



ACCUTEST

GW
TB

CHAIN OF CUSTODY

SGS Accutest New Jersey - Dayton
2235 Route 130, Dayton, NJ 08810
TEL: 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

Program (1A or 1B)

(circle 1 or both indicate which sample to which program below)

PAGE 1 OF 1

FED-EX Tracking # 60071111 Bottle Order Control # MM-08923-93
Accutest Quote # JD71861 Accutest Job # JD71861

Client / Reporting Information Project Information Requested Analysis (see TEST CODE sheet) Matrix Codes

Company Name Arcadis		Project Name AGMNYM72080 // OU2 Navy Outpost & Monitoring Wells		Requested Analysis (see TEST CODE sheet)		Matrix Codes	
Street Address 2 Huntington Quad, Suite 1S10		Street Bethpage		Billing Information (if different from Report to)		DW - Drinking Water GW - Ground Water WW - Waste Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank	
City Melville	State NY	Zip 11747	City Bethpage	State NY	Company Name Arcadis, U.S., Inc.		
Project Contact Alyssa Hynes, alyssa.hynes@arcadis.com		Project # 30191527.NAV13		Street Address 630 Plaza Drive, Suite 600			
Phone # 631-381-5211		E-mail 631-297-1466		Client Purchase Order # Highlands Ranch, CO 80129			
Sampler(s) Name(s) Lya Kraus (631) 877-3820		Project Manager Art Zahradnik		Attention: Accounts Payable			

Accutest Sample #	Field ID / Point of Collection	MEO/ER Val #	Collection		Matrix	# of bottles	Number of preserved Bottles										LAB USE ONLY						
			Date	Time			HCl	NO ₃ ⁻	NO ₂ ⁻	HPO ₄ ⁻	HSO ₄ ⁻	NO ₃ ⁻	NO ₂ ⁻	EDTA	EDTA	EDTA		EDTA	EDTA	EDTA	EDTA	EDTA	
1	TB082923.PG1		8/29/2023		PG TB	2	2																V105
2	BPOW2-1		8/29/2023	09:00	KY GW	15	9																SW 1
3	BPOW2-2		8/29/2023	09:45	PG GW	5	3																
4	BPOW2-3		8/29/2023	11:30	PG GW	5	3																
5	REP082923.PG1		8/29/2023		PG GW	5	3																

Turnaround Time (Business days) Data Deliverable Information Comments / Special Instructions

<input type="checkbox"/> Std. 15 Business Days <input checked="" type="checkbox"/> Std. 10 Business Days (by Contract only) <input type="checkbox"/> 10 Day RUSH <input type="checkbox"/> 5 Day RUSH <input type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY	Approved By (Accutest P#) / Date: 	<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> FULLT1 (Level 3+4) <input type="checkbox"/> NJ Reduced <input type="checkbox"/> Commercial "C" Commercial "A" = Results Only Commercial "B" = Results + QC Summary NJ Reduced = Results + QC Summary + Partial Raw data	<input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> State Forms <input checked="" type="checkbox"/> EDD Format-EQUS 7 Arcadis <input checked="" type="checkbox"/> Other COMMC+	MS/MSD on BPOW2-1 Initial Assessment 3A Label Verification
---	---	---	---	--

Emergency & Rush TIA data available VIA Lablink						Sample Custody must be documented below each time samples change possession, including courier delivery.					
Relinquished by Sampler: <i>Lya Kraus</i>	Date/Time: 8/29/23	Received By: <i>Raymond or 11</i>	Relinquished By: <i>2 Raymond or 11</i>	Date/Time: 2:00	Received By: <i>[Signature]</i>						
Relinquished by Sampler: 3	Date/Time:	Received By: 3	Relinquished By: 4	Date/Time:	Received By: 4						
Relinquished by: 5	Date/Time:	Received By: 5	Custody Seal #	<input type="checkbox"/> Intact <input type="checkbox"/> Not Intact	Preserved where applicable <input type="checkbox"/>	On Ice <input type="checkbox"/>	Cooler Temp. <input type="checkbox"/>				

2-0

JD71861: Chain of Custody

Page 1 of 2



5.1
5



ACCUTEST

Handwritten initials: KB

CHAIN OF CUSTODY

SGS Accutest New Jersey - Dayton
2235 Route 130, Dayton, NJ 08810
TEL: 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

Program 1A or 1B

(circle 1 or both indicate which samples to which program below)

PAGE 1 OF 1

FED-EX Tracking # CO-2-2-NJ-1111
Accutest Quote #
Matrix Order Control #
Accutest Job # JD 71997

Client / Reporting Information Project Information Requested Analysis (see TEST CODE sheet) Matrix Codes

Company Name: Arcadis
Project Name: AGMNYM72080 // OU2 Navy Outpost & Monitoring Wells
Street Address: 2 Huntington Quad, Suite 1S10
City: Melville NY 11747
Project #: 301200-000-0113
Client Purchase Order #: 30191627-NAN13
Billing Information: Arcadis, U.S., Inc.
Street Address: 630 Plaza Drive, Suite 600
City: Highlands Ranch, CO 80129
Attention: Accounts Payable

Table with columns: Account Sample #, Field ID / Point of Collection, MECH/VI Val #, Date, Time, Sampled by, Matrix, # of bottles, and various test codes (HCl, NaOH, HPO4, HPO3, HPO2, HPO1, DI Water, MICH, ENCORE, NH4SO4). Rows 1-4 contain data for samples TB083073, BPOW1-2, BPOW1-4, and BPOW1-5.

Turnaround Time (Business days) Date Deliverable Information Comments / Special Instructions

Turnaround Time options: Std. 15 Business Days, Std. 10 Business Days (by Contract only), 10 Day RUSH, 5 Day RUSH, 3 Day EMERGENCY, 2 Day EMERGENCY, 1 Day EMERGENCY.
Approved By (Accutest PM):
Commercial "A" (Level 1), Commercial "B" (Level 2), FULLT1 (Level 3+4), NJ Reduced, Commercial "C", NYASP Category A, NYASP Category B, State Forms, EDD Format-EQUS 7 Arcadis, Other COMM-C.

SGS COURIER
Initial Assessment 80-5A
Label Verification

Sample Custody must be documented below each time sample change possession, including courier delivery. 16:00

Handwritten chain of custody:
Relinquished by: Alysa Kravus 8/30/23
Received By: Raymond Dr 1
Relinquished by: Raymond Dr 1
Received By: Raymond Dr 2
Relinquished by: Raymond Dr 2
Received By: Raymond Dr 3
Relinquished by: Raymond Dr 3
Received By: Raymond Dr 4
Relinquished by: Raymond Dr 4
Received By: Raymond Dr 5

Handwritten: 2-2 2240



5.1
5



ACCUTEST

CHAIN OF CUSTODY

SGS Accutest New Jersey - Dayton
2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

Program 1A or 1B
(circle 1 or both indicate which sample to which program below)

FED-EX Tracking COC #4-Navy
Accutest Quote #
Bottle Order Control # MWM-08923-93
Accutest Job # JD72038

Client / Reporting Information, Project Information, Requested Analysis, Matrix Codes, Turnaround Time, Data Deliverable Information, Sample Custody, and Laboratory Use Only sections.

SGS COURIER

JD72038: Chain of Custody

Page 1 of 2





ACCUTEST

CHAIN OF CUSTODY
SGS Accutest New Jersey - Dayton
2235 Route 130, Dayton, NJ 08810
TEL: 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

Program 2

PAGE 1 OF 1

MM-08923-93

GW
FB
TB

FED-EX Tracking # COC 75-NC
Accutest Quote #
Accutest Job # JD72350

Client / Reporting Information, Project Information, Requested Analysis, Matrix Codes, Collection table, Data Deliverable Information, Sample Custody tracking table.

5.1
5

2-3.0

JD72350: Chain of Custody

Page 1 of 2





ACCUTEST

G10 TB F3

CHAIN OF CUSTODY

SGS Accutest New Jersey - Dayton
2235 Route 130, Dayton, NJ 08810
TEL: 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

Program 1A or 1B

(circle 1 or both indicate which samples to which program below)

PN

FED-EX Tracking: COC # Navy Bottle Order # MM# 102423 10
Accutest Quote # JDA5984 Accutest Job #

Client / Reporting Information, Project Information, Requested Analysis (see TEST CODE sheet), Matrix Codes

Table with columns: Accutest Sample #, Field ID / Point of Collection, MECHID# Vol #, Date, Time, Sampled by, Matrix, # of bottles, and various analysis codes (V5242NG36GW+40+THF, etc.)

Turnaround Time (Business days), Data Deliverable Information, Comments / Special Instructions

Relinquished by Sampler, Date Time, Received By, Date Time, Relinquished By, Date Time, Received By, Date Time

10/2/23 3:02

SGS COURIER

JD75984: Chain of Custody

Page 1 of 3



5.2 5



ACCUTEST

GW
TB
FB

CHAIN OF CUSTODY
SGS Accutest New Jersey - Dayton
2235 Route 130, Dayton, NJ 08810
TEL: 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

Program 2

PAGE 1 OF 1

FED-EX Tracking # **6001490** Bottle Order Control # **MM-101123-71**
Accutest Quote # **JD74941** Accutest Job # **JD74941**

Client / Reporting Information		Project Information				Requested Analysis (see TEST CODE sheet)												Matrix Codes		
Company Name Arcadis		Project Name OU2 Outpost & Monitoring Wells Northrop Grumman Wells OU2 -Bethpage, New York				VCB82602NG36GW+40-24K Cd, Cr (Total) 6010C Cd, Cr (Dissolved, Field Filtered) 6010C Cr (total) Cr (dissolved)												DW - Drinking Water GW - Ground Water WW - Waste Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank		
Street Address 105 Maxess Road Suite N108		City Bethpage		State NY															Billing Information (if different from Report to)	
City Melville NY		Zip 11747		Company Name Arcadis, U.S., Inc.															Street Address 630 Plaza Drive, Suite 600	
Project Contact Thomas Darmon, thomas.darmon@arcadis.com		Project #		City Highlands Ranch, CO															State 80129	
Phone # 330-615-5713		Client Purchase Order #		City Highlands Ranch, CO															State 80129	
Project Manager Art Zahradnik		Attention Accounts Payable		City Highlands Ranch, CO															State 80129	
Accutest Sample #	Field ID / Point of Collection	MEQ/MDI Viol #	Date	Time	Sampled by	Matrix	# of bottles	PC	MECH	H2SO4	NONE	DI Water	MECH	ENCLIP	Nursical	LAB USE ONLY				
1	TDW0722PGW		11-07-23		PGW TB	2	2									X				
2	FDW0722PGW			07:30	PGW FB	2	2									X				
3	GA-17D			10:00	PGW GW	3	3									X				
4	GA-17E			10:07	AH GW	3	3									X				
5	NW-42I			12:45	PGW GW	3	3									X				
6	NW-42S			12:30	AH GW	3	3									X				
Turnaround Time (Business days)		Data Deliverable Information				Comments / Special Instructions														
<input type="checkbox"/> Std. 15 Business Days <input checked="" type="checkbox"/> Std. 10 Business Days (by Contract only) <input type="checkbox"/> 10 Day RUSH <input type="checkbox"/> 5 Day RUSH <input type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY		Approved By (Accutest PM): /Date <input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> FULLT1 (Level 3+4) <input type="checkbox"/> NJ Reduced <input type="checkbox"/> Commercial "C" Commercial "A" - Results Only Commercial "B" - Results + QC Summary NJ Reduced - Results + QC Summary + Partial Raw data				<input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> State Forms <input checked="" type="checkbox"/> EDD Format-EQUIS 6 <input checked="" type="checkbox"/> Other COMM-C* Add Tetrahydrofuran to VOC analysis Initial Assessment 2A-JCA Verification														
Emergency & Rush T/A data available VIA Lablink																				
Sample Custody must be documented below each time samples change possession, including courier delivery.																				
Relinquished by Sampler:	Date/Time:	Received By:	Date/Time:	Relinquished By:	Date/Time:	Received By:	Date/Time:	Relinquished by Sampler:	Date/Time:	Received By:	Date/Time:	Relinquished By:	Date/Time:	Received By:	Date/Time:	Relinquished by Sampler:	Date/Time:			
1		1 Raymond Dr "	10/17/23	2 Raymond Dr "	10/17/23	2 Raymond Dr "	10/17/23	3		3		4		4		5				
Custody Seal #	Impact	Preserved where applicable	On Ice	Cooler Temp.	49															

IR-40

JD74941: Chain of Custody

Page 1 of 2





ACCUTEST

GW
TB
FB

CHAIN OF CUSTODY

SGS Accutest New Jersey - Dayton
2235 Route 130, Dayton, NJ 08810
TEL: 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com

Program 2

PAGE 1 OF 1

FEDEX Tracking COC #5-NG Bottle Order Control # MM-101123-71
Accutest Quote # JD75368

Client / Reporting Information		Project Information		Requested Analysis (see TEST CODE sheet)										Matrix Codes					
Company Name Arcadis		Project Name OU2 Outpost & Monitoring Wells		VC82602NG36GW+40- 34 Cd, Cr (Total) 6010C Cd, Cr (Dissolved, Field Filtered) 6010C Cr (total) Cr (dissolved)										DW - Drinking Water GW - Ground Water WW - Waste Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - W-pe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank					
Street Address 105 Maxess Road Suite N108		Street Bethpage NY																	
City State Zip Melville NY 11747		Billing Information (if different from Report to) Company Name Arcadis, U.S., Inc.																	
Project Contact Thomas Darmon, thomas.darmon@arcadis.com		Project # 30169301.GWMI3																	
Phone # Fax # 330-515-5713		ClientPurchase Order # 630 Plaza Drive, Suite 600																	
Sampler(s) Name(s) Phone # Pat Quinlan 631-839-2485		Project Manager Art Zahradnik		City State Zip Highlands Ranch, CO 80129										Attention: Accounts Payable					
Account Sample #	Field ID / Point of Collection	MED/IDI Vial #	Date	Time	Sampled by	Matrix	# of bottles	SP	NICH	INOC	H2SO4	NONE	D/Water	MEDH	ENDORE	NUMBOD	LAB USE ONLY		
1	TB102423FH		10-24-23		SH TD	2	2												
2	TB102423SV1				SV TD	2	2												
3	FB102423FH			07:30	SH FB	3	3												
4F	PLT MW-04			09:07	AH GW	2	2												
5F	PLT MW-05			09:30	SH GW	2	2												
6F	PLT MW-06			09:55	SV GW	2	2												
7	GM-15D			11:35	SH GW	3	3												
8	GM-15D2			11:45	PG GW	3	3												
9F	GM-15SR			11:55	SV GW	5	3												
10	GM-15I			11:44	AH GW	9	9												
11	REP102423PG1				PG GW	3	3												
Turnaround Time (Business days)		Approved By (Accutest PM) / Date		Data Deliverable Information										Comments / Special Instructions					
<input type="checkbox"/> Std. 15 Business Days <input checked="" type="checkbox"/> Std. 10 Business Days (by Contract only) <input type="checkbox"/> 10 Day RUSH <input type="checkbox"/> 5 Day RUSH <input type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY		Initial Assessment <u>3A</u> Label Verification _____		<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> FULLT1 (Level 3+4) <input type="checkbox"/> NJ Reduced <input type="checkbox"/> Commercial "C" <input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> State Forms <input checked="" type="checkbox"/> EDD Format-EQUS 6 <input checked="" type="checkbox"/> Other COMMC+										Add Tetrahydrofuran to VOC analysis MS/MSD on GM-15I Please dispose of PLT below VOC samples. Analyze PLT Co/Samples					
Emergency & Rush T/A data available VIA Lablink		Sample Custody must be documented below each time samples change possession, including courier delivery.																	
Relinquished by Sampler:	Date Time:	Received By:	Received By:	Relinquished By:	Date Time:	Received By:	Received By:	Relinquished By:	Date Time:	Received By:	Received By:	Relinquished By:	Date Time:	Received By:	Received By:	Relinquished By:	Date Time:	Received By:	
1	10-24-23	1	1	2	10/24/23	2	2	3	3/10	4	4	5	5	5	5	5	5	5	
Custody Status		<input type="checkbox"/> Intact		<input type="checkbox"/> Preserved where applicable		<input type="checkbox"/> On Ice		Cooler Temp.											
								3-10											
								IR 40											

5.1
5

JD75368: Chain of Custody

Page 1 of 2





ACCUTEST

GW
FB
TB

CHAIN OF CUSTODY

SGS Accutest New Jersey - Dayton

2235 Route 130, Dayton, NJ 08810

TEL: 732-329-0200 FAX: 732-329-3499/3480

www.sgs.com

Program 2

PAGE 1 OF 1

FED-EX Tracking	COC #5-NG	Bottle Order Control #	MM-101123-71
Accutest Quote #		Accutest Job #	JD75283

Client / Reporting Information		Project Information										Requested Analysis (see TEST CODE sheet)				Matrix Codes	
Company Name Arcadis		Project Name: OU2 Outpost & Monitoring Wells Northrop Grumman Wells OU2 -Bethpage, New York										Requested Analysis (see TEST CODE sheet)				Matrix Codes	
Street Address 105 Maxess Road Suite N108		Billing Information (If different from Report to)															
City State Zip Melville NY 11747		City State Bethpage NY		Company Name Arcadis, U.S., Inc.								VC82602NG36GW+40+ 44	Cd, Cr (Total) 6010C	Cd, Cr (Dissolved, Field Filtered) 6010C	Cr (total)	Cr (dissolved)	
Project Contact Thomas Darmon, thomas.darmon@arcadis.com		Project # 30169301.GWMI3		Street Address 630 Plaza Drive, Suite 600													
Phone # 330-515-5713		Client/Purchase Order # 30169301.GWMI3		City State Zip Highlands Ranch, CO 80129								VC82602NG36GW+40+ 44	Cd, Cr (Total) 6010C	Cd, Cr (Dissolved, Field Filtered) 6010C	Cr (total)	Cr (dissolved)	
Sampler(s) Name(s) Art Zahradnik		Project Manager Art Zahradnik		Attention: Accounts Payable													
Account Sample #	Field ID / Point of Collection	MECH/ID/VI #	Date	Time	Sampled by	Matrix	# of bottles	INC	NI/CH	HN/DB	HS/DA	HS/DA	NI/CH	ME/SH	EN/CO/RE	NI/CH/DA	LAB USE ONLY
1	TB022301		10-23-23		PG	TO	2										X
2	TB022301				SV	TO	2										X
3	FO022301			07:30	PG	FO	2										X
4	GM-3802			09:55	PG	GW	3										X
5	GM-380			10:00	SH	GW	3										X
6	GM-730			10:20	AH	GW	3										X
7	REP02301AH				AH	GW	3										X
8	GM-730B			10:30	AH	GW	3										X
9	GM-730D			12:30	SV	GW	3										X
10	GM-3502			12:00	PG	GW	3										X
Turnaround Time (Business days)		Data Deliverable Information										Comments / Special Instructions					
<input type="checkbox"/> Std. 15 Business Days <input checked="" type="checkbox"/> Std. 10 Business Days (by Contract only) <input type="checkbox"/> 10 Day RUSH <input type="checkbox"/> 5 Day RUSH <input type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY <small>Emergency & Rush T/A data available VIA Lablink</small>		Approved By (Accutest PM) / Date:		<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> FULLT1 (Level 3+4) <input type="checkbox"/> NJ Reduced <input type="checkbox"/> Commercial "C" <small>Commercial "A" = Results Only Commercial "B" = Results + QC Summary NJ Reduced = Results + QC Summary + Partial Raw data</small>								<input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> State Forms <input checked="" type="checkbox"/> EDD Format-EQUS 6 <input checked="" type="checkbox"/> Other COMMC+		Add Tetrahydrofuran to VOC analysis Initial Assessment <u>2B</u> Label Verification _____			
Sample Custody must be documented below each time samples change possession, including courier delivery.																	
Relinquished by Sampler:	Date Time:	Received By:	Date Time:	Relinquished By:	Date Time:	Received By:	Date Time:										
1	10/23/23 1430	1	10/23/23	2	10/23/23	2	10/23/23										
3		3		4	505	4											
5		5															

5.1
5

JD75283: Chain of Custody

Page 1 of 2



Program 2 SQ 5873



CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

ID#: _____

Lab Work Order # P2 NG ONCT MW Part 1 and 2

Page 1 of 1

Keys
Preservation Key:
 A. H₂SO₄
 B. HCL
 C. HNO₃
 D. NaOH
 E. None
 F. Other: _____
 G. Other: _____
 H. Other: _____
Matrix Key:
 SO - Soil
 W - Water
 T - Tissue
 SE - Sediment
 SL - Sludge
 A - Air
 NL - NAPL/Oil
 SW - Sample Wipe
 Other: GW

Container Information Key:
 1. 40 ml Vial
 2. 1 L Amber
 3. 250 ml Plastic
 4. 500 ml Plastic
 5. Encore
 6. 2 oz. Glass
 7. 4 oz. Glass
 8. 8 oz. Glass
 9. Other: _____
 10. Other: _____

Send Results to:
 Contact & Company Name: Thomas Darmon - Task Manager
 Address: 105 Maxess Road, Suite N108
 City: Melville State: NY Zip: 11747
 E-mail Address: Thomas.darmon@arcadis.com
 Telephone: 330-515-5713 wk
 Fax: _____
 Project #: 30169301.GWMI3
 Project Name/Location (City, State): OU2-Northrop Grumman, Bethpage, NY
 Sampler's Printed Name: Pat Quinn
 Sampler's Signature: [Signature]

Sample ID	Collection Date	Time	Type (✓)		Matrix	Remarks
			Comp	Grab		
FB1025 23901	10-15-20	07:30		✓	W	
MW-086F		09:15		✓	GW	
MW-016F		10:25		✓	GW	
GN-39DD		09:07		✓	GW	
GN-39DA		10:20		✓	GW	
REP102523901		-		✓	GW	
GN-21D2		12:25		✓	GW	
GN-74D2		12:05		✓	GW	
GN-74D2X		12:12		✓	GW	MS/MSD

Special Instructions/Comments:
 SVOC extracted by CCLE
 EDD-ARCADIS_EQUIS (EQUIS-7 (4-File) file format)
 Special QA/QC Instructions (✓):

Laboratory Information and Receipt		Relinquished By		Received By		Laboratory Received By	
Lab Name: Katahdin Analytical Labs	Cooler Custody Seal (✓) <input checked="" type="checkbox"/> Intact <input type="checkbox"/> Not Intact	Printed Name: <u>Pat Quinn</u>	Printed Name: _____	Printed Name: <u>Alan Price</u>	Printed Name: _____	Printed Name: _____	Printed Name: _____
<input checked="" type="checkbox"/> Cooler packed with ice (✓)	Sample Receipt	Signature: <u>[Signature]</u>	Signature: _____	Signature: <u>[Signature]</u>	Signature: _____	Signature: _____	Signature: _____
Specify Turnaround Requirements: Normal TAT-10 business days	Condition/Cooler Temp: _____	Firm: <u>Arcadis</u>	Firm/Courier: _____	Firm/Courier: <u>FedEx</u>	Firm/Courier: _____	Firm: _____	Firm: _____
Shipping Tracking #: _____		Date/Time: <u>10-25-20 / 15:00</u>	Date/Time: _____	Date/Time: <u>10-26-20 / 09:15</u>	Date/Time: _____	Date/Time: _____	Date/Time: _____

Distribution: **WHITE** - Laboratory returns with results **YELLOW** - Lab copy **PINK** - Retained by Arcadis

SQ 5895

Program 2

Lab Work Order #
P2 NG ONCT MW Part 1 and 2

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Page 1 of 1

ARCADIS

Contact & Company Name: Thomas Darmon - Task Manager
 Telephone: 330-515-5713 wk
 Address: 105 Maxess Road, Suite N108
 City: Melville State: NY Zip: 11747
 E-mail/Address: Thomas.darmon@arcadis.com

Project Name/Location (City, State): Ouz-Northrop Grumman, Bethpage, NY
 Project #: 307169301.GWMI3
 Sampler's Printed Name: [Signature]
 Sampler's Signature: [Signature]

Preservative Filtered (✓) []
 # of Containers []
 Container Information []

Matrix Key:
 SE - Sediment
 SW - Sludge
 A - Air
 NL - NAPL/OIL
 SW - Sample Wipe
 Other: GW

Sample ID	Collection Date	Time	Type (✓)		Matrix	REMARKS
			Comp	Grab		
F10106335H1	10/26/23	07:30		✓	W	
N-10631R		09:20		✓	GW	
GM-75P2		09:30		✓	GW	
REF1026339G1		-		✓	GW	
GM-3302		10:00		✓	GW	
GM-18J		10:10		✓	GW	
GM-18D		11:40		✓	GW	
MW-3-1		13:15		✓	GW	

Special Instructions/Comments:
 SVOC extracted by CCLE
 EDD-ARCADIS_EQUIS (4-File) file format

1,4-dioxane 8270D SIM

Reinquisitioned By: [Signature] Printed Name: Evan Price
 Signature: [Signature]
 Firm/Courier: Katahdin
 Date/Time: 10/27/23 0920

Reinquisitioned By: [Signature] Printed Name: [Signature]
 Signature: [Signature]
 Firm/Courier: Arcadis
 Date/Time: 10/26/23 1500

Lab Name: Katahdin Analytical Labs
 Cooler Custody Seal (✓)
 Intact Not Intact
 Sample Receipt
 Condition/Cooler Temp: -----

Shipping Tracking #: _____

20730826 CofC AR Form 08.27.2015

Distribution: WHITE - Laboratory returns with results YELLOW - Lab copy PINK - Retained by Arcadis

SQ 5619

Program 2



CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Lab Work Order # P2 NG ONCT MW Part 1 and 2

ID#: _____ Page 1 of _____

Contact & Company Name: Thomas Darmon - Task Manager Telephone: 330-515-5713 wk Address: 105 Maxess Road, Suite N108 City: Melville NY 11747 State: NY Zip: 11747 E-mail Address: Thomas.darmon@arcadis.com		Project #: 30169301.GWMI3 Sampler's Printed Name: <i>John Quisenberry</i> Sampler's Signature: <i>[Signature]</i>				
Sample ID	Collection Date	Time	Type (✓)	Comp	Grab	Matrix
FR101623901	10/16/10	07:30	✓			W
GM-7402		09:50	✓			GW
GM-7403		10:02	✓			GW
GM-7404		11:06	✓			GW
REP101623901		-	✓			GW
GM-741		10:57	✓			GW

PARAMETER ANALYSIS & METHOD

1,4-dioxane
8270D SIM

Preservation Key:
 A. H₂SO₄
 B. HCl
 C. HNO₃
 D. NaOH
 E. None
 F. Other _____
 G. Other _____
 H. Other _____

Container Information Key:
 1. 40 ml Vial
 2. 1 L Amber
 3. 250 ml Plastic
 4. 500 ml Plastic
 5. Encore
 6. 2 oz Glass
 7. 4 oz Glass
 8. 8 oz Glass
 9. Other _____
 10. Other _____

Matrix Key:
 SE - Sediment
 SW - Sludge
 A - Air
 NL - NAPL/OIL
 SW - Sample Wipe
 Other: GW

REMARKS

Special QA/QC Instructions(✓):

Special Instructions/Comments:
 SVOC extracted by CCLE
 EDD-ARCADIS_EQUIS (4-File) file format

Laboratory Information and Receipt		Relinquished By		Received By		Relinquished By		Laboratory Received By	
Lab Name: Katahdin Analytical Labs	Cooler Custody Seal (✓) <input checked="" type="checkbox"/> Intact <input type="checkbox"/> Not Intact	Printed Name: <i>John Quisenberry</i>	Printed Name: Evan Price	Printed Name: <i>[Signature]</i>	Printed Name: <i>[Signature]</i>	Printed Name: Evan Price	Printed Name: [Signature]	Printed Name: [Signature]	Printed Name: [Signature]
<input checked="" type="checkbox"/> Cooler packed with ice (✓)	Sample Receipt	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>
Specify Turnaround Requirements: Normal TAT - 10 business days	Condition/Cooler Temp: _____	Firm: Katahdin	Firm/Courier: Katahdin	Firm: Katahdin	Firm/Courier: Katahdin	Firm: Katahdin	Firm/Courier: Katahdin	Firm: Katahdin	Firm/Courier: Katahdin
Shipping Tracking #:		Date/Time: 10/16/10 07:30	Date/Time: 10/17/10 09:15	Date/Time: 10/17/10 09:15	Date/Time: 10/17/10 09:15	Date/Time: 10/17/10 09:15	Date/Time: 10/17/10 09:15	Date/Time: 10/17/10 09:15	Date/Time: 10/17/10 09:15

207-30826 CofC AR Form 08.27.2015

Distribution: WHITE - Laboratory returns with results YELLOW - Lab copy PINK - Retained by Arcadis



ID#: SQ5659

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Lab Work Order # P2 NG ONCT MW Part 1 and 2

Program 2

Page 1 of 1

Contact & Company Name: Thomas Darmon - Task Manager Address: 105 Maxess Road, Suite N108 City: Melville NY 11747 State: NY Zip: 11747		Telephone: 330-515-5713 wk
E-mail Address: Thomas.darmon@arcadis.com		Fax:
Project Name/Location (City, State): OU2-Northrop Grumman, Bethpage, NY		
Project #: 30169301.GWMI3		
Sampler's Printed Name: <i>Bob O'Neil</i>		
Sampler's Signature: <i>[Signature]</i>		

Sample ID	Collection		Type (✓)		Matrix	Remarks
	Date	Time	Comp	Grab		
FR101713901	10-17-13	07:30		✓	W	1,4-dioxane 8270D SIM
GA-170		10:00		✓	GW	
GA-171		10:07		✓	GW	
HW-421		12:45		✓	GW	
HW-425		13:00		✓	GW	

Special Instructions/Comments:
SVOC extracted by CCLE
EDD-ARCADIS_EQUIS (EQUIS-7 (4-File) file format)

Special QA/QC Instructions(✓):

Laboratory Information and Receipt		Received By		Relinquished By		Laboratory Received By	
Lab Name: Katahdin Analytical Labs	Cooler Custody Seal (✓) <input checked="" type="checkbox"/> Intact <input type="checkbox"/> Not Intact	Printed Name: <i>Bob O'Neil</i>	Printed Name: <i>Alan Price</i>	Printed Name:	Printed Name:	Printed Name:	Printed Name:
<input checked="" type="checkbox"/> Cooler packed with ice (✓)	Sample Receipt: Normal TAT-10 business days	Signature: <i>[Signature]</i>	Signature: <i>[Signature]</i>	Signature:	Signature:	Signature:	Signature:
Specify Turnaround Requirements: Normal TAT-10 business days	Condition/Cooler Temp: _____	Firm: Arcadis	Firm/Counter: Katahdin/PLA	Firm/Counter:	Firm/Counter:	Firm/Counter:	Firm/Counter:
Shipping Tracking #:		Date/Time: 10-17-13 11:06	Date/Time: 10/16/13 0916	Date/Time:	Date/Time:	Date/Time:	Date/Time:

Distribution: WHITE - Laboratory returns with results YELLOW - Lab copy PINK - Retained by Arcadis



ID#: SQ5808

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Program 2

Lab Work Order #

P2 NG ONCT MW Part 1 and 2

Page 1 of 1

Contact & Company Name: Thomas Darmon - Task Manager Telephone: 330-515-5713 wk Address: 105 Maxess Road, Suite N108 City: Melville NY 11747 State: NY Zip: 11747 E-mail Address: Thomas.darmon@arcadis.com		Project #: 30169301.GWMI3 Sampler's Printed Name: [Signature] Sampler's Signature: [Signature]				
Sample ID	Collection Date	Time	Type	Comp	Grab	Matrix
FR00000001	10/25/13	07:30	✓			✓
GM-3602		09:55	✓			GW
GM-380		10:00	✓			GW
GM-730		10:20	✓			GW
REP10000001			✓			GW
GM-7302		10:30	✓			GW
GM-7303		12:33	✓			GW
GM-3502		12:00	✓			GW

1,4-dioxane
8270D SIM

Keys

Preservation Key:
 A - H₂O
 B - HCL
 C - HNO₃
 D - NaOH
 E - None
 F - Other
 G - Other
 H - Other

Container Information Key:
 1 - 40 ml Vial
 2 - 1 L Amber
 3 - 250 ml Plastic
 4 - 500 ml Plastic
 5 - Encore
 6 - 2 oz. Glass
 7 - 4 oz. Glass
 8 - 8 oz. Glass
 9 - Other
 10 - Other

Matrix Key:
 SE - Sediment
 SW - Sludge
 A - Air
 NL - NAPL/Coil
 SW - Sample Wipe
 Other - GW

REMARKS

Special QAVQC Instructions(✓):

Special Instructions/Comments:
 SVOC extracted by CCLE
 EDD-ARCADIS_EQUIS (EQUIS-7 (4-File) file format)

Laboratory Information and Receipt		Relinquished By		Received By		Relinquished By	
Lab Name: Katahdin Analytical Labs	Cooler Custody Seal (✓) <input checked="" type="checkbox"/> Intact <input type="checkbox"/> Not Intact	Printed Name: [Signature]	Printed Name: [Signature]	Printed Name: Jacob Bruce	Printed Name: [Signature]	Signature: [Signature]	Signature: [Signature]
Specify Turnaround Requirements: Normal TAT-10 business days	Sample Receipt Condition/Cooler Temp: _____	Firm: Arcadis	Firm: Arcadis	Firm/Courier: FAS	Signature: [Signature]	Firm/Courier: FAS	Signature: [Signature]
Shipping Tracking #:		Date/Time: 10-23-13 1500	Date/Time: 10-23-13 1500	Date/Time: 10/25/13 1655	Date/Time: 10/25/13 1655	Date/Time: 10/25/13 1655	Date/Time: 10/25/13 1655

20730826 CoC AR Form 08.27.2015

Distribution: WHITE - Laboratory returns with results YELLOW - Lab copy PINK - Retained by Arcadis



ID#: SQ5837

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Program 2

Lab Work Order # P2 NG ONCT MW Part 1 and 2

Page 1 of 1

Contact & Company Name: Thomas Darmon - Task Manager Telephone: 330-515-5713 wk Address: 105 Maxess Road, Suite N108 City: Melville NY 11747 State: NY Zip: 11747 E-mail Address: Thomas.darmon@arcadis.com		Project Name/Location (City, State): OU2-Northrop Grumman, Bethpage, NY Project #: 30169301.GWMI3 Sampler's Printed Name: <i>Jacob Bruce</i> Sampler's Signature: <i>Jacob Bruce</i>	
Send Results to: Thomas Darmon - Task Manager 105 Maxess Road, Suite N108 Melville NY 11747 State: NY Zip: 11747 E-mail Address: Thomas.darmon@arcadis.com	Telephone: 330-515-5713 wk Fax: Project #: 30169301.GWMI3 Sampler's Printed Name: <i>Jacob Bruce</i> Sampler's Signature: <i>Jacob Bruce</i>	Preservation Key: A. H ₂ O B. HCL C. HNO ₃ D. NaOH E. None F. Other G. Other H. Other	Container Information Key: 1. 40 ml Vial 2. 1 L Amber 3. 250 ml Plastic 4. 500 ml Plastic 5. Encone 6. 2 oz. Glass 7. 4 oz. Glass 8. 8 oz. Glass 9. Other 10 Other:
PARAMETER ANALYSIS & METHOD			
Matrix Key: SO - Soil W - Water T - Tissue SE - Sediment SL - Sludge A - Air NL - NAPL/Oil SW - Sample Wipe Other: <u>GW</u>	Matrix: W GW GW GW GW GW GW GW GW GW GW		
Sample ID FB1024235H1 REPI02423PG1 PLT MW-04 PLT MW-05 PLT MW-06 GM-15D GM-15D2 GM-15SR GM-15I	Collection Date 10-24-10 --- 09:07 09:00 09:55 11:35 11:45 11:55 11:44	Type Comp Grab <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Matrix W GW GW GW GW GW GW GW GW GW
REMARKS 1,4-dioxane 8270D SIM MS/MSD			

Special QA/QC Instructions(*):

Special Instructions/Comments:
SVOC extracted by CCLE
EDD-ARCADIS_EQUIS (4-File) file format)

Laboratory Information and Receipt Lab Name: Katahdin Analytical Labs Cooler Custody Seal (✓) <input checked="" type="checkbox"/> Intact <input type="checkbox"/> Not Intact Cooler packed with ice (✓) Sample Receipt Normal TAT-10 business days Shipping Tracking #:		Requisitioned By Printed Name: <i>Jacob Bruce</i> Signature: <i>Jacob Bruce</i> Firm/Counter: KAS Date/Time: 10/25/10 1055	Received By Printed Name: <i>Jacob Bruce</i> Signature: <i>Jacob Bruce</i> Firm/Counter: KAS Date/Time: 10/25/10 1055 	Relinquished By Printed Name: Signature: Firm/Counter: Date/Time:	Laboratory Received By Printed Name: Signature: Firm: Date/Time:
---	--	--	--	---	--

20730826 Co/C AR Form 08.27.2015

Distribution: **WHITE - Laboratory returns with results** **YELLOW - Lab copy** **PINK - Retained by Arcadis**

Appendix F

Modeling - OU2 ONCT System Capture Analysis

SUBJECT

Appendix F: OU2 ONCT System Capture Analysis

TO

Ed Hannon, Northrop Grumman

DATE

March 2024

PROJECT NUMBER

30155599

COPIES TOMike Wolfert, Arcadis
Carlo San Giovanni, Arcadis**NAME**

Jennifer Wahlberg, Arcadis

Introduction and Objectives

The Operable Unit (OU) 2 on-site containment (ONCT) system capture zone was evaluated under a variety of pumping scenarios to support future planning. Scenario 4 (see below) evaluated if the OU2 ONCT capture zone would be maintained with the addition of treated water to the South Recharge Basins (SRB) from the RW-21 remedial system and potentially Well DEC EX-6. Scenario 4 was built up chronologically from previous scenarios that had occurred or would occur. The capture zone for the OU2 ONCT system was assessed using the MODular flow ALlocation (MODALL) program (Potter et al., 2008). This program uses the same MODFLOW-calculated cell-by-cell flow output as MODPATH (Pollock, 1989), but rather than tracking individual particle paths, it directly computes the zone-of-capture.

The regional groundwater flow model (Arcadis 2019) was updated with respect to pumping rates of existing remedial extraction wells and all public water supply wells (e.g., Bethpage Water District [BWD]). Public water supply well rates were updated to average 2020-2022 rates. All other parameters and boundary conditions are the same in the regional flow model.

The four scenarios evaluated are as follows:

- Scenario 1 (baseline): current ONCT operation rates.
- Scenario 2: Previous scenario plus Navy Phase 1 System (RW-4/RE-137).
- Scenario 3: Previous scenario plus RW-21 operating (1,900 gpm with treated water discharged to SRB).
- Scenario 4: Previous scenario plus DEC EX-06 (additional 500 gpm to SRB).

The pumping rates for each scenario are summarized in Table F-1. Figure F-1 shows the layout of each scenario with the simulated water table elevation.

Simulation Results

The capture zone results are shown in Figures F-2 through F-5 for each model layer for each simulation. Each scenario has a Figure A presenting the results for model layers 1 through 6 and Figure B presenting the results for model layers 7 through 12. Each figure shows that capture is maintained for the OU2 ONCT system for each of the four scenarios evaluated indicating that even with 2,400 gpm of additional flow added to the SRB due to pumping/treating/discharging the flow from the RW-21 system and potentially Well DEC EX-6 that on-site capture of VOC-impacted groundwater is maintained.

Summary and Conclusions

The capture zone of the OU2 ONCT system is maintained when water from the RW-21 system and potentially Well DEC EX-6 is added to the SRB. This modeling effort also supported updating the current model design flow rates for the South Recharge Basins as noted in operational summaries. Flow to South Recharge Basins reflects operation of the B109 treatment system with the high-end of range reflecting up to an additional 2,400 gpm contribution from B109 (RW-21 and DEC-EX-06) above previously modeled recharge rate reflecting OU2 ONCT system operation only.

References

Arcadis. 2019. Attachment 1 of Northrop Grumman Comments on Proposed Amended Record of Decision and Feasibility Study: Groundwater Flow and Solute Transport Model Update (Model Report). July 2019.

Pollock, D. 1989. Documentation of Computer Programs to Compute and Display Pathlines Using Results for the U.S. Geological Survey Modular Three-Dimensional Finite-Difference Ground-Water Flow Model. U.S. Geological Survey Open File Report 89-381. Reston, Virginia.

Potter, S.T., E. Moreno-Barbero, and C.E. Divine, 2008. MODALL: A Practical Tool for Designing and Optimizing Plume Capture Systems. Groundwater. 46(2): 335-340.

Table

Table F-1
Scenario Pumping Rate Summary
Northrop Grumman
Bethpage, New York

DRAFT



System	Well ID	Scenario 1	Scenario 2	Scenario 3	Scenario 4
		Current ONCT Operation (Baseline)	Scenario 1 + Navy Phase 1	Scenario 2 + RW-21 System	Scenario 3 + EX-06
ONCT-OU2	Well 1	830	830	830	830
	Well 3R	800	800	800	800
	Well 17	1,020	1,020	1,020	1,020
	Well 18	1,015	1,015	1,015	1,015
	Well 19	515	515	515	515
West Recharge Basins	West Recharge Basins	1,320	1,320	1,320	1,320
South Recharge Basins	South Recharge Basins	2,550	2,550	4,450	4,950
ONCT-OU3	RW-1	30	30	30	30
	RW-2	75	75	75	75
	RW-3	75	75	75	75
	RW-4	30	30	30	30
OU3 Basin	OU3 Basin	210	210	210	210
Bethpage Water District	Well 4-1 (N-6915)	0	0	0	0
	Well 4-2 (N-6916)	0	0	0	0
	Well 5-1 (N-8004)	516	516	516	516
	Well 6-1 (N-3876)	555	555	555	555
	Well 6-2 (N-8941)	332	332	332	332
GM-38	GM38_RW-1	1,000	500	500	500
	GM38_RW-3	0	0	0	0
Arthur Ave. Basin	Arthur Ave. Basin	1,000	1,000	1,000	1,000
Navy Phase 1	RW-4	0	500	500	500
	RE-137	0	400	400	400
RE137 Basin	RE137 Basin	0	400	400	400
RW-21	RW-20	0	0	700	700
	RW-21	0	0	700	700
	RW-22	0	0	500	500
EX-06	EX-06	0	0	0	500
Total Remediation Pumping		5,390	5,790	7,690	8,190

Notes:

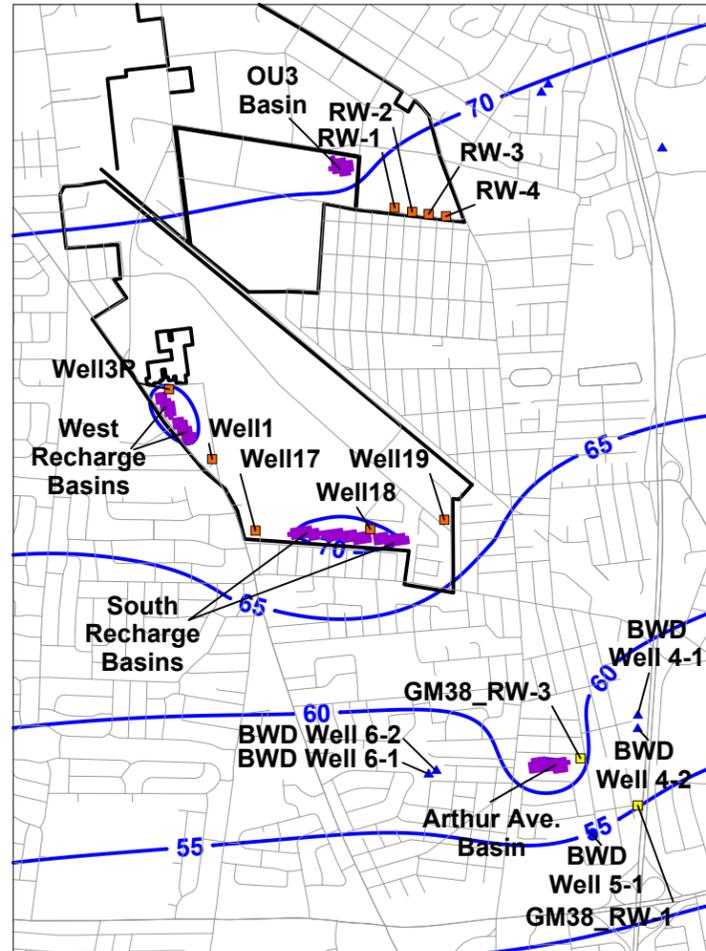
1. Water wells pumping rates based on 2020-2022 averages. BWD Wells 4-1 and 4-2 are now off.
2. Changes in well/basin rates between scenarios are bolded and shaded.

Abbreviations:

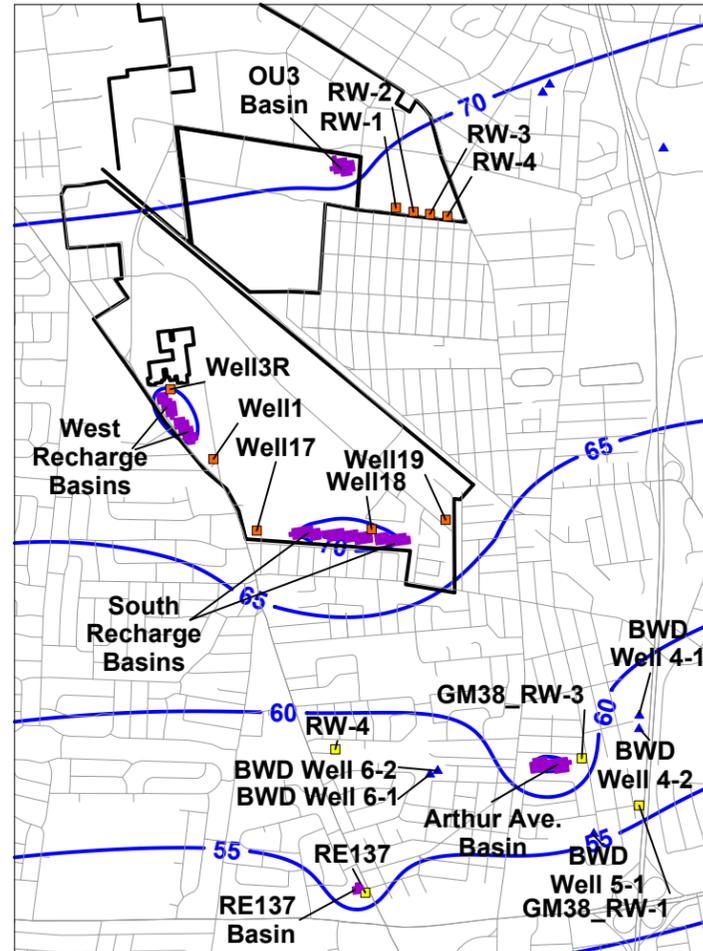
gpm = gallons per minute

Figures

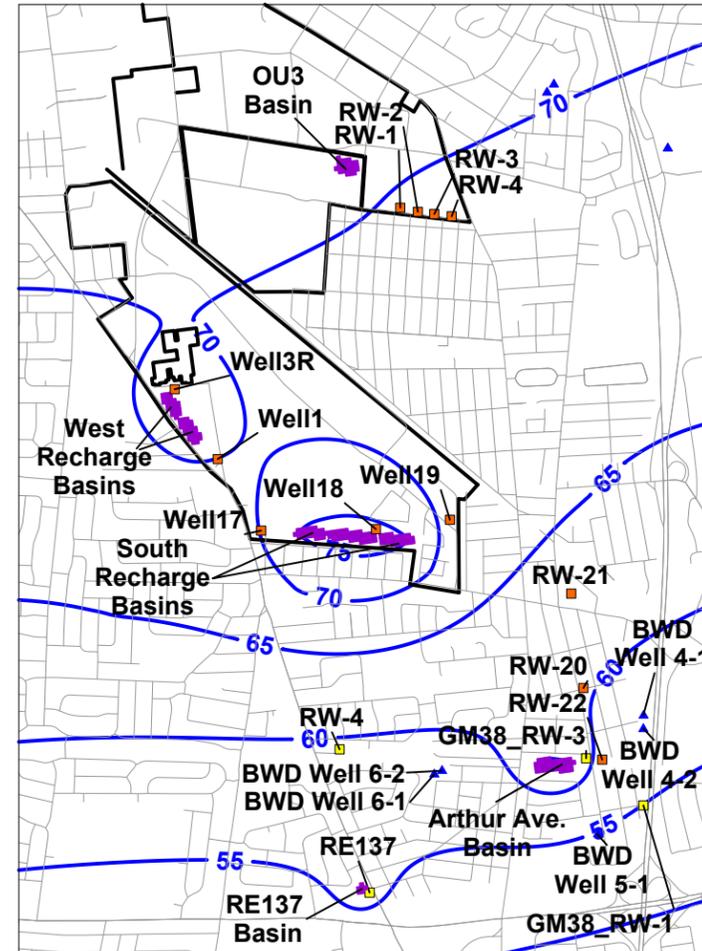
SCENARIO 1 Current ONCT Operation (Baseline)



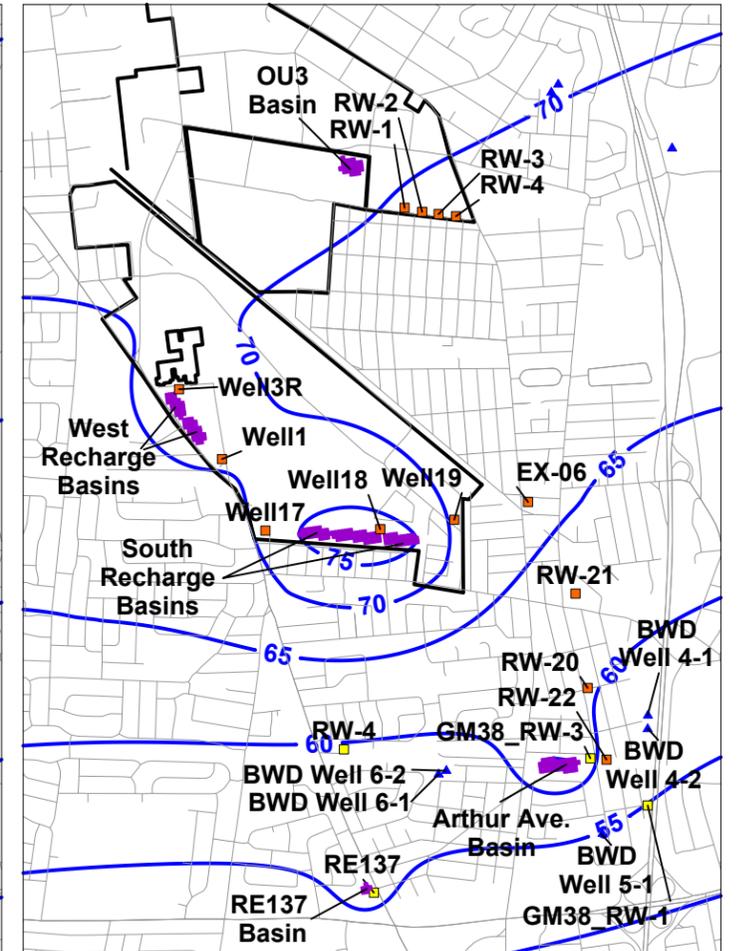
SCENARIO 2 Scenario 1 + Navy Phase 1



SCENARIO 3 Scenario 2 + RW-21 System



SCENARIO 4 Scenario 3 + EX-06



LEGEND

- Site Outline
- Recharge Basin
- Northrop Grumman Remediation Well
- Navy Remediation Well
- Water Supply Well
- Simulated Groundwater Elevation (ft NAVD88)



Scale in feet



Notes:

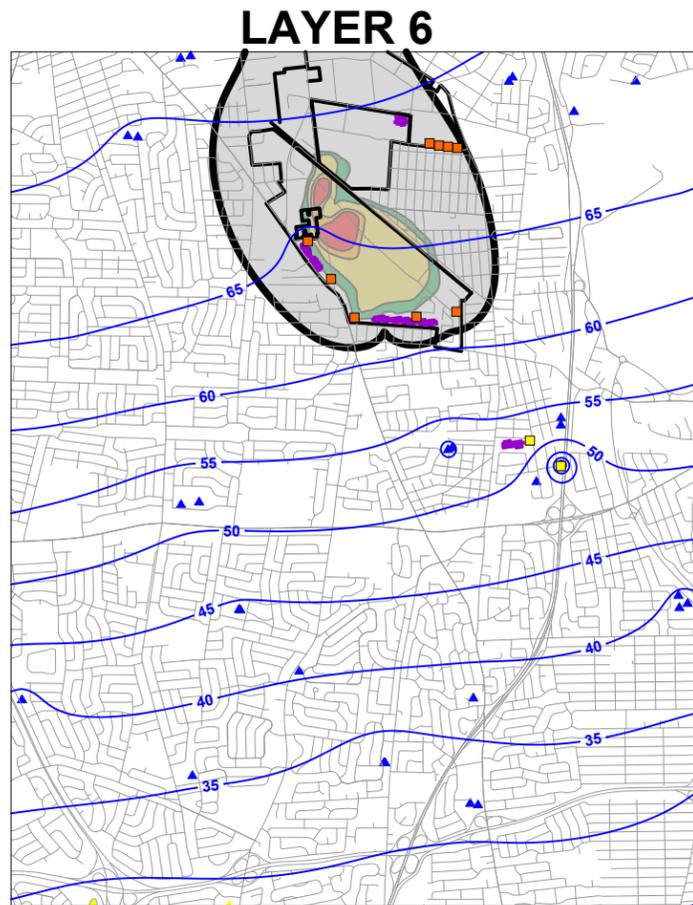
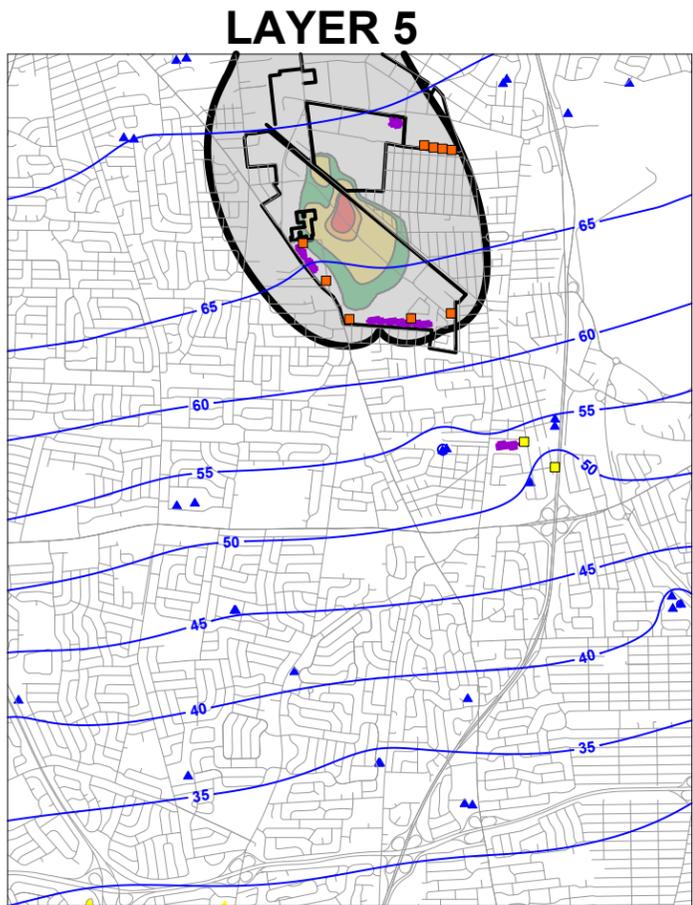
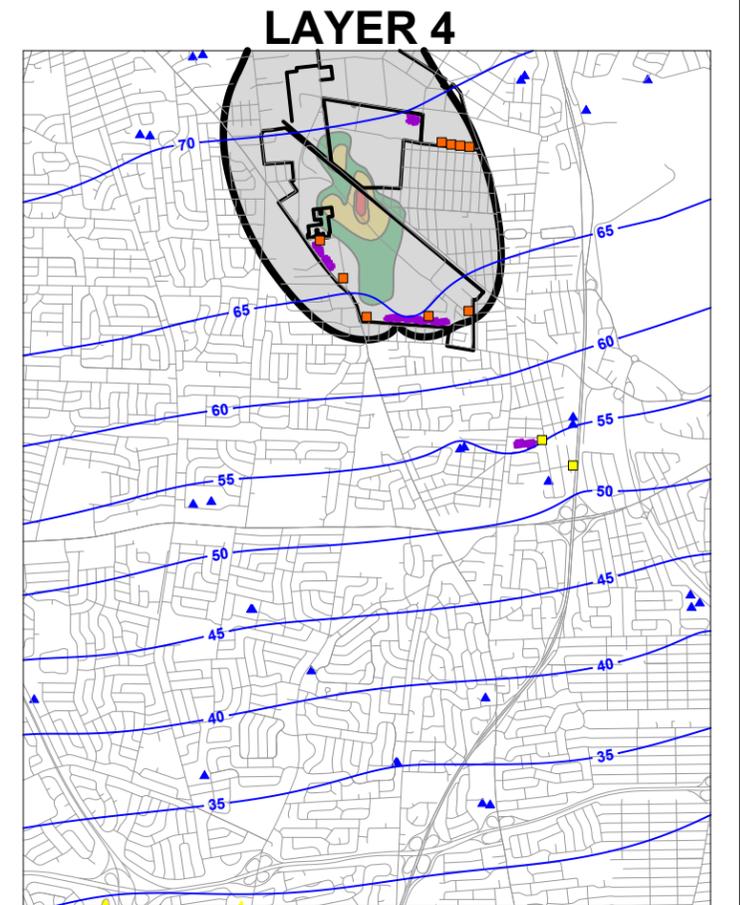
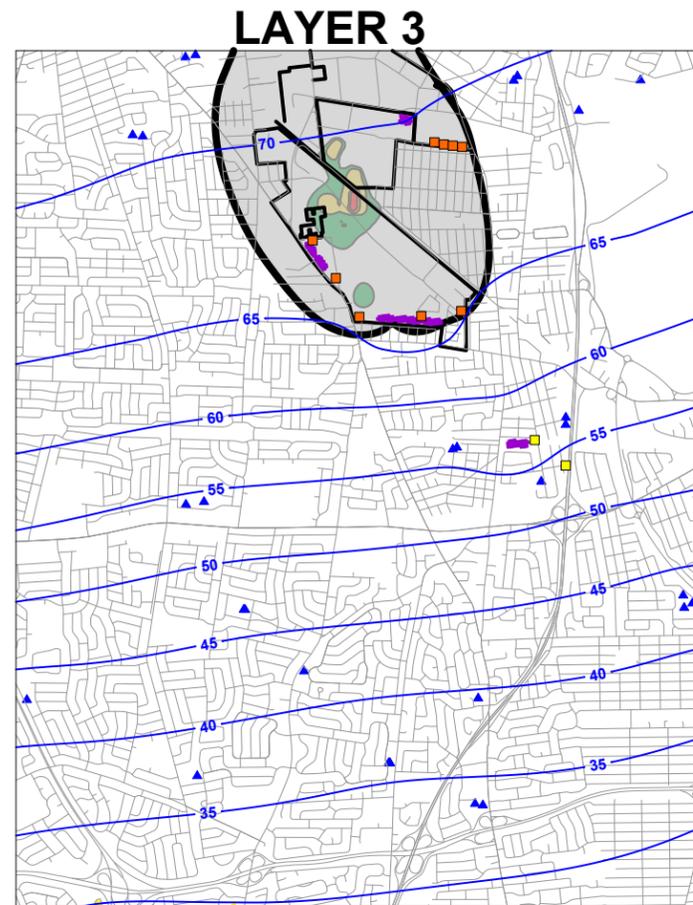
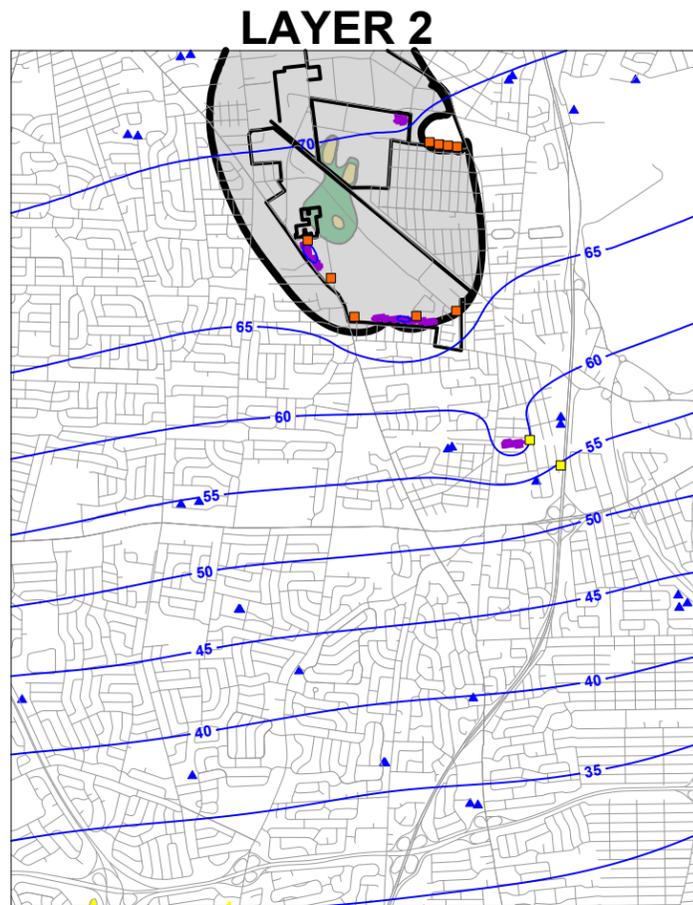
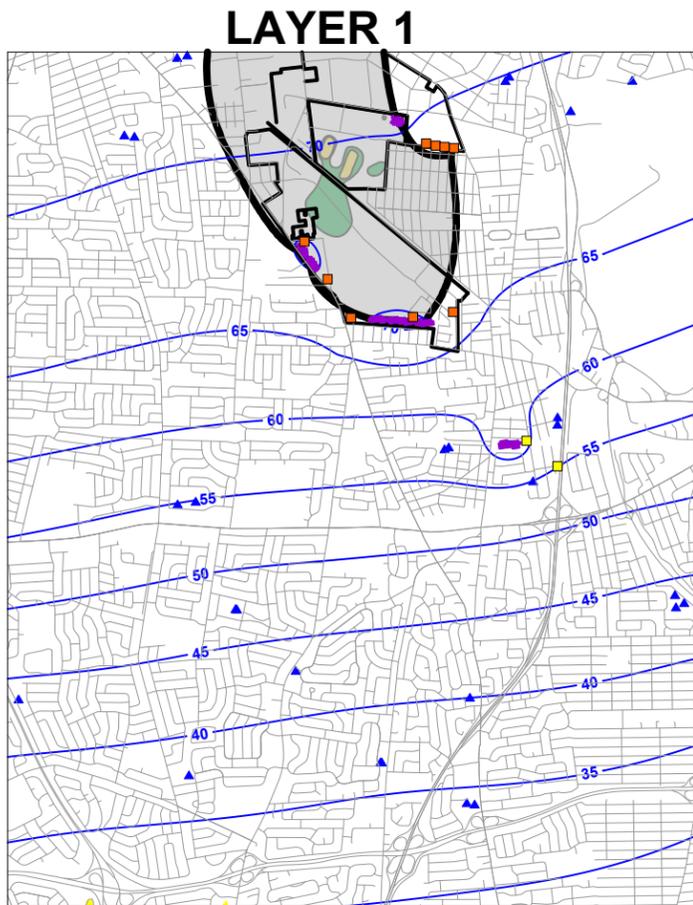
1. Recharge basins, water supply wells, and remediation wells are shown on each panel for reference regardless of layer designation.
2. Pumping wells are also shown regardless of pumping status (wells that are not pumping are shown).
3. BWD = Bethpage Water District
4. ft NAVD 88 = feet North American Vertical Datum of 1988

NORTHROP GRUMMAN
BETHPAGE, NEW YORK

SCENARIO LAYOUTS AND
SIMULATED WATER TABLE ELEVATIONS



FIGURE
F-1

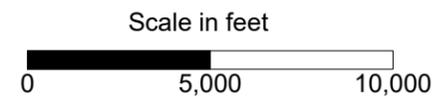


LEGEND

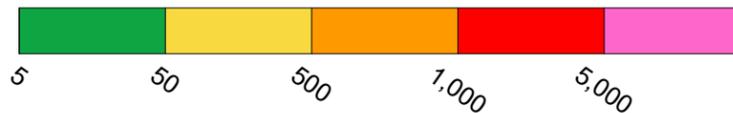
- Site Outline
- Recharge Basin
- Northrop Grumman Remediation Well
- Navy Remediation Well
- Water Supply Well
- Simulated Groundwater Elevation (ft NAVD88)
- Simulated Groundwater Capture Zone

Notes:

1. Recharge basins, water supply wells, and remediation wells are shown on each panel for reference regardless of layer designation.
2. Pumping wells are also shown regardless of pumping status (wells that are not pumping are shown).
3. Plume is based on the most recently available data from each sampling location collected between 2016 and 2022. Data were collected from monitoring wells, vertical profile borings, remedial wells, and public supply wells.

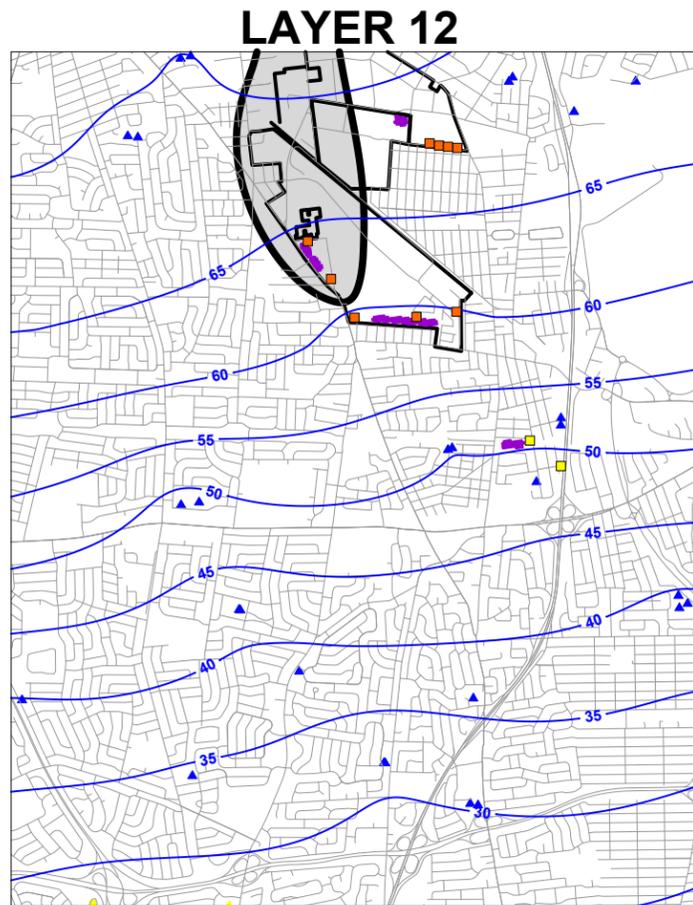
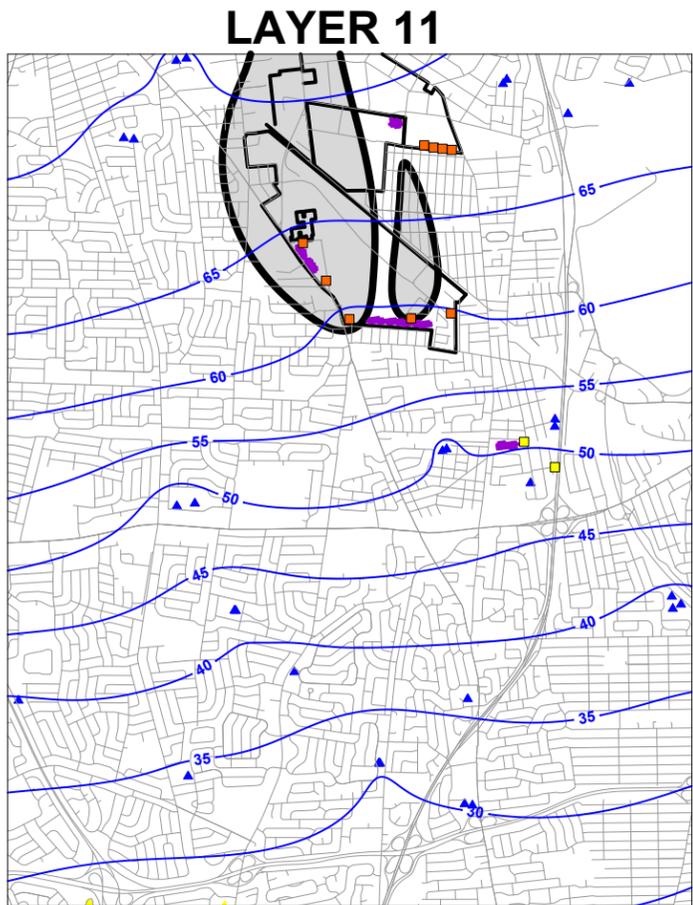
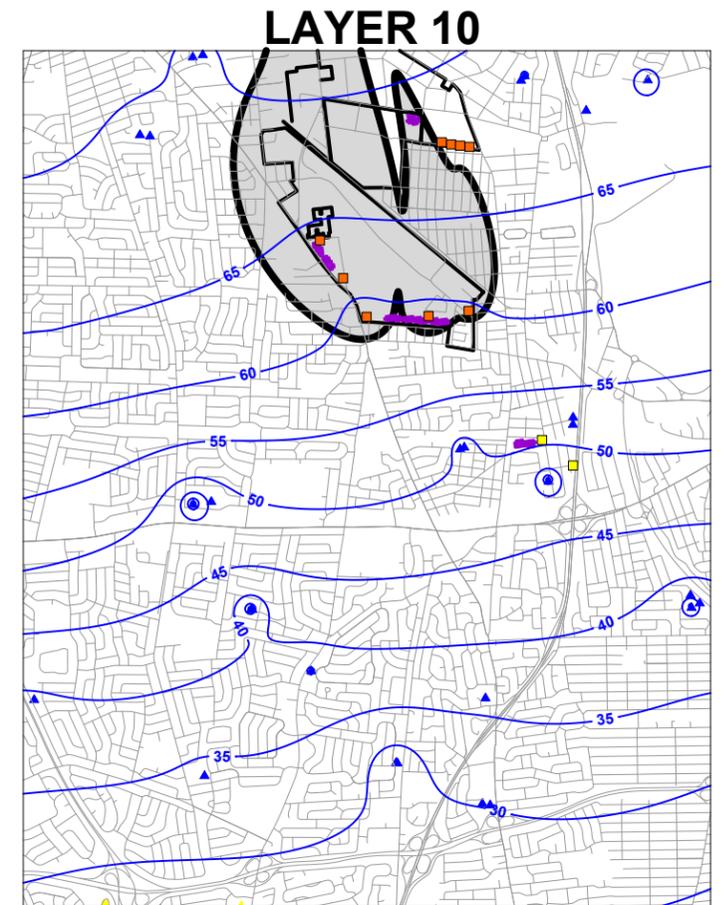
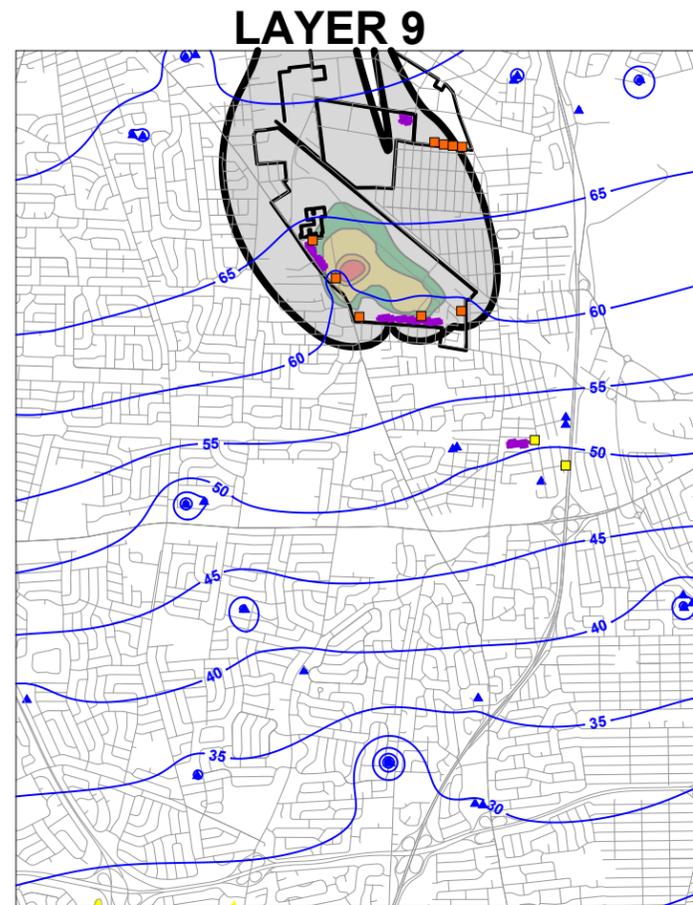
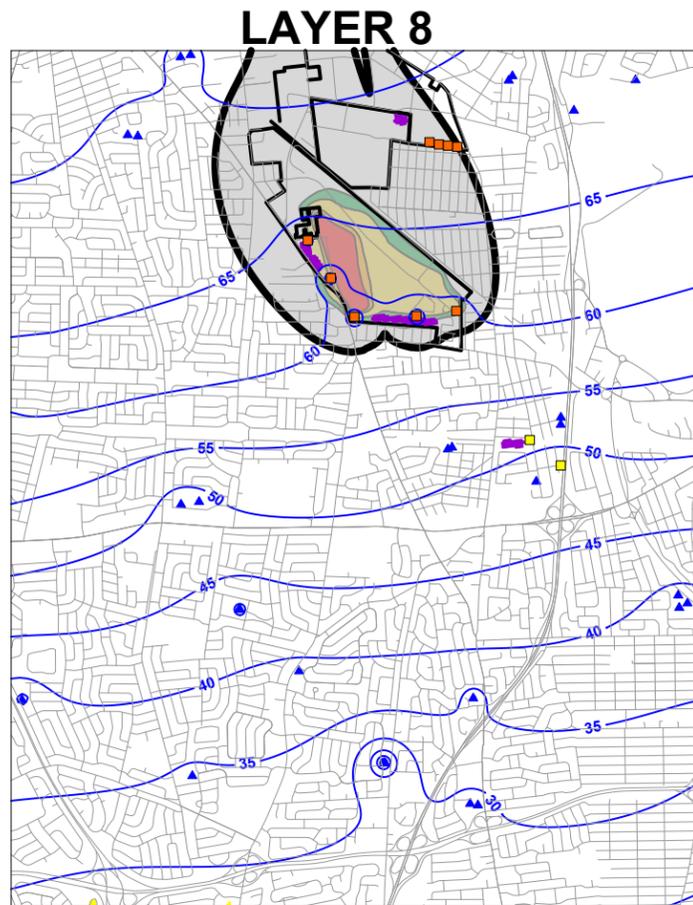
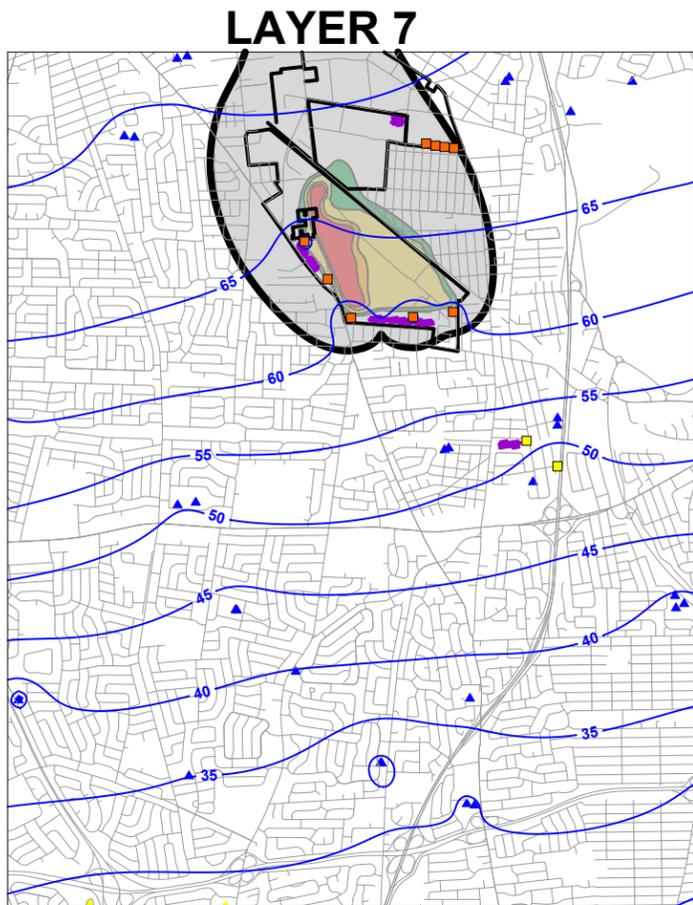


TVOCs Concentration ($\mu\text{g/L}$)



NORTHROP GRUMMAN
BETHPAGE, NEW YORK

MODEL SIMULATED GROUNDWATER ELEVATIONS
AND GROUNDWATER CAPTURE ZONES:
SCENARIO 1 - LAYERS 1 THROUGH 6

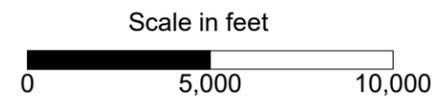


LEGEND

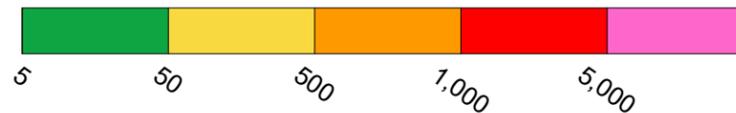
- Site Outline
- Recharge Basin
- Northrop Grumman Remediation Well
- Navy Remediation Well
- Water Supply Well
- Simulated Groundwater Elevation (ft NAVD88)
- Simulated Groundwater Capture Zone

Notes:

1. Recharge basins, water supply wells, and remediation wells are shown on each panel for reference regardless of layer designation.
2. Pumping wells are also shown regardless of pumping status (wells that are not pumping are shown).
3. Plume is based on the most recently available data from each sampling location collected between 2016 and 2022. Data were collected from monitoring wells, vertical profile borings, remedial wells, and public supply wells.

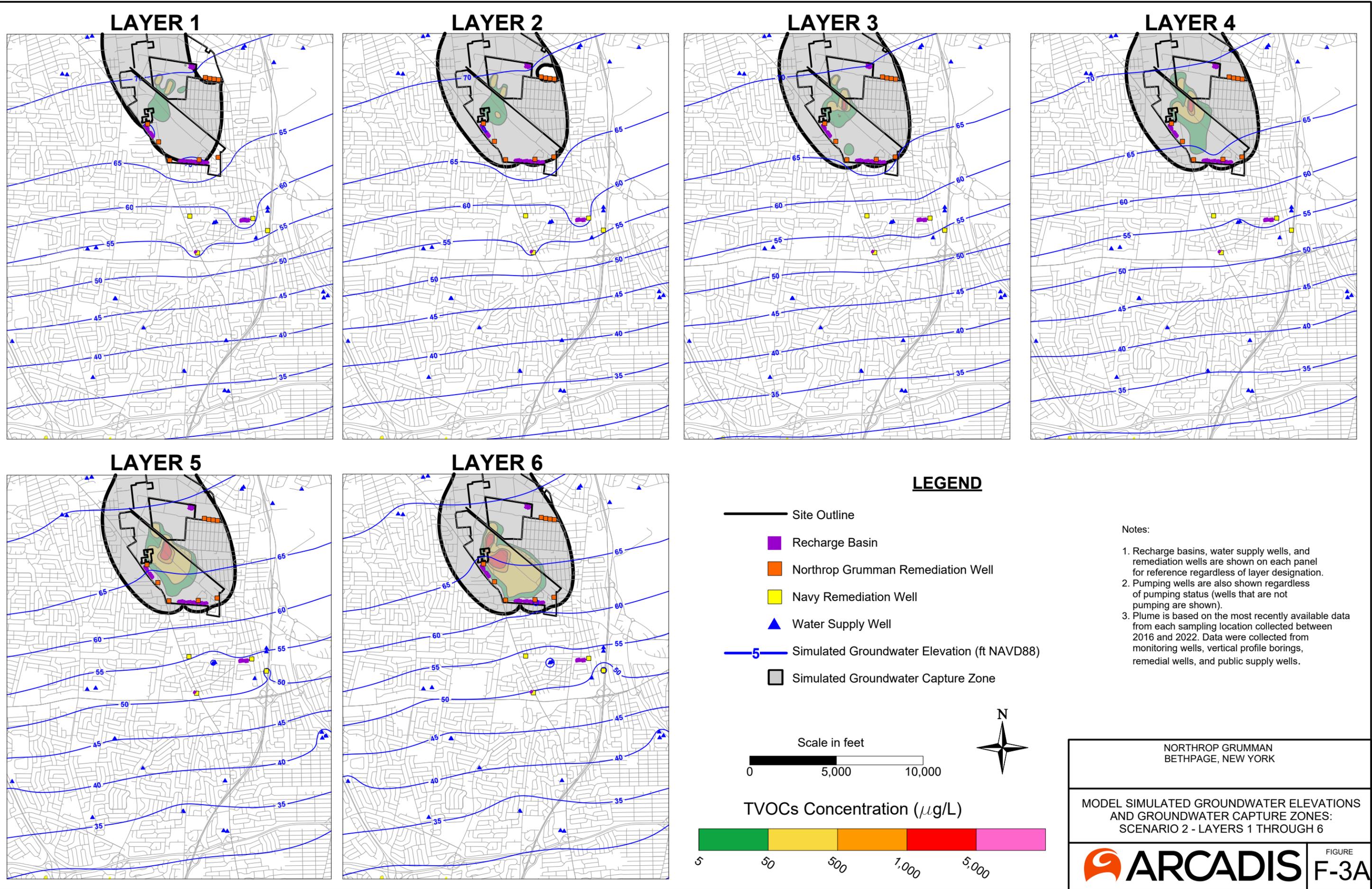


TVOCs Concentration ($\mu\text{g/L}$)



NORTHROP GRUMMAN
BETHPAGE, NEW YORK

MODEL SIMULATED GROUNDWATER ELEVATIONS
AND GROUNDWATER CAPTURE ZONES:
SCENARIO 1 - LAYERS 7 THROUGH 12



LAYER 1

LAYER 2

LAYER 3

LAYER 4

LAYER 5

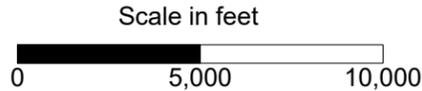
LAYER 6

LEGEND

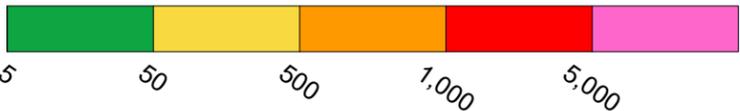
- Site Outline
- Recharge Basin
- Northrop Grumman Remediation Well
- Navy Remediation Well
- Water Supply Well
- Simulated Groundwater Elevation (ft NAVD88)
- Simulated Groundwater Capture Zone

Notes:

1. Recharge basins, water supply wells, and remediation wells are shown on each panel for reference regardless of layer designation.
2. Pumping wells are also shown regardless of pumping status (wells that are not pumping are shown).
3. Plume is based on the most recently available data from each sampling location collected between 2016 and 2022. Data were collected from monitoring wells, vertical profile borings, remedial wells, and public supply wells.



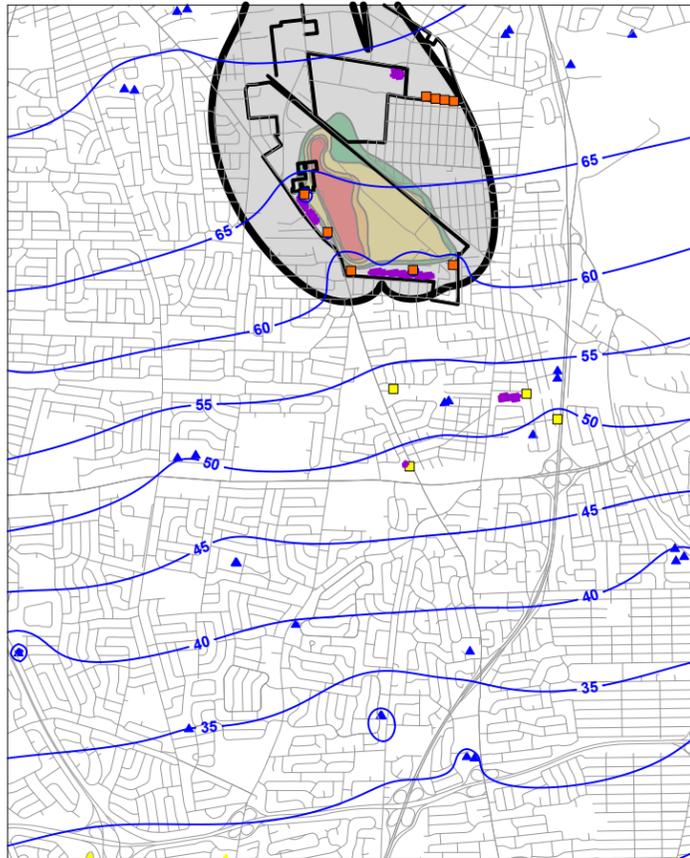
TVOCs Concentration ($\mu\text{g/L}$)



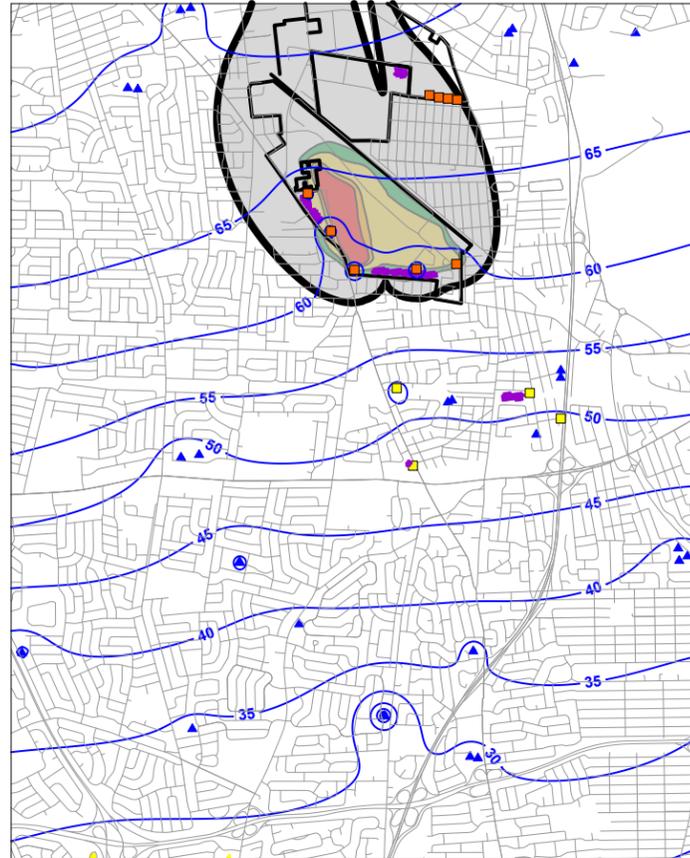
NORTHROP GRUMMAN
BETHPAGE, NEW YORK

MODEL SIMULATED GROUNDWATER ELEVATIONS
AND GROUNDWATER CAPTURE ZONES:
SCENARIO 2 - LAYERS 1 THROUGH 6

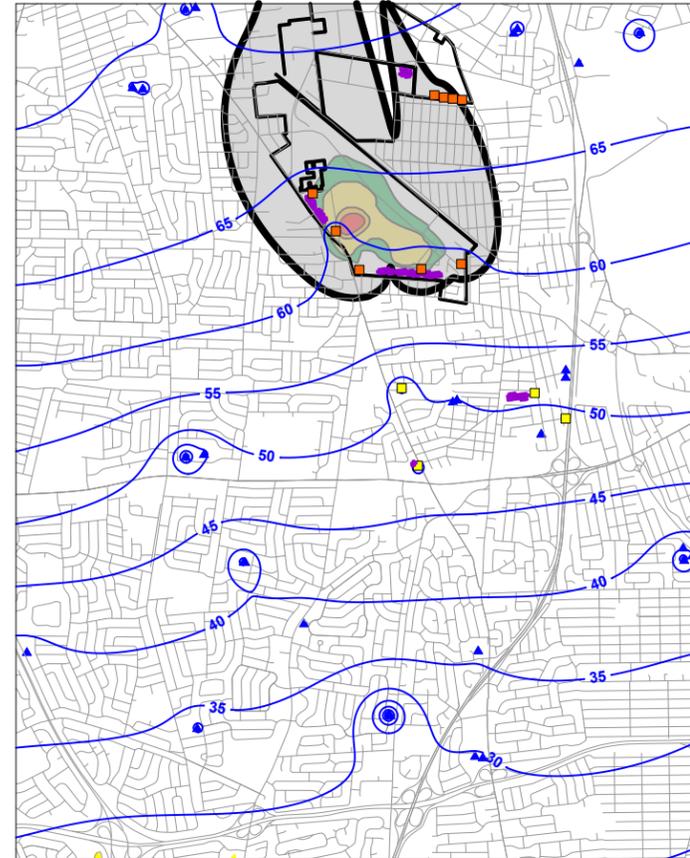
LAYER 7



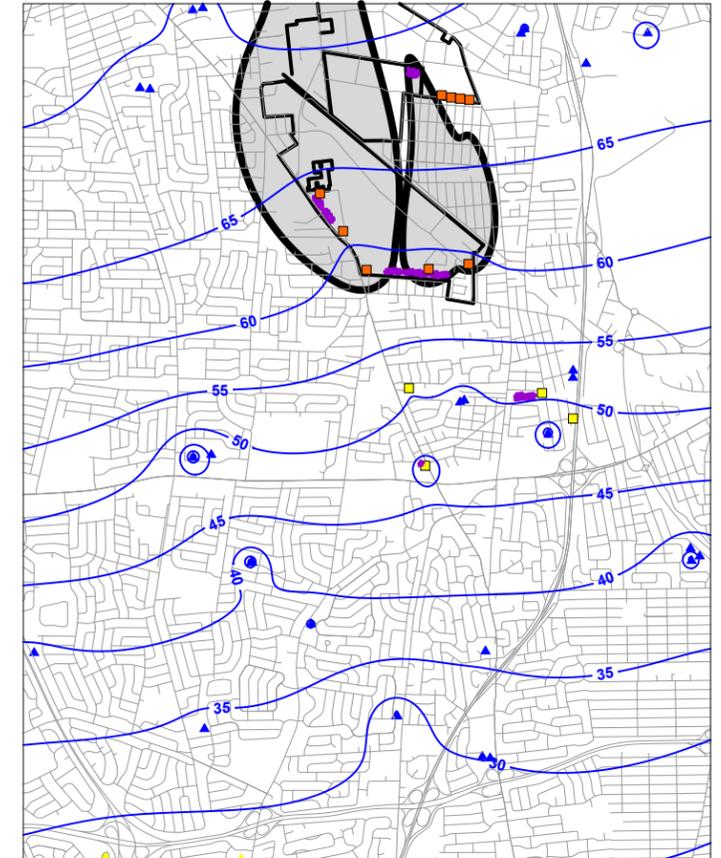
LAYER 8



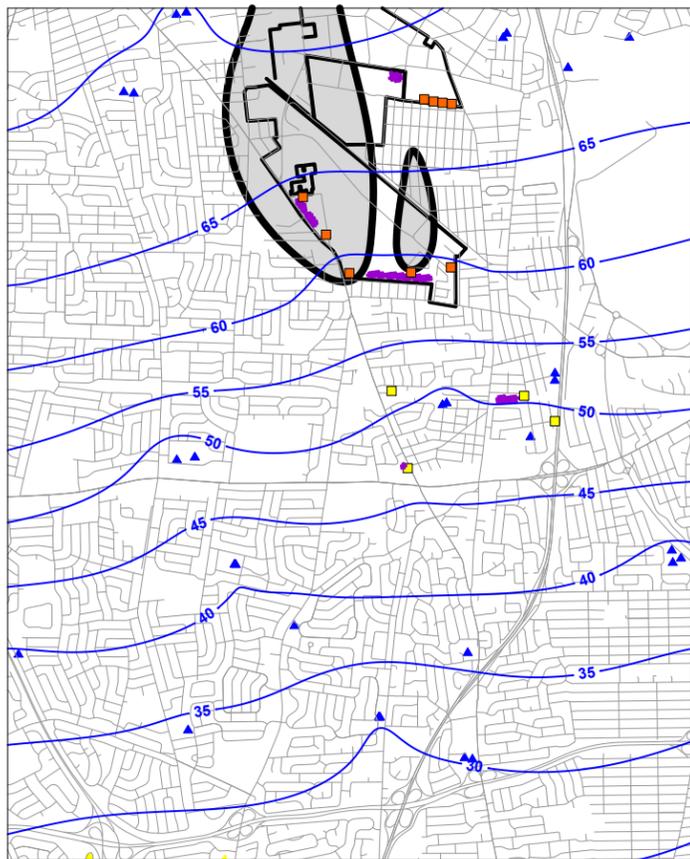
LAYER 9



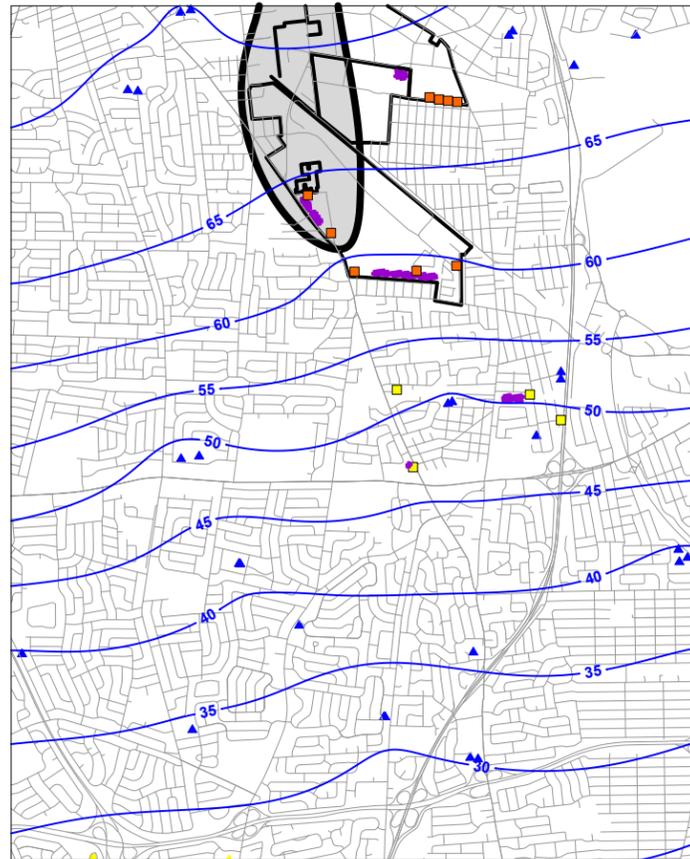
LAYER 10



LAYER 11



LAYER 12

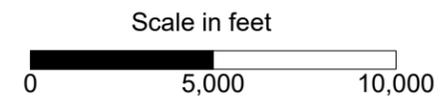


LEGEND

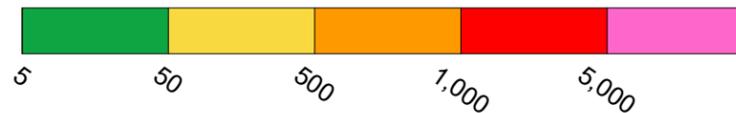
- Site Outline
- Recharge Basin
- Northrop Grumman Remediation Well
- Navy Remediation Well
- Water Supply Well
- Simulated Groundwater Elevation (ft NAVD88)
- Simulated Groundwater Capture Zone

Notes:

1. Recharge basins, water supply wells, and remediation wells are shown on each panel for reference regardless of layer designation.
2. Pumping wells are also shown regardless of pumping status (wells that are not pumping are shown).
3. Plume is based on the most recently available data from each sampling location collected between 2016 and 2022. Data were collected from monitoring wells, vertical profile borings, remedial wells, and public supply wells.

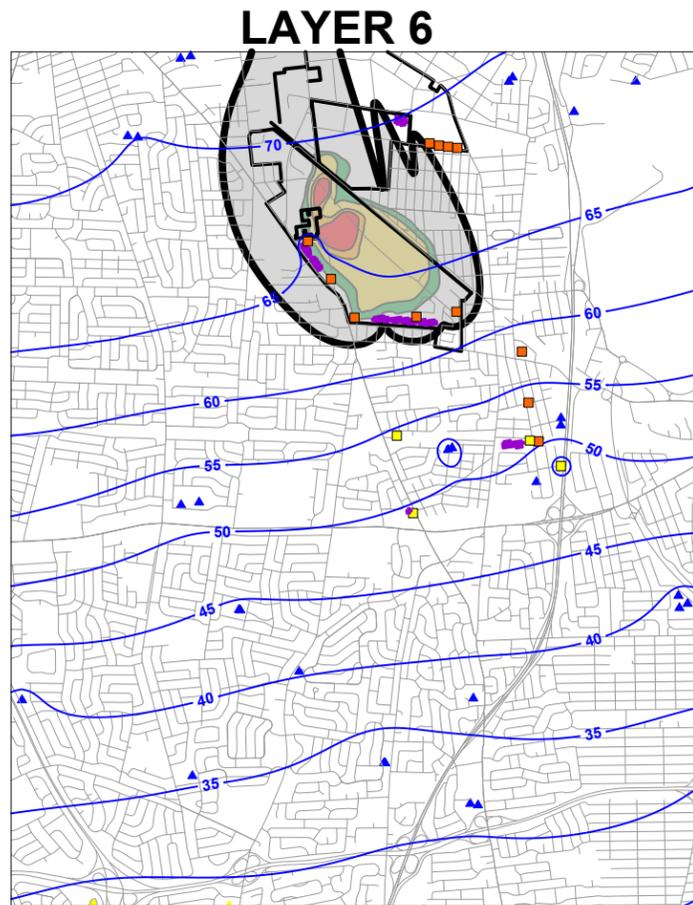
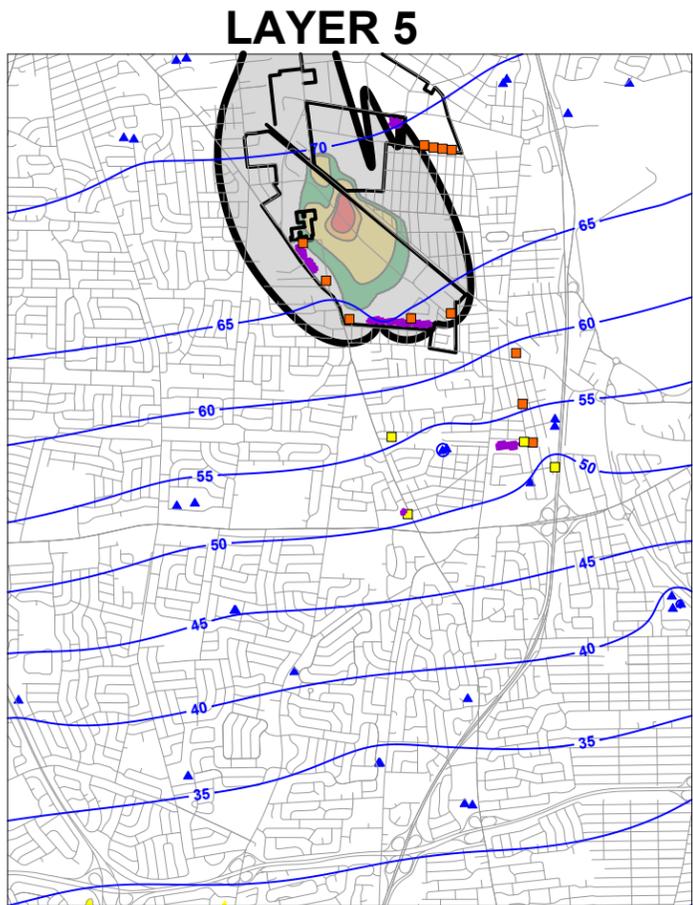
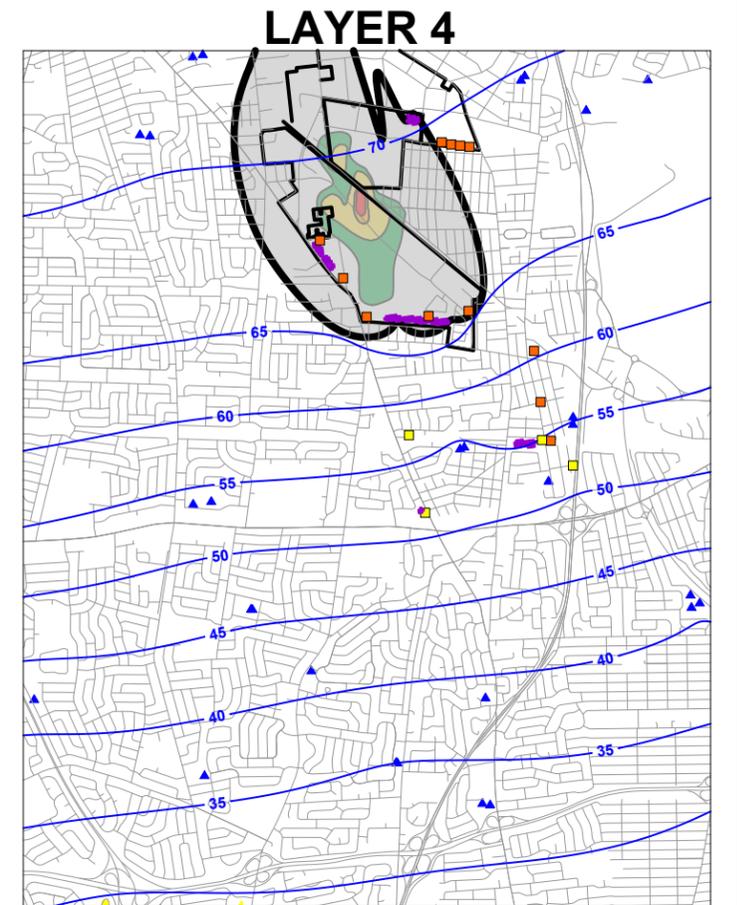
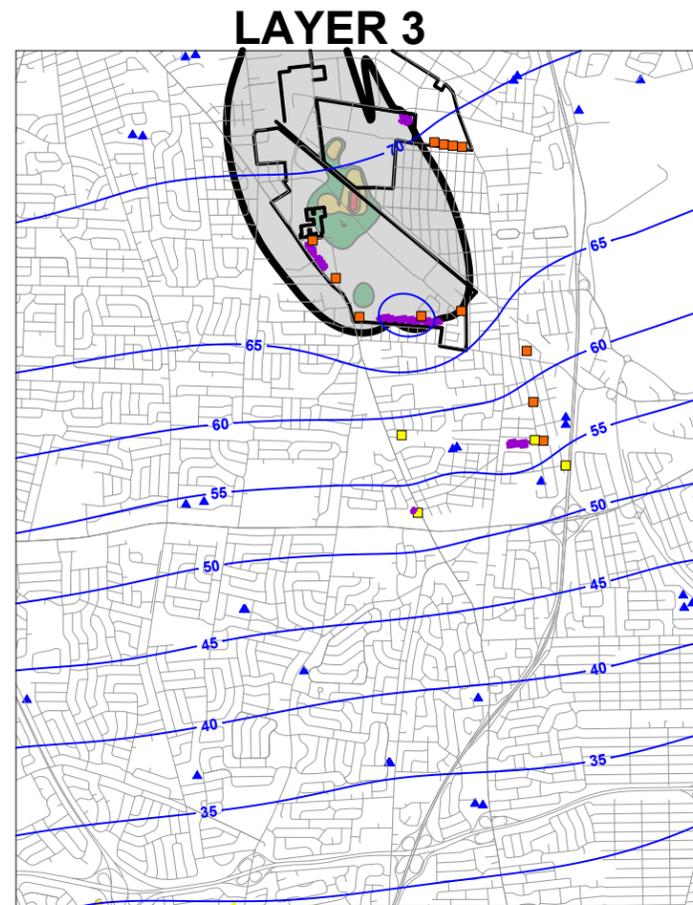
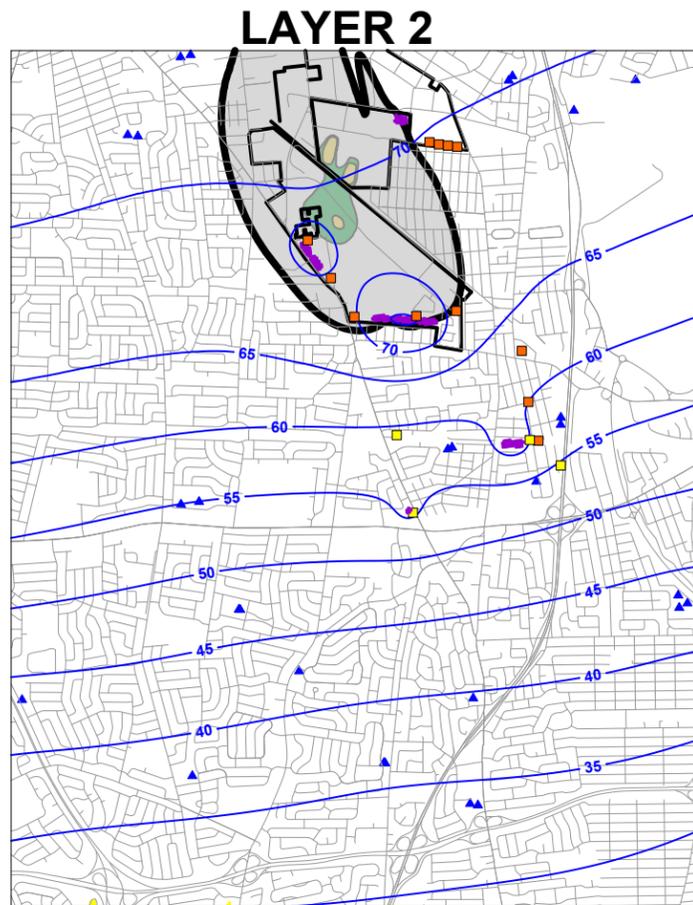
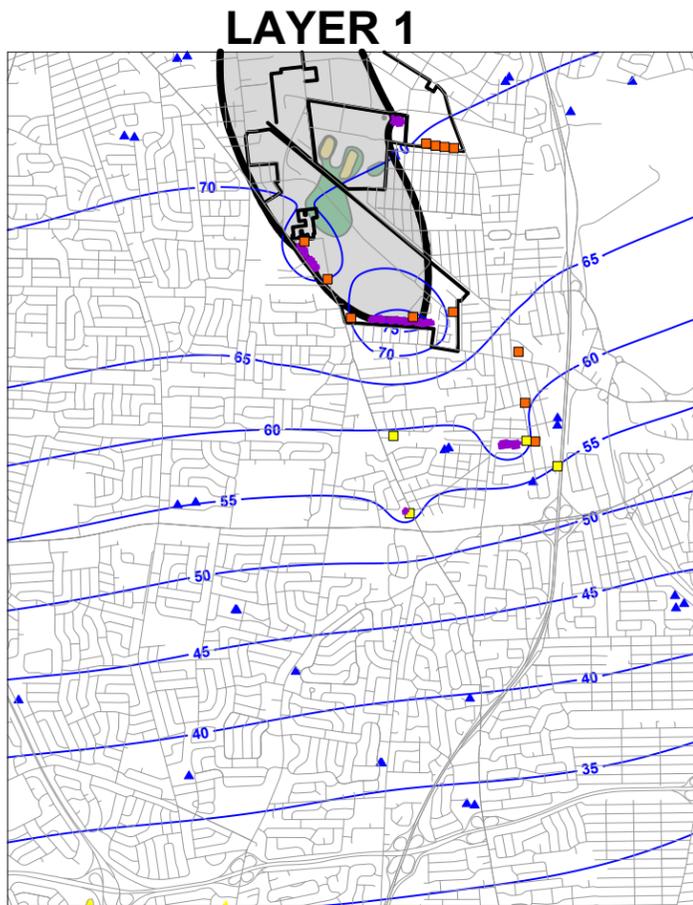


TVOCs Concentration ($\mu\text{g/L}$)



NORTHROP GRUMMAN
BETHPAGE, NEW YORK

MODEL SIMULATED GROUNDWATER ELEVATIONS
AND GROUNDWATER CAPTURE ZONES:
SCENARIO 2 - LAYERS 7 THROUGH 12

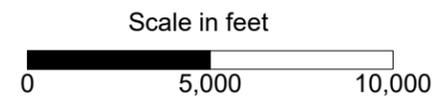


LEGEND

- Site Outline
- Recharge Basin
- Northrop Grumman Remediation Well
- Navy Remediation Well
- Water Supply Well
- Simulated Groundwater Elevation (ft NAVD88)
- Simulated Groundwater Capture Zone

Notes:

1. Recharge basins, water supply wells, and remediation wells are shown on each panel for reference regardless of layer designation.
2. Pumping wells are also shown regardless of pumping status (wells that are not pumping are shown).
3. Plume is based on the most recently available data from each sampling location collected between 2016 and 2022. Data were collected from monitoring wells, vertical profile borings, remedial wells, and public supply wells.



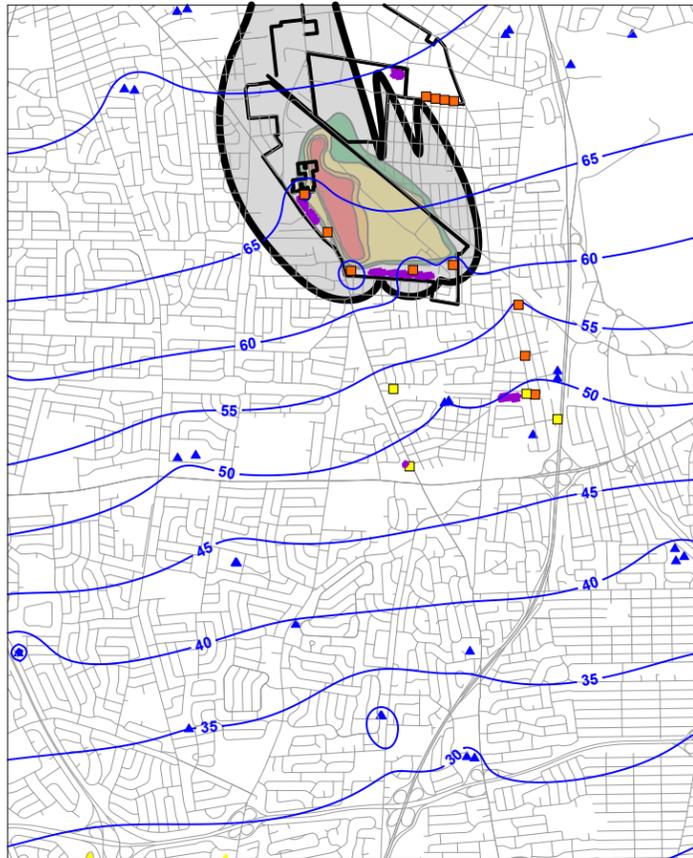
TVOCs Concentration ($\mu\text{g/L}$)



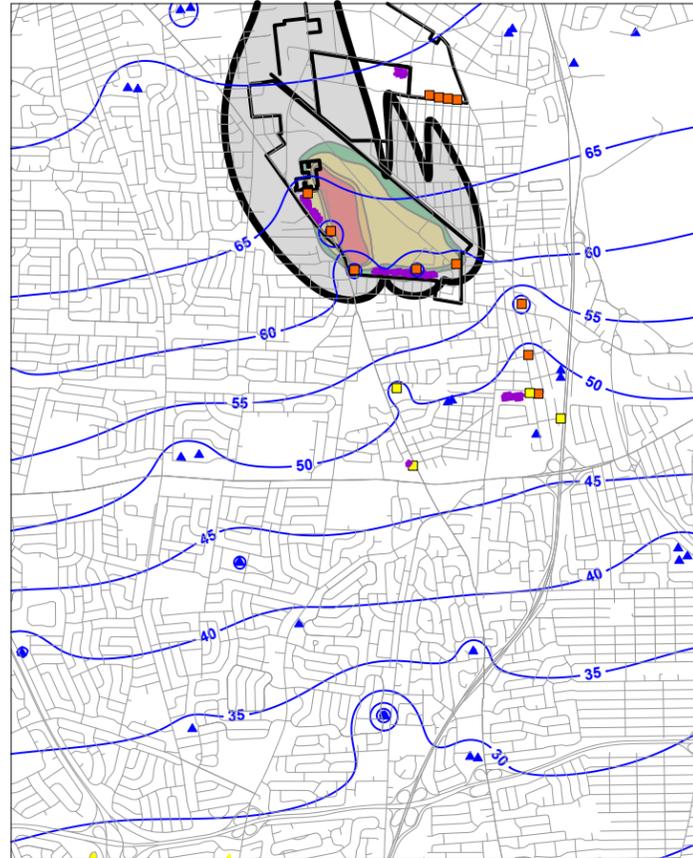
NORTHROP GRUMMAN
BETHPAGE, NEW YORK

MODEL SIMULATED GROUNDWATER ELEVATIONS
AND GROUNDWATER CAPTURE ZONES:
SCENARIO 3 - LAYERS 1 THROUGH 6

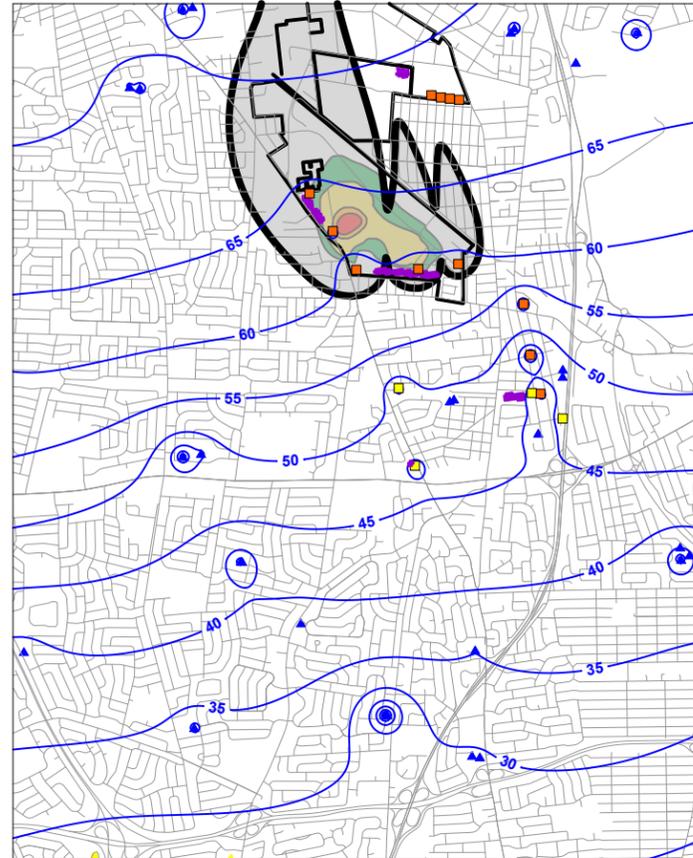
LAYER 7



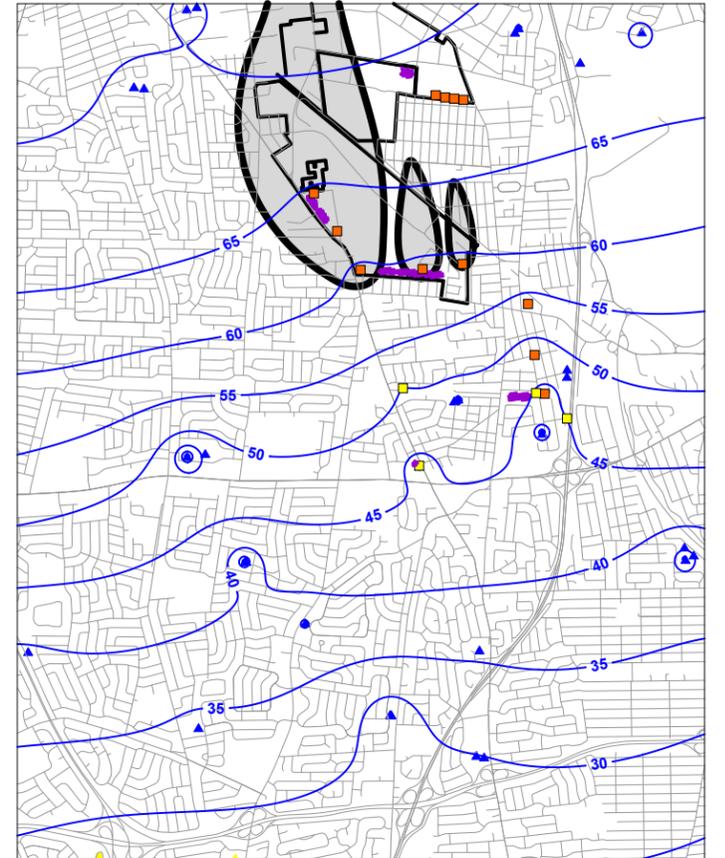
LAYER 8



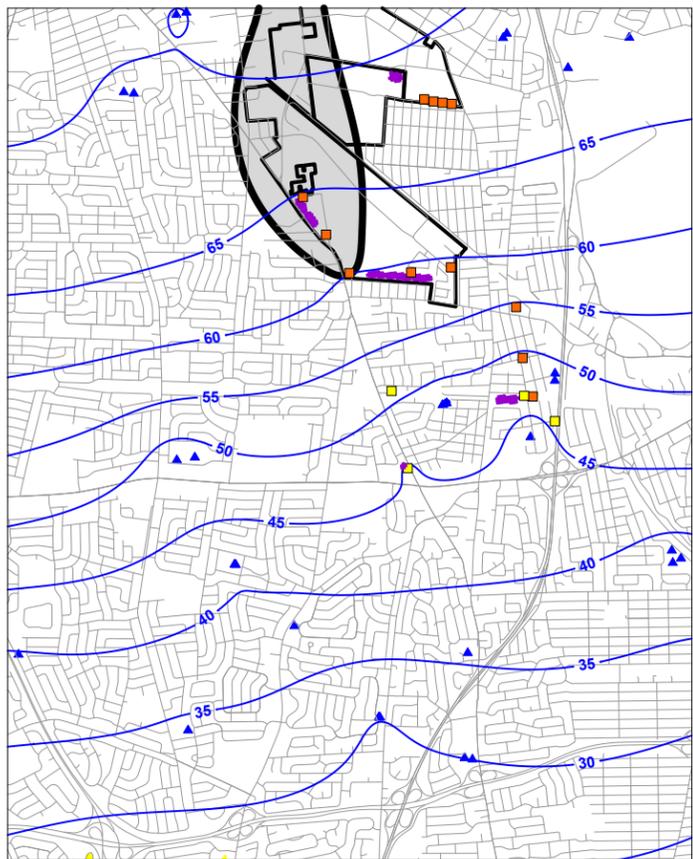
LAYER 9



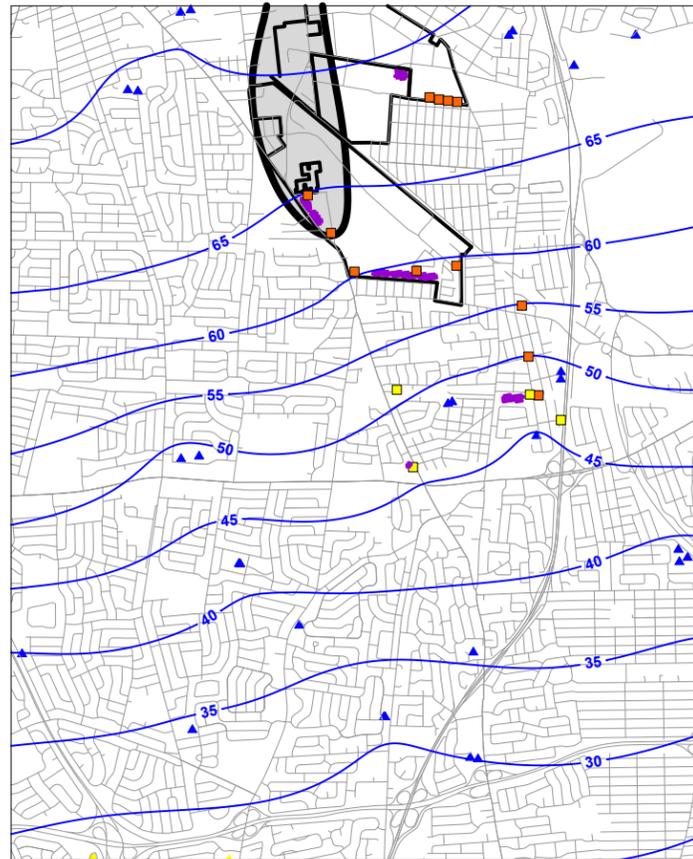
LAYER 10



LAYER 11



LAYER 12

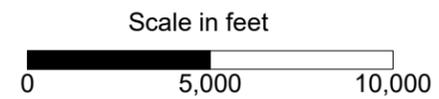


LEGEND

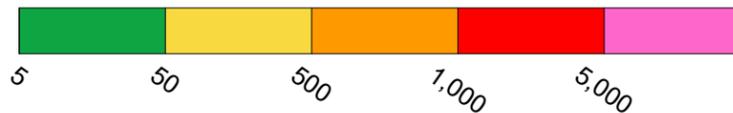
- Site Outline
- Recharge Basin
- Northrop Grumman Remediation Well
- Navy Remediation Well
- Water Supply Well
- Simulated Groundwater Elevation (ft NAVD88)
- Simulated Groundwater Capture Zone

Notes:

1. Recharge basins, water supply wells, and remediation wells are shown on each panel for reference regardless of layer designation.
2. Pumping wells are also shown regardless of pumping status (wells that are not pumping are shown).
3. Plume is based on the most recently available data from each sampling location collected between 2016 and 2022. Data were collected from monitoring wells, vertical profile borings, remedial wells, and public supply wells.

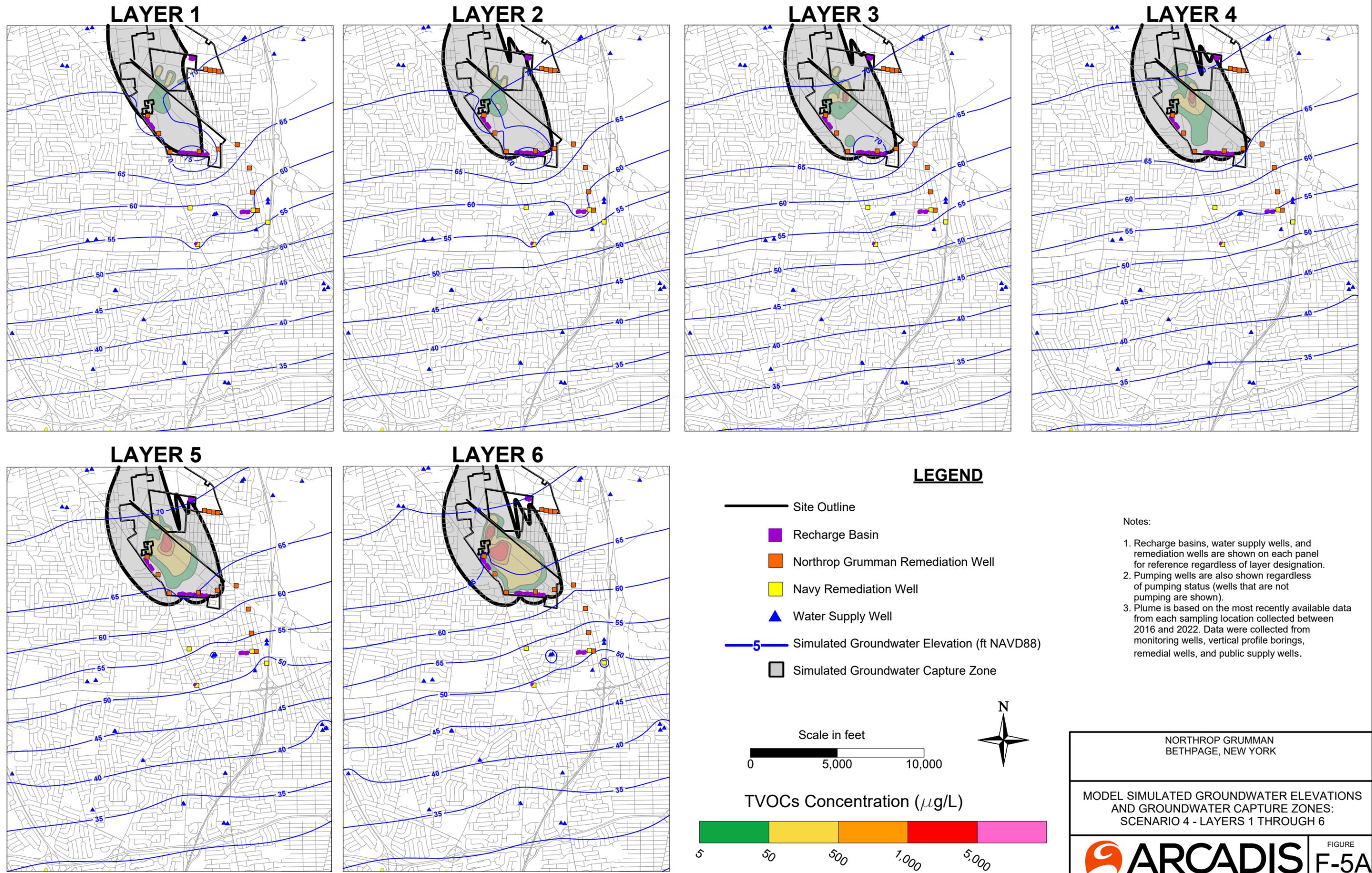


TVOCs Concentration ($\mu\text{g/L}$)



NORTHROP GRUMMAN
BETHPAGE, NEW YORK

MODEL SIMULATED GROUNDWATER ELEVATIONS
AND GROUNDWATER CAPTURE ZONES:
SCENARIO 3 - LAYERS 7 THROUGH 12



LAYER 1

LAYER 2

LAYER 3

LAYER 4

LAYER 5

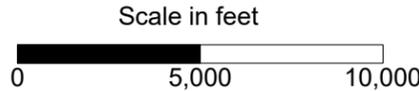
LAYER 6

LEGEND

- Site Outline
- Recharge Basin
- Northrop Grumman Remediation Well
- Navy Remediation Well
- Water Supply Well
- Simulated Groundwater Elevation (ft NAVD88)
- Simulated Groundwater Capture Zone

Notes:

1. Recharge basins, water supply wells, and remediation wells are shown on each panel for reference regardless of layer designation.
2. Pumping wells are also shown regardless of pumping status (wells that are not pumping are shown).
3. Plume is based on the most recently available data from each sampling location collected between 2016 and 2022. Data were collected from monitoring wells, vertical profile borings, remedial wells, and public supply wells.



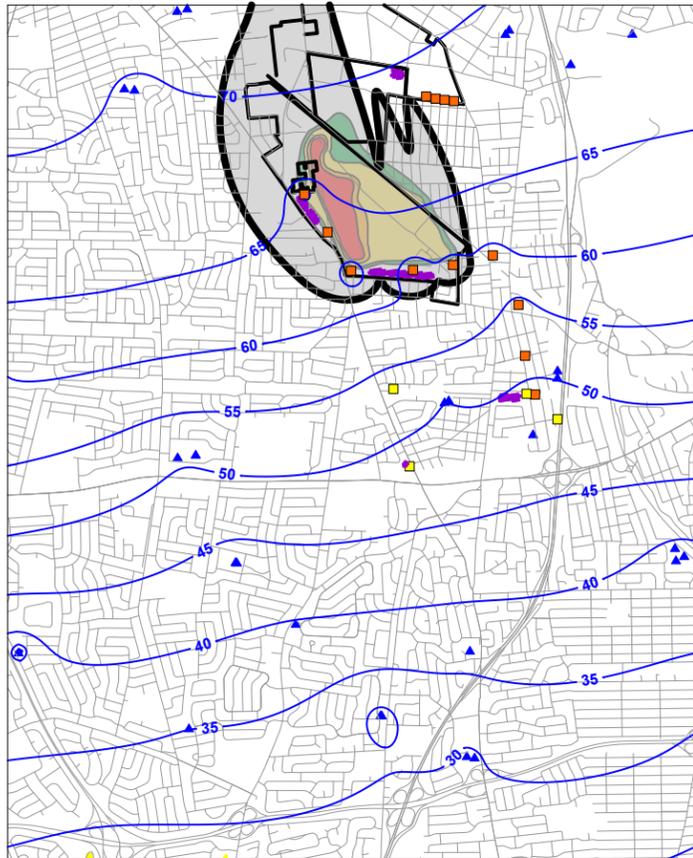
TVOCs Concentration ($\mu\text{g/L}$)



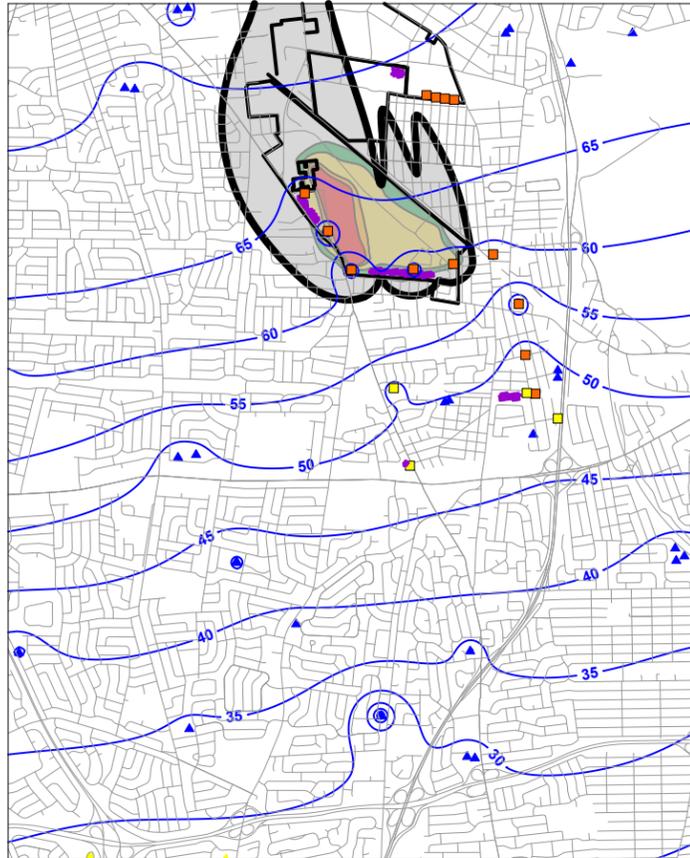
NORTHROP GRUMMAN
BETHPAGE, NEW YORK

MODEL SIMULATED GROUNDWATER ELEVATIONS
AND GROUNDWATER CAPTURE ZONES:
SCENARIO 4 - LAYERS 1 THROUGH 6

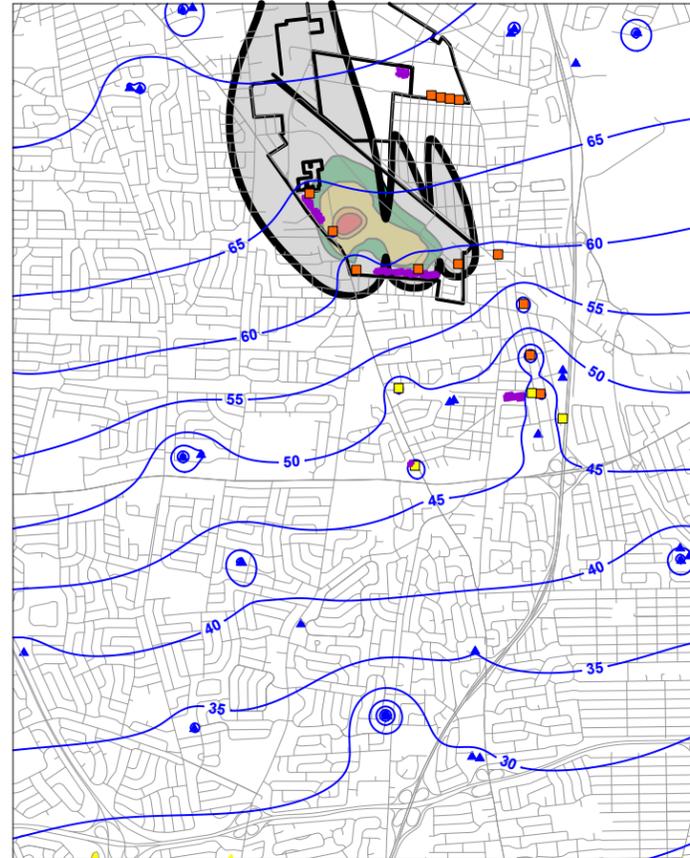
LAYER 7



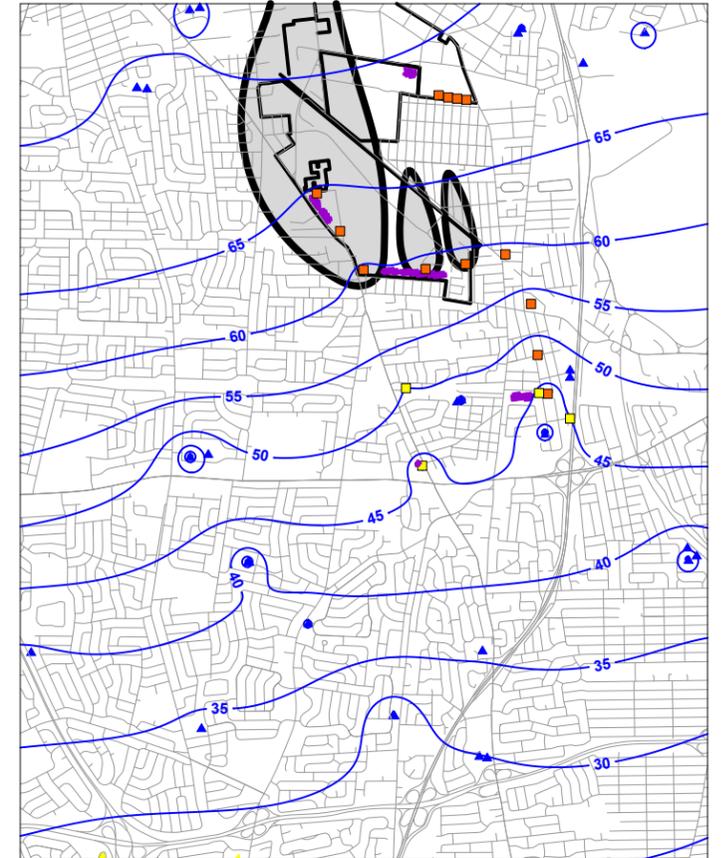
LAYER 8



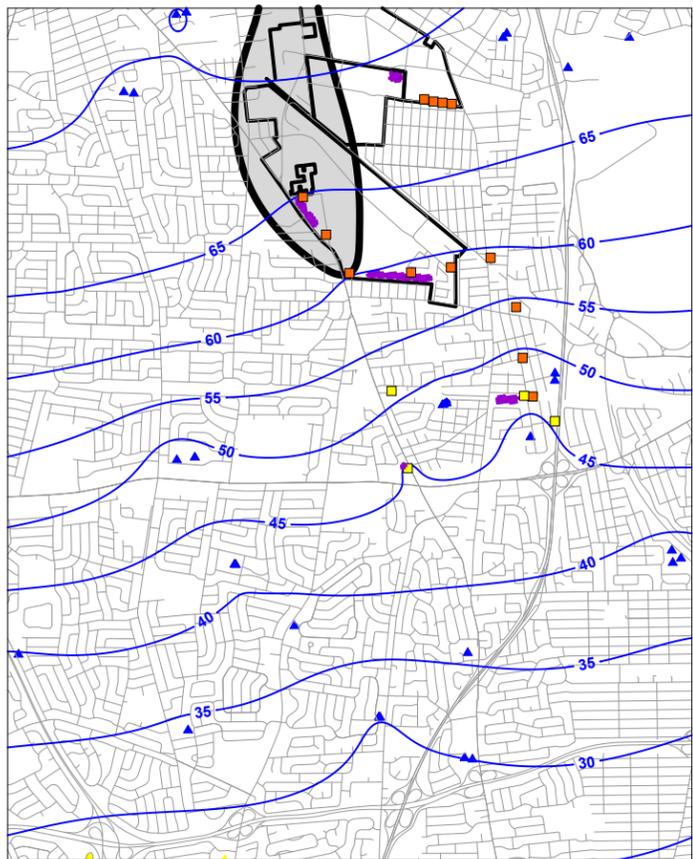
LAYER 9



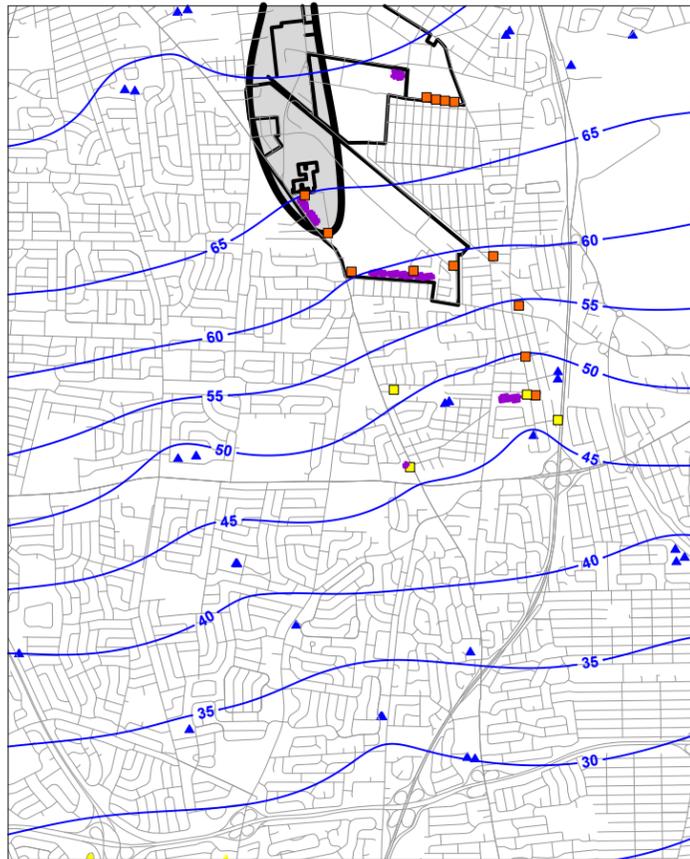
LAYER 10



LAYER 11



LAYER 12

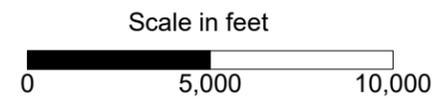


LEGEND

- Site Outline
- Recharge Basin
- Northrop Grumman Remediation Well
- Navy Remediation Well
- Water Supply Well
- Simulated Groundwater Elevation (ft NAVD88)
- Simulated Groundwater Capture Zone

Notes:

1. Recharge basins, water supply wells, and remediation wells are shown on each panel for reference regardless of layer designation.
2. Pumping wells are also shown regardless of pumping status (wells that are not pumping are shown).
3. Plume is based on the most recently available data from each sampling location collected between 2016 and 2022. Data were collected from monitoring wells, vertical profile borings, remedial wells, and public supply wells.



TVOCs Concentration ($\mu\text{g/L}$)



NORTHROP GRUMMAN
BETHPAGE, NEW YORK

MODEL SIMULATED GROUNDWATER ELEVATIONS
AND GROUNDWATER CAPTURE ZONES:
SCENARIO 4 - LAYERS 7 THROUGH 12

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