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2009 Annual Groundwater Monitoring Report

Operable Unit 2
Northrop Grumman Systems Corporation
Bethpage, New York
NYSDEC Site #s 1-30-0003A & B

March 29, 2010

ARCADIS

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ARCADIS

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1. Introduction

This groundwater monitoring report was prepared to document the operation, maintenance, and monitoring (OM&M) activities for the Operable Unit 2 (OU2) groundwater remedy at the Northrop Grumman Systems Corporation (Northrop Grumman) Bethpage, New York facility. These activities are currently being conducted by Northrop Grumman, in accordance with the New York State Department of Environmental Conservation (NYSDEC)-approved OU2 Groundwater Monitoring Plan (ARCADIS Geraghty & Miller, Inc. 2001), as modified in June 2006 (ARCADIS G&M, Inc. 2006) and the Public Water Supply Contingency Plan (PWSCP) (ARCADIS G&M Inc. 2003a) collectively to meet the remedial objectives set forth in the March 2001 OU2 Record of Decision (ROD) (NYSDEC 2001).

This report describes the performance and effectiveness monitoring of the on-site portion of the OU2 groundwater remedy for the period from September 30, 2009 through January 4, 2010, which is referred to in this report as the Fourth Quarter 2009 report period, or the current period. This report also constitutes the 2009 Annual Report, and compares the current data to Year 2009 data and to longer-term data trends, as applicable.

The monitoring program, as well as the findings, conclusions, and recommendations will be re-evaluated, as additional data become available. The complete description of the on-site portion of the OU2 groundwater remedy, the monitoring program, and rationale/basis for collection and evaluation of data can be found in the NYSDEC-approved OU2 Groundwater Monitoring Plan (ARCADIS Geraghty & Miller, Inc. 2001), as modified in June 2006 (ARCADIS G&M, Inc. 2006) and the PWSCP (ARCADIS G&M Inc. 2003a).

2. Monitoring Program

The results obtained from monitoring activities conducted during this reporting period are provided in Tables 1 through 10 and are described and discussed in the following report sections: Remedial System Operational Performance (Section 3), Groundwater Flow (Section 4), and Groundwater Quality (Section 5).

Except as described in Tables 1 through 10 and in Sections 3, 4, and 5 of this report, the procedures, methodologies, and monitoring network utilized for the subject period are consistent with procedures and methodologies used previously (ARCADIS Geraghty & Miller, Inc. 2001; ARCADIS G&M, Inc. 2003a). The complete description

of the procedures to collect groundwater samples from outpost wells and evaluate and document the results is provided in the PWSCP (ARCADIS G&M, Inc. 2003a).

The locations of the Northrop Grumman site, the OU2 on-site groundwater remedy, the neighboring properties (i.e., the former Naval Weapons Industrial Reserve Plant [NWIRP] and former Occidental Chemical Corporation [OCC]/RUCO Polymer Corporation sites), and existing wells utilized in the monitoring programs are shown on Figure 1. Appendix A of this report contains the field documentation for monitoring activities performed during 2009 by ARCADIS (i.e., groundwater sampling logs and chain-of-custody records).

3. Remedial System Performance Monitoring

This report section summarizes the routine performance monitoring conducted during the Fourth Quarter 2009 and Year 2009 for the on-site portion of the OU2 groundwater remedy, which included the following:

(1) remedial well water quality monitoring, remedial treatment systems effluent water quality monitoring, remedial treatment systems efficiency monitoring, and determination of volatile organic compound (VOC) mass removal, and

(2) monitoring of remedial well pumpage and remedial treatment systems treated effluent discharge to on-site recharge basins.

Also summarized in this report section are the remedial treatment system and remedial well troubleshooting as well as non-routine maintenance activities performed by ARCADIS and Northrop Grumman during the Fourth Quarter 2009.

As stated in previous reports, the on-site remedial wells and remedial treatment systems will be referred to by names that are consistent with Northrop Grumman nomenclature, as summarized in the following table. All monitoring activities will utilize the revised nomenclature.

Former Nomenclature	Revised Nomenclature
Remedial Wells	
GP-1	Well 1
GP-3	Well 3
ONCT-1	Well 17
ONCT-2	Well 18
ONCT-3	Well 19
Remedial Treatment Systems	
GP-1	Tower 96
ONCT	Tower 102

3.1 Water Quality, Treatment Efficiencies, and Mass Removal

Tables 1 and 7 provide the total VOC (TVOC) concentrations detected in the remedial wells. Table 1 provides remedial well TVOC concentrations and treatment efficiencies for the Tower 96 and Tower 102 remedial treatment system air strippers for the current period, VOC mass removed by the remedial wells for the current period and Year 2009, and cumulative TVOC mass removed since Tower 102 remedial system startup.

TVOC concentrations from the remedial wells ranged from 117 micrograms per liter (µg/L) (Well 18) to 2,707 µg/L (Well 3) this period. The discussion of water quality data and trends for the remedial wells is provided in Section 5.1.4 of this report.

A total of approximately 3,196 pounds of VOCs were removed from the aquifer by the remedial wells and treated during the current period. For Year 2009, approximately 12,967 lbs of VOC mass were removed from the aquifer and treated by the OU2 remedial systems. Since full-time startup of the Tower 102 remedial system in November 1998, approximately 146,911 lbs of VOCs have been removed from the aquifer and treated by the Tower 96 and Tower 102 remedial systems.

Northrop Grumman's State Pollutant Discharge Elimination System (SPDES) discharge monitoring results (Permit No. NY0096792) are representative of treated water quality and are used in calculating remedial system treatment efficiency and determining the quality of water returned to the aquifer. SPDES discharge monitoring data are documented on a monthly basis by Northrop Grumman to NYSDEC under separate cover in Discharge Monitoring Reports (DMRs). Northrop Grumman Outfalls 006 and 005, respectively, represent the termini of the Tower 102 and Tower 96 systems effluent water (i.e., inlets to the South Recharge Basins and West Recharge

Basins), respectively. Based on VOC concentrations in the remedial wells and the SPDES discharge this period, the efficiencies of the Tower 96 and Tower 102 remedial treatment systems for the current period were calculated to be greater than 99.9 percent and 99.9 percent, respectively.

3.2 Remedial System Pumpage and Discharge

Table 1 summarizes the remedial well pumpage (with comparison to design criteria) for the current period and Year 2009. For the current period, Remedial Wells 1, 3, 17, 18, and 19 collectively pumped approximately 531 million gallons (MG) of groundwater, which is equivalent to slightly greater than 100 percent of the design remedial well pumpage volume (525 MG). For Year 2009, the remedial system pumped approximately 2,022 MG, equivalent to greater than 99 percent of the total design remedial well pumpage volume (2,030 MG).

Based on measurements collected by ARCADIS, the South Recharge Basins collectively received the treated effluent discharge from the Tower 102 remedial treatment system along with incidental stormwater runoff and contribution from the Tower 96 remedial system for a total average of approximately 2,982 gpm, equivalent to 412.2 MG, during the current period.

As discussed in previous reports, a portion of the treated water from the Tower 96 remedial treatment system is provided on demand to the Calpine Energy facility for consumptive use. The demand rate is controlled by a “Cla-Val” located within a subsurface transmission pipeline between Tower 96 and the Calpine Energy facility. Based on raw water consumption information provided by Calpine Energy to Northrop Grumman the weighted average facility demand by Calpine for this period was 208 gpm, indicating that the West Recharge Basins received an average discharge rate from the Tower 96 remedial system of approximately 687 gpm this period, equivalent to 95 MG.

Based on water-level and pumping data presented in Table 3, with the exception of Well 18 which could not be measured this period, OU2 remedial well specific capacities remain above the minimum required to sustain the design pumping rates, as such no maintenance was needed on remedial wells this period.

3.3 Troubleshooting/Maintenance Activities

Only minor short-term repairs, testing of new component systems, and temporary power outages were noted pertaining to the on-site portion of the OU2 Groundwater Remedy in 2009, no non-routine shut down activities took place.

4. Groundwater Flow

Hydraulic monitoring was performed semi-annually in Year 2009, on March 27 and August 4, 2009. Tables 2 and 3 provide the spring and fall water-level measurement data from the semi-annual events, respectively. Table 4 provides the comparison of vertical hydraulic gradients (calculated from August 2009 water-level measurements) to model-predicted gradients for key monitoring well pairs. Figures 2, 3, and 4 depict groundwater elevations and flow directions in the shallow (water table), intermediate, and deep2 zones, respectively.

Based on the hydraulic monitoring results obtained from the 2009 semi-annual events, groundwater flow conditions are consistent with prior years during which the OU2 remedial system was determined to be providing hydraulic containment of VOCs in groundwater on the Northrop Grumman and NWIRP sites. Specifically, the data indicate vertical hydraulic gradients in the shallow-intermediate wells pairs are oriented downward and are close to or greater than model predicted values (Table 4). As shown on Figures 2 and 3, mounding of the water table and potentiometric surface exists in the shallow and intermediate zones, respectively, extending beneath the South Recharge Basins and across the Northrop Grumman site southern boundary. Downward vertical gradients were also present in the intermediate-deep and deep-deep2 well pairs, supporting the conclusion that groundwater is flowing in a predominantly vertical direction in the deep zone along the Northrop Grumman site southern boundary. Data obtained in Year 2009 indicates that the combination of shallow recharge at the South Recharge Basins coupled with pumpage of the remedial wells in the D2 zone forms a hydraulic barrier to groundwater flow that is preventing the off-site migration of VOC-impacted groundwater. The capture zone formed by the combined pumpage of OU2 remedial wells extended approximately 600 feet downgradient of Well 17 (Figure 4).

5. Groundwater Quality

This report section describes the analytical results of the various groundwater quality monitoring activities for the Fourth Quarter 2009 that are specified in the NYSDEC-

approved Groundwater Monitoring Plan (ARCADIS G&M, Inc., 2001; ARCADIS G&M, Inc. 2006) and the PWSCP (ARCADIS G&M Inc., 2003b). Analytical results are summarized in Tables 5 through 10.

5.1 Volatile Organic Compounds

The evaluation of VOC concentrations is presented herein in consideration of the following factors: (1) proximity to the hydraulic barrier formed by the on-site portion of the OU2 groundwater remedy (i.e., upgradient, along the Northrop Grumman site southern boundary, and downgradient of the hydraulic barrier), (2) hydrogeologic zone (i.e., shallow, intermediate, deep, and D2 zones), and (3) NYSDEC Standards, Criteria, and Guidance (SCGs) Values.

Tables 5 through 10 provide the complete analytical results of samples collected for VOC analysis from monitoring wells, remedial wells, outpost wells, and remedial treatment systems for this period. Time-concentration graphs depicting the long-term VOC concentration trends are shown on Figures 5 through 11.

5.1.1 Shallow Zone

The analytical results of monitoring in the shallow zone in 2009 are provided in prior reports (ARCADIS of New York, Inc. 2009a; b, and c) and these data are incorporated herein by reference. Shallow wells sampled during the Third Quarter 2009 (GM-15S, GM-21S, GM-78S, HN-40S, and HN-42S) exhibited no detections of VOCs with one exception. Trichloroethene (TCE) has been detected in well GM-15S in both the First and Third Quarters at concentrations above NYSDEC SCGs. This monitoring well is within the capture zone of the remedial wells; therefore, groundwater in this area is hydraulically contained and over time will be extracted and treated.

Wells located near or immediately downgradient of the Northrop Grumman site southern boundary (GM-21S and GM-78S) continue to exhibit results similar to data collected since the start up of the OU2 Groundwater Remedy in November 1998, confirming that the operation of the on-site portion of the OU2 groundwater remedy has formed an effective hydraulic barrier that prevents the off-site migration of VOC-impacted groundwater in the shallow zone.

5.1.2 Intermediate Zone

Analytical data for intermediate monitoring wells are provided in Table 5. Intermediate wells sampled during this period (GM-20I, GM-21I, and GM-79I) are located immediately downgradient of the Northrop Grumman site southern boundary.

Laboratory results indicated no detections of VOCs along the Northrop Grumman site southern boundary during this period or Year 2009. These analytical results confirm that the operation of the on-site portion of the OU2 groundwater remedy has formed an effective hydraulic barrier that prevents the off-site migration of VOC-impacted groundwater in the intermediate zone.

5.1.3 Deep Zone

Groundwater monitoring data from the deep zone for the Fourth Quarter 2009 is summarized in Table 6 and key data trends are shown in Figures 6, 7, 8, 10, and 11. Data trend graphs include key wells with detectable concentrations of VOCs that were sampled in Year 2009.

Well GM-13D (most recently sampled in the Third Quarter 2009 [(ARCADIS of New York, Inc. 2009c]), located upgradient of the OU2 Groundwater Remedy, continued to exhibit a downward trend in TVOC concentrations with a decrease in TVOC concentrations of 84 percent since year 2000 (Figure 7).

Well GM-74D, located upgradient of the remedial wells, did not exhibit detections in the Year 2009. The other four deep monitoring wells (i.e., GM-39D_A, GM-39D_B, and GM-73D) located on-site, along the Northrop Grumman site southern boundary, and upgradient of the remedial wells (Figure 1), exhibited SCG exceedances in the Year 2009. These monitoring wells are within the capture zone of the remedial wells; therefore, groundwater in this area is hydraulically contained and over time will be extracted and treated.

Groundwater quality data from wells immediately downgradient of the Northrop Grumman site (Wells GM-20D and GM-21D) exhibited no VOC detections during this period and Year 2009. Well GM-79D continues to exhibit a downward trend (Figure 8).

Wells located further downgradient of the hydraulic barrier exhibited TVOC concentrations consistent with the expected concentrations in the portions of the groundwater VOC plume not actively remediated. The deep well located at the GM-

75D2 Area (Well GM-34D) historically exhibited VOCs exceeding SCGs and VOC concentrations that have exhibited a decrease trend since December 2006 (Figure 10). Well GM-34D is located south of Well GM-75D2 (Figure 1 – see Section 5.1.4 for additional detail). The Navy completed drilling of vertical profile borings as part of an additional investigation of the GM75D2 Area. The report has been submitted separately to NYSDEC.

In the GM-38 Area, southeast of the Site, Well GM-38D continues to exhibit VOC concentrations consistent with the long-term trend (Figure 11). The Navy completed construction of the GM-38 Area Groundwater Remedy and system startup occurred in September 2009. Refer to reports prepared by the Navy for additional details on the OM&M of the GM-38 Groundwater Remedy.

Groundwater quality data continues to support the conclusion that the expected bifurcation of the VOC plume is occurring along the Northrop Grumman site southern boundary, as shown by no detections in wells located within the capture zone immediately off site. SCG exceedances continue to persist in wells screened in the portion of the groundwater VOC plume not actively remediated.

In general, the water quality data from the deep wells sampled during the current period and Year 2009 continue to support the interpretation of the hydraulic data and confirm that the operation of the on-site portion of the OU2 groundwater remedy has formed an effective hydraulic barrier that prevents the off-site migration of VOC-impacted groundwater in the deep zone.

5.1.4 Deep2 Zone and Remedial Wells

Groundwater monitoring data from the D2 zone are summarized in Table 7 and data trends are presented on Figures 5, 6, 9, 10, and 11. The data trend graphs presented in this report include key wells with detectable concentrations of VOCs that were sampled this period.

Well GM-33D2 (Figure 5), located along the southwestern boundary of the Northrop Grumman site, exhibited three VOCs (Freon 113, TCE, and tetrachloroethene) that exceeded SCGs in this period, with similar exceedances detected the first three quarters of Year 2009. The trend in TVOC concentrations in Well GM-33D2 remains downward, consistent with the long-term trend. Well GM-73D2 (Figure 5) exhibits a stable trend with VOC concentrations at or close to 100 ug/l. The other Northrop Grumman site boundary D2 wells (GM-15D2 and GM-74D2 – Figure 6) continue to

exhibit stable VOC concentrations less than 50 µg/L. Wells GM-15D2, GM-33D2, GM-73D2, and GM-74D2 are located within the capture zone of the remedial wells (which are screened in the D2 zone) and therefore groundwater in this area is hydraulically contained and over time will be extracted and treated by the on-site portion of the OU2 groundwater remedy.

For the GM-75D2 Area, off-site Wells GM-34D2, GM-35D2 and GM-75D2 had one or more SCG exceedances each during this period, with TVOC concentrations of 229 µg/L, 215 µg/L and 117 µg/L, respectively. These data are consistent with concentrations expected in the off-site portion of the VOC plume not actively remediated. TVOC concentrations in Well GM-75D2 (Figure 10) have shown a decreasing trend since the Year 2002. The data indicate that TVOC concentrations in Well GM-35D2 (Figure 10) exhibit a slight downward trend since 2002. Section 5.1.3 of this report provides information on Navy activity in the GM-75D2 Area.

The GM-38 Area monitoring results during Year 2009 were provided in prior reports (ARCADIS of New York, Inc. 2009 a; b, c). TVOC concentrations in Well GM-38D2 have decreased since Year 2002 (Figure 11). Section 5.1.3 of this report provides information on Navy activity in the GM-38 Area.

The other off-site D2 zone monitoring wells continue to exhibit stable to decreasing TVOC concentration trends.

For the remedial wells, TVOC concentrations ranged from 117.4 µg/L (Well 18) to 2,707 µg/L (Well 3). With the exception of Well 19, the remedial wells exhibit overall stable to decreasing trends since mid-2006. Well 3 continues to exhibit the highest TVOC concentrations. Refer to Section 3 of this report for a discussion of remedial well performance and VOC mass removed. Well 19 has exhibited an increase trend for the period of record.

In general, the water quality data from the D2 wells sampled during the current period and Year 2009 continue to support the interpretation of the hydraulic data and confirm that the operation of the on-site portion of the OU2 groundwater remedy has formed an effective hydraulic barrier that prevents the off-site migration of VOC-impacted groundwater in the D2 zone.

5.2 Outpost Monitoring

The results of the current outpost well monitoring round are provided in Table 8. The complete description of the procedures to collect groundwater samples from the outpost wells and evaluate and document the results is provided in the PWSCP (ARCADIS G&M, Inc., 2003b).

VOCs were not detected in Outpost Wells OW1-2, OW3-1, OW3-2, and OW4-2 during this period and the period of record. Outpost Wells OW1-1 and OW1-3, exhibited detections of site-related VOCs below their respective SCGs, but above the TVOC outpost trigger values this period. Wells OW2-1 and OW2-2 were not monitored during Year 2009 due to on-going Navy activities related to detections of benzene and MTBE. Freon 113 was detected in Well 4-1 but at a concentration less than its respective SCG and trigger value. As no new exceedances of outpost trigger values occurred in Year 2009, the requirements for notification/reporting of the initial trigger value exceedances, as outlined in the PWSCP (ARCADIS G&M, Inc., 2003b), have already been met.

Based on information provided by Aqua New York, TCE was detected in two public supply wells in the Aqua New York Seaman's Neck Road well field (downgradient of Outpost Wells 3-1 and 3-2). Specifically TCE was detected in Supply Well 3S at 0.64 µg/L in September 2006 and in Supply Well 4S at 0.5 µg/L in February 2007. A field investigation to delineate TCE in groundwater near the Aqua New York Seaman's Neck Road well field was completed by the Navy. The report of findings has been submitted to the NSYDEC by the Navy.

5.3 Vinyl Chloride Monomer

Vinyl chloride monomer (VCM) was detected in Well 3 during this period and the Year 2009, but was not detected in the other remedial wells or monitoring wells sampled this period. Implementation of remediation of groundwater to address VCM upgradient (northwest) of Well 3 is currently underway by Occidental Chemical Corporation (OCC) under USEPA oversight.

5.4 Cadmium and Chromium

Cadmium and chromium analytical results for Year 2009 are provided in prior reports (ARCADIS of New York, Inc. 2009a and 2009c). Trend analyses of cadmium trends are shown on Figure 12. While chromium in wells monitored are provided on Figures

13 and 14. No cadmium exceedances were detected in Wells N-10631, GM-78S and GM-78I, downgradient of former Northrop Grumman Plant 2 in 2009.

Chromium concentrations for the wells near former Northrop Grumman Plant 2 (MW-01GF and MW-02GF) continued to be below the SCG (Figure 13), with one exception. Well MW-02GF did have a detection of chromium that exceeded the SCG in the First Quarter; however the concentration decreased to below SCG (22 µg/L) in the Third Quarter, to a concentration consistent with the long-term trend.

Since 2006, the chromium concentration trends in the wells near former Northrop Grumman Plant 1 have been stable to decreasing over time. Notably, the Cr concentration in Well MW-05 has decreased by a factor of three since late 2005 (Figure 14).

5.5 Tentatively Identified Compounds

Tentatively Identified Compounds (TICs) detected during Year 2009 are provided in Table 9. One TIC was detected in four of the rinsate samples collected during Year 2009. A review of the cumulative TIC data shows no discernable trends in concentrations or consistency in TIC detections.

5.6 QA/QC Samples and Data Validation

The results of analysis of QA/QC(field blank and trip blank) samples from the current period are provided in Table 10.

ARCADIS performed validation of all groundwater quality data collected (including TICs) by following the contract laboratory program national functional guidelines for organic and inorganic data review (USEPA 1999). The quality of the data is considered acceptable with the qualifications indicated on Tables 5 through 10.

6. Annual Groundwater Model Update Evaluation

Currently, ARCADIS is updating information such as public water purveyors' well pumpage and water quality data on a regional scale, as well as water quality data collected by ARCADIS and Northrop Grumman from the current groundwater monitoring network (including monitoring well and vertical profile boring data) within the regional model. A comparison of these data with data currently incorporated in both

the conceptual site model and the numerical groundwater model will be performed and evaluated in 2010.

7. Summary and Conclusions

1. The following data indicate that the OU2 groundwater remedy continues to meet remedial performance goals for Year 2009.

    a. During the current period, the OU2 remedial wells pumped 525 MG, or slightly greater than 100 percent of the design volume of groundwater, while the recharge basins received a collective total of 507 MG of treated groundwater, or 165 percent of the design value. For the Year 2009, the OU2 remedial wells pumped 2,022 MG, or slightly greater than 99 percent of the design volume of groundwater, while the recharge basins received approximately 1,753 MG of treated groundwater, or 147 percent of the design value.

    b. Based on data presented in prior reports, OU2 remedial well specific capacities remain above the minimum required to sustain the design pumping rates.

    c. Approximately 3,196 lbs of VOCs were removed from the aquifer and treated by the on-site portion of the OU2 groundwater remedy during the current period. In Year 2009, approximately 12,967 lbs of VOCs were removed from the aquifer and treated, and approximately 146,911 lbs of VOCs were removed and treated since full-time system startup in November 1998.

    d. The treatment efficiencies of both groundwater treatment systems remain above 99 percent for the current period.

2. The following data indicate that the OU2 groundwater remedy continues to meet remedial effectiveness goals for Year 2009.

    a. The hydraulic data indicate that hydraulic containment continues in a manner consistent with previous years.

    b. Water quality data from wells immediately downgradient of the hydraulic barrier show no or trace VOC concentrations or decreasing VOC concentration trends. Groundwater quality data indicates that bifurcation of the VOC plume is continuing in the deep and D2 zones south of the hydraulic barrier.

3. Other significant findings and conclusions with respect to groundwater for Year 2009 are summarized as follows:

   a. Based on data for Year 2009, in the shallow, intermediate, and deep zones, the majority of wells located along the Northrop Grumman site perimeter showed trace or non-detectable concentrations of VOCs.

   b. The majority of D2 wells located along and immediately downgradient of the Northrop Grumman site southern boundary exhibit stable or decreasing concentrations of VOCs. Such wells are located within the capture zone of the remedial wells. Wells located in areas not actively remediated (further downgradient of the Northrop Grumman site) exhibit concentrations indicative of expected VOC plume heterogeneity. The Navy completed drilling of vertical profile borings as part of an additional investigation of groundwater in the GM-75D2 Area and has submitted a report to NYSDEC. The Navy has completed the construction of the Groundwater Remedy in the GM-38 Area and system startup occurred in September 2009.

   c. Site-related VOCs were detected in Outpost Wells OW1-1, OW1-3 and OW4-1. The remaining outpost wells currently monitored exhibited no VOC detections. Aqua New York Seaman's Neck Road well field (downgradient of Wells OW3-1 and OW3-2) has exhibited trace TCE concentrations in the two supply wells. These detections were investigated concurrent to the GM-75D2 Area by the Navy and the GM-75D2 Area report has been submitted to the NSYDEC.

   d. The Cd/Cr analytical results from groundwater monitoring wells around and downgradient of former Plant 2 indicated Cd below the SCG. Cr concentrations continue to be below the SCG. Based on these data, the requirements to terminate post-closure Cd/Cr monitoring of former Plant 2 have been met.

   e. Cr concentrations near former Plant 1 continue to exhibit stable to declining trends.

8. Recommendations

Based on the results included in this report, ARCADIS recommends the following:

1. The groundwater monitoring of wells at former Plant 2 for Cd/Cr can be discontinued.

2. The current model should be evaluated in 2010, per the provisions in the PWSCP.

9. References

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Table 1. Operational Summary for the On-Site Portion of the Operable Unit 2 Groundwater Remedy, Fourth Quarter 2009, Year 2009, and Period of Record, Northrop Grumman Systems Corporation, Bethpage, New York.

Identification	Design Pumping/ Recharge Rate [a] (gpm)	4th Quarter Actual Average Pumping/Recharge Rate [b] (gpm)	4th Quarter Design Total Pumpage/Recharge (MG)	4th Quarter Actual Total Pumpage/ Recharge (MG)	4th Quarter Percent of Total Design Pumpage/ Recharge	Annual 2009 Design Total Pumpage/Recharge (MG)	Cumulative Year-to-Date Actual Total Pumpage [b] (MG)	Annual 2009 Percent of Total Design Pumpage/ Recharge	Current TCE Concentration (ug/L)	Current TVOC Concentration [c] (ug/L)	4th Quarter 2009 VOC Mass Removed [d] (lbs)	Annual 2009 VOC Mass Removed [e,f] (lbs)	Cumulative VOC Mass Removed [b] (lbs)
Remedial Wells		**Groundwater Removed from Aquifer**											
Well 1	800	830	110.6	113.1	102%	427.4	438	102%	370	480	452	1,768	31,153
Well 3	700	710	96.8	97.5	101%	374.0	376	101%	2,400	2,707	2,198	9,010	61,986
Well 17	1,000	1,007	138.2	137.8	100%	534.2	526	98%	210	247	283	1,183	45,452
Well 18	600	634	82.9	86.8	105%	320.5	325	101%	95	117	85	332	4,528
Well 19	700	706	96.8	95.6	99%	374.0	357	95%	190	223	178	674.0	3,792
Rounded Totals:	**3,800**	**3,887**	**525**	**531**	**101%**	**2,030**	**2,022**	**100%**	**--**	**--**	**3,196**	**12,967**	**146,911**
Recharge Basins [a]		**Treated Water Recharged to Aquifer[h]**											
West Recharge Basins	0	687	0	95.0	--	0	517.0	--	--	--	--	--	--
South Recharge Basins	2,231	2,982	308.4	412.2	134%	1,191.9	1,235.6	104%	--	--	--	--	--
Rounded Totals:	**2,231**	**3,669**	**308**	**507.2**	**165%**	**1,192**	**1,753**	**147%**	**--**	**--**	**--**	**--**	**--**
Treated Water Sent to Calpine													
Calpine Demand	100-400	208	14-56	28.8	--	56-224	134 [g]	--	--	--	--	--	--
Treatment Efficiencies		**Average SPDES Outfall TVOC Concentrations Fourth Quarter 2009 (ug/L) [f]**											
Tower 96 System Efficiency [e] :		**>99.9 %**	--	**<0.5**	--	--	--	--	--	--	--	--	--
Tower 102 System Efficiency [e] :		**>99.9 %**	--	**<0.5**	--	--	--	--	--	--	--	--	--

see footnotes on last page

Table 1. Operational Summary for the On-Site Portion of the Operable Unit 2 Groundwater Remedy, Fourth Quarter 2009, Year 2009, and Period of Record, Northrop Grumman Systems Corporation, Bethpage, New York.

(a) - Design remedial well pumping rates based on computer modeling (ARCADIS G& M, Inc. 2003c). Acceptable design recharge rates based on computer modeling (ARCADIS G&M, Inc. 2004b). Design pumping and recharge rates were modified in April, 2005. Recharge includes remedial well pumpage (minus Calpine demand, Oxy biosparge system demand, incidental irrigation use, and pipe loss), plus incidental runoff from precipitation. Current average recharge rates have been determined using the entire 96-day span of time as opposed to current average pumping rates, which account for varying amounts of downtime, as indicated below.

(b) - OU2 wells were operational during the Fourth Quarter 2009, at the following percentages: Well-1 (98.6%), Well-3 (99.3%); Well-17 (99%), Well-18 (99%), and Well-19 (98%). The Actual Average Pumping Rates and rate of treated water sent to Calpine are for when the wells are pumping. "Cumulative" represents data obtained since system startup in November 2008.

(c) - The TVOC concentration for each well was calculated based on Fourth Quarter 2009 groundwater monitoring data (Table 7).

(d) - TVOC mass removed is based on the TVOC data given above and the following formula:

(TVOC concentration in ug/L) X (gallons pumped) X (3.785 L/gal) X (1 x 10^{-6} g/ug) X (2.2 x 10^{-3} lb/g)

(e) Air Stripping Efficiency calculated from values above and in Table 2 using the following formula:

$$1 - \left[\left(\frac{\text{Average SPDES TVOC Concentration at Outfall}}{\frac{[(TVOC_{Well\ 1} \times Q_{Well\ 1}) + (TVOC_{Well\ 2} \times Q_{Well\ 2}) \text{ etc...}]}{(Q_{Well\ 1} + Q_{Well\ 2} \text{ etc..})}} \right) \right]$$

-When non-detectable levels of VOCs are found in the effluent, a value of zero is used to estimate the efficiency of the air stripper.

(f) -Towers 102 and 96 outfalls are identified as Outfalls 005 and 006, respectively (commonly known as the South Recharge Basins and Plant 5 Recharge Basins, respectively). Complete SPDES reporting provided to NYSDEC by NGC under separate cover.

(g) -Cumulative Year-to-Date Actual Total Pumpage for Treated Water to Calpine includes adjustment from 37 MG to 59.2 MG in Quarter 3 2009 based on revised totalizer readings obtained from NGC.

(h) -Cumulative Year-to-Date Actual Total Pumpage for Treated Water to West recharge basins includes adjustment from 145.2 MG to 124.8 MG in Quarter 3 2009 due to based on revised totalizer readings (obtained from NGC) for Calpine consumption, see note (g).

--	Not Available or Not Applicable	lb/g	pounds per gram
TVOC	Total Volatile Organic Compounds	lbs	pounds
g/ug	grams per microgram	MG	Million Gallons
gpm	gallons per minute	ug/L	micrograms per liter
L/gal	Liters per gallon	OU2	Operable Unit 2
SPDES	State Pollutant Discharge Elimination System	Q	Pumping Rate
NGC	Northrop Grumman Corporation	NYSDEC	New York State Department of Environmental Conservation

Table 2. Water-Level Measurement Data, March 27, 2009, Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York.

Well Identification	Measuring Point Elevation (ft msl)	Depth to Water (ft bmp)	Water-Level Elevation (ft msl)
Shallow Wells			
FW-03	124.30	53.60	70.70
N-9921	94.23	30.17	64.06
N-10597	109.85	39.18	70.67
N-10600	102.41	36.78	65.63
N-10631	103.47	35.99	67.48
N-10633	103.80	37.00	66.80
N-10634	101.20	37.66	63.54
N-10821	91.58	32.02	59.56
GM-15S	109.44	42.50	66.94
GM-16SR	115.86	45.18	70.68
GM-17SR	115.79	42.75	73.04
GM-18S	107.60	38.70	68.90
GM-19S	109.86	40.15	69.71
GM-21S	105.81	33.18	72.63
GM-78S	104.94	38.75	66.19
GM-79S (N-10628)	100.88	37.75	63.13
HN-24S	120.32	49.70	70.62
HN-40S	116.35	46.61	69.74
HN-42S	120.32	48.82	71.50
MW-3R	101.45	32.22	69.23
Intermediate Wells			
N-10624	93.61	29.71	63.90
GM-15I	109.25	42.30	66.95
GM-16I	115.81	45.32	70.49
GM-17I	115.83	43.07	72.76
GM-18I	109.03	39.98	69.05
GM-19I	109.86	41.05	68.81
GM-20I	103.88	33.95	69.93
GM-21I	105.72	35.53	70.19
GM-74I	107.42	37.55	69.87
GM-78I	105.06	39.05	66.01
GM-79I	100.88	38.05	62.83
HN-24I	125.80	53.12	72.68
HN-40I	115.91	46.44	69.47
HN-42I	119.61	48.15	71.46

See notes on last page

Table 2. Water-Level Measurement Data, March 27, 2009, Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York.

Well Identification	Measuring Point Elevation (ft msl)	Depth to Water (ft bmp)	Water-Level Elevation (ft msl)
Deep Wells			
N-10627	71.19	12.30	58.89
GM-13D	93.70	30.25	63.45
GM-15D	91.63	32.75	58.88
GM-17D	91.75	35.55	56.20
GM-18D	103.92	35.98	67.94
GM-20D	102.23	36.51	65.72
GM-21D	97.26	36.65	60.61
GM-34D	101.25	39.25	62.00
GM-36D	102.08	39.46	62.62
GM-37D	105.66	40.68	64.98
GM-38D	104.87	41.77	63.10
GM-39D$_A$ (1)	108.88	42.85	66.03
GM-39D$_B$ (1)	107.43	42.93	64.50
GM-73D	113.97	43.70	70.27
GM-74D	115.11	44.52	70.59
GM-79D	109.84	44.70	65.14
HN-29D	115.68	47.20	68.48
Deep2 Wells			
GM-15D2	109.78	47.25	62.53
GM-33D2	106.85	47.31	59.54
GM-34D2	71.19	13.97	57.22
GM-35D2	96.28	37.45	58.83
GM-36D2	91.60	34.68	56.92
GM-37D2	97.17	37.14	60.03
GM-38D2	91.56	37.20	54.36
GM-70D2	99.58	38.80	60.78
GM-71D2	98.45	38.92	59.53
GM-73D2	104.62	43.85	60.77
GM-74D2	107.36	49.50	57.86
GM-75D2	93.63	33.41	60.22
Well 1 (2)	116.78	77.00	39.78
Well 3 (3)	117.78	115.00	2.78
Well 17 (4)	104.10	55.00	49.10
Well 18 (5)	110.00	--	--
Well 19	108.70	63.55	45.15

See notes on last page

Table 2. Water-Level Measurement Data, March 27, 2009, Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York.

Well Identification	Measuring Point Elevation (ft msl)	Depth to Water (ft bmp)	Water-Level Elevation (ft msl)
Outpost Wells			
BPOW1-1	73.65	27.45	46.20
BPOW1-2	73.54	27.98	45.56
BPOW1-3	73.37	27.95	45.42
BPOW2-1	60.06	--	--
BPOW2-2	59.96	--	--
BPOW3-1	63.19	24.48	39.51
BPOW3-2	63.72	25.79	37.93
BPOW4-1	67.34	23.68	43.66
BPOW4-2	67.18	23.50	43.68

(1) Wells GM-39_A and GM-39_B are screened at the approximate midpoint and basal portion of the deep zone, respectively.

(2) Water level was measured by inflating airline set at 119 ft bmp (gauge at wellhead) and subtracting the reading on the gauge from 120 to obtain the depth to water in ft bmp.

(3) Water level was measured by inflating an airline set at 150 ft bmp (gauge at well head) and subtracting the reading on the gauge from 150 to obtain the depth to water in ft bmp.

(4) Water level was measured by inflating airline set at 110 ft bmp (gauge at wellhead) and subtracting the reading on the gauge from 110 to obtain the depth to water in ft bmp.

(5) A replacement pump (submersible-type) was installed in Well 18 in December 2008. A new port to measure water levels is currenlty being installed. When the port is installed, measurements will be collected on the current semi-annual schedule.

ft msl feet relative to mean sea level
ft bmp feet below measuring point
-- Not Measured

Table 3. Water-Level Measurement Data and Remedial Well Specific Capacities, August 4, 2009, Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York.

Well Identification	Measuring Point Elevation (ft msl)	Depth to Water (ft bmp)	Water-Level Elevation (ft msl)
Shallow Wells			
FW-03	124.30	52.89	71.41
N-9921	94.23	29.63	64.60
N-10597	109.85	37.41	72.44
N-10600	102.41	36.03	66.38
N-10631	103.47	35.54	67.93
N-10633	103.80	36.88	66.92
N-10634	101.20	37.19	64.01
N-10821	91.58	32.21	59.37
GM-15S	109.44	42.19	67.25
GM-16SR	115.86	44.61	71.25
GM-17SR	115.79	42.67	73.12
GM-18S	107.60	38.08	69.52
GM-19S	109.86	39.83	70.03
GM-21S	105.81	33.56	72.25
GM-78S	104.94	38.19	66.75
GM-79S (N-10628)	100.88	37.37	63.51
HN-24S	120.32	48.89	71.43
HN-40S	116.35	46.20	70.15
HN-42S	120.32	48.51	71.81
MW-3R	101.45	31.75	69.70
Intermediate Wells			
N-10624	93.61	29.25	64.36
GM-15I	109.25	42.03	67.22
GM-16I	115.81	44.75	71.06
GM-17I	115.83	42.99	72.84
GM-18I	109.03	39.43	69.60
GM-19I	109.86	40.71	69.15
GM-20I	103.88	33.82	70.06
GM-21I	105.72	35.57	70.15
GM-74I	107.42	37.48	69.94
GM-78I	105.06	38.46	66.60
GM-79I	100.88	37.88	63.00
HN-24I	125.80	52.43	73.37
HN-40I	115.91	46.00	69.91
HN-42I	119.61	47.83	71.78

See notes on last page

Table 3. Water-Level Measurement Data and Remedial Well Specific Capacities, August 4, 2009, Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York.

Well Identification	Measuring Point Elevation (ft msl)	Depth to Water (ft bmp)	Water-Level Elevation (ft msl)
Deep Wells			
N-10627	93.70	29.75	63.95
GM-13D	113.97	43.21	70.76
GM-15D	109.84	44.56	65.28
GM-17D	115.68	46.61	69.07
GM-18D	108.88	42.39	66.49
GM-20D	103.92	35.86	68.06
GM-21D	105.66	40.52	65.14
GM-34D	71.19	11.96	59.23
GM-36D	91.63	32.86	58.77
GM-37D	97.26	37.01	60.25
GM-38D	91.75	36.61	55.14
$GM\text{-}39D_A$ [1]	102.23	36.11	66.12
$GM\text{-}39D_B$ [1]	102.08	39.02	63.06
GM-73D	104.87	41.34	63.53
GM-74D	107.43	42.67	64.76
GM-79D	101.25	39.28	61.97
HN-29D	115.11	43.98	71.13
Deep2 Wells			
GM-15D2	109.78	47.23	62.55
GM-33D2	106.85	46.72	60.13
GM-34D2	71.19	13.90	57.29
GM-35D2	96.28	37.74	58.54
GM-36D2	91.60	35.89	55.71
GM-37D2	97.17	37.98	59.19
GM-38D2	91.56	39.83	51.73
GM-70D2	99.58	38.79	60.79
GM-71D2	98.45	39.72	58.73
GM-73D2	104.62	43.39	61.23
GM-74D2	107.36	49.12	58.24
GM-75D2	93.63	32.84	60.79
Well 1 [2]	116.78	70.00	46.78
Well 3 [3]	117.78	125.00	-7.22
Well 17 [4]	104.10	59.00	45.10
Well 18 [5]	110.00	--	--
Well 19	108.70	63.68	45.02

See notes on last page

Table 3. Water-Level Measurement Data and Remedial Well Specific Capacities, August 4, 2009, Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York.

Well Identification	Measuring Point Elevation (ft msl)	Depth to Water (ft bmp)	Water-Level Elevation (ft msl)
Outpost Wells			
BPOW1-1	73.65	27.10	46.55
BPOW1-2	73.54	28.04	45.50
BPOW1-3	73.37	28.05	45.32
BPOW2-1	60.06	--	--
BPOW2-2	59.96	--	--
BPOW3-1	63.19	24.93	38.26
BPOW3-2	63.72	26.40	37.32
BPOW4-1	67.34	24.28	43.06
BPOW4-2	67.18	23.91	43.27

Remedial Well Specific Capacities (6)

Well ID	Pumping Depth to Water (ft bls)	Static Depth to Water (ft bls) (7)	Drawdown (s) (ft)	Third Quarter 2008 Pumping Rate (Q)(gpm) (8)	Specific Capacity (Q/s)(gpm/ft)
Well 1	70.00	55.75	14.25	836	58.67
Well 3	125.00	55.40	69.60	705	10.13
Well 17	59.00	44.12	14.88	1029	69.15
Well 18	NA	50.15	--	629	--
Well 19	63.68	49.13	14.55	721	49.55

(1) Wells GM-39$_A$ and GM-39$_B$ are screened at the approximate midpoint and basal portion of the deep zone, respectively.

(2) Water level was measured by inflating airline set at 119 ft bmp (gauge at wellhead) and subtracting the reading on the gauge from 120 to obtain the depth to water in ft bmp.

(3) Water level was measured by inflating an airline set at 150 ft bmp (gauge at well head) and subtracting the reading on the gauge from 150 to obtain the depth to water in ft bmp.

(4) Water level was measured by inflating airline set at 110 ft bmp (gauge at wellhead) and subtracting the reading on the gauge from 110 to obtain the depth to water in ft bmp.

(5) A replacement pump (submersible-type) was installed in Well 18 in December 2008. A new port to measure water levels is currenlty being installed. When the port is installed, measurements will be collected on the current semi-annual schedule.

(6) Specific capacity values are qualitative in nature, due to fluctuations in static water levels. Sharp declines in specific capacity could indicate the need for well redevelopment.

(7) For Wells 17, 18, and 19 baseline static depth to water measurements were collected in 1997 prior to OU2 system start-up; baseline pumping depth to water and rate measurements (not shown) used with baseline static depth to water measurements to calculate baseline specific capacities, were collected in 1999 during OU2 system operation.
For Well 1, baseline static depth to water and specific capacity measurements were collected in 2001, during pump replacement.
For Well 3, baseline static depth to water and specific capacity measurements were collected in March-April 2005, during re-development activities.

(8) Pumping rate determined at time of pumping depth to water measurement.

ft msl feet relative to mean sea level
ft bmp feet below measuring point
-- Not Measured

Table 4. Comparison of August 2009 Vertical Hydraulic Gradients to Model-Predicted Gradients, Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York.

Well Pair ID	Well Screen Midpoint Elevation (ft msl)	Water-Level Elevation (ft msl)	Vertical Gradient [(2)] (ft/ft) * 10^{-3}	Model-Predicted, OU2 Steady-State Vertical Gradient (ft/ft) * 10^{-3}	Increase Compared to Model-Predicted, Steady-State Vertical Gradient
Shallow-Intermediate Wells					
GM-15S	34.53	67.25			
GM-15I	9.29	67.22	1.19	4.20	-3.01
GM-16SR	66.77	71.25			
GM-16I	-24.19	71.06	2.09	1.11	0.98
GM-17SR	50.79	73.12			
GM-17I	5.83	72.84	6.23	4.50	1.73
GM-19S	59.36	70.03			
GM-19I	-25.14	69.15	10.41	2.44	7.97
GM-21S	40.81	72.25			
GM-21I	-29.28	70.15	29.96	18.44	11.52
GM-78S	39.94	66.75			
GM-78I	5.56	66.60	4.36	8.73	-4.37
GM-79S	35.88	63.51			
GM-79I	-73.91	63.00	4.65	0.91	3.74
Intermediate-Deep Wells					
GM-15I	9.29	67.22			
GM-15D	-227.34	65.28	8.20	6.52	1.68
GM-17I	5.83	72.84			
GM-17D	-172.32	69.07	21.16	7.86	13.30
GM-18I	9.03	69.60			
GM-18D	-186.12	66.49	15.94	7.74	8.20
GM-20I	3.88	70.06			
GM-20D	-117.08	68.06	16.53	18.22	-1.69
GM-21I	-29.28	70.15			
GM-21D	-177.34	65.14	33.84	43.97	-10.13
GM-74I	8.42	69.94			
GM-74D	-192.57	64.76	25.77	20.17	5.60
GM-79I	-73.91	63.00			
GM-79D	-183.75	61.97	9.38	15.48	-6.10

See notes on last page

Table 4. Comparison of August 2009 Vertical Hydraulic Gradients to Model-Predicted Gradients, Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York.

Well Pair ID	Well Screen Midpoint Elevation (ft msl)	Water-Level Elevation (ft msl)	Vertical Gradient [2] (ft/ft) * 10^{-3}	Model-Predicted, OU2 Steady-State Vertical Gradient (ft/ft) * 10^{-3}	Increase Compared to Model-Predicted, Steady-State Vertical Gradient
Deep-Deep 2 Wells					
GM-15D	-227.34	65.28			
GM-15D2	-436.41	62.55	13.06	14.19	-1.13
GM-18D	-186.12	66.49			
GM-33D2	-403.15	60.13	29.30	12.30	17.00
GM-34D	-242.81	59.23			
GM-34D2	-443.81	57.29	9.65	2.33	7.32
GM-36D	-117.37	58.77			
GM-36D2	-443.40	55.71	9.39	2.75	6.64
GM-37D	-154.74	60.25			
GM-37D2	-282.83	59.19	8.28	3.88	4.40
GM-38D	-238.25	55.14			
GM-38D2	-393.44	51.73	21.97	6.08	15.89
GM-39D$_A$ [1]	-169.77	66.12			
GM-39D$_B$ [1]	-312.92	63.06	21.38	13.46	7.92
GM-73D	-301.13	63.53			
GM-73D2	-437.38	61.23	16.88	18.78	-1.90
GM-74D	-192.57	64.76			
GM-74D2	-444.64	58.24	25.87	28.26	-2.39
N-10627	-198.80	63.95			
GM-75D2	-421.37	60.79	14.20	2.25	11.95

Notes

(1) Wells GM-39D$_A$ and GM-39D$_B$ are screened at the approximate midpoint and basal portion of the deep zone, respectively.

(2) 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

A positive "+" gradient value indicates a downward hydraulic gradient.

A negative "-" gradient value indicates an upward hydraulic gradient.

ft msl feet relative to mean sea level

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Table 5. Concentration of Volatile Organic Compounds Detected in Intermediate Monitoring Wells, Fourth Quarter 2009, Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York.

CONSTITUENT (Units in ug/L)	NYSDEC Standards Criteria[1] and Guidance Values (ug/l)	Well:	GM-20I	GM-21I	GM-79I
		Sample ID:	GM-20I	GM-21I	GM-79I
		Date:	11/12/2009	11/13/2009	11/5/2009
1,1,1-Trichloroethane	5		< 5	< 5	< 5
1,1,2,2-Tetrachloroethane	5		< 5	< 5	< 5
1,1,2-Trichloroethane	5		< 5	< 5	< 5
1,1-Dichloroethane	5		< 5	< 5	< 5
1,1-Dichloroethene	5		< 5	< 5	< 5
1,2-Dichloroethane	5		< 5	< 5	< 5
1,2-Dichloropropane	5		< 5	< 5	< 5
2-Butanone	50		< 50	< 50	< 50
2-Hexanone	50		< 50	< 50	< 50
4-methyl-2-pentanone	50		< 50	< 50	< 50
Acetone	50		< 50	< 50	< 50
Benzene	0.7		< 0.7	< 0.7	< 0.7
Bromodichloromethane	50		< 5	< 5	< 5
Bromoform	50		< 5	< 5	< 5
Bromomethane	5		< 5	< 5	< 5
Carbon Disulfide	50		< 5	< 5	< 5
Carbon tetrachloride	5		< 5	< 5	< 5
Chlorobenzene	5		< 5	< 5	< 5
Chloroethane	5		< 5	< 5	< 5
Chloroform	7		< 5	< 5	< 5
Chloromethane	5		< 5	< 5	< 5
cis-1,2-dichloroethene	5		< 5	< 5	< 5
cis-1,3-dichloropropene	5		< 5	< 5	< 5
Dibromochloromethane	5		< 5	< 5	< 5
Ethylbenzene	5		< 5	< 5	< 5
Methylene Chloride	5		< 5	< 5	< 5
Styrene	5		< 5	< 5	< 5
Tetrachloroethene	5		< 5	< 5	< 5
Toluene	5		< 5	< 5	< 5
trans-1,2-dichloroethene	5		< 5	< 5	< 5
trans-1,3-dichloropropene	5		< 5	< 5	< 5
Trichloroethylene	5		< 5	< 5	< 5
Trichlorotrifluoroethane (Freon 113)	5		< 5	< 5	< 5
Vinyl Chloride	2		< 2	< 2	< 2
Xylene-o	5		< 5	< 5	< 5
Xylenes - m,p	5		< 5	< 5	< 5
Total VOCs			0	0	0

(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 value listed.

NYSDEC New York State Department of Environmental Conservation

TOGs Technical and Operational Guidance Series

ug/L Micrograms per liter

VOCs Volatile Organic Compounds

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Table 6. Concentration of Volatile Organic Compounds Detected in Deep Monitoring Wells, Fourth Quarter 2009, Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York.

CONSTITUENT (Units in ug/L)	NYSDEC Standards Criteria[1] and Guidance Values (ug/l)	Well:	GM-20D	GM-21D	GM-34D	GM-79D
		Sample ID:	GM-20D	GM-21D	GM-34D	GM-79D
		Date:	11/12/2009	11/13/2009	11/5/2009	11/5/2009
1,1,1-Trichloroethane	5		< 5	< 5	< 25	< 5
1,1,2,2-Tetrachloroethane	5		< 5	< 5	< 25	< 5
1,1,2-Trichloroethane	5		< 5	< 5	< 25	< 5
1,1-Dichloroethane	5		< 5	< 5	< 25	< 5
1,1-Dichloroethene	5		< 5	< 5	**8.4 J**	< 5
1,2-Dichloroethane	5		< 5	< 5	< 25	< 5
1,2-Dichloropropane	5		< 5	< 5	< 25	< 5
2-Butanone	50		< 50	< 50	< 250	< 50
2-Hexanone	50		< 50	< 50	< 250	< 50
4-methyl-2-pentanone	50		< 50	< 50	< 250	< 50
Acetone	50		< 50	< 50	< 250	< 50 B
Benzene	0.7		< 0.7	< 0.7	< 3.5	< 0.7
Bromodichloromethane	50		< 5	< 5	< 25	< 5
Bromoform	50		< 5	< 5	< 25	< 5
Bromomethane	5		< 5	< 5	< 25	< 5
Carbon Disulfide	50		< 5	< 5	< 25	< 5
Carbon tetrachloride	5		< 5	< 5	< 25	< 5
Chlorobenzene	5		< 5	< 5	< 25	< 5
Chloroethane	5		< 5	< 5	< 25	< 5
Chloroform	7		< 5	< 5	< 25	< 5
Chloromethane	5		< 5	< 5	< 25	< 5
cis-1,2-dichloroethene	5		< 5	< 5	**7.1 J**	**0.34 J**
cis-1,3-dichloropropene	5		< 5	< 5	< 25	< 5
Dibromochloromethane	5		< 5	< 5	< 25	< 5
Ethylbenzene	5		< 5	< 5	< 25	< 5
Methylene Chloride	5		< 5	< 5	< 25	< 5
Styrene	5		< 5	< 5	< 25	< 5
Tetrachloroethene	5		< 5	< 5	**6 J**	**0.86 J**
Toluene	5		< 5	< 5	< 25	< 5
trans-1,2-dichloroethene	5		< 5	< 5	< 25	< 5
trans-1,3-dichloropropene	5		< 5	< 5	< 25	< 5
Trichloroethylene	5		< 5	**0.67 J**	**490**	**33**
Trichlorotrifluoroethane (Freon 113)	5		< 5	< 5	**10 J**	**0.49 J**
Vinyl Chloride	2		< 2	< 2	< 10	< 2
Xylene-o	5		< 5	< 5	< 25	< 5
Xylenes - m,p	5		< 5	< 5	< 25	< 5
Total VOCs			0	**0.67**	**521.5**	**34.69**

(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 value listed.

Bold **Constituent detected**

Constituent exceeds SCG value

NYSDEC New York State Department of Environmental Conservation

TOGs Technical and Operational Guidance Series

ug/L Micrograms per liter

VOCs Volatile Organic Compounds

J Value is estimated

B Compound detected in associated blank sample

Table 7. Concentration of Volatile Organic Compounds Detected in Deep2 Monitoring Wells, and Groundwater Remedial Wells and Treatment Systems, Fourth Quarter 2008, Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York.

CONSTITUENT (Units in ug/L)	NYSDEC Standards Criteria[1] and Guidance Values (ug/l)	Well:	GM-33D2	GM-34D2	GM-35D2	GM-75D2	WELL 17	WELL 18
		Sample ID:	GM-33D2	GM-34D2	GM-35D2	GM-75D2	WELL 17	WELL 18
		Date:	11/6/2009	11/5/2009	11/16/2009	11/6/2009	11/9/2009	11/9/2009
1,1,1-Trichloroethane	5		< 5	< 10	< 5	< 5	< 10	**1.5 J**
1,1,2,2-Tetrachloroethane	5		< 5	< 10	< 5	< 5	< 10	< 5
1,1,2-Trichloroethane	5		< 5	< 10	< 5	< 5	< 10	< 5
1,1-Dichloroethane	5		< 5	< 10	< 5	< 5	**0.86 J**	**1.1 J**
1,1-Dichloroethene	5		< 5	**1.8 J**	**0.62 J**	**1 J**	**2 J**	**4.3 J**
1,2-Dichloroethane	5		< 5	< 10	< 5	< 5	< 10	< 5
1,2-Dichloropropane	5		< 5	< 10	< 5	< 5	< 10	< 5
2-Butanone	50		< 50	< 100	< 50	< 50	< 100	< 50
2-Hexanone	50		< 50	< 100	< 50	< 50	< 100	< 50
4-methyl-2-pentanone	50		< 50	< 100	< 50	< 50	< 100	< 50
Acetone	50		< 50	< 100 B	< 50	**2.6 J**	< 100	< 50
Benzene	0.7		< 0.7	< 1.4	< 0.7	< 0.7	< 1.4	< 0.7
Bromodichloromethane	50		< 5	< 10	< 5	< 5	< 10	< 5
Bromoform	50		< 5	< 10	< 5	< 5	< 10	< 5
Bromomethane	5		< 5	< 10	< 5	< 5	< 10	< 5
Carbon Disulfide	50		< 5	< 10	< 5	< 5	< 10	< 5
Carbon tetrachloride	5		< 5	< 10	< 5	< 5	< 10	< 5
Chlorobenzene	5		< 5	< 10	< 5	< 5	< 10	< 5
Chloroethane	5		< 5	< 10	< 5	< 5	< 10	< 5
Chloroform	7		< 5	< 10	< 5	< 5	< 10	< 5
Chloromethane	5		< 5	< 10	< 5	< 5	< 10	< 5
cis-1,2-dichloroethene	5		**0.58 J**	**8.4 J**	**1.4 J**	< 5	**3.4 J**	**1.8 J**
cis-1,3-dichloropropene	5		< 5	< 10	< 5	< 5	< 10	< 5
Dibromochloromethane	5		< 5	< 10	< 5	< 5	< 10	< 5
Ethylbenzene	5		< 5	< 10	< 5	< 5	< 10	< 5
Methylene Chloride	5		< 5	< 10	< 5	< 5	< 10	< 5
Styrene	5		< 5	< 10	< 5	< 5	< 10	< 5
Tetrachloroethene	5		**9.6**	**7.1 J**	**8.5**	**3.1 J**	**23**	**12**
Toluene	5		< 5	< 10	< 5	< 5	< 10	< 5
trans-1,2-dichloroethene	5		< 5	< 10	< 5	< 5	< 10	< 5
trans-1,3-dichloropropene	5		< 5	< 10	< 5	< 5	< 10	< 5
Trichloroethylene	5		**48**	**210**	**200**	**110**	**210**	**95**
Trichlorotrifluoroethane (Freon 113)	5		**23**	**2.6 J**	**3.7 J**	**0.77 J**	**7.5 J**	**1.7 J**
Vinyl Chloride	2		< 2	< 4	< 2	< 2	< 4	< 2
Xylene-o	5		< 5	< 10	< 5	< 5	< 10	< 5
Xylenes - m,p	5		< 5	< 10	< 5	< 5	< 10	< 5
Total VOCs			**81.18**	**229.9**	**214.86**	**117.47**	**246.76**	**117.4**

See last page for notes

Table 7. Concentration of Volatile Organic Compounds Detected in Deep2 Monitoring Wells, and Groundwater Remedial Wells and Treatment Systems, Fourth Quarter 2008, Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York.

CONSTITUENT (Units in ug/L)	NYSDEC Standards Criteria[1] and Guidance Values (ug/l)	Well:	WELL 19	102 EFFLUENT	WELL 1	WELL 3	96 EFFLUENT
		Sample ID:	WELL 19	102 EFFLUENT	WELL 1	WELL 3	96 EFFLUENT
		Date:	11/9/2009	11/9/2009	11/9/2009	11/9/2009	11/9/2009
1,1,1-Trichloroethane	5		**0.66 J**	< 5	**0.88 J**	< 100	< 5
1,1,2,2-Tetrachloroethane	5		< 5	< 5	< 13	< 100	< 5
1,1,2-Trichloroethane	5		< 5	< 5	< 13	< 100	< 5
1,1-Dichloroethane	5		**0.92 J**	< 5	**1.1 J**	< 100	< 5
1,1-Dichloroethene	5		**1.4 J**	< 5	**2.5 J**	**12 J**	< 5
1,2-Dichloroethane	5		**0.67 J**	< 5	< 13	< 100	< 5
1,2-Dichloropropane	5		< 5	< 5	**4.7 J**	< 100	< 5
2-Butanone	50		< 50	< 50	< 130	< 1000	< 50
2-Hexanone	50		< 50	< 50	< 130	< 1000	< 50
4-methyl-2-pentanone	50		< 50	< 50	< 130	< 1000	< 50
Acetone	50		< 50	< 50	< 130	< 1000	< 50
Benzene	0.7		< 0.7	< 0.7	< 1.8	< 14	< 0.7
Bromodichloromethane	50		< 5	< 5	< 13	< 100	< 5
Bromoform	50		< 5	< 5	< 13	< 100	< 5
Bromomethane	5		< 5	< 5	< 13	< 100	< 5
Carbon Disulfide	50		< 5	< 5	< 13	< 100	< 5
Carbon tetrachloride	5		< 5	< 5	< 13	< 100	< 5
Chlorobenzene	5		< 5	< 5	< 13	< 100	< 5
Chloroethane	5		< 5	< 5	< 13	< 100	< 5
Chloroform	7		**0.68 J**	< 5	< 13	< 100	< 5
Chloromethane	5		< 5	< 5	< 13	< 100	< 5
cis-1,2-dichloroethene	5		**19**	< 5	**4.3 J**	**13 J**	< 5
cis-1,3-dichloropropene	5		< 5	< 5	< 13	< 100	< 5
Dibromochloromethane	5		< 5	< 5	< 13	< 100	< 5
Ethylbenzene	5		< 5	< 5	< 13	< 100	< 5
Methylene Chloride	5		< 5	< 5	< 13	< 100	< 5
Styrene	5		< 5	< 5	< 13	< 100	< 5
Tetrachloroethene	5		**7.9**	< 5	**92**	**71 J**	< 5
Toluene	5		< 5	< 5	< 13	< 100	< 5
trans-1,2-dichloroethene	5		**0.41 J**	< 5	< 13	< 100	< 5
trans-1,3-dichloropropene	5		< 5	< 5	< 13	< 100	< 5
Trichloroethylene	5		**190**	**1 J**	**370**	**2400**	**2.2 J**
Trichlorotrifluoroethane (Freon 113)	5		**0.84 J**	< 5	**4.4 J**	**11 J**	< 5
Vinyl Chloride	2		< 2	< 2	< 5	**200**	< 2
Xylene-o	5		< 5	< 5	< 13	< 100	< 5
Xylenes - m,p	5		< 5	< 5	< 13	< 100	< 5
Total VOCs			**222.86**	**1**	**479.88**	**2707**	**2.2**

[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 value listed.

Bold **Constituent detected**

Constituent exceeds SCG value

NYSDEC New York State Department of Environmental Conservation

TOGs Technical and Operational Guidance Series

ug/L Micrograms per liter

VOCs Volatile Organic Compounds

J Value is estimated

B Compound detected in associated blank sample

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Table 8. Concentrations of Site-Related Volatile Organic Compounds Detected in Outpost Wells, Fourth Quarter 2009, Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York.

CONSTITUENT (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values [1] (ug/L)	Well: / Sample ID: / Date:	BPOW 1-1 BPOW 1-1 11/11/2009	BPOW 1-2 BPOW 1-2 11/11/2009	BPOW 1-3 BPOW 1-3 11/11/2009	BPOW 1-3 BPOW 1-3 (REP) 11/11/2009	BPOW 3-1 BPOW 3-1 11/9/2009	BPOW 3-2 BPOW 3-2 11/9/2009	BPOW 4-1 BPOW 4-1 11/10/2009	BPOW 4-2 BPOW 4-2 11/10/2009
1,1,1-Trichloroethane	5		**0.81**	< 0.5	**2.1**	**2.2**	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2,2-Tetrachlroethane	5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,1-Dichloroethane	5		**0.34 J**	< 0.5	**0.81**	**0.86**	< 0.5	< 0.5	< 0.5	< 0.5
1,1-Dichloroethene	5		**0.48 J**	< 0.5	**1.5**	**1.6**	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichloroethane	5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chlorobenzene	5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chloroform	7		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
cis-1,2-Dichloroethene	5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichlorotrifluoroethane (Freon 113)	5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	**0.55**	< 0.5
Tetrachlroethene	5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
trans-1,2-Dichloroethene	5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethlene	5		**1.3**	< 0.5	**0.72**	**0.73**	< 0.5	< 0.5	< 0.5	< 0.5
Total Site-Related VOCs [2] :			**2.93**	0	**5.13** [3]	**5.39** [3]	0	0	**0.55**	0
TVOC Trigger Value [4]:			**0.6**	**0.6**	**0.6**	**0.6**	**1.5**	**1.5**	**1.5**	**1.5**

Note: Outpost wells OW2-1 and OW2-2 were not sampled by Northrop Grumman this round, due to ongoing Navy activities.

(1) Standards Critieria and Guidance (SCGs) values based on the Groundwater Feasibility Study Report (ARCADIS Geraherty & Miller, Inc. 2000) are based on they NYSDEC TOGs (NYSDEC 1998); most stringent values listed.

(2) Site-related VOCs were established in the Public Water Supply Contingency Plan (PWSCP) (ARCADIS G&M, Inc. 2003).

(3) The TVOC Trigger Value for Cluster 1 was initially exceeded on April 23, 2004; confirmatory sampling and reporting was conducted as per the PWSCP (ARCADIS G&M, Inc. 2003).

(4) TVOC Trigger Values were established in the PWSCP (ARCADIS G&M, Inc. 2003).

NYSDEC New York State Department of Environmental Conservation
TOGs Technical and Operational Guidance Series
ug/L Micrograms per liter
Bold Constituent detected
VOC Volatile organic compounds
TVOC Total volatile organic compounds

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Table 9. Concentration of Tentatively Identified Compounds (TICs) Detectected in Groundwater Samples in Year 2009
Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York.

Well Identification (units in ug/L)	Constituent: Sample Date	Hexanal
FB081409	8/14/2009	**9 JN**
FB081709	8/17/2009	**5.8 JN**
FB081909	8/19/2009	**6.6 JN**
FB082009	8/20/2009	**5.5 JN**

Notes

TICs are identified based on the review of mass spectrometry results via a comprehensive library search of all organic compounds

ug/L Micrograms per liter

N Presumptive evidence of this constituent. Calibration was not ran for this constituent; therefore the results should be used for qualitative purposes only.

J Estimated value

Table 10. Concentrations of Volatile Organic Compounds Detected in Blank Samples, Fourth Quarter 2009, Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York.

Constituent (units in ug/L)	Well ID: / Sample ID: / Sample Date:	Field Blank [1] FB110509 11/5/2009	Trip Blank [1] TB 11-16-09 11/16/2009	Trip Blank [1] TB110509 11/5/2009	Trip Blank [1] TB110609 11/6/2009	Trip Blank [1] TB111009 11/9/2009
1,1,1,2-Tetrachloroethane		--	--	--	--	--
1,1,1-Trichloroethane		< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
1,1,2,2-Tetrachloroethane		< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
1,1,2-Trichloroethane		< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
1,1-Dichloroethane		< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
1,1-Dichloroethene		< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
1,1-Dichloropropene		--	--	--	--	--
1,2,3-Trichlorobenzene		--	--	--	--	--
1,2,3-Trichloropropane		--	--	--	--	--
1,2,4,Trichlorobenzene		--	--	--	--	--
1,2,4-Trimethylbenzene		--	--	--	--	--
1,2-Dibromo-3-Chloropropane		--	--	--	--	--
1,2-Dibromoethane		--	--	--	--	--
1,2-Dichlorobenzene		--	--	--	--	--
1,2-Dichloroethane		< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
1,2-Dichloropropane		< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
1,3,5-Trimethylbenzene		--	--	--	--	--
1,3-Dichloropropane		--	--	--	--	--
1,3-Dichlorobenzene		--	--	--	--	--
1,4-Dichlorobenzene		--	--	--	--	--
2,2-Dichloropropane		--	--	--	--	--
2-Butanone		< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
2-Chlorotoluene		--	--	--	--	--
2-Hexanone		< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
2-Phenylbutane		--	--	--	--	--
4-Chlorotoluene		--	--	--	--	--
4-Isopropyltoluene		--	--	--	--	--
4-methyl-2-pentanone		< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
Acetone		**2.4 J**	< 50 U	**2.1 J**	< 50 U	**1.5 J**
Benzene		< 0.7 U	< 0.7 U	< 0.7 U	< 0.7 U	< 0.7 U
Bromobenzene		--	--	--	--	--
Bromodichloromethane		< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Bromoform		< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Bromomethane		< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Carbon Disulfide		< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Carbon tetrachloride		< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Chlorobenzene		< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Chlorobromomethane		--	--	--	--	--
Chlorodifluoromethane (Freon 22)		< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Chloroethane		< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Chloroform		< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Chloromethane		< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
cis-1,2-dichloroethene		< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
cis-1,3-dichloropropene		< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Dibromochloromethane		< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Dibromomethane		--	--	--	--	--
Dichlorodifluoromethane (Freon 12)		< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Ethylbenzene		< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Hexachloro-1,3-butadiene		--	--	--	--	--
Isopropylbenzene		--	--	--	--	--
Methyl tert-Butyl Ether		--	--	--	--	--
Methylene Chloride		< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Naphthalene		--	--	--	--	--
n-Butylbenzene		--	--	--	--	--
n-Propylbenzene		--	--	--	--	--
Styrene		< 5 U	< 5 U	< 5 U	< 5 U	< 5 U

Notes on last page

Table 10. Concentrations of Volatile Organic Compounds Detected in Blank Samples, Fourth Quarter 2009, Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York.

Constituent (units in ug/L)	Well ID: / Sample ID: / Sample Date:	Field Blank [1] FB110509 11/5/2009	Trip Blank [1] TB 11-16-09 11/16/2009	Trip Blank [1] TB110509 11/5/2009	Trip Blank [1] TB110609 11/6/2009	Trip Blank [1] TB111009 11/9/2009
Tert-butyl Alcohol		--	--	--	--	--
tert-Butylbenzene		--	--	--	--	--
Tetrachloroethene		< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Toluene		**2.1 J**	< 5 U	< 5 U	< 5 U	< 5 U
trans-1,2-dichloroethene		< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
trans-1,3-dichloropropene		< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Trichloroethylene		< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Trichlorofluoromethane		--	--	--	--	--
Trichlorotrifluoroethane (Freon 113)		< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Vinyl Chloride		< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Xylene-o		< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Xylenes - m,p		**0.48 J**	< 5 U	< 5 U	< 5 U	< 5 U
Total VOCs		**4.98**	0	**2.1**	0	**1.5**

Notes on last page

Table 10. Concentrations of Volatile Organic Compounds Detected in Blank Samples, Fourth Quarter 2009, Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York.

Constituent (units in ug/L)	Well ID: / Sample ID: / Sample Date:	Trip Blank [1] TB11-12-09 11/12/2009	Trip Blank [1] TB11-13-09 11/13/2009	Trip Blank [2] TB-1 111009 11/9/2009	Trip Blank [2] TB111109 11/11/2009
1,1,1,2-Tetrachloroethane		--	--	< 0.5 U	< 0.5 U
1,1,1-Trichloroethane		< 5 U	< 5 U	< 0.5 U	< 0.5 U
1,1,2,2-Tetrachloroethane		< 5 U	< 5 U	< 0.5 U	< 0.5 U
1,1,2-Trichloroethane		< 5 U	< 5 U	< 0.5 U	< 0.5 U
1,1-Dichloroethane		< 5 U	< 5 U	< 0.5 U	< 0.5 U
1,1-Dichloroethene		< 5 U	< 5 U	< 0.5 U	< 0.5 U
1,1-Dichloropropene		--	--	< 0.5 U	< 0.5 U
1,2,3-Trichlorobenzene		--	--	< 0.5 U	< 0.5 U
1,2,3-Trichloropropane		--	--	< 0.5 U	< 0.5 U
1,2,4,Trichlorobenzene		--	--	< 0.5 U	< 0.5 U
1,2,4-Trimethylbenzene		--	--	< 0.5 U	< 0.5 U
1,2-Dibromo-3-Chloropropane		--	--	< 0.5 U	< 0.5 U
1,2-Dibromoethane		--	--	< 0.5 U	< 0.5 U
1,2-Dichlorobenzene		--	--	< 0.5 U	< 0.5 U
1,2-Dichloroethane		< 5 U	< 5 U	< 0.5 U	< 0.5 U
1,2-Dichloropropane		< 5 U	< 5 U	< 0.5 U	< 0.5 U
1,3,5-Trimethylbenzene		--	--	< 0.5 U	< 0.5 U
1,3-Dichloropropane		--	--	< 0.5 U	< 0.5 U
1,3-Dichlorobenzene		--	--	< 0.5 U	< 0.5 U
1,4-Dichlorobenzene		--	--	< 0.5 U	< 0.5 U
2,2-Dichloropropane		--	--	< 0.5 U	< 0.5 U
2-Butanone		< 50 U	< 50 U	--	--
2-Chlorotoluene		--	--	< 0.5 U	< 0.5 U
2-Hexanone		< 50 U	< 50 U	--	--
2-Phenylbutane		--	--	< 0.5 U	< 0.5 U
4-Chlorotoluene		--	--	< 0.5 U	< 0.5 U
4-Isopropyltoluene		--	--	< 0.5 U	< 0.5 U
4-methyl-2-pentanone		< 50 U	< 50 U	--	--
Acetone		< 50 U	< 50 U	--	--
Benzene		< 0.7 U	< 0.7 U	< 0.5 U	< 0.5 U
Bromobenzene		--	--	< 0.5 U	< 0.5 U
Bromodichloromethane		< 5 U	< 5 U	< 0.5 U	< 0.5 U
Bromoform		< 5 U	< 5 U	< 0.5 U	< 0.5 U
Bromomethane		< 5 U	< 5 U	< 0.5 U	< 0.5 U
Carbon Disulfide		< 5 U	< 5 U	--	--
Carbon tetrachloride		< 5 U	< 5 U	< 0.5 U	< 0.5 U
Chlorobenzene		< 5 U	< 5 U	< 0.5 U	< 0.5 U
Chlorobromomethane		--	--	< 0.5 U	< 0.5 U
Chlorodifluoromethane (Freon 22)		< 5 U	< 5 U	--	--
Chloroethane		< 5 U	< 5 U	< 0.5 U	< 0.5 U
Chloroform		< 5 U	< 5 U	< 0.5 U	< 0.5 U
Chloromethane		< 5 U	< 5 U	< 0.5 U	< 0.5 U
cis-1,2-dichloroethene		< 5 U	< 5 U	< 0.5 U	< 0.5 U
cis-1,3-dichloropropene		< 5 U	< 5 U	< 0.5 U	< 0.5 U
Dibromochloromethane		< 5 U	< 5 U	< 0.5 U	< 0.5 U
Dibromomethane		--	--	< 0.5 U	< 0.5 U
Dichlorodifluoromethane (Freon 12)		< 5 U	< 5 U	< 0.5 U	< 0.5 U
Ethylbenzene		< 5 U	< 5 U	< 0.5 U	< 0.5 U
Hexachloro-1,3-butadiene		--	--	< 0.5 U	< 0.5 U
Isopropylbenzene		--	--	< 0.5 U	< 0.5 U
Methyl tert-Butyl Ether		--	--	< 0.5 U	< 0.5 U
Methylene Chloride		< 5 U	< 5 U	< 0.5 U	< 0.5 U
Naphthalene		--	--	< 0.5 U	< 0.5 U
n-Butylbenzene		--	--	< 0.5 U	< 0.5 U
n-Propylbenzene		--	--	< 0.5 U	< 0.5 U
Styrene		< 5 U	< 5 U	< 0.5 U	< 0.5 U

Notes on last page

Table 10. Concentrations of Volatile Organic Compounds Detected in Blank Samples, Fourth Quarter 2009, Operable Unit 2, Northrop Grumman Systems Corporation, Bethpage, New York.

Constituent (units in ug/L)	Well ID: / Sample ID: / Sample Date:	Trip Blank [1] TB11-12-09 11/12/2009	Trip Blank [1] TB11-13-09 11/13/2009	Trip Blank [2] TB-1 111009 11/9/2009	Trip Blank [2] TB111109 11/11/2009
Tert-butyl Alcohol		--	--	< 20 U	< 20 U
tert-Butylbenzene		--	--	< 0.5 U	< 0.5 U
Tetrachloroethene		< 5 U	< 5 U	< 0.5 U	< 0.5 U
Toluene		< 5 U	< 5 U	< 0.5 U	< 0.5 U
trans-1,2-dichloroethene		< 5 U	< 5 U	< 0.5 U	< 0.5 U
trans-1,3-dichloropropene		< 5 U	< 5 U	< 0.5 U	< 0.5 U
Trichloroethylene		< 5 U	< 5 U	< 0.5 U	< 0.5 U
Trichlorofluoromethane		--	--	< 0.5 U	< 0.5 U
Trichlorotrifluoroethane (Freon 113)		< 5 U	< 5 U	< 0.5 U	< 0.5 U
Vinyl Chloride		< 2 U	< 2 U	< 0.5 U	< 0.5 U
Xylene-o		< 5 U	< 5 U	< 0.5 U	< 0.5 U
Xylenes - m,p		< 5 U	< 5 U	< 1 U	< 1 U
Total VOCs		0	0	0	0

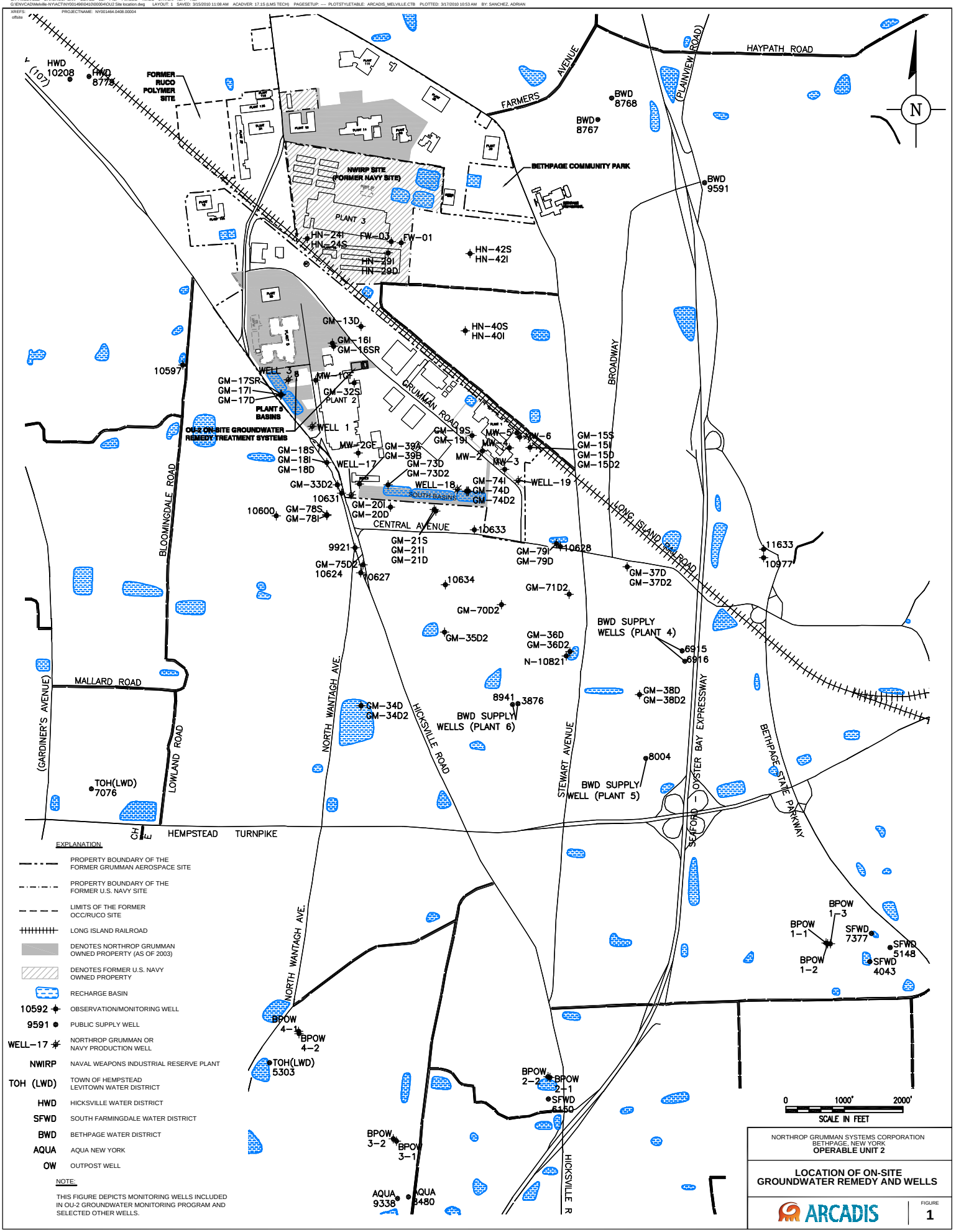
Notes

[1] Sample analysis by CLP Method OLM 4.2.

[2] Sample analysis by USEPA Method 524.2.

Bold constituent detected

CLP Contract Laboratory Procedure
USEPA United States Environmental Protection Agency
-- Not Analyzed
ug/L Micrograms per liter
VOCs Volatile organic compounds
J Estimated value



EXPLANATION

- PROPERTY BOUNDARY OF THE FORMER GRUMMAN AEROSPACE SITE
- PROPERTY BOUNDARY OF THE FORMER U.S. NAVY SITE
- LIMITS OF THE FORMER OCC/RUCO SITE
- LONG ISLAND RAILROAD
- DENOTES NORTHROP GRUMMAN OWNED PROPERTY (AS OF 2003)
- DENOTES FORMER U.S. NAVY OWNED PROPERTY
- RECHARGE BASIN
- 10592 — OBSERVATION/MONITORING WELL
- 9591 — PUBLIC SUPPLY WELL
- WELL-17 — NORTHROP GRUMMAN OR NAVY PRODUCTION WELL
- NWIRP — NAVAL WEAPONS INDUSTRIAL RESERVE PLANT
- TOH (LWD) — TOWN OF HEMPSTEAD LEVITOWN WATER DISTRICT
- HWD — HICKSVILLE WATER DISTRICT
- SFWD — SOUTH FARMINGDALE WATER DISTRICT
- BWD — BETHPAGE WATER DISTRICT
- AQUA — AQUA NEW YORK
- OW — OUTPOST WELL

NOTE:

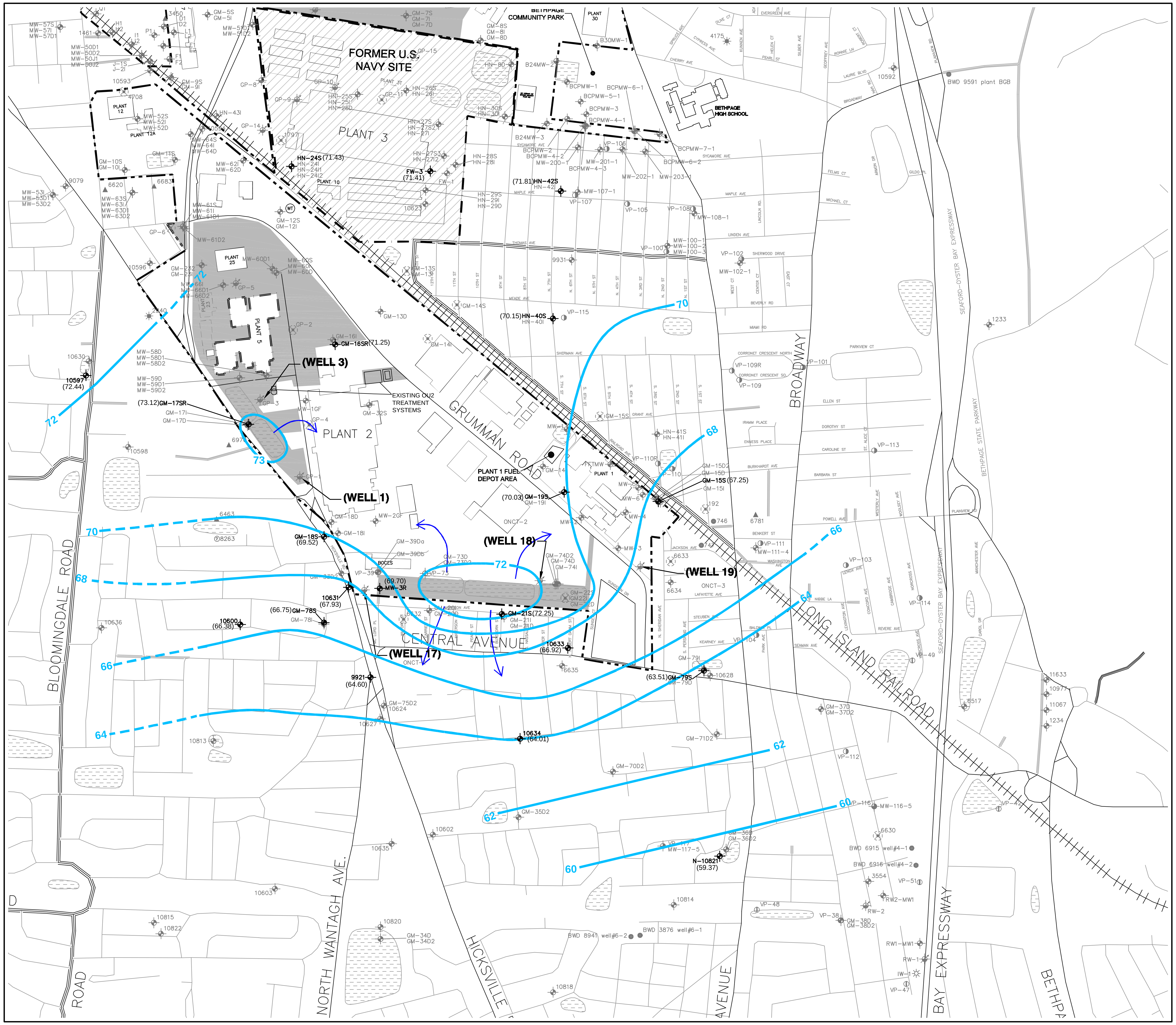
THIS FIGURE DEPICTS MONITORING WELLS INCLUDED IN OU-2 GROUNDWATER MONITORING PROGRAM AND SELECTED OTHER WELLS.

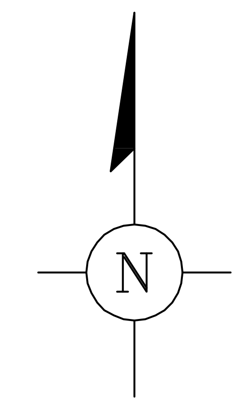
NORTHROP GRUMMAN SYSTEMS CORPORATION
BETHPAGE, NEW YORK
OPERABLE UNIT 2

LOCATION OF ON-SITE GROUNDWATER REMEDY AND WELLS

ARCADIS

FIGURE 1





EXPLANATION:

- PROPERTY BOUNDARY OF THE FORMER GRUMMAN AEROSPACE SITE
- PROPERTY BOUNDARY OF THE FORMER U.S. NAVY SITE
- LONG ISLAND RAILROAD
- DENOTES NORTHROP GRUMMAN OWNED PROPERTY (AS OF 2003)
- DENOTES FORMER U.S. NAVY OWNED PROPERTY
- RECHARGE BASIN
- WATER TOWER
- OBSERVATION/MONITORING WELL
- INDUSTRIAL WELL
- PUBLIC SUPPLY WELL
- IRRIGATION WELL
- NORTHROP GRUMMAN OR NAVY PRODUCTION WELL
- ABANDONED WELL
- COMPLETED OU-2 VERTICAL PROFILE BORING
- COMPLETED OU-3 VERTICAL PROFILE BORING
- 66 — LINE OF EQUAL POTENTIOMETRIC SURFACE ELEVATION IN FEET RELATIVE TO MEAN SEA LEVEL (DASHED WHERE INFERRED)
- (59.37) WATER-LEVEL ELEVATION IN FEET RELATIVE TO MEAN SEA LEVEL
- HORIZONTAL COMPONENT OF GROUNDWATER FLOW
- OU-2 OPERABLE UNIT 2
- OU-3 OPERABLE UNIT 3

NOTES:

1. NORTHROP GRUMMAN REMEDIAL WELLS 1, 3, 17, 18 AND 19 SCREENED IN DEEP 2 ZONE.
2. BETHPAGE WATER DISTRICT WELL 3876 SCREENED IN DEEP ZONE.
3. BETHPAGE WATER DISTRICT WELLS 6915, 6916 AND 8941 SCREENED IN DEEP 2 ZONE.

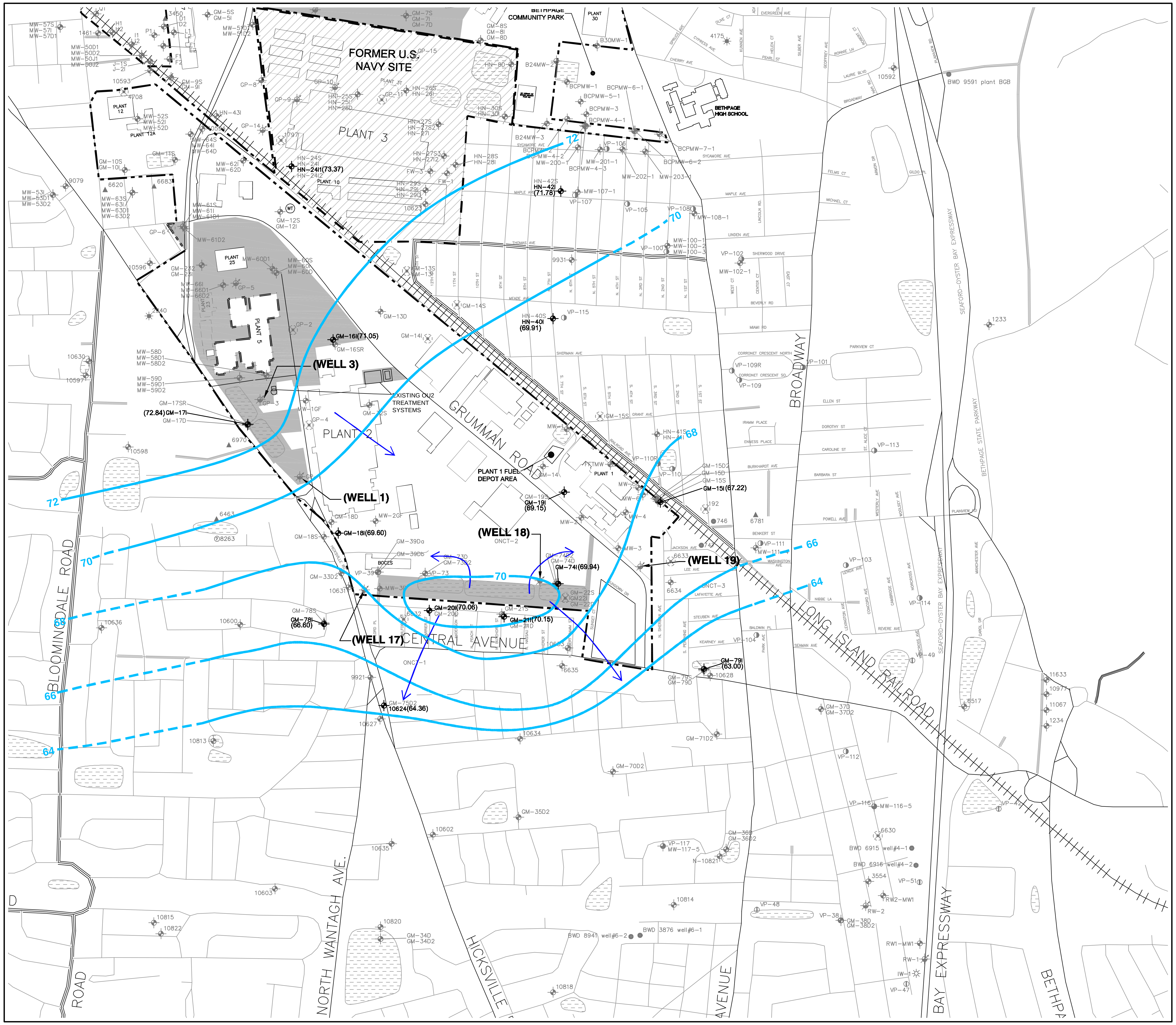
ALL COORDINATES REFERENCED TO NORTH AMERICAN DATUM 1983

NORTHROP GRUMMAN SYSTEMS CORPORATION
BETHPAGE, NEW YORK
OPERABLE UNIT 2

WATER-TABLE CONFIGURATION AND HORIZONTAL GROUNDWATER FLOW DIRECTION IN THE SHALLOW ZONE, AUGUST 4, 2009

ARCADIS

FIGURE **2**



EXPLANATION:

- PROPERTY BOUNDARY OF THE FORMER GRUMMAN AEROSPACE SITE
- PROPERTY BOUNDARY OF THE FORMER U.S. NAVY SITE
- LONG ISLAND RAILROAD
- DENOTES NORTHROP GRUMMAN OWNED PROPERTY (AS OF 2003)
- DENOTES FORMER U.S. NAVY OWNED PROPERTY
- RECHARGE BASIN
- WT — WATER TOWER
- OBSERVATION/MONITORING WELL
- INDUSTRIAL WELL
- PUBLIC SUPPLY WELL
- IRRIGATION WELL
- NORTHROP GRUMMAN OR NAVY PRODUCTION WELL
- ABANDONED WELL
- COMPLETED OU-2 VERTICAL PROFILE BORING
- COMPLETED OU-3 VERTICAL PROFILE BORING
- 66 — LINE OF EQUAL POTENTIOMETRIC SURFACE ELEVATION IN FEET RELATIVE TO MEAN SEA LEVEL (DASHED WHERE INFERRED)
- (69.15) — WATER-LEVEL ELEVATION IN FEET RELATIVE TO MEAN SEA LEVEL
- HORIZONTAL COMPONENT OF GROUNDWATER FLOW
- OU-2 — OPERABLE UNIT 2
- OU-3 — OPERABLE UNIT 3

0 800' 1600'

SCALE IN FEET

NOTES:

1. NORTHROP GRUMMAN REMEDIAL WELLS 1, 3, 17, 18 AND 19 SCREENED IN DEEP 2 ZONE.
2. BETHPAGE WATER DISTRICT WELL 3876 SCREENED IN DEEP ZONE.
3. BETHPAGE WATER DISTRICT WELLS 6915, 6916 AND 8941 SCREENED IN DEEP 2 ZONE.

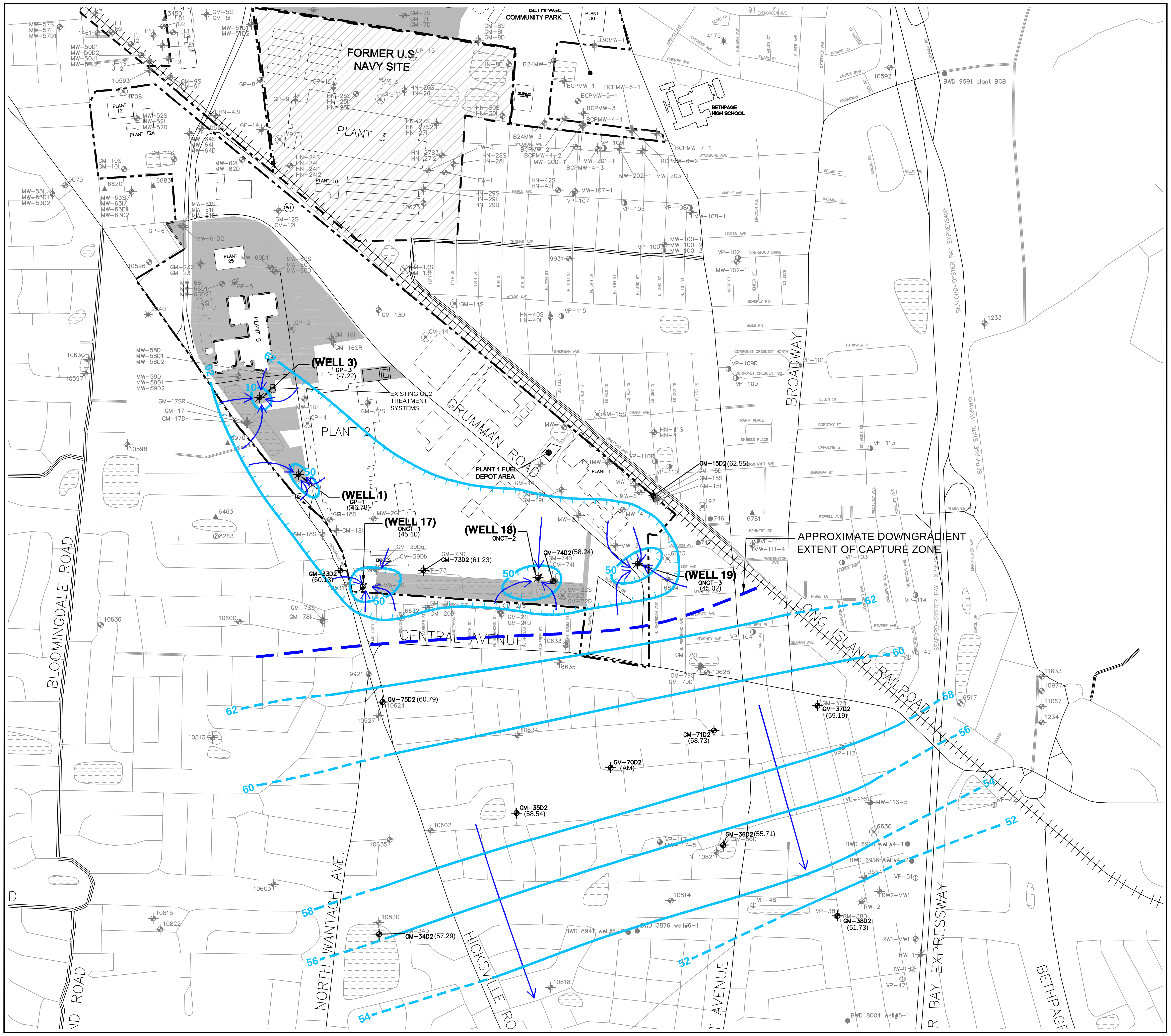
ALL COORDINATES REFERENCED TO NORTH AMERICAN DATUM 1983

NORTHROP GRUMMAN SYSTEMS CORPORATION
BETHPAGE, NEW YORK
OPERABLE UNIT 2

POTENTIOMETRIC SURFACE ELEVATION AND HORIZONTAL GROUNDWATER FLOW DIRECTION IN THE INTERMEDIATE ZONE, AUGUST 4, 2009

ARCADIS

FIGURE
3



EXPLANATION:

- PROPERTY BOUNDARY OF THE FORMER GRUMMAN AEROSPACE SITE
- PROPERTY BOUNDARY OF THE FORMER U.S. NAVY SITE
- LONG ISLAND RAILROAD
- DENOTES NORTHROP GRUMMAN OWNED PROPERTY (AS OF 2003)
- DENOTES FORMER U.S. NAVY OWNED PROPERTY
- RECHARGE BASIN
- OBSERVATION/MONITORING WELL
- INDUSTRIAL WELL
- PUBLIC SUPPLY WELL
- IRRIGATION WELL
- NORTHROP GRUMMAN OR NAVY PRODUCTION WELL
- ABANDONED WELL
- COMPLETED OU-2 VERTICAL PROFILE BORING
- COMPLETED OU-3 VERTICAL PROFILE BORING
- 62 — LINE OF EQUAL POTENTIOMETRIC SURFACE ELEVATION IN FEET RELATIVE TO MEAN SEA LEVEL, DENOTES DECREASE IN WATER-LEVEL ELEVATION
- 60 — LINE OF EQUAL POTENTIOMETRIC SURFACE ELEVATION IN FEET RELATIVE TO MEAN SEA LEVEL (DASHED WHERE INFERRED)
- (51.73) WATER-LEVEL ELEVATION IN FEET RELATIVE TO MEAN SEA LEVEL
- (AM) ANOMALOUS MEASUREMENT
- HORIZONTAL COMPONENT OF GROUNDWATER FLOW
- OU-2 OPERABLE UNIT 2
- OU-3 OPERABLE UNIT 3

NOTES:

1. NORTHROP GRUMMAN REMEDIAL WELLS 1, 3, 17, 18 AND 19 SCREENED IN DEEP 2 ZONE.
2. BETHPAGE WATER DISTRICT WELL 3876 SCREENED IN DEEP ZONE.
3. BETHPAGE WATER DISTRICT WELLS 6915, 6916 AND 8941 SCREENED IN DEEP 2 ZONE.

ALL COORDINATES REFERENCED TO NORTH AMERICAN DATUM 1983

NORTHROP GRUMMAN SYSTEMS CORPORATION
BETHPAGE, NEW YORK
OPERABLE UNIT 2

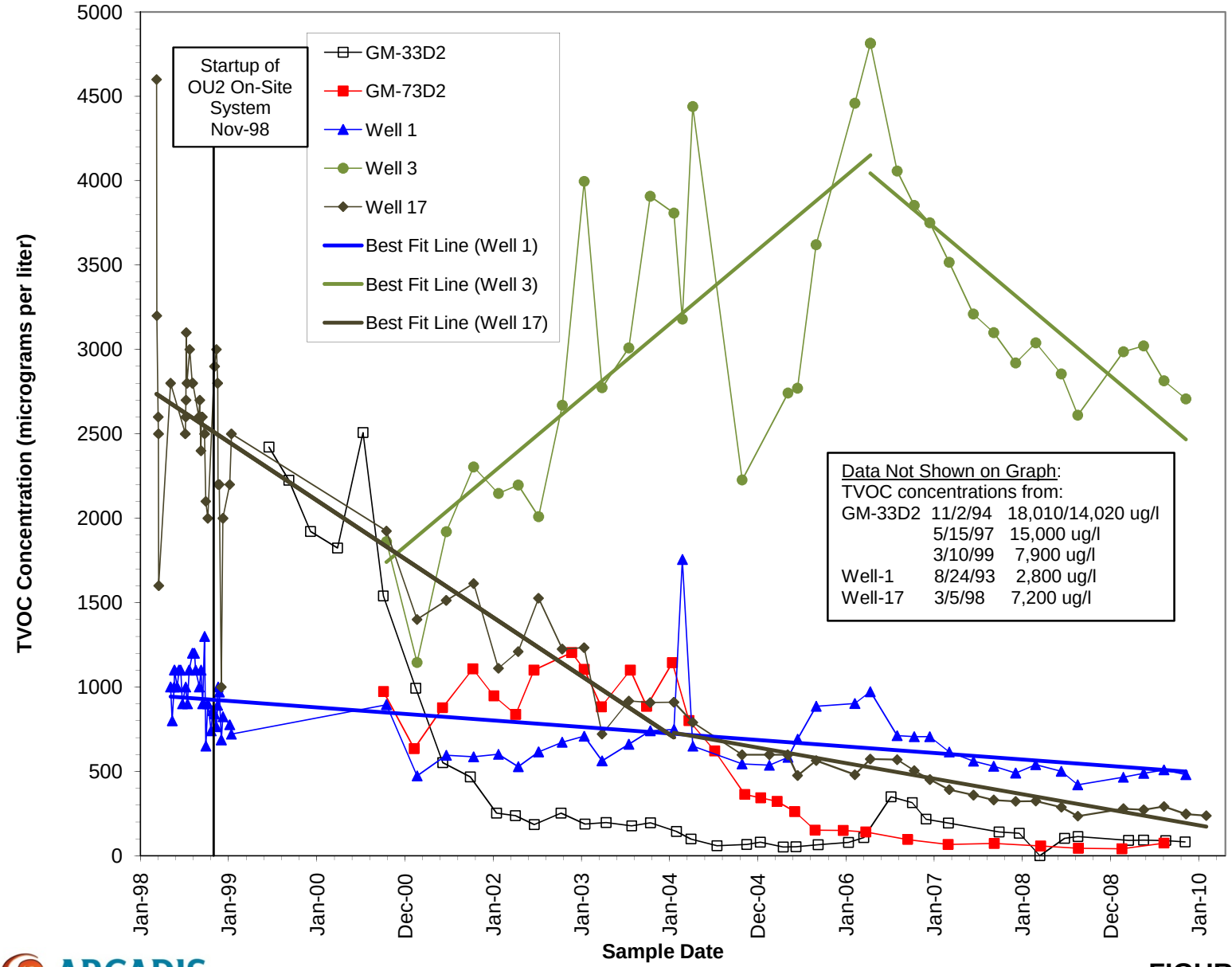
POTENTIOMETRIC SURFACE ELEVATION AND HORIZONTAL GROUNDWATER FLOW DIRECTION IN THE DEEP 2 ZONE, AUGUST 4, 2009

ARCADIS

FIGURE
4

CITY:MELVILLE DIV/GROUP:ENV DB:ALS LD: PIC: PM:CSG TM:CSG LYR:ON=*;OFF=*REF*
G:\ENVCAD\MelvilleNY\ACT\NY001492\0409\00004\DWG\4 Deep2 Contours.dwg LAYOUT: 4 SAVED: 3/19/2010 10:22 AM ACADVER: 17.1S (LMS TECH) PAGESETUP: PDF PLOTSTYLETABLE: ARCADIS_MELVILLE.CTB PLOTTED: 3/19/2010 10:34 AM BY: SANCHEZ, ADRIAN
PROJECTNAME: NY001492.0409.00004
XREFS: offsite

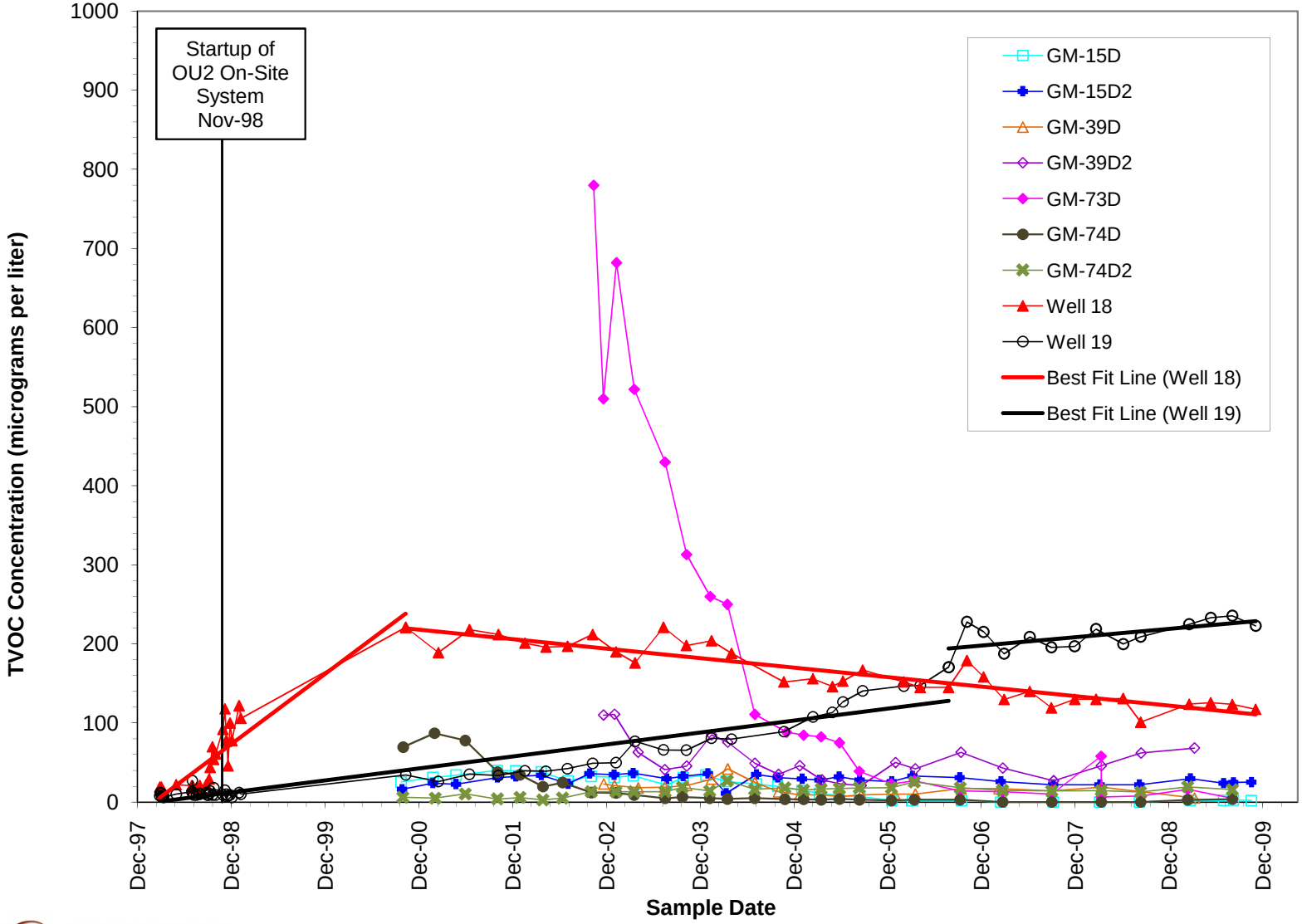
Total Volatile Organic Compound Concentrations (Southern and Southwestern Site Boundary) in OU2 Remedial Wells and On-Site Monitoring Wells GM-33D2 and GM-73D2
Northrop Grumman Systems Corporation, Bethpage, New York



ARCADIS

FIGURE 5

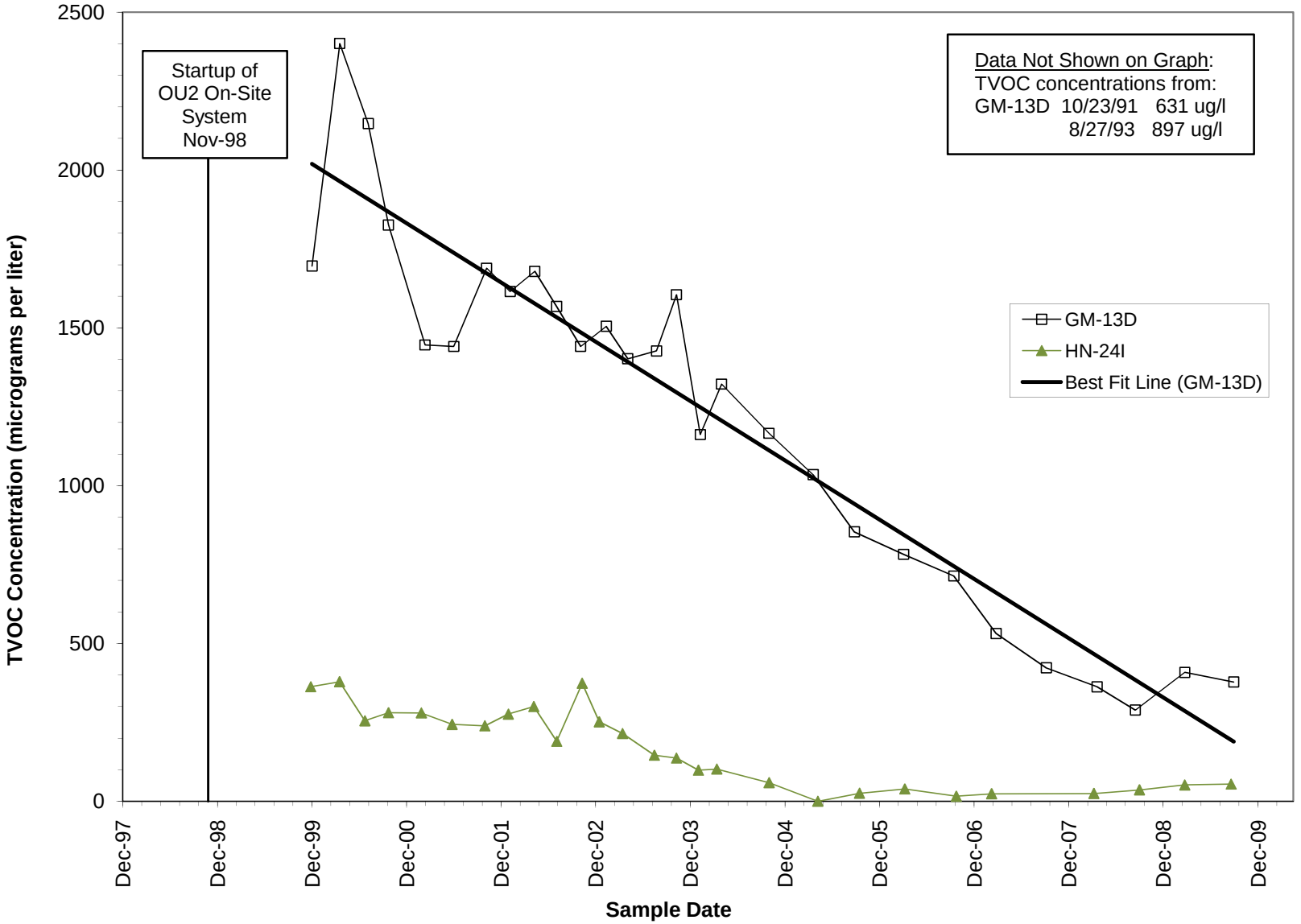
Total Volatile Organic Compound Concentrations
(Southeastern Site Boundary) in On-Site Deep and Deep2
Monitoring Wells and OU2 Remedial Wells 18 and 19
Northrop Grumman Systems Corporation, Bethpage, New York



ARCADIS

FIGURE 6

Total Volatile Organic Compound Concentrations in
On-Site Intermediate and Deep Monitoring Wells
Northrop Grumman Systems Corporation, Bethpage, New York

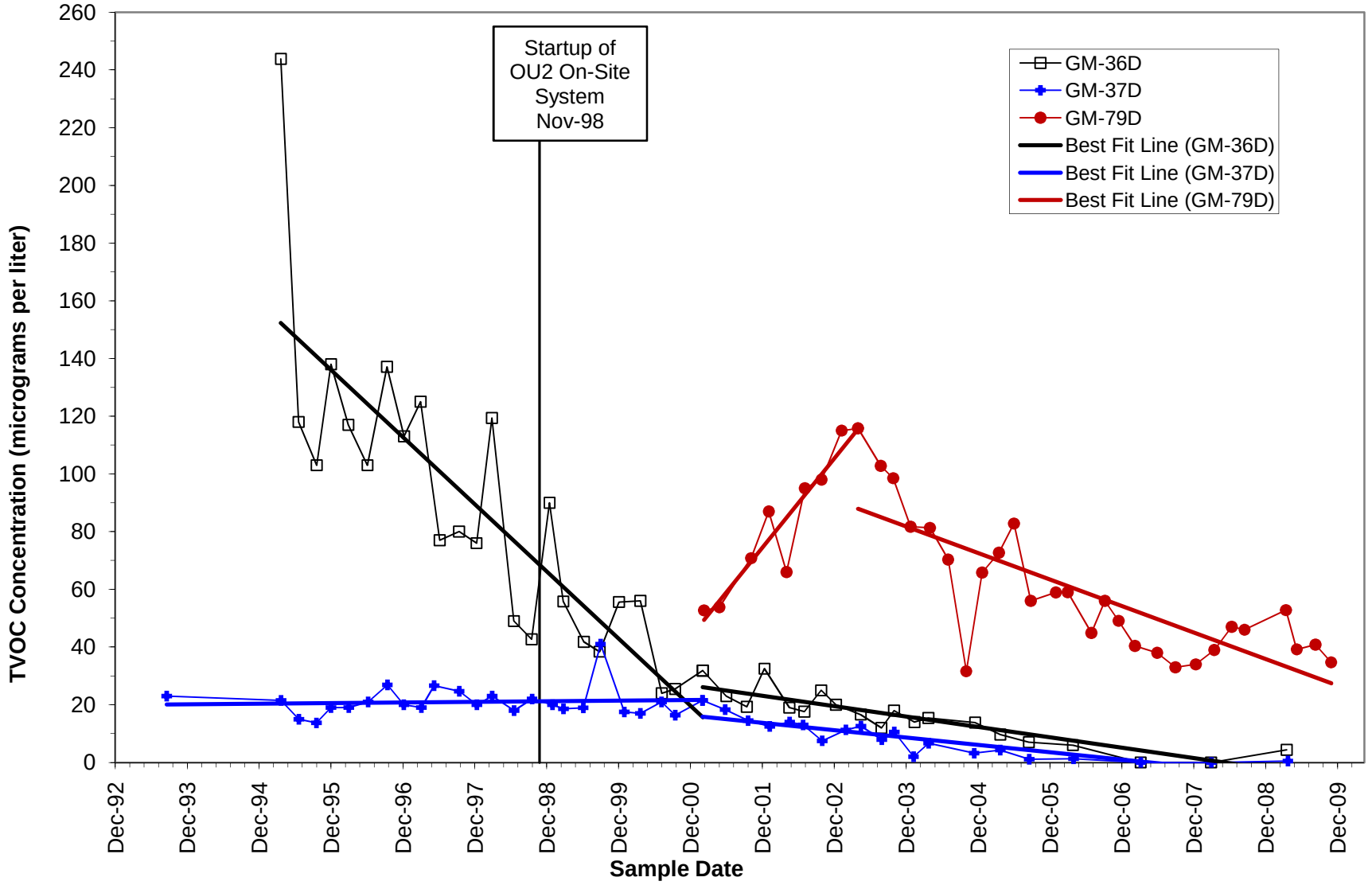


ARCADIS

FIGURE 7

G:\APROJECT\Northrop Grumman\Superfund\2009\OU2\NY001464.0409 O&M\Data\2009 Annual\2009AnnualTrendGraphs.xlsx

Total Volatile Organic Compound Concentrations in
Off-Site Deep Monitoring Wells (Southeast of the Site)
Northrop Grumman Systems Corporation, Bethpage, New York

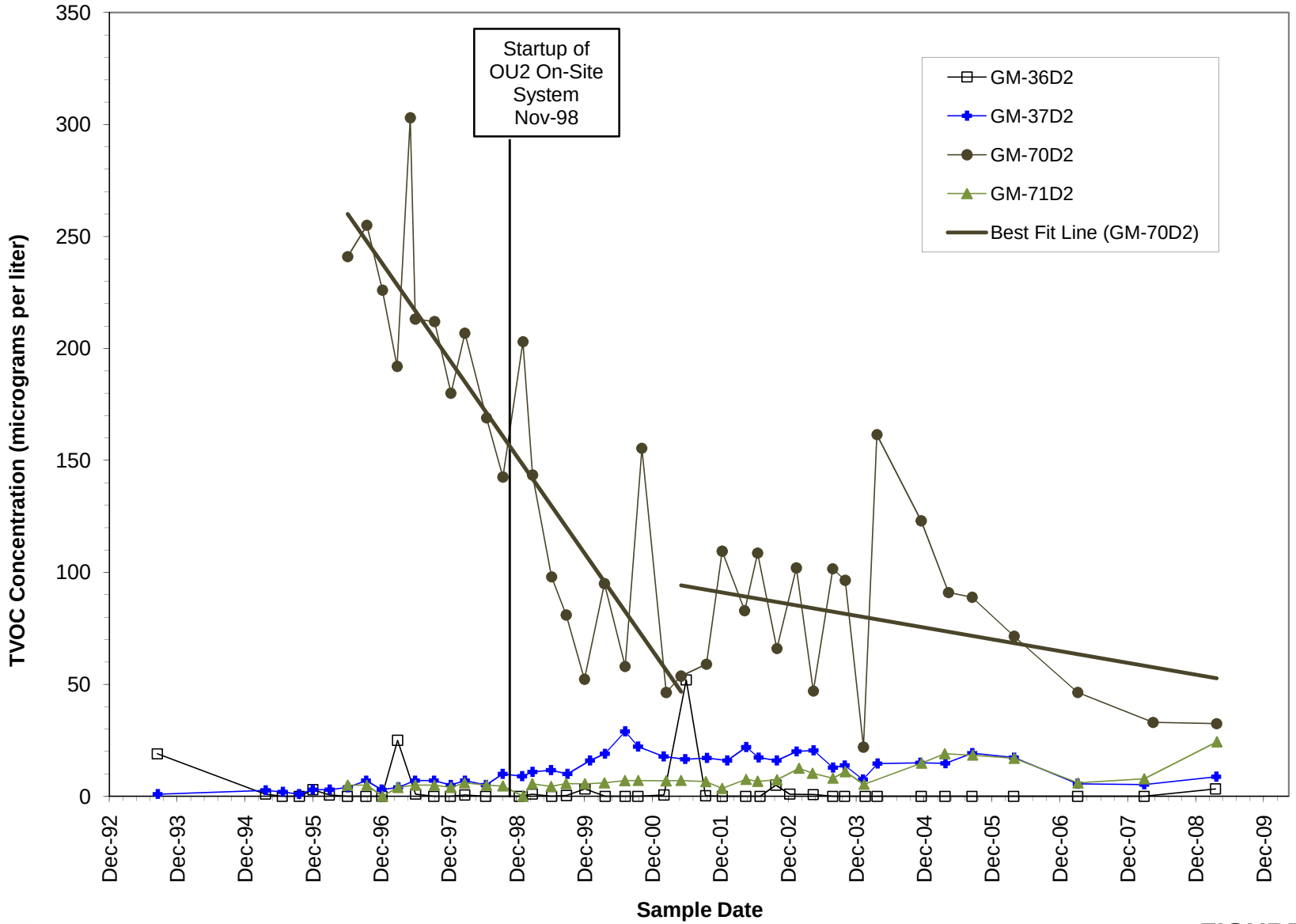


ARCADIS

FIGURE 8

G:\APROJECT\Northrop Grumman\Superfund\2009\OU2\NY001464.0409 O&M\Data\2009 Annual\2009AnnualTrendGraphs.xlsx

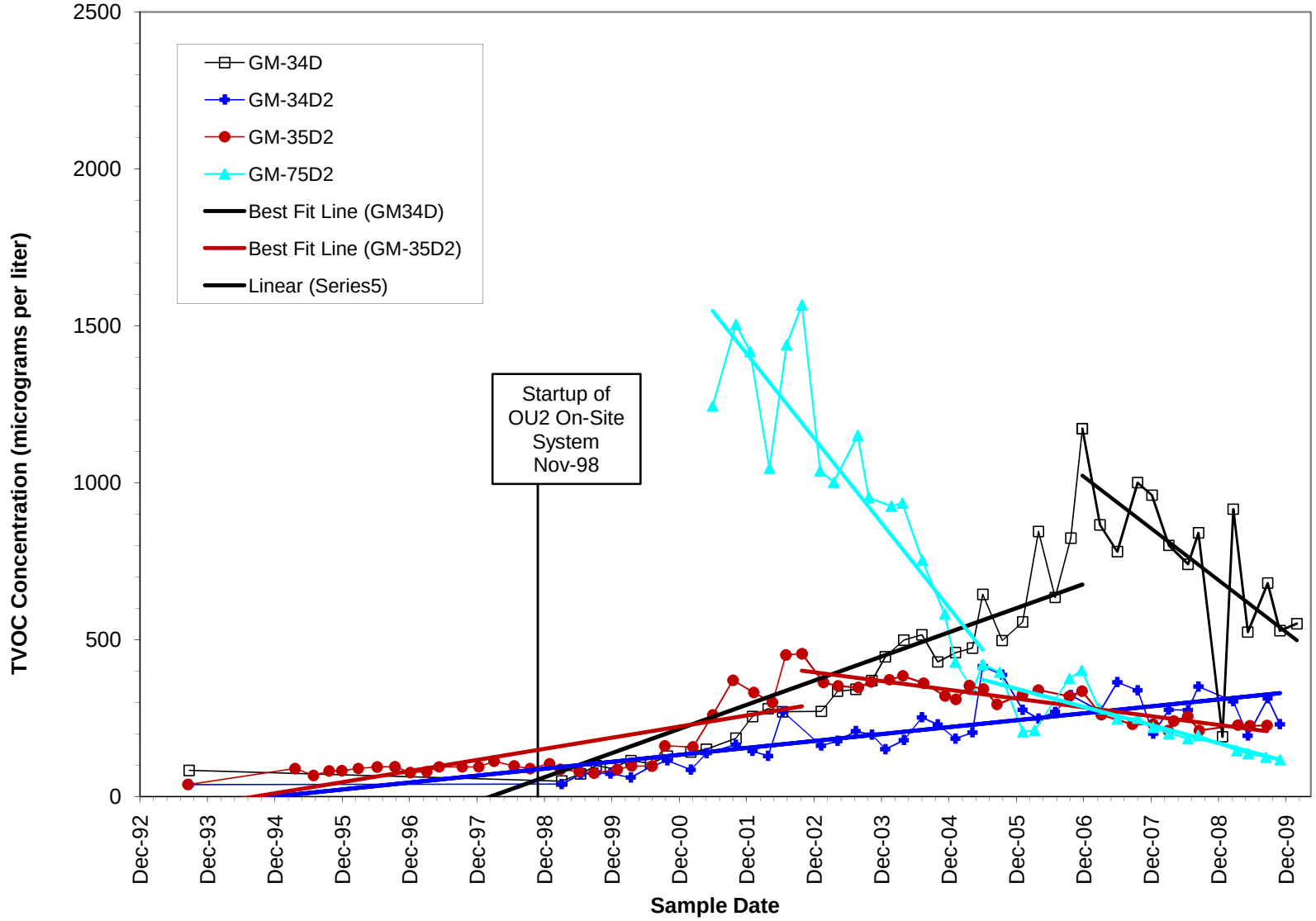
Total Volatile Organic Compound Concentrations in
Off-Site Deep2 Monitoring Wells (Southeast of the Site)
Northrop Grumman Systems Corporation, Bethpage, New York



ARCADIS

FIGURE 9

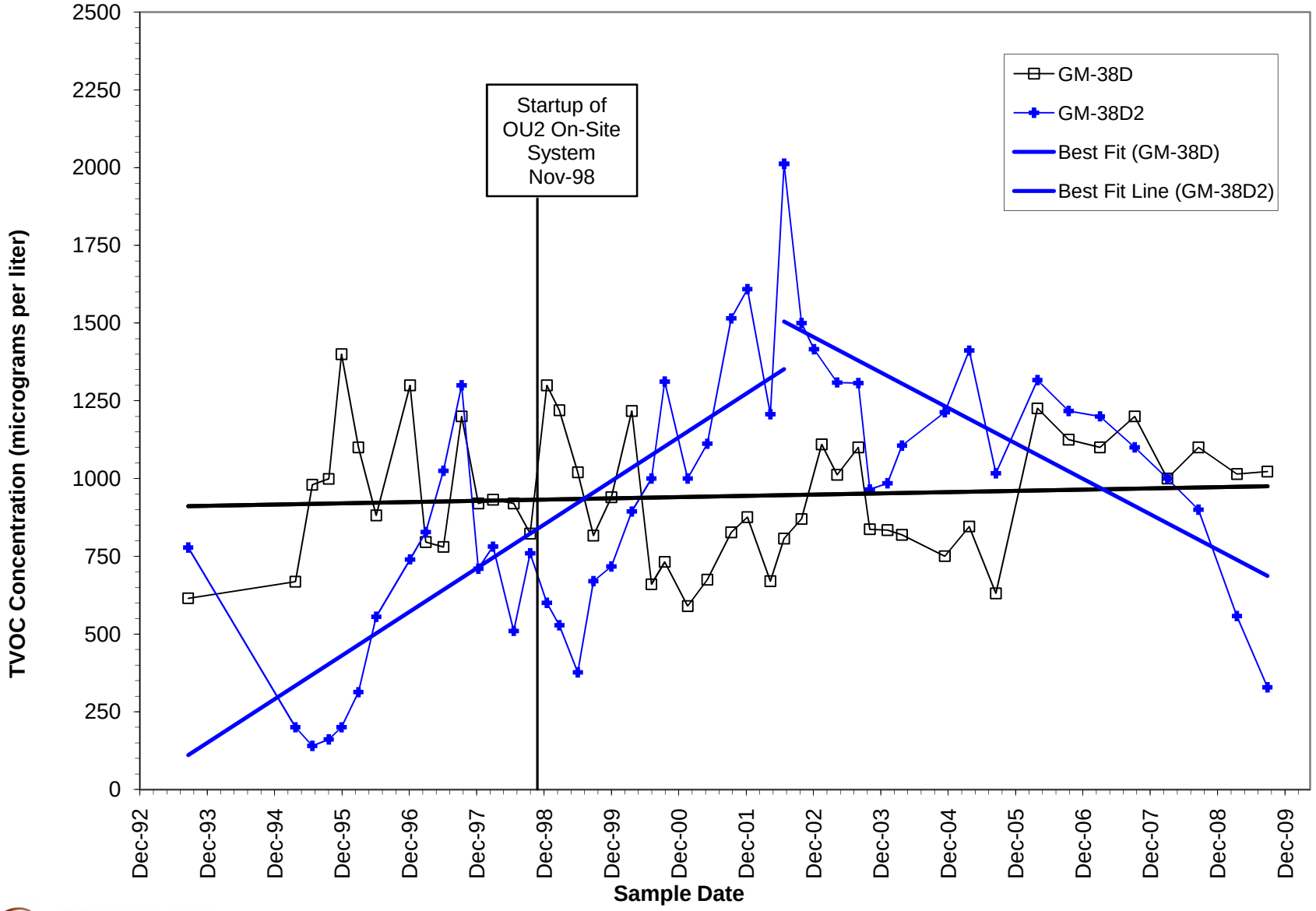
Total Volatile Organic Compound Concentrations in
Off-Site Deep and Deep2 Monitoring Wells (South of the Site)
Northrop Grumman Systems Corporation, Bethpage, New York



ARCADIS

FIGURE 10

Total Volatile Organic Compound Concentrations in
GM-38 Area (Off-Site) Deep and Deep2 Monitoring Wells
Northrop Grumman System Corporation, Bethpage, New York

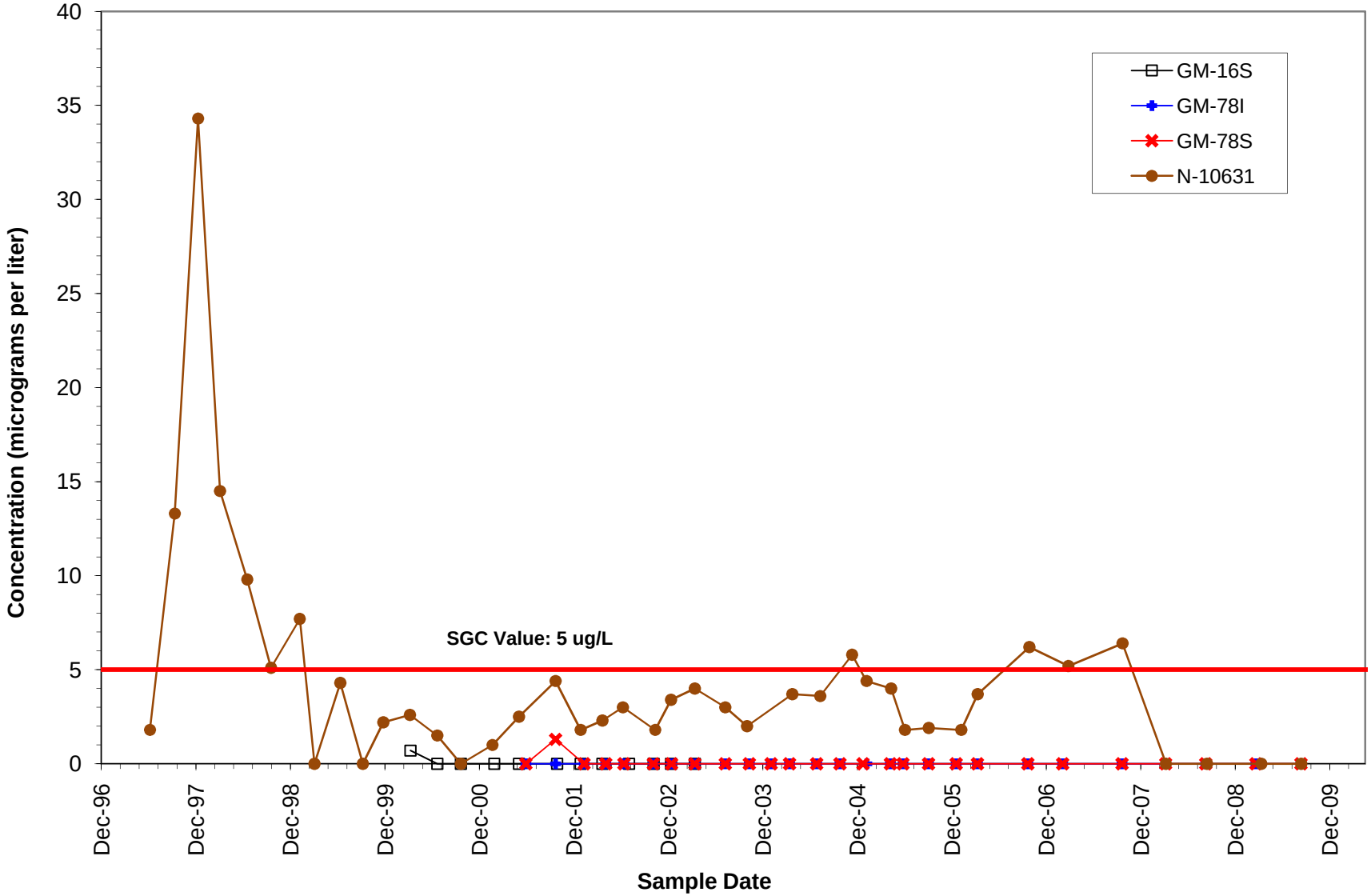


ARCADIS

FIGURE 11

G:\APROJECT\Northrop Grumman\Superfund\2009\OU2\NY001464.0409 O&M\Data\2009 Annual\2009AnnualTrendGraphs.xlsx

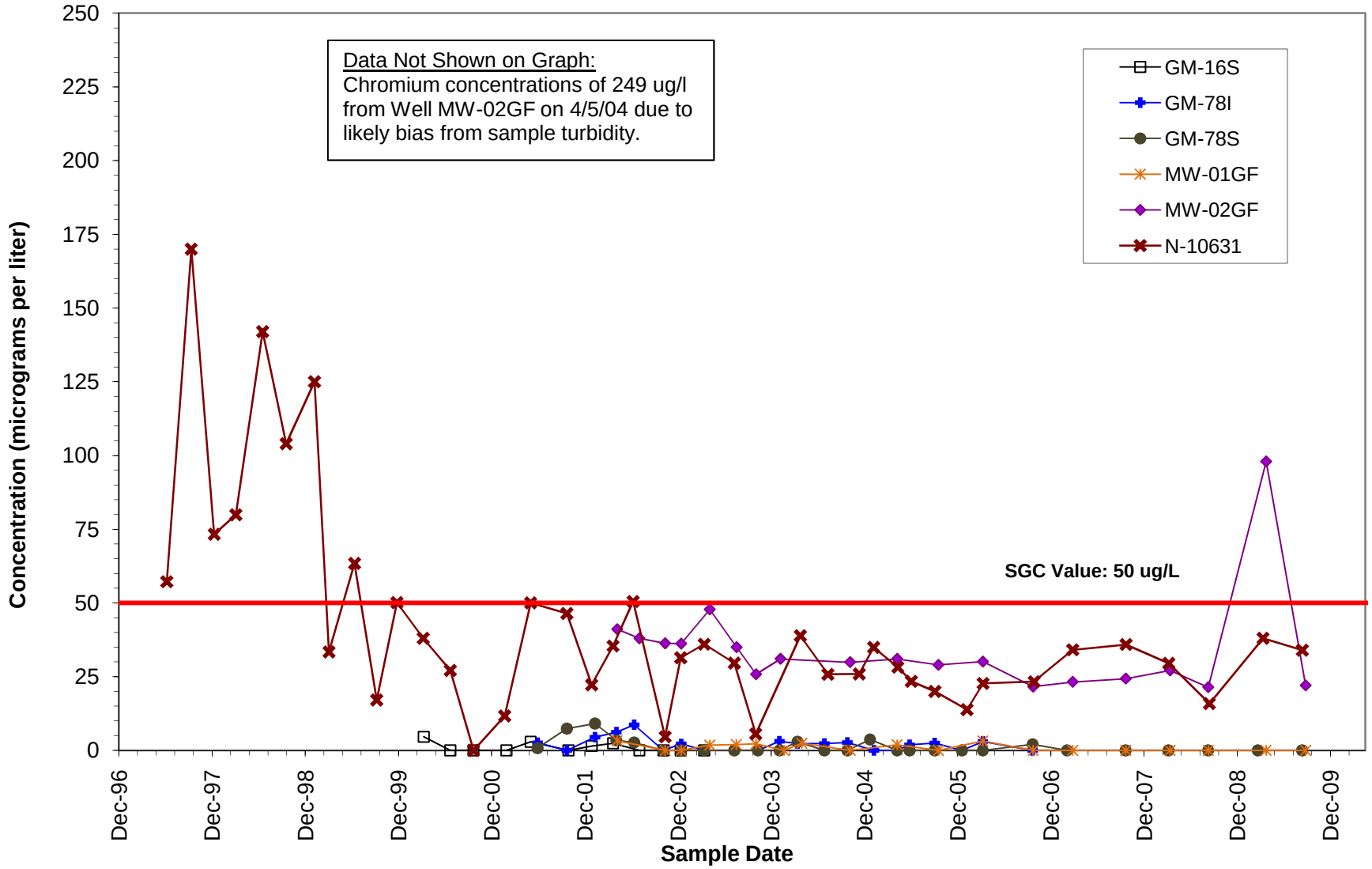
Total Cadmium Concentrations in Monitoring Wells
Near Former Plant 2
Northrop Grumman Systems Corporation, Bethpage, New York



ARCADIS

FIGURE 12

Total Chromium Concentrations in Monitoring Wells
Near Former Plant 2
Northrop Grumman Systems Corporation, Bethpage, New York



ARCADIS

FIGURE 13

Total Chromium Concentrations in Monitoring Wells
Near Former Plant 1
Northrop Grumman Systems Corporation, Bethpage, New York

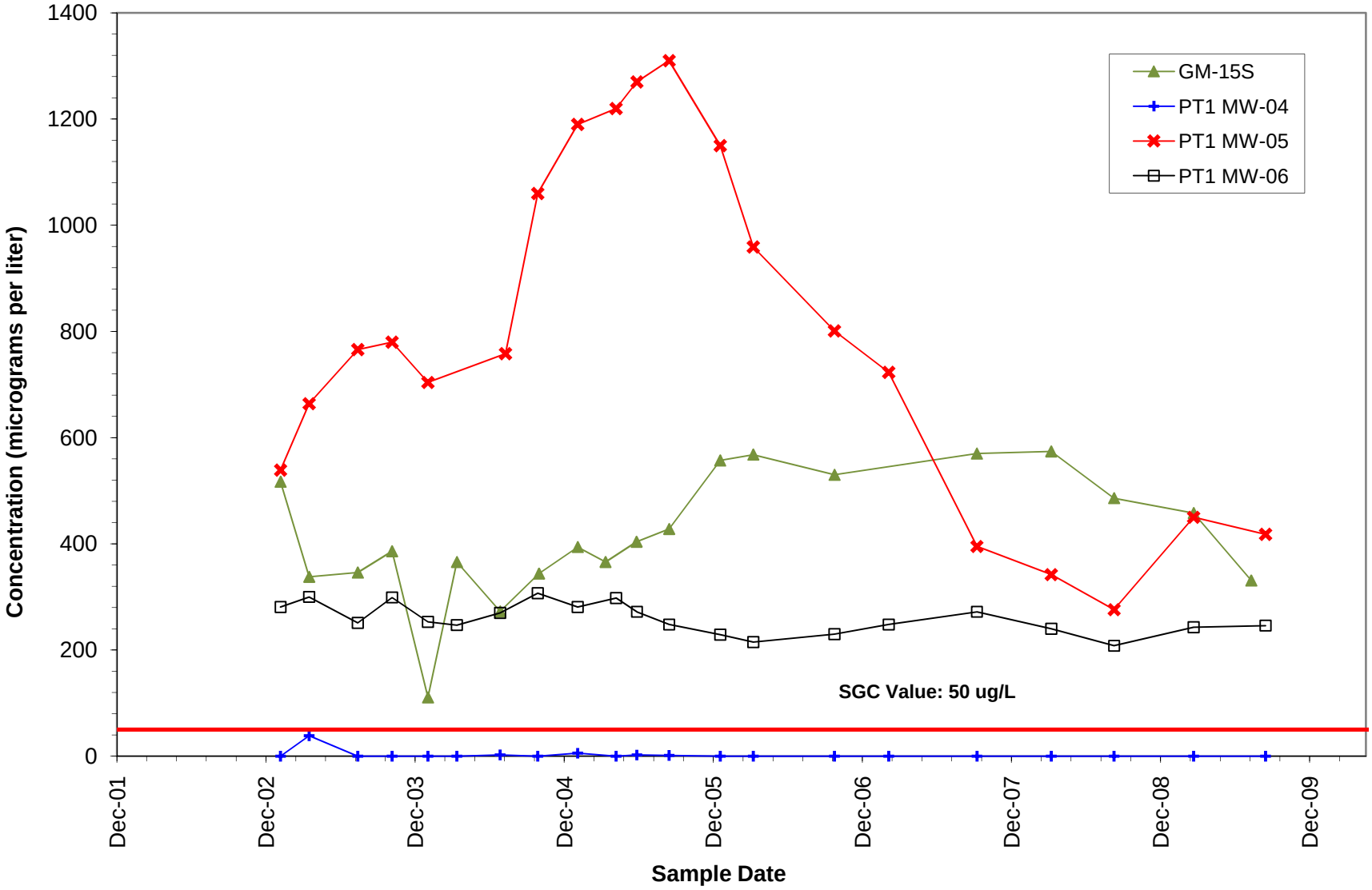


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FIGURE 14

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Appendix **A**

Groundwater Sampling Logs and Chain of Custody Records

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project NORTHROP-GRUMMAN Project No. NY001464.0409.00002

Site Location BETHPAGE NY Date 2-26-09

Well No. MW-03 Replicate No. Weather

Sampling Personnel GW XXX Sampling Time: Begin 2:40 pm End 2:49 pm

Purge Data

Measuring Point (describe)	
Sounded Well Depth (ft bmp)	64.00
Depth to Water (ft bmp)	53.27
Depth to Packer (ft bmp)	
Water Column in Well (ft)	9.73
Casing Diameter	2" (0.16)
Gallons in Well	1.56
Gallons Purged	x 3
Prior to Sampling	4.68
Pump Intake	
Setting (ft bmp)	
Packer Pressure (psi)	
Pumping Rate (gpm)	Q=.5 lb=3min
Evacuation Method	~~SUB~~ 2" REDI-FLO
Sampling Method	SUB
Purge Time	Begin 2:40 pm End 2:49 pm

Field Parameters

Color BROWN TINT

Odor NONE

Appearance SLIGHTLY TURBID

	I	1V	2V	3V
pH (s.u.)	6.80	6.72	6.86	6.82
Conductivity (~~mS/cm~~) or (µmhos/cm) [1]	185.2	182.1	165.2	145.0
Temperature (°C)				14.1
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)				150
Time	2:40	2:43	2:46	2:49
DTW (ft bmp)				

Remarks:

Parameter	Container	No.	Preservative
See COC.			

PID Reading

Well Casing Volumes

Gal./Ft.				
	$1^{1/4}$" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	$1^{1/2}$" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project NGC Project No. NY001464.0601.00002

Site Location Bethpage, NY Date 03-03-09

Well No. BPOW1-1 Replicate No. REP03-03-09 Weather clear

Sampling Personnel Pat Brook; Sunny Xu Sampling Time: Begin 17:18 End 17:59

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	241
Depth to Water (ft bmp)	27.09
Depth to Packer (ft bmp)	169
Water Column in Well (ft)	72
Casing Diameter	4" (0.65)
Gallons in Well	46.8
Gallons Purged	x 3
Prior to Sampling	140
Pump Intake Setting (ft bmp)	
Packer Pressure (psi)	111
Pumping Rate (gpm)	
Evacuation Method	
Sampling Method	
Purge Time	Begin 17:18 End 17:59

Field Parameters

Color colorless

Odor odorless

Appearance clear

	I	1V	2V	3V
pH (s.u.)	6.26	5.69	5.77	5.76
Conductivity ~~(mS/cm) or~~ (µmhos/cm) [1]	0 64.0	96.8	99.3	99.5
Temperature (°C)	9.8	9.3	9.3	9.4
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)	2.0	3.6	3.0	2.2
Time				
DTW (ft bmp)		27.28	27.32	27.30

Remarks: (169 − 27.09) × 0.43 + 50 = 111 psi.

Parameter	Container	No.	Preservative
See COC			

PID Reading

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project NORTHROP- BRUNSWICK Project No. N4001464.0409.00002

Site Location Date 3-4-09

Well No. BP01D 1-3 Replicate No. Weather

Sampling Personnel Gary Williams Sampling Time: Begin End

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	419
Depth to Water (ft bmp)	~~30.35~~ 28.10
Depth to Packer (ft bmp)	344
Water Column in Well (ft)	75
Casing Diameter	4(.65)
Gallons in Well	48.75
Gallons Purged Prior to Sampling	146.25
Pump Intake Setting (ft bmp)	
Packer Pressure (psi)	161.37
Pumping Rate (gpm)	
Evacuation Method	
Sampling Method	
Purge Time Begin End	

Field Parameters

Color: Colorless

Odor: none

Appearance: clear.

	I	1V	2V	3V
pH (s.u.)	6.33	5.67	4.33	4.74
Conductivity ~~(mS/cm) or~~ (µmhos/cm) [1]	156.4	97.9	85.3	82.6
Temperature (°C)	9.6	9.4	9.5	9.9
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)				
Time				
DTW (ft bmp)				

Remarks: 344 - 28.10 = ~~136.13 x .43~~ 315.90 x .43 + 25 = 161.37

Parameter	Container	No.	Preservative
See COC			

PID Reading

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project NORTHROP GRUMMAN Project No. NY001464.0409.00002

Site Location BETHPAGE NY Date 3-6-09

Well No. BPOW3-1 Replicate No. _____ Weather _____

Sampling Personnel GW XX Sampling Time: Begin _____ End _____

Purge Data

Measuring Point (describe)	
Sounded Well Depth (ft bmp)	516
Depth to Water (ft bmp)	24.21
Depth to Packer (ft bmp)	414
Water Column in Well (ft)	107
Casing Diameter	4"(0.65)
Gallons in Well	66.3
Gallons Purged	x 3
Prior to Sampling	198
Pump Intake	
Setting (ft bmp)	
Packer Pressure (psi)	220 PSI
Pumping Rate (gpm)	
Evacuation Method	
Sampling Method	
Purge Time Begin	End

Field Parameters

Color COLORLESS

Odor NONE

Appearance CLEAR

	I	1V	2V	3V
pH (s.u.)	4.77	4.75	4.71	4.73
Conductivity (mS/cm) or (µmhos/cm) [1]	95.0	88.3	88.3	88.9
Temperature (°C)	13.7	11.9	11.3 ~~11.9~~	12.4
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)				15
Time				
DTW (ft bmp)				

Remarks: 414-24 = 380 x .43 + 50 = 220 PSI — PACKER PRESSURE

Parameter	Container	No.	Preservative
See COC			

PID Reading _____

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project NORTHROP-GRUMMAN Project No. NY001464.0409.000002

Site Location Date 3-6-09

Well No. BPOW 3-2 Replicate No. ~~—~~ MS/MSD → REP030609 Weather

Sampling Personnel Gary Williams Sampling Time: Begin End

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	
Depth to Water (ft bmp)	25.52
Depth to Packer (ft bmp)	~~647~~ 503
Water Column in Well (ft)	~~505~~ 144
Casing Diameter	4 (0.65)
Gallons in Well	93.6
Gallons Purged	x 3
Prior to Sampling	280
Pump Intake	
Setting (ft bmp)	
Packer Pressure (psi)	260 PSI
Pumping Rate (gpm)	
Evacuation Method	
Sampling Method	
Purge Time Begin	End

Field Parameters

Color	COLORLESS
Odor	NONE
Appearance	CLEAR

	I	1V	2V	3V
pH (s.u.)	5.43	5.47	5.49	5.50
Conductivity ~~(mS/cm)~~ or (µmhos/cm) [1]	117.1	118.7	80.0	60.6
Temperature (°C)	11.6	11.3	10.9	10.9
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)				14.0
Time				
DTW (ft bmp)				

Remarks: 503 − 25 = 478 (.43) + 50 = 260 PSI

Parameter	Container	No.	Preservative
see COC			

PID Reading

Well Casing Volumes

Gal./Ft.				
	$1^{1/4}$" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	$1^{1/2}$" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project Northrop Grumman Project No. NY001464.0009.00002

Site Location Bethpage, NY Date 03-13-2009

Well No. BPOW4-1 Replicate No. _____ Weather clear

Sampling Personnel Gary Williams / Sunny Xu Sampling Time: Begin _____ End _____

Purge Data

Measuring Point (describe)	TOC	
Sounded Well Depth (ft bmp)	Stand pipe / Screen 652	692
Depth to Water (ft bmp)	~~603~~	~~642~~
Depth to Packer (ft bmp)	603	652
Water Column in Well (ft)	149	40
Casing Diameter	4	2
Gallons in Well	96.85 x 3	6.4 x 3
Gallons Purged	290	19.2
Prior to Sampling	3.09	
Pump Intake Setting (ft bmp)		
Packer Pressure (psi)	25 PSI	
Pumping Rate (gpm)		
Evacuation Method		
Sampling Method		
Purge Time	Begin _____	End _____

Field Parameters

Color: Colorless

Odor: None

Appearance: clear

	1	1V	2V	3V
pH (s.u.)	~~6~~.50	5.15	5.00	4.88
Conductivity ~~(mS/cm)~~ or (µmhos/cm)	81.4	78.5	60.8	47.4
Temperature (°C)	11.5	10.4	11.4	11.9
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)				
Time				
DTW (ft bmp)				

Remarks:

Parameter	Container	No.	Preservative
See COC.			

PID Reading _____

Well Casing Volumes

Gal./Ft.				
	$1^{1/4}$" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	$1^{1/2}$" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: Northrop Grumman | Project No.: NY001464.0409.00002

Site Location: Bethpage, NY | Date: 03-16-09

Well No.: BPOW 4-2 | Replicate No.: | Weather: Clear.

Sampling Personnel: Gary Williams / Sunny X. | Sampling Time: Begin 11:30. End 4:45

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	764
Depth to Water (ft bmp)	27.09
Depth to Packer (ft bmp)	503
Water Column in Well (ft)	261
Casing Diameter	4" (0.65)
Gallons in Well	169.65
Gallons Purged Prior to Sampling	509
Pump Intake Setting (ft bmp)	
Packer Pressure (psi)	256
Pumping Rate (gpm)	
Evacuation Method	
Sampling Method	
Purge Time	Begin 11:30 End 4:30

Field Parameters

Color: Colorless

Odor: None

Appearance: Clear.

	1	1V	2V	3V
pH (s.u.)	5.82	4.72	4.51	4.53
Conductivity ~~(mS/cm)~~ or (µmhos/cm)[1]	121.4	106.6	88.2	80.7
Temperature (°C)	14.0	12.2	13.1	12.7
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)				
Time				
DTW (ft bmp)			23.72	23.73

Remarks: (503 - 25.09) x 0.43 + 50 = 256 psi.

Parameter	Container	No.	Preservative
See COC.			

PID Reading:

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: NGC
Project Number: NY001464.0809.00002
Site Location: Bethpage, NY
Well ID: GM-13D
Date: 02-26-09
Sampled By: Gary Williams / Sunny Xu
Sampling Time: 18:13
Recorded By: Sunny Xu
Weather: ____
Coded Replicate No.: REP 02-26-09 MS/MSD

Instrument Identification
Water Quality Meter(s): ____ Serial #: ____

Casing Material: ____ Purge Method: ____
Casing Diameter: 6" Screen Interval (ft bmp): Top 200 Bottom 210.
Sounded Depth (ft bmp): ____ Pump Intake Depth (ft bmp): ____
Depth to Water (ft bmp): 43.40. Purge Time: Start 17:13 Finish 18:13

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or ~~mS/cm~~) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
17:13	0			9.3	6.82	100.2	116	48.3		43.40
17:18	5			11.8	5.91	91.3	127	7.9		
17:23	10			12.6	5.86	90	127	4.8		43.45
17:28	15			12.7	5.86	90.4	126	4.6		
17:33	20			12.7	5.86	90.7	128	4.7		43.45
17:38	25			12.8	5.84	90.7	129	4.6		
17:43	30			12.8	5.84	90.7	124	5.4		43.45
17:48	35			12.8	5.83	90.9	131	5.3		
17:53	40			12.7	5.84	91.1	132	5.2		43.45
17:58	45			12.8	5.83	91.1	132	5.2		
18:03	50			12.8	5.83	91.1	132	5.2		43.45
18:08	55			12.8	5.83	91.2	133	5.3		
18:13	60			12.8	5.83	91.2	133	5.2		43.45

Collected Sample Condition: Color colorless Odor odorless Appearance clear

Parameter	Container	No.	Preservative
See COC			

PID Reading: ____

Comments: ____

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project NORTHROP-GRUMMAN Project No. NY001464.0409.00002

Site Location BETHPAGE NY Date 2-27-09

Well No. GM-15SR Replicate No. Weather

Sampling Personnel GW XX Sampling Time: Begin 3:15 End 3:55

Purge Data

Measuring Point (describe)	
Sounded Well Depth (ft bmp)	80
Depth to Water (ft bmp)	42.05
Depth to Packer (ft bmp)	
Water Column in Well (ft)	37.95
Casing Diameter	4 (0.65)
Gallons in Well	24.66
Gallons Purged Prior to Sampling	75
Pump Intake Setting (ft bmp)	
Packer Pressure (psi)	
Pumping Rate (gpm)	Q=2.5 | V=10ml/min
Evacuation Method	
Sampling Method	
Purge Time	Begin 3:25 End 3:55

Field Parameters

Color COLORLESS

Odor NONE

Appearance CLEAR

	I	1V	2V	3V
pH (s.u.)	6.13	5.90	5.82	5.80
Conductivity ~~(mS/cm)~~ or (µmhos/cm) [1]	405	154.6	121.3	117.1
Temperature (°C)	13.6	14.2	14.1	14.1
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)				2.8
Time	3:25	3:35	3:45	355
DTW (ft bmp)				

Remarks:

Parameter	Container	No.	Preservative

PID Reading

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) **Circle one unit type**

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: N-Grumman OU2 | Project No.: NY001492.0409.00002
Site Location: Bethpage, NY | Date: 3/31/09
Well No.: GM-15I | Replicate No.: NA | Weather: clear 50s F
Sampling Personnel: Prezorski | Sampling Time: Begin 17:30 | End 19:21

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	105
Depth to Water (ft bmp)	41.92
Depth to Packer (ft bmp)	94
Water Column in Well (ft)	11
Casing Diameter	4" (0.65)
Gallons in Well	7.15
Gallons Purged	x3
Prior to Sampling	22
Pump Intake Setting (ft bmp)	
Packer Pressure (psi)	75
Pumping Rate (gpm)	
Evacuation Method	Dedicated Bladder pump
Sampling Method	
Purge Time Begin	1712 End

Field Parameters

	I	1V	2V	3V
Color	colorless	colorless	colorless	colorless
Odor	None	None	None	None
Appearance	clear	clear	clear	clear
pH (s.u.)	6.08	5.75	5.72	5.64
Conductivity (mS/cm) or	—	—	—	—
(µmhos/cm) [1]	132.2	137.0	134.6	136.4
Temperature (°C)	17.4	16.8	16.6	16.3
DO (mg/L)	—	—	—	—
ORP (mV)	—	—	—	—
Turbidity (NTU)	—	7.25	8.47	6.63
Time		1735	1757	1921
DTW (ft bmp)	—	6 ½	½	6 ½

5gd containers

Remarks: PSI = 94 − 41.92 × 1.43 + 50 = 75 PSI rounded up

Due to power outage well 19 not running

Parameter	Container	No.	Preservative
See COC			

PID Reading: _____

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: NORTHROP-GRUMMAN
Project Number: N40014G9.0409.00002
Site Location: BETHPAGE NY
Well ID: 6M-15D
Date: 2-27-09
Sampled By: Gary Williams
Sampling Time: 3:30 pm
Recorded By: Gary Williams
Weather:
Coded Replicate No.: N/A

Instrument Identification
Water Quality Meter(s):
Serial #:

Casing Material:
Purge Method:
Casing Diameter: 4"
Screen Interval (ft bmp): Top 332 Bottom 342
Sounded Depth (ft bmp):
Pump Intake Depth (ft bmp):
Depth to Water (ft bmp): 44.22
Purge Time: Start 2:30 pm Finish 3:30 pm

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity ~~(umhos~~ or mS/cm) [1]	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
2:30		450		13.4	5.35	71.4	165	10.42		44.22
2:35				13.3	5.16	81.7	167	10.41		
2:40				14.1	4.93	98.5	176	10.42		
2:45				14.1	4.91	98.5	177	10.43		
2:50				14.1	4.93	98.3	174	10.45		
2:55				14.0	4.94	98.5	173	10.57		
3:00				14.0	4.92	98.7	173	10.58		
3:05				14.0	4.93	98.7	173	10.47		44.22
3:10				13.9	4.93	98.8	173	10.49		
3:15				13.9	4.93	98.8	173	10.53		
3:20				13.8	4.93	99.0	173	10.54		
3:25				14.0	4.90	99.0	177	10.13	50	
3:30				14.0	4.93	99.1	177	9.98	8.4	44.22

Collected Sample Condition: Color Colorless Odor none Appearance clear

Parameter	Container	No.	Preservative
See COC			

PID Reading:

Comments:

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: NORTHROP-GRUMMAN
Project Number: NY001464.0409.00002
Site Location: BETHPAGE NY
Well ID: GM-15D-2
Date: 2-27-09
Sampled By: GW Gary Williams
Sampling Time: 2:10 pm.
Recorded By: GW
Weather:
Coded Replicate No.:

Instrument Identification
Water Quality Meter(s): Serial #:

Casing Material: Purge Method: LOWFLOW
Casing Diameter: 4" Screen Interval (ft bmp) Top: 536 Bottom: 556.
Sounded Depth (ft bmp): Pump Intake Depth (ft bmp):
Depth to Water (ft bmp): 46.78 Purge Time Start: 1:10 pm Finish: 2:10 pm.

PTOE3 LSW 20TH 27F

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or ~~mS/cm~~[1])	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
1:10		450		13.3	5.29	120.1	163	8.02		46.78
1:15		↓		13.4	5.28	115.7	162	8.27		
1:20				13.4	5.30	108.2	163	8.38		
1:25				13.6	5.27	88.1	160	9.02		46.79
1:30				13.7	5.26	82.6	161	9.30		
1:35				13.7	5.25	79.4	156	9.65		
1:40				13.7	5.24	74.7	158	9.96		
1:45				13.9	5.25	71.9	163	10.21		
1:50				13.9	5.24	71.7	163	10.23		
1:55				13.9	5.23	70.3	160	10.35		46.75
2:00				13.9	5.25	68.6	167	10.45		
2:05				13.9	5.26	68.6	166	10.45		
2:10		↓		13.9	5.25	68.5	166	10.45		

Collected Sample Condition Color: COLORLESS Odor: NONE Appearance: CLEAR

Parameter	Container	No.	Preservative
See COC			

PID Reading:

Comments:

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: NORTHROP-GRUMMAN
Project Number: NY001464.0409.00003
Site Location: BETHPAGE NY
Well ID: GM-17I
Date: 2-17-09
Sampled By: GW
Sampling Time: 5:25 PM
Recorded By: GW
Weather: CLEAR 40°
Coded Replicate No.:

Instrument Identification
Water Quality Meter(s):
Serial #:

Casing Material:
Purge Method: LOW FLOW
Casing Diameter: 4"
Screen Interval (ft bmp): Top 100 Bottom 120
Sounded Depth (ft bmp):
Pump Intake Depth (ft bmp):
Depth to Water (ft bmp): 42.69
Purge Time: Start 4:40 PM Finish 5:25 PM

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or mS/cm) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
4:40		450		7.5	6.00	86.1	144	8.89		42.69
4:45				8.3	6.20	86.0	139	8.93		
4:50				8.4	6.22	86.2	137	8.79		
4:55				8.4	6.24	85.9	135	8.79		
5:00				8.4	6.24	85.8	134	8.78		42.72
5:05				8.3	6.24	85.4	133	8.86		
5:10				8.2	6.24	85.4	133	8.79		
5:15				8.2	6.24	85.0	133	8.91		
5:20				8.1	6.24	85.0	132	8.96		
5:25				8.1	6.25	84.6	132	8.92		

Collected Sample Condition: Color COLORLESS Odor NONE Appearance CLEAR

Parameter	Container	No.	Preservative
—			

PID Reading: —

Comments:

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: NORTHROP-GRUMMAN
Project Number: N40014H.0409.00002 Site Location: BETHPAGE Well ID: GM-17D
Date: 2-17-09 Sampled By: GW
Sampling Time: 4:30 pm Recorded By: GW
Weather: CLEAR 40° Coded Replicate No.:

Instrument Identification
Water Quality Meter(s): Serial #:

Casing Material: Purge Method: LOW FLOW
Casing Diameter: 4" Screen Interval (ft bmp) Top: 278 Bottom: 298
Sounded Depth (ft bmp): — Pump Intake Depth (ft bmp):
Depth to Water (ft bmp): 46.72 Purge Time Start: 3:30 pm Finish: 4:30 pm

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or mS/cm) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
3:30		450		8.8	5.28	148.8	107	8.48		46.72
3:35				9.4	5.34	136.5	88	6.94		
3:40				9.7	5.32	132.5	95	6.67		46.75
3:45				9.9	5.34	124.7	108	6.82		
3:50				9.9	5.35	121.6	117	7.04		
3:55				10.1	5.34	118.5	127	6.91		
4:00				10.1	5.35	115.4	138	6.86		46.73
4:05				9.9	5.34	113.6	139	6.99		
4:10				9.9	5.36	111.2	141	6.97		
4:15				9.9	5.34	110.4	142	7.00		
4:20				9.7	5.36	108.7	146	7.01		
4:25				9.6	5.35	105.6	147	7.03		
4:30				9.7	5.35	100.1	149	7.04	10	

Collected Sample Condition Color: COLORLESS Odor: NONE Appearance: CLEAR

Parameter	Container	No.	Preservative

PID Reading: —

Comments:

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: N-Grumman OU2 — Project No.: NY001492.0409.00002
Site Location: Bethpage, NY — Date: 3/31/09
Well No.: GM-18I — Replicate No.: NA — Weather: 60°F clear

Sampling Personnel: Prezorski — Sampling Time: Begin 1513 — End 1515

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	105
Depth to Water (ft bmp)	39.43
Depth to Packer (ft bmp)	94
Water Column in Well (ft)	11
Casing Diameter	4"(0.65)
Gallons in Well	7.15
Gallons Purged	x3
Prior to Sampling	22
Pump Intake Setting (ft bmp)	
Packer Pressure (psi)	75
Pumping Rate (gpm)	
Evacuation Method	Dedicated Bladder pump
Sampling Method	
Purge Time	Begin 1409 End 1511

Field Parameters

	I	1V	2V	3V
Color	colorless	colorless	colorless	colorless
Odor	None	None	None	None
Appearance	clear with Black parts	clear	clear	clear
pH (s.u.)	5.59	5.66	5.54	5.67
Conductivity (mS/cm) or	—	—	—	—
(µmhos/cm) [1]	229	254	256	257
Temperature (°C)	18.0	19.3	19.6	20.6
DO (mg/L)	—	—	—	—
ORP (mV)	—	—	—	—
Turbidity (NTU)	8.98	6.73	5.40	9.71
Time	—	1432	1452	1511
~~DTW~~ (ft bmp)	—	5 gal container ✗	½ ✗	½ ✗

Remarks: PSI = 94 − DTW x .43 + 50 = 75 (39.43)
Dropped well key down well — 425ml per purge

Parameter	Container	No.	Preservative
See COC			

PID Reading: _____

Well Casing Volumes

Gal./Ft.				
	$1^{1/4}$" = 0.06	2" = 0.16	3" = 0.37	(4" = 0.65)
	$1^{1/2}$" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: Grumman OU2
Project Number: NY001492.0409.00002
Site Location: Bethpage, NY
Well ID: GM-18D
Date: 4/1/09
Sampled By: GW
Sampling Time:
Recorded By: GW
Weather: 40s Light Rain
Coded Replicate No.: NA

Instrument Identification
Water Quality Meter(s): ______ Serial #: ______

Casing Material: ______
Purge Method: Low Flow / Dedicated bladder
Casing Diameter: ______
Screen Interval (ft bmp): Top ______ Bottom ______
Sounded Depth (ft bmp): ______
Pump Intake Depth (ft bmp): ______
Depth to Water (ft bmp): ______
Purge Time: Start ______ Finish ______

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or mS/cm) [1]	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
1850				12.7	8.31	282	141	6.39		
1855				12.8	8.27	162.5	136	6.51		42.70
1900				12.9	7.88	136.6	104	6.67		
1915				12.8	7.10	113.2	102	6.99		42.69
1910				12.9	6.61	108.8	109	6.91		
1915				12.9	6.47	102.1	114	7.05		42.69
1920				12.6	~~6.95~~ 5.97	100.0	125	6.99		
19:25				12.6	5.85	99.3	127	7.08		
19:30				12.2	5.65	97.1	146	7.02		
19:35				12.1	5.65	97.0	145	6.86		42.69
19:40				12.3	5.59	96.0	136	6.63		
19:45				12.3	5.59	96.0	136	6.72		
19:50				12.3	5.59	96.	136	6.72		42.68

Collected Sample Condition: Color COLORLESS Odor NONE Appearance CLEAR

Parameter	Container	No.	Preservative

PID Reading ______

Comments ______

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project NORTHROP-GRUMMAN Project No. NY001497.0009.00002

Site Location BETHPAGE Date 3-21-09

Well No. GM-20E Replicate No. _____ Weather _____

Sampling Personnel Gary Williams Sampling Time: Begin ~~450~~ 4:40 End 4:55

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	105
Depth to Water (ft bmp)	
Depth to Packer (ft bmp)	94
Water Column in Well (ft)	11
Casing Diameter	4 (0.65)
Gallons in Well	7.15
Gallons Purged	x 3
Prior to Sampling	21.45
Pump Intake	
Setting (ft bmp)	
Packer Pressure (psi)	80 PSI
Pumping Rate (gpm)	
Evacuation Method	
Sampling Method	
Purge Time	Begin 4:45 End 4:55

Field Parameters

Color: Colorless

Odor: none

Appearance: clear.

	I	1V	2V	3V
pH (s.u.)	11.06	11.36	11.21	11.07
Conductivity (mS/cm) or (µmhos/cm) [1]	1119	101	1283	1275
Temperature (°C)	10.6	10.8	11.6	12.2
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)				4.4
Time				
DTW (ft bmp)				

Remarks: 94 - 32.82 x .43 + 50 = 2 80 PSI
5 GAL PAILS IIII

Parameter	Container	No.	Preservative
See COC			

PID Reading _____

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project NORTHROP-GRUMMAN Project No. NY001492.0009.00002

Site Location Date 3-21-09

Well No. GM-20D Replicate No. Weather

Sampling Personnel GW Sampling Time: Begin 2:30 pm End 3:00 pm

Purge Data

Measuring Point (describe) TOC

Sounded Well Depth (ft bmp) 226

Depth to Water (ft bmp) ~~215~~ 36.15

Depth to Packer (ft bmp) 215

Water Column in Well (ft) 11

Casing Diameter 4 (0.65)

Gallons in Well 7.15 x 3

Gallons Purged Prior to Sampling 21.45

Pump Intake Setting (ft bmp)

Packer Pressure (psi) 130 PSI

Pumping Rate (gpm)

Evacuation Method

Sampling Method

Purge Time Begin 2:30 pm End 3:00 pm

Field Parameters

Color Colorless

Odor ~~Odor~~ none

Appearance clear

	1	1V	2V	3V
pH (s.u.)	7.38	7.26	7.30	6.66
Conductivity (mS/cm) or (µmhos/cm) [1]	196.7	87.2	75.2	68.4
Temperature (°C)	9.4	11.3	16.3	11.7
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)				.80
Time				
DTW (ft bmp)				

Remarks: 215 − 36.15 x .43 + 50 = ~130 PSI

5 GAL PAILS 1111 ½

Parameter	Container	No.	Preservative
See COC			

PID Reading

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: N-Grumman OU2 Project No. NY001492.0409.00002
Site Location: Bethpage, NY Date: 3/29/09
Well No. GM-21S Replicate No. NA Weather:
Sampling Personnel: Williams/Prezosti Sampling Time: Begin 15:37 End 1550

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	67.0
Depth to Water (ft bmp)	32.88
Depth to Packer (ft bmp)	
Water Column in Well (ft)	~~54.6~~ 34.12
Casing Diameter	2" (0.16)
Gallons in Well	5.46
Gallons Purged Prior to Sampling	16.38
Pump Intake Setting (ft bmp)	
Packer Pressure (psi)	
Pumping Rate (gpm)	2
Evacuation Method	3 WV Redi-flow pump
Sampling Method	Redi-flow pump
Purge Time	Begin 1537 End 1546

Field Parameters

	I	1V	2V	3V
Color	Brown	colorless	colorless	colorless
Odor	None	None	None	None
Appearance	Turbid	clear	clear	clear
pH (s.u.)	7.09	7.31	7.01	7.40
Conductivity (mS/cm) or	—	—	—	—
(µmhos/cm) [1]	129.6	129.2	93.7	176.9
Temperature (°C)	9.90	10.6	8.8	9.4
DO (mg/L)	—	—	—	—
ORP (mV)	—	—	—	—
Turbidity (NTU)	—	—	—	—
Time	1537	1540	1543	1546
DTW (ft bmp)				

Remarks: Q = 2 T = 8.5 1V = 3

Parameter	Container	No.	Preservative
See COC			

PID Reading: Raining

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16 (circled)	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project NORTHROP-GRUMMAN Project No. NY 001492.0409.00002

Site Location ____ Date 3 4-1-09

Well No. GM-21I Replicate No. ____ Weather ____

Sampling Personnel Williams Sampling Time: Begin 5:00 End ____

Purge Data

Measuring Point (describe)	____
Sounded Well Depth (ft bmp)	140
Depth to Water (ft bmp)	____
Depth to Packer (ft bmp)	129
Water Column in Well (ft)	11
Casing Diameter	4 (0.65)
Gallons in Well	7.15
Gallons Purged Prior to Sampling	21.45
Pump Intake Setting (ft bmp)	____
Packer Pressure (psi)	90
Pumping Rate (gpm)	____
Evacuation Method	____
Sampling Method	____
Purge Time Begin ____ End ____	

Field Parameters

Color: COLORLESS

Odor: NONE

Appearance: CLEAR

	I	1V	2V	3V
pH (s.u.)	10.05	10.21	10.13	10.04
Conductivity (mS/cm) or (µmhos/cm) [1]	98.3	102.0	98.2	95.6
Temperature (°C)	10.5	10.9	11.8	11.0
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)				
Time				
DTW (ft bmp)				

Remarks: 5 GAL PAILS 1111

Parameter	Container	No.	Preservative

PID Reading ____

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS

Low Flow Groundwater Sampling Form

Page 1 of 1

Project/No. NY0D1464.0409.00002 Well GM-21D Date 3-20-09

Total depth (ft bmp) 288' Screen Setting (ft bmp) 278'-288' Casing Diameter (inches) 4"

Measuring Point Description TOC Static Water Level (ft bmp) 40.62

Pump Intake (ft bmp) _____ Sampling Time: Begin 4:15 pm End 5:15 pm

Weather _____

Sampled by : G. WILLIAMS

Date/Time	Rate (ml/min)	DTW (ft bmp)	pH (s.u.)	TEMP. (C)	Cond. umhos ~~or ms/cm~~	Redox (mV)	DO (mg/L)	TURB (NTU)	Notes
4:15	450	40.62	5.36	10.6	65.1	220	6.48		
4:20			5.09		65.4	226	4.52		
4:25			5.09	9.7	65.4	225	4.51		
4:30		40.77	5.09	9.3	65.5	230	4.85		
4:35			5.06	9.2	65.4	234	4.67		
4:40									
4:45									
4:50									
4:55									
5:00		40.73	5.04	9.2	65.1	245	5.03		
5:05			5.05	9.3	65.0	250	4.96		
5:10		40.69	5.03	9.2	65.1	250	4.73		
5:15			5.05	9.4	65.1	248	4.85	<20	

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001464.0409.00002 Task: Well ID: GM-33D2
Date: 03-17-09 Sampled By: Gary Williams / Sunny Xu
Sampling Time: 17:06 Recorded By: Sunny Xu
Weather: Sunny Coded Replicate No.:

Instrument Identification
Water Quality Meter(s): Serial #:

Purging Information
Casing Material: Purge Method:
Casing Diameter: 4" Screen Interval (ft bmp): Top 50 Bottom 520
Sounded Depth (ft bmp): Pump Intake Depth (ft bmp):
Depth to Water (ft bmp): 46.99 Purge time Start: 16:04 PM Finish: 17:04

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. µS/cm (~~mS/cm~~)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
16:04		450		11.6	7.27	80.0	59	7.34		46.99	
16:09	5			12.1	7.22	80.4	63	6.38			
16:14	10			12.6	7.22	77.6	66	6.15		47.00	
16:19	15			12.7	7.12	76.1	70	5.92			
16:24	20			12.7	7.05	75.0	74	5.87			
16:29	25			12.6	7.00	74.6	77	5.85		47.00	
16:34	30			12.6	6.96	74.0	81	5.82			
16:39	35			12.6	6.92	73.7	83	5.92		47.00	
16:44	40			12.5	6.93	73.3	87	5.93			
16:49	45			12.5	6.95	73.2	88	5.93		47.00	
16:54	50			12.5	6.97	73.0	90	5.94			
16:59	55			12.5	6.97	73.0	92	6.00		47.00	
17:04	60			12.5	6.80	72.8	97	6.09	2.2		

Sample Condition Color: Colorless Odor: NONE Appearance: CLEAR

Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading

Comments

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: Northrop Grumman
Project Number: NY001464.0409.00002
Site Location: Bethpage, NY
Well ID: GM-34D
Date: 02-25-09
Sampled By: Gary Williams / Sunny Xu
Sampling Time: 2:35 pm.
Recorded By:
Weather: cloudy
Coded Replicate No.:

Instrument Identification
Water Quality Meter(s):
Serial #:

Casing Material:
Purge Method:
Casing Diameter: 2"
Screen Interval (ft bmp) Top: 309 Bottom: 319
Sounded Depth (ft bmp):
Pump Intake Depth (ft bmp):
Depth to Water (ft bmp): 10.94
Purge Time Start: 1:35 pm Finish: 2:35 pm.

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or ~~mS/cm~~) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
1:35				11.0	7.12	167.9	179	13.14		10.94
1:40				11.6	7.53	140.6	162	13.08		
1:45				12.1	7.85	127.3	146	13.02		11.08
1:50				12.4	8.54	123.0	127	12.92		
1:55				12.4	9.97	123.6	120	12.65		11.02
2:00				12.3	9.70	129.6	52	12.32		
2:05				12.2	9.04	130.5	71	12.04		11.02
2:10				12.5	8.21	127.9	87	12.82		
2:15				12.5	7.85	124.9	88	11.66		11.02
2:20				12.5	7.51	122.1	84	11.41		
2:25				12.4	7.33	119.4	81	11.10		11.02
2:30				12.4	7.21	117.4	76	10.86		
2:35				12.5	7.13	115.7	73	10.67		11.02

Collected Sample Condition: Color: Odor: Appearance:

Parameter	Container	No.	Preservative

PID Reading:

Comments:

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: NGC
Project Number: NY001464.0409.0002 | Site Location: Bethpage, NY | Well ID: GM-34D2
Date: 02-25-09 | Sampled By: Gary Williams / Sunny Xu
Sampling Time: 16:05 | Recorded By: Sunny Xu
Weather: Cloudy | Coded Replicate No.: N/A

Instrument Identification
Water Quality Meter(s): _____ | Serial #: _____

Casing Material: _____ | Purge Method: _____
Casing Diameter: 4" | Screen Interval (ft bmp) Top: 510 Bottom: 520
Sounded Depth (ft bmp): _____ | Pump Intake Depth (ft bmp): _____
Depth to Water (ft bmp): 13.51 | Purge Time Start: 15:05 Finish: 16:05

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (~~umhos~~ or ~~mS/cm~~) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
15:05	0			9.2	7.66	97.2	92	10.64		13.51
15:10	5			10.4	7.57	77.8	75	10.90		
15:15	10			10.6	7.59	73.5	72	11.02		13.51
15:20	15			10.7	7.63	72.9	67	11.06		
15:25	20			11.0	7.63	72.4	65	11.18		13.51
15:30	25			10.9	7.67	72.3	61	11.13		
15:35	30			10.3	7.71	71.7	59	11.16		13.53
15:40	35			10.4	7.71	70.5	56	11.00		
15:45	40			10.6	7.53	70.8	55	11.01		13.51
15:50	45			10.6	7.52	74.0	46	11.10		
15:55	50			10.5	6.86	74.3	51	11.08		13.51
16:00	55			10.2	6.66	72.8	64	10.96		
16:05	60			10.2	6.63	72.5	69	10.94		13.51

Collected Sample Condition: Color Colorless Odor odorless Appearance clear

Parameter	Container	No.	Preservative

PID Reading: _____

Comments: _____

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project NORTHROP-GRUMMAN Project No. NY001492.0409.00002
Site Location Date 3-23-09
Well No. GM 35D-2 Replicate No. Weather
Sampling Personnel GW Sampling Time: Begin 12:00 End 13:00

Purge Data

Measuring Point (describe) TOC
Sounded Well Depth (ft bmp)
Depth to Water (ft bmp) 530
Depth to Packer (ft bmp) 507
Water Column in Well (ft) 23
Casing Diameter 4" (0.65)
Gallons in Well 14.95 x 3
Gallons Purged Prior to Sampling 45
Pump Intake Setting (ft bmp)
Packer Pressure (psi) 250
Pumping Rate (gpm)
Evacuation Method
Sampling Method
Purge Time Begin 12:05 End 13:00

Field Parameters

Color Colorless
Odor none
Appearance clear

	I	1V	2V	3V
pH (s.u.)	7.09	7.09	6.99	6.98
Conductivity (mS/cm) or (µmhos/cm) [1]	1333	127.9	125	1248
Temperature (°C)	15.6	15.6	15.1	15.0
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)				
Time				
DTW (ft bmp)				

Remarks:
5 GAL PAILS IIII

Parameter	Container	No.	Preservative
See COC			

PID Reading

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project NORTHROP-GRUMMAN Project No. NY001492.0809.00002
Site Location Bethpage, NY Date 3-24-09
Well No. GM-36D Replicate No. ______ Weather ______

Sampling Personnel Gary Williams Sampling Time: Begin 10:50 End 11:20

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	214
Depth to Water (ft bmp)	
Depth to Packer (ft bmp)	202
Water Column in Well (ft)	12
Casing Diameter	4 (0.65)
Gallons in Well	7.8 x3
Gallons Purged Prior to Sampling	24
Pump Intake Setting (ft bmp)	
Packer Pressure (psi)	125 PSI
Pumping Rate (gpm)	
Evacuation Method	
Sampling Method	
Purge Time	Begin 11:00 End 11:20

Field Parameters

Color COLORLESS
Odor NONE
Appearance CLEAR

	I	1V	2V	3V
pH (s.u.)	6.71	5.68	5.52	5.69
Conductivity (mS/cm) or (µmhos/cm) [1]	99.8	99.1	91.3	87.5
Temperature (°C)	14.5	12.7	12.6	13.2
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)				.80
Time				
DTW (ft bmp)				

Remarks: 202 x.43 + 50 = 125 PSI
5 GAL PAILS ||

Parameter	Container	No.	Preservative
SEE COC			

PID Reading 0.0

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project NORTHROP GRUMMAN Project No. NY001492.0004.00002
Site Location BETHPAGE NY Date 2-24-09
Well No. GM-36D-2 Replicate No. _____ Weather _____

Sampling Personnel Gary Williams Sampling Time: Begin _____ End _____

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	540
Depth to Water (ft bmp)	35.68
Depth to Packer (ft bmp)	518
Water Column in Well (ft)	22
Casing Diameter	4 (0.65)
Gallons in Well	14.3
Gallons Purged	x3
Prior to Sampling	43
Pump Intake	
Setting (ft bmp)	
Packer Pressure (psi)	261
Pumping Rate (gpm)	
Evacuation Method	DEDICATED BLADDER
Sampling Method	3WV
Purge Time Begin	End

Field Parameters

		1	1V	2V	3V
Color					
Odor					
Appearance					
pH (s.u.)		7.87	9.72	9.13	8.64
Conductivity (mS/cm) or (µmhos/cm) [1]		79.0	102.7	95.9	94.7
Temperature (°C)		13.0	13.1	13.5	13.6
DO (mg/L)					
ORP (mV)					
Turbidity (NTU)					6.5
Time					
DTW (ft bmp)					

Remarks: 518 - 36.58 x.43 +50 = 261 PSI

5 GAL PAILS IN

Parameter	Container	No.	Preservative
See COC			

PID Reading _____

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: N-Grumman OU2 — Project No.: NY001492.0409.0002
Site Location: Bethpage, NY — Date: 3/30/09
Well No.: GM-37D — Replicate No.: MS/MSD — Weather: Windy, cloudy, upper 40's F

Sampling Personnel: Przorski — Sampling Time: Begin 1434 — End 1443

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	262
Depth to Water (ft bmp)	36.43
Depth to Packer (ft bmp)	240
Water Column in Well (ft)	22
Casing Diameter	4" (0.65)
Gallons in Well	14.3
Gallons Purged Prior to Sampling	x 3 = 43
Pump Intake Setting (ft bmp)	
Packer Pressure (psi)	138
Pumping Rate (gpm)	
Evacuation Method	Dedicated bladder/pack
Sampling Method	
Purge Time	Begin 12:35 End 1430

Field Parameters

	I	1V	2V	3V
Color	colorless	colorless	colorless	colorless
Odor	None	None	None	None
Appearance	clear	clear	clear	clear
pH (s.u.)	5.61	5.16	4.87	4.75
Conductivity (~~mS/cm~~) or	—	—	—	—
(μmhos/cm) [1]	207	204	196	195
Temperature (°C)	17.3	16.1	16.1	17.0
DO (mg/L)	—	—	—	—
ORP (mV)	—	—	—	—
Turbidity (NTU)	—	2.37	0.33	.70
Time	—	1320	—	1430
5 gal container ~~DTW (ft bmp)~~	/	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓

Remarks: 240 − 36.43 × .43 + 50 = 138 Roundup PSI
Split sample with Bethpage Water District
450 ml per pulse

Parameter	Container	No.	Preservative
See COC			

PID Reading ____________

Well Casing Volumes

Gal./Ft.				
	$1^{1/4}$" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65 (circled)
	$1^{1/2}$" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project NORTHROP-GRUMMAN Project No. B4001492.0409.00002
Site Location Date 3-28-09
Well No. GM-37D-2 Replicate No. Weather CLEAR 50°

Sampling Personnel Gary Williams Sampling Time: Begin 11:00 End 12:15

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	390
Depth to Water (ft bmp)	
Depth to Packer (ft bmp)	367
Water Column in Well (ft)	23
Casing Diameter	4 (0.65)
Gallons in Well	14.95
Gallons Purged	x 3
Prior to Sampling	45
Pump Intake	
Setting (ft bmp)	
Packer Pressure (psi)	190
Pumping Rate (gpm)	
Evacuation Method	
Sampling Method	
Purge Time	Begin 11:00 End 12:15

Field Parameters

Color: Colorless
Odor: none
Appearance: clear

	I	1V	2V	3V
pH (s.u.)	5.03	4.52	4.22	4.15
Conductivity (mS/cm) or (µmhos/cm) [1]	153.5	143.6	141.5	141.9
Temperature (°C)	16.2	16.4	16.2	16.5
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)				6.6
Time				
DTW (ft bmp)				

Remarks: 5 GAL PAILS

Parameter	Container	No.	Preservative
See COC			

PID Reading

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) **Circle one unit type**

ARCADIS

Low Flow Groundwater Sampling Form

Page 1 of 1

Project/No. 30049492.0409.01002 Well GM-38D Date 3-22-09

Total depth (ft bmp) 340' Screen Setting (ft bmp) 320'-340' Casing Diameter (inches) 4"

Measuring Point Description TOC Static Water Level (ft bmp) 36.

Pump Intake (ft bmp) _____ Sampling Time: Begin 12:00 pm End 2:00 pm

Weather _____

Sampled by : GW

Date/Time	Rate (ml/min)	DTW (ft bmp)	pH (s.u.)	TEMP. (C)	Cond. umhos or ms/cm	Redox (mV)	DO (mg/L)	TURB (NTU)	Notes
1:00	450	35.53	5.99	12.4	145.4	235	2.45		
1:05			5.89	12.6	127.3	222	1.53		
1:10			5.84	12.9	18.2	194	1.31		
1:15			6.26		18.7	185			
1:20									
1:25									
1:30			5.84	14.7	91.4	194	2.07		
1:35							2		
1:40									
1:45			5.79	15.2	88.3	191	2.03		
1:50		35.58	5.31	14.3	89.0	195	.80		
1:55			5.24	14.4	89.1	196	.77		
2:00		35.58	5.22	14.4	89.1	196	.72		

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: 40014920409.00002 Task: _____ Well ID: GM-38D-2
Date: 3.22.09 Sampled By: GW
Sampling Time: _____ Recorded By: GW
Weather: _____ Coded Replicate No.: _____

Instrument Identification
Water Quality Meter(s): _____ Serial #: _____

Purging Information
Casing Material: _____ Purge Method: LOW FLOW
Casing Diameter: 4" Screen Interval (ft bmp): Top 475' Bottom 495'
Sounded Depth (ft bmp): _____ Pump Intake Depth (ft bmp): _____
Depth to Water (ft bmp): 37.36 Purge time Start: 3:10 pm Finish: 4:10 pm

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. ~~mS/cm~~	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
3:10		450		13.2	6.81		192	6.47		37.36	
3:15				12.4	6.48	146.5	192	5.81		5	
3:20				12.4	6.47	146.0	191	4.99			
3:25				12.3	6.35	146.2	189	2.35		37.39	
3:30				12.3	6.34	146.6	188	2.26			
3:35				12.3	6.32	145.0	184	2.09			
3:40				12.3	6.32	143.4	181	1.99			
3:45				12.3	6.32	143.2	181	2.02			
3:50				12.3	6.32	143.1	180	2.05		37.43	
3:55											
4:00											
4:05											
4:10											

Sample Condition Color: COLORLESS Odor: NONE Appearance: CLEAR
Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading: —

Comments: REPLACED COUPLING WITH NEW STYLE SAMPLE TUBING

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001464.0409.000 2 Task: _____ Well ID: GM-39D
Date: 03-16-09 Sampled By: Gary Williams / Sunny Xu
Sampling Time: 19:22 Recorded By: Gary Williams / Sunny Xu
Weather: cloudy Coded Replicate No.: _____

Instrument Identification
Water Quality Meter(s): _____ Serial #: _____

Purging Information
Casing Material: _____ Purge Method: _____
Casing Diameter: 4" Screen Interval (ft bmp): Top 262 Bottom 282
Sounded Depth (ft bmp): _____ Pump Intake Depth (ft bmp): _____
Depth to Water (ft bmp): 36.32 Purge time Start: 18:20 Finish: 19:20

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. µmhos/cm (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
18:20		450		10.6	6.08	72.2	145	7.30		36.32	
18:25				11.5	6.08	72.2	146	6.79			
18:30				12.4	5.94	71.4	149	6.79		36.39	
18:35				12.6	5.92	70.9	148	6.67			
18:40				12.6	5.92	70.7	150	6.83			
18:45				12.6	5.91	70.7	152	6.71			
18:50				12.6	5.91	70.6	153	6.71		36.36	
18:55				12.6	5.91	70.7	154	6.74			
19:00				12.6	5.91	70.6	154	6.70			
19:05				12.6	5.91	70.7	156	6.77			
19:10				12.6	5.91	70.6	157	6.71			
19:15				12.6	5.91	70.7	157	6.73		36.34	
19:20	60			12.6	5.92	70.6	159	6.83			

Sample Condition Color: Colorless Odor: none Appearance: clear

Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading _____

Comments _____

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001464.0409.00002 Task: Well ID: GM-39 D2
Date: 03-16-09 Sampled By: Gary Williams / Sunny Xu
Sampling Time: 18:17 PM Recorded By: Sunny Xu
Weather: Cloudy Coded Replicate No.:

Instrument Identification
Water Quality Meter(s): Serial #:

Purging Information
Casing Material: Purge Method: low flow.
Casing Diameter: 6" Screen Interval (ft bmp): Top 410 Bottom 420
Sounded Depth (ft bmp): Pump Intake Depth (ft bmp):
Depth to Water (ft bmp): 39.25 Purge time Start: 17:15 pm Finish: 18:18 PM

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. µmhos/cm (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
17:15		450		12.8	5.82	73.5	68	8.25		39.25	
17:20	5			12.1	5.80	73.9	84	8.10			
17:25	10			12.2	5.71	73.6	101	7.67		39.25	
17:30	15			12.2	5.67	73.3	108	7.37			
17:35	20			12.0	5.67	73.2	115	6.39		39.24	
17:40	25			12.0	5.66	73.2	125	6.30			
17:45	30			11.9	5.64	73.3	130	6.24		39.25	
17:50	35			11.9	5.64	73.2	135	6.23			
17:55	40			12.0	5.62	73.0	138	6.17		39.25	
18:00	45			12.0	5.62	73.0	143	6.19			
18:05	50			12.0	5.62	73.0	144	6.14		39.25	
18:10	55			12.0	5.61	73.0	150	6.14			
18:15	60			11.9	5.61	73.0	152	6.22		39.25	

Sample Condition Color: Colorless Odor: none Appearance: clear
Sample Collection

Parameter:	Container:	No.	Preservative:
See COC.			

PID Reading

Comments

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: N-Grumman OU2 | Project No.: NY001492.0409.00001
Site Location: Bethpage, NY | Date: 3/30/09
Well No.: GM-7002 | Replicate No.: NA | Weather: windy, cloudy / upper 40s F
Sampling Personnel: Prezarski | Sampling Time: Begin 1702 | End 1705

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	330
Depth to Water (ft bmp)	38.32
Depth to Packer (ft bmp)	308
Water Column in Well (ft)	22
Casing Diameter	4" (0.65)
Gallons in Well	14.3
Gallons Purged Prior to Sampling	x3 = 43
Pump Intake Setting (ft bmp)	
Packer Pressure (psi)	166
Pumping Rate (gpm)	
Evacuation Method	Dedicated Bladder Pack
Sampling Method	
Purge Time	Begin 1540 End 1701

Field Parameters

	I	1V	2V	3V
Color	colorless	colorless	colorless	colorless
Odor	None	None	None	None
Appearance	clear	clear	clear	clear
pH (s.u.)	5.32	4.95	5.19	5.27
Conductivity (mS/cm) or (µmhos/cm) [1]	—	—	—	—
	105.9	98.5	98.7	98.5
Temperature (°C)	15.4	15.9	15.7	15.8
DO (mg/L)	—	—	—	—
ORP (mV)	—	—	—	—
Turbidity (NTU)	.54	.61	.43	.22
Time	~~15.4~~	—	1634	1701
~~DTW (ft bmp)~~ 5 gal container	—	###	###	###

Remarks: Arte in well
308 − 38.32 × .43 + 50 = 166 PSI
(Split sample with Bethpage water district) 550 ml ~~gen~~ grab

Parameter	Container	No.	Preservative
See COC			

PID Reading: _____

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: N-Grumman OU2 | Project No.: NY001492.0409.00002
Site Location: Bethpage, NY | Date: 3/31/09
Well No.: GM-71D2 | Replicate No.: Rep033109 | Weather: clear 50s F
Sampling Personnel: Prezorski | Sampling Time: Begin 1300 End 1306

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	464
Depth to Water (ft bmp)	38.02
Depth to Packer (ft bmp)	442
Water Column in Well (ft)	22
Casing Diameter	4" (0.65)
Gallons in Well	14.3
Gallons Purged	x 3
Prior to Sampling	43
Pump Intake Setting (ft bmp)	
Packer Pressure (psi)	225
Pumping Rate (gpm)	
Evacuation Method	Dedicated Bladderpak
Sampling Method	
Purge Time	Begin 11:28 End 12:58

Field Parameters

	I	1V	2V	3V
Color	Colorless	Colorless	Colorless	Colorless
Odor	None	None	None	None
Appearance	clear	clear	clear	clear
pH (s.u.)	5.10	5.11	5.08	5.01
Conductivity (mS/cm) or	—	—	—	—
(µmhos/cm) [1]	275	165.9	163.3	161.8
Temperature (°C)	14.2	15.2	15.2	15.2
DO (mg/L)	—	—	—	—
ORP (mV)	—	—	—	—
Turbidity (NTU)	.09	.35	.46	0.17
Time	—	12:00	12:26	12:58
~~DTW (ft bmp)~~ 5 gal container	—	✗ ✗ ✗	✗ ✗ ✗	✗ ✗ ✗

Remarks: 442 - 38.02 x .43 + 50 = 225. Rounded up PSI
500 ml per pulse
(Split sample with Bethpage Water District) 08

Parameter	Container	No.	Preservative
See COC			

PID Reading:

Well Casing Volumes

Gal./Ft.				
	$1^{1/4}$" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	$1^{1/2}$" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: NORTHROP-GRUMMAN
Project Number: NY001464.0409.00002
Site Location: BETHPAGE NY
Well ID: GM-730
Date: 2-18-09
Sampled By: GW
Sampling Time: 4:25 PM
Recorded By: GW
Weather: RAIN 33°
Coded Replicate No.: MS/MSD

Instrument Identification
Water Quality Meter(s): _____ Serial #: _____

Casing Material: _____ Purge Method: LOW FLOW
Casing Diameter: 4" Screen Interval (ft bmp) Top: 401 Bottom: 411
Sounded Depth (ft bmp): _____ Pump Intake Depth (ft bmp): _____
Depth to Water (ft bmp): 41.15 Purge Time Start: 3:25 PM Finish: 4:25 PM

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or mS/cm) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
3:25		450		7.0	5.06	71.2	205	8.12		41.15
3:30				8.4	5.07	71.2	206	7.33		
3:35				8.2	5.07	71.9	210	7.25		
3:40				8.1	5.08	71.9	210	7.23		
3:45				7.9	5.08	72.2	211	7.25		41.15
3:50				7.9	5.08	72.3	209	7.21		
3:55				7.9	5.08	72.6	212	7.30		
4:00				7.9	5.07	72.5	213	7.27		
4:05				8.0	5.07	72.3	212	7.40		41.15
4:10				8.0	5.07	72.3	213	7.39		
4:15				7.9	5.07	72.6	215	7.25		
4:20				8.0	5.07	72.4	217	7.33		
4:25		↓		7.9	5.07	72.4	219		9.6	41.15

Collected Sample Condition: Color_____ Odor_____ Appearance_____

Parameter	Container	No.	Preservative

PID Reading: —

Comments: _____

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: NORTHROP-GRUMMAN
Project Number: NY001464.0409.00002
Site Location: BETHPAGE NY
Well ID: GM-73D-2
Date: 2-18-09
Sampled By: GW
Sampling Time: 3:15 pm
Recorded By: GW
Weather: SNOW/RAIN 33°
Coded Replicate No.: REP-2-18-09

Instrument Identification
Water Quality Meter(s): _____ Serial #: _____

Casing Material: _____ Purge Method: LOW FLO
Casing Diameter: _____ Screen Interval (ft bmp) Top: 532 Bottom: 552
Sounded Depth (ft bmp): _____ Pump Intake Depth (ft bmp): _____
Depth to Water (ft bmp): 43.08 Purge Time Start: 2:15 pm Finish: 3:15 pm

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or mS/cm) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
2:15		450		6.8	5.28	70.0	182	10.48		43.08
2:20		↓		7.0	5.23	69.7	188	9.37		
2:25				7.4	5.21	69.9	190	7.33		
2:30				7.6	5.16	70.4	194	6.99		
2:35				7.8	5.15	70.8	190	6.98		43.12
2:40				8.1	5.13	71.0	198	7.19		
2:45				8.2	5.13	71.2	200	7.12		
2:50				8.3	5.13	71.4	202	7.25		
2:55				8.4	5.13	71.2	196	7.00		
3:00				8.4	5.13	71.4	197	7.23		
3:05				8.5	5.13	71.3	203	7.16		
3:10				8.4	5.13	71.4	204	7.26		
3:15				8.3	5.13	71.4	205	7.32	8.7	

Collected Sample Condition: Color _____ Odor _____ Appearance _____

Parameter	Container	No.	Preservative

PID Reading: —

Comments: _____

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: NORTHROP- GRUMMAN
Project Number: N40014644.0409.00002 Site Location: BETHPAGE Well ID: GM-74I
Date: 2-18-09 Sampled By: GW
Sampling Time: ____ Recorded By: GW
Weather: CLEAR 32° Coded Replicate No.: ____

Instrument Identification
Water Quality Meter(s): ____ Serial #: ____

Casing Material: ____ Purge Method: LOW-FLOW
Casing Diameter: 4" Screen Interval (ft bmp) Top: 94 Bottom: 114
Sounded Depth (ft bmp): ____ Pump Intake Depth (ft bmp): ____
Depth to Water (ft bmp): 37.43 Purge Time Start: 10:10 Finish: 10:55

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or mS/cm) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
10:10		450		8.2	6.58	134.6	171	—		37.43
10:15				8.1	5.80	105.5	160	8.62		
10:20				8.6	5.76	96.1	151	8.61		
10:25				8.8	5.73	94.8	149	8.52		37.48
10:30				9.0	5.73	83.8	143	8.46		
10:35				9.0	5.73	82.7	141	8.33		
10:40				9.1	5.73	80.6	139	8.32		37.47
10:45				9.3	5.73	78.5	137	8.36		
10:50				9.3	5.73	77.6	137	8.33		
10:55				9.5	5.74	76.3	137	8.35	9.9	

Collected Sample Condition: Color COLORLESS Odor NONE Appearance CLEAR

Parameter	Container	No.	Preservative

PID Reading: —

Comments: ____

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: NORTHROP-GRUMMAN
Project Number: N4001464.0409.00002
Site Location: BETHPAGE
Well ID: GM-74D
Date: 2-18-09
Sampled By: GW
Sampling Time: 12:05
Recorded By: GW
Weather: RAining
Coded Replicate No.:

Instrument Identification
Water Quality Meter(s):
Serial #:

Casing Material:
Purge Method:
Casing Diameter: 4"
Screen Interval (ft bmp): Top 295 Bottom 305
Sounded Depth (ft bmp):
Pump Intake Depth (ft bmp):
Depth to Water (ft bmp): 42.27
Purge Time: Start 11:05 Finish 12:05

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or mS/cm) [1]	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
11:05		450		8.1	5.21	70.8	148	8.51		42.27
11:10		↓		8.8	4.87	70.7	172	5.81		
11:15				9.2	4.89	70.8	177	5.75		
11:20				9.4	4.89	69.7	182	5.66		42.27
11:25				9.5	4.87	69.2	185	5.79		
11:30				9.6	4.86	69.1	187	5.80		
11:35				9.6	4.86	68.7	191	5.81		
11:40				9.6	4.86	68.1	193	5.89		42.25
11:45				9.5	4.87	68.2	196	5.88		
11:50				9.5	4.87	68.1	197	5.91		
11:55				9.5	4.89	67.9	199	5.91		
12:00				9.5	4.89	67.9	200	5.87		
12:05				9.7	4.87	67.6	203	6.08	9.6	42.26

Collected Sample Condition
Color: COLORLESS
Odor: NONE
Appearance: CLEAR

Parameter	Container	No.	Preservative
SEE COC			

PID Reading:

Comments:

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: NORTHROP-GRUMMAN
Project Number: N400146.0409.00002
Site Location: BETHPAGE NY
Well ID: GM-74D-2
Date: 2-18-09
Sampled By: GW
Sampling Time: 1:15 PM
Recorded By: GW
Weather: OVERCAST 35°
Coded Replicate No.:

Instrument Identification
Water Quality Meter(s):
Serial #:

Casing Material:
Purge Method: LOW FLOW
Casing Diameter: 4"
Screen Interval (ft bmp): Top 542 Bottom 562
Sounded Depth (ft bmp):
Pump Intake Depth (ft bmp):
Depth to Water (ft bmp): 48.42
Purge Time: Start 12:15 Finish 1:15 PM

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or mS/cm) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
12:15		450	~~8~~	8.3	4.68	67.3	209	7.81		48.42
12:20				8.5	5.13	67.1	193	3.90		
12:25				9.0	5.18	67.1	189	2.09		
12:30				9.1	5.26	66.1	185	1.79		
12:35				9.2	5.26	65.5	183	2.42		48.42
12:40				9.3	5.21	64.9	184	3.03		
12:45				9.3	5.17	63.8	185	3.29		
12:50				9.3	5.15	63.5	185	3.28		
12:55				9.3	5.14	63.3	186	3.34		48.42
1:00				9.3	5.12	63.0	188	3.51		
1:05				9.3	5.12	63.2	189	3.51		
1:10				9.3	5.12	63.4	189	3.49		
1:15									9.7	48.42

Collected Sample Condition
Color: COLORLESS
Odor: NONE
Appearance: CLEAR

Parameter	Container	No.	Preservative

PID Reading: —

Comments:

1) Circle one unit type

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001464.0409.0002 Task: Well ID: GM-7tD2
Date: 03-17-09 Sampled By: Gary Williams / Sunny Xu
Sampling Time: 1200 Recorded By: Sunny Xu
Weather: clear. Coded Replicate No.:

Instrument Identification
Water Quality Meter(s): Serial #:

Purging Information
Casing Material: Purge Method:
Casing Diameter: 4" Screen Interval (ft bmp): Top 505 Bottom 525
Sounded Depth (ft bmp): Pump Intake Depth (ft bmp):
Depth to Water (ft bmp): 32.91 Purge time Start: 1120 Finish: 1200

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. ~~(mS/cm)~~ µmhos/cm	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
1120		450		11.1	6.61	97.7	222	6.94		32.91	
1125				12.3	5.81	90.8	204	5.41			
1130				12.3	5.61	84.1	195	5.61		32.96	
1135				12.5	5.50	81.7	192	5.71			
1140				12.6	5.45	79.0	191	5.12		32.96	
1145				12.6	5.44	78.9	193	5.09			
1150				12.7	5.40	78.1	189	4.25		32.95	
1155				12.7	5.43	78.20	189	3.93			
1200				12.5	5.41	77.70	196	4.32		32.95	
				12.5	5.42	77.80	191	4.96			
				12.5	5.41	78.0	192	4.96		32.96	
				12.8	5.41	77.2	193	4.88			
				13.0	5.41	76.9	195	4.80		32.95	

Sample Condition Color: Colorless Odor: none Appearance: clear.
Sample Collection

Parameter:	Container:	No.	Preservative:
See COC.			

PID Reading

Comments

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project NORTHROP - GRUMMAN Project No. NY001464.0409.00002

Site Location BETHPAGE NY Date 2-24-09

Well No. GM-78S Replicate No. _____ Weather _____

Sampling Personnel Gary Williams Sampling Time: Begin 1:10 End 1:34

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	70.00
Depth to Water (ft bmp)	38.28
Depth to Packer (ft bmp)	
Water Column in Well (ft)	31.72
Casing Diameter	
Gallons in Well	20.61 x 3
Gallons Purged Prior to Sampling	62
Pump Intake Setting (ft bmp)	
Packer Pressure (psi)	
Pumping Rate (gpm)	Q=2.5 IV = 8 mDV
Evacuation Method	
Sampling Method	
Purge Time Begin 1:10 End	

Field Parameters

Color: Colorless

Odor: none

Appearance: clear.

	I	1V	2V	3V
pH (s.u.)	6.08	5.95	5.97	5.95
Conductivity ~~(mS/cm)~~ or (µmhos/cm) [1]	187.1	195.0	189.2	187.5
Temperature (°C)	13.5	13.8	13.9	14.0
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)				1.7
Time	1:10	1:18	1:26	1:34
DTW (ft bmp)				

Remarks: _____

Parameter	Container	No.	Preservative
See COC			

PID Reading _____

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: Northrop Grumman
Project Number: NY001464.0449.00002
Site Location: Bethpage, NY
Well ID: GM-78I ~~405~~
Date: 02-24-09
Sampled By: G.D. X.X
Sampling Time: 12:45 PM
Recorded By: Sunny Xu
Weather:
Coded Replicate No.:

Instrument Identification
Water Quality Meter(s):
Serial #:

Casing Material:
Purge Method:
Casing Diameter: 4"
Screen Interval (ft bmp): Top 90 Bottom 100
Sounded Depth (ft bmp):
Pump Intake Depth (ft bmp):
Depth to Water (ft bmp): 38.58
Purge Time: Start 12:00 PM Finish 12:45 PM

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or mS/cm) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
12:00		400		10.5	5.98	165.6	128	8.89		38.58
12:05	5			10.0	5.98	164.2	121	9.00		
12:10	10			10.6	6.02	157.2	117	9.15		38.58
12:15	15			11.0	6.05	158.4	116	8.82		
12:20	20			11.3	6.05	159.0	116	9.04		38.58
12:25	25			11.2	6.06	157.8	119	9.04		
12:30	30			11.3	6.08	158.3	119	8.90		38.58
12:35	35			11.6	6.06	159.3	119	8.64		
12:40	40			12.1	6.07	157.6	121	8.71		38.58
12:45	45			12.0	6.08	156.3	122	8.87		

Collected Sample Condition: Color Colorless Odor odorless Appearance clear

Parameter	Container	No.	Preservative

PID Reading:

Comments:

1) Circle one unit type

ARCADIS

Low Flow Groundwater Sampling Form

Page 1 of 1

Project/No. NYOD1464.D409.00002 Well GM-79I Date 3.20.09

Total depth (ft bmp) 180' Screen Setting (ft bmp) 170' - 180' Casing Diameter (inches) 4

Measuring Point Description TOC Static Water Level (ft bmp) 38.09

Pump Intake (ft bmp) _____ Sampling Time: Begin 12:45 End 2:05 pm.

Weather _____

Sampled by : Gary Williams

Date/Time	Rate (ml/min)	DTW (ft bmp)	pH (s.u.)	TEMP. (C)	Cond. umhos or ms/cm	Redox (mV)	DO (mg/L)	TURB (NTU)	Notes
12:45		38.09	5.66	12.4	74.4	135	7.63		
12:50			5.61	12.4	73.6	143	6.67		
12:55			5.61	12.3	73.4	144	6.42		
1:00									
1:05									
1:10									
1:15									
1:20									
1:25									
1:30									
1:35									
1:40									
1:45									
1:50									
1:55		38.12	5.55	12.5	69.9	173	6.12		
2:00			5.54	12.4	69.8	177	6.26		
2:05		38.08	5.53	12.5	69.7	177	6.30		

ARCADIS

Low Flow Groundwater Sampling Form

Page 1 of 1

Project/No. NY001464.0409.0000 Well GM-79D Date 3-20-09

Total depth (ft bmp) 290' Screen Setting (ft bmp) 280' - 290' Casing Diameter (inches) 4"

Measuring Point Description TOC Static Water Level (ft bmp) 39.17

Pump Intake (ft bmp) _____ Sampling Time: Begin 2:25 pm End 3:25 pm.

Weather _____

Sampled by : Gary Williams

Date/Time	Rate (ml/min)	DTW (ft bmp)	pH (s.u.)	TEMP. (C)	Cond. umhos ~~or ms/cm~~	Redox (mV)	DO (mg/L)	TURB (NTU)	Notes
2:25		39.17	5.44	10.7	74.3	182	7.04		
2:30			5.35	12.9	69.7	187	3.59		
2:35			5.35	13.0	69.6	189	3.64		
2:40			5.35	13.0	69.6	189	3.62		
2:45		39.20	5.35	13.0	69.5	189	3.63		
2:50			5.35	13.0	69.0	190	3.70		
2:55			5.36	12.9	68.9	192	3.78		
3:00			5.36	13.0	68.7	192	3.80		
3:05		39.19	5.37	12.8	68.6	195	3.99		
3:10			5.07	12.9	68.0	198	5.06		
3:15			5.37	12.9	68.1	199	5.37		
3:20			5.38	12.9	68.1	199	4.96		
3:25			5.38	12.9	68.0	200	4.93		
~~3:30~~									
~~3:35~~									
~~3:40~~									

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: N-Grumman OU2 | Project No.: NY001492.0009.0002
Site Location: Bethpage, NY | Date: 3/29/09
Well No.: MW-16F | Replicate No.: NA | Weather:
Sampling Personnel: Williams/Brezosky | Sampling Time: Begin 1428 End 1449

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	58
Depth to Water (ft bmp)	42.00
Depth to Packer (ft bmp)	/
Water Column in Well (ft)	16
Casing Diameter	4" (0.65)/PVC
Gallons in Well	10.04
Gallons Purged	x3
Prior to Sampling	31.2
Pump Intake	
Setting (ft bmp)	
Packer Pressure (psi)	
Pumping Rate (gpm)	2
Evacuation Method	Rediflow pump
Sampling Method	
Purge Time	Begin 1428 End 1446

Field Parameters

	1	1V	2V	3V
Color	colorless	colorless	colorless	colorless
Odor	None	None	None	None
Appearance	clear	clear	clear	clear
pH (s.u.)	6.91	6.83	6.70	6.44
Conductivity (mS/cm) or	—	—	—	
(µmhos/cm) [1]	291	401	302	352
Temperature (°C)	14.3	14.0	14.4	14.8
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)	—	4.15	3.7	2.2
Time	1428	1434	1440	1446
DTW (ft bmp)				

Remarks: Q=2 t=15.6 1V=6

Parameter	Container	No.	Preservative
See COC			

PID Reading: Raloxy

Well Casing Volumes

Gal./Ft.				
	$1^{1/4}$" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	$1^{1/2}$" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: N-Grumman OU2 Project No. NY001492.0409.0002
Site Location: Bethpage, NY Date: 3/29/09
Well No.: MW-2GF Replicate No.: NA Weather:
Sampling Personnel: Williams / Pezzoti Sampling Time: Begin 13:49 End 1411

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	59
Depth to Water (ft bmp)	41.77
Depth to Packer (ft bmp)	—
Water Column in Well (ft)	17.23
Casing Diameter	4" (0.65)
Gallons in Well	11.2
Gallons Purged Prior to Sampling	~~33~~ 34
Pump Intake Setting (ft bmp)	
Packer Pressure (psi)	
Pumping Rate (gpm)	2
Evacuation Method	3 well Volume
Sampling Method	Red-flow pump
Purge Time	Begin 1349 End 1407

Field Parameters

	I	1V	2V	3V
Color	colorless	colorless	colorless	colorless
Odor	None	None	None	None
Appearance	clear	clear	clear	clear
pH (s.u.)	6.62	6.61	6.82	6.81
Conductivity (~~mS/cm) or~~ (µmhos/cm)[1]	399	404	155.6	300
Temperature (°C)	13.6	13.7	14.7	14.5
DO (mg/L)	—	—		
ORP (mV)	—	—		
Turbidity (NTU)	50	17	9.9	5.2
Time	1349	1355	1401	1407
DTW (ft bmp)				

Remarks: Q=2 t=17 1v=6

Parameter	Container	No.	Preservative
See COC			

PID Reading: Rainy

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65 (circled)
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

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ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: NORTHROP-GRUMMAN   Project No.: NY 001464.0409.00002
Site Location: BETHPAGE   Date: 2-24-09
Well No.: PT MW-04   Replicate No.: —   Weather:

Sampling Personnel: Gary Williams   Sampling Time: Begin 5:53 pm   End 6:05 pm

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	56.5
Depth to Water (ft bmp)	41.36
Depth to Packer (ft bmp)	
Water Column in Well (ft)	15.14
Casing Diameter	2 (0.16)
Gallons in Well	2.42
Gallons Purged Prior to Sampling	7.5
Pump Intake Setting (ft bmp)	
Packer Pressure (psi)	
Pumping Rate (gpm)	Q=1 T=7.5 V=2.5
Evacuation Method	
Sampling Method	
Purge Time	Begin 5:53 pm End 6:05 pm

Field Parameters

Color: Colorless
Odor: none
Appearance: clear.

	I	1V	2V	3V
pH (s.u.)	6.19	6.23	6.11	6.14
Conductivity (mS/cm) or (µmhos/cm) [1]	148.9	147.4	146.1	
Temperature (°C)	10.3	12.1	12.1	
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)		1.4	1.3	.75
Time	553	555.5	558	605
DTW (ft bmp)				

Remarks:

Parameter	Container	No.	Preservative
See COC			

PID Reading

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

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Infrastructure, environment, facilities

Water Sampling Log

Project NORTHROP GRUMMAN Project No. N400 1164.0109.00002

Site Location BETHPAGE NY Date 2-24-09

Well No. PT1 MW-05 Replicate No. _____ Weather CLEAR 35°

Sampling Personnel GW XO Sampling Time: Begin 4:05 End 4:55

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	58.00
Depth to Water (ft bmp)	42.05
Depth to Packer (ft bmp)	
Water Column in Well (ft)	15.95
Casing Diameter	2" (0.16)
Gallons in Well	2.52 x 3
Gallons Purged Prior to Sampling	7.50
Pump Intake Setting (ft bmp)	
Packer Pressure (psi)	
Pumping Rate (gpm)	Q=.5gpm | D=5
Evacuation Method	
Sampling Method	
Purge Time	Begin 4:15 End 450

Field Parameters

Color: Colorless

Odor: none

Appearance: clear

	I	1V	2V	3V	
pH (s.u.)	5.98	6.15	6.17	6.16	
Conductivity ~~(mS/cm)~~ or (µmhos/cm) [1]	114.1	115.9	114.8	115.0	
Temperature (°C)	13.4	13.9	13.7	13.2	
DO (mg/L)					
ORP (mV)					
Turbidity (NTU)	22	12	4.8	2.1	
Time	4:26	4:31	4:36	4:41	4:46
DTW (ft bmp)					

Remarks: _____

Parameter	Container	No.	Preservative
See COC			

PID Reading _____

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project NORTHROP - GRUMMAN Project No. NY000464040900002
Site Location BETHPAGE NY Date 2-24-09
Well No. PT1 MW-06 Replicate No. _____ Weather _____

Sampling Personnel Gary William Sampling Time: Begin 5:00 pm End 5:30 pm

Purge Data

Measuring Point (describe)	
Sounded Well Depth (ft bmp)	62.00
Depth to Water (ft bmp)	42.16
Depth to Packer (ft bmp)	
Water Column in Well (ft)	9.84
Casing Diameter	
Gallons in Well	1.57
Gallons Purged Prior to Sampling	~~3~~ 4.71
Pump Intake Setting (ft bmp)	
Packer Pressure (psi)	
Pumping Rate (gpm)	Q=.5 GPM T=30 MIN
Evacuation Method	
Sampling Method	
Purge Time	Begin 5:00 pm End 5:30 pm

Field Parameters

Color COLORLESS
Odor NONE
Appearance CLEAR

	I	1V	2V	3V
pH (s.u.)	3.99	5.99	5.97	6.00
Conductivity ~~(mS/cm)~~ or (µmhos/cm) [1]	111.9	113.8	112.6	112.2
Temperature (°C)	12.1	11.9	12.3	12.4
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)	>200	250	19	7.0
Time	5:00	5:10	5:20	5:30
DTW (ft bmp)				

Remarks: _____

Parameter	Container	No.	Preservative
See DOC.			

PID Reading _____

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: NGC
Project Number: NY001464.0409.00002
Site Location: Bethpage, NY
Well ID: HN-24I
Date: 02-26-09
Sampled By: Gary Williams / Sunny Xu
Sampling Time: 16:09
Recorded By: Sunny Xu
Weather:
Coded Replicate No.:

Instrument Identification
Water Quality Meter(s):
Serial #:

Casing Material:
Purge Method:
Casing Diameter: 4"
Screen Interval (ft bmp) Top: 148 Bottom: 158
Sounded Depth (ft bmp):
Pump Intake Depth (ft bmp):
Depth to Water (ft bmp): 53.04
Purge Time Start: 15:24 Finish: 16:09

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or mS/cm) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
15:24	0	500		10.5	5.89	137.4	153	76.0		53.04
15:29	5			11.5	5.77	146.2	130	69.0		
15:34	10			11.4	5.76	143.4	126	67.0		52.81
15:39	15			11.5	5.68	141.2	135	66.0		
15:44	20			11.5	5.68	140.7	134	65.7		52.81
15:49	25			11.4	5.68	140.4	130	65.5		
15:54	30			11.4	5.68	140.1	129	65.8		52.83
15:59	35			11.9	5.68	139.9	132	65.8		
16:04	40			11.8	5.70	139.7	130	65.6		52.83
16:09	45			12.1	5.68	139.9	137	65.4		

Collected Sample Condition
Color: Colorless
Odor: odorless
Appearance: clear

Parameter	Container	No.	Preservative
See COC			

PID Reading:

Comments:

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project NORTHROP-GRUMMAN Project No. NY001469.0409.00002
Site Location BETHPAGE NY Date 2-23-09
Well No. MW 408 Replicate No. _____ Weather _____

Sampling Personnel GW XXO Sampling Time: Begin 3:07 PM End 3:31 PM

Purge Data

Measuring Point (describe)	
Sounded Well Depth (ft bmp)	59.00
Depth to Water (ft bmp)	46.13
Depth to Packer (ft bmp)	
Water Column in Well (ft)	12.87
Casing Diameter	4 (0.65)
Gallons in Well	8.37 x 3
Gallons Purged Prior to Sampling	25 GAL
Pump Intake Setting (ft bmp)	
Packer Pressure (psi)	
Pumping Rate (gpm)	Q=1 T=25 V=8
Evacuation Method	
Sampling Method	
Purge Time	Begin 3:07 PM End 3:31 PM

Field Parameters

Color: Colorless
Odor: none
Appearance: clear

	1	1V	2V	3V
pH (s.u.)	5.41	5.46	5.52	5.40
Conductivity (~~mS/cm~~) or (µmhos/cm) [1]	141.5	123.8	119.8	111.5
Temperature (°C)	13.3	13.6	13.7	14.2
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)				2.5
Time	3:07	3:15	3:23	3:31
DTW (ft bmp)				

Remarks: _____

Parameter	Container	No.	Preservative

PID Reading _____

Well Casing Volumes

Gal./Ft.				
	$1^{1/4}$" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	$1^{1/2}$" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: NGC
Project Number: Bethpage, NY
Date: 02-23-09
Sampling Time: 16:35
Weather:

Site Location: NY001464.0409.00002
Sampled By: G.W. X. X.
Recorded By: X. X.
Coded Replicate No.:

Well ID: ~~MW-11~~ HN-40I

Instrument Identification
Water Quality Meter(s):
Serial #:

Casing Material:
Casing Diameter: 4"
Sounded Depth (ft bmp):
Depth to Water (ft bmp): 45.92.

Purge Method:
Screen Interval (ft bmp): Top 108 Bottom 118.
Pump Intake Depth (ft bmp):
Purge Time: Start 15:50 Finish 16:35.

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or ~~mS/cm~~) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
15:50	0	500		11.6	7.22	149.8	150	8.67		45.92
15:55	5			12.1	6.46	148.7	160	9.11		
16:00	10			13.0	5.62	144.6	161	8.46		46.01
16:05	15			13.5	5.45	140.6	156	8.33		
16:10	20			13.9	5.43	137.9	152	8.31		45.94
16:15	25			14.1	5.38	135.5	162	8.17		
16:20	30			14.3	5.36	133.6	161	8.48		45.94
16:25	35			14.2	5.36	132.8	170	8.78		
16:30	40			14.2	5.34	132.1	171	8.58		45.96
16:35	45			14.3	5.35	131.3	175	8.55		

Collected Sample Condition
Color: colorless
Odor: odorless
Appearance: clear

Parameter	Container	No.	Preservative

PID Reading:

Comments:

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project NORTHROP - GRUMMAN Project No. NY 001864.0409.00002
Site Location BETHPAGE NY Date 12-23-09
Well No. MW-42S Replicate No. _____ Weather _____

Sampling Personnel GS XO Sampling Time: Begin 2:10 PM End 2:34PM

Purge Data

Measuring Point (describe)	
Sounded Well Depth (ft bmp)	60.00
Depth to Water (ft bmp)	~~48.33~~ 48.33
Depth to Packer (ft bmp)	
Water Column in Well (ft)	~~11.67~~ 11.67
Casing Diameter	4 (0.65)
Gallons in Well	7.67
Gallons Purged	x 3
Prior to Sampling	23.01
Pump Intake	
Setting (ft bmp)	
Packer Pressure (psi)	
Pumping Rate (gpm)	Q=1 T=23 V=~~3~~
Evacuation Method	Peristaltic Pump &
Sampling Method	3WV
Purge Time	Begin 2:10 End 2:34

Field Parameters

Color: Colorless
Odor: none
Appearance: clear

	I	1V	2V	3V
pH (s.u.)	7.42	6.21	5.78	5.55
Conductivity ~~(µS/cm)~~ or (µmhos/cm) [1]	~~468~~ 468	~~474~~ 474	458	453
Temperature (°C)	13.6	14.0	14.4	13.8
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)				1.3
Time	210	2:18	2:26	2:34
DTW (ft bmp)				

Remarks:

Parameter	Container	No.	Preservative

PID Reading ~

Well Casing Volumes

Gal./Ft.				
	$1^{1/4}$" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	$1^{1/2}$" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) **Circle one unit type**

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Low-Flow Groundwater Sampling Log

Project: NJ 001464.0409.00002
Project Number: NORTHROP GRUMMAN
Site Location:
Well ID: HW-42I
Date: 2-28-09
Sampled By: GW XX
Sampling Time: 1250 pm.
Recorded By: XX
Weather:
Coded Replicate No.:

Instrument Identification
Water Quality Meter(s):
Serial #:

Casing Material:
Purge Method: LOW FLOW
Casing Diameter: 4"
Screen Interval (ft bmp): Top 100 Bottom 110
Sounded Depth (ft bmp):
Pump Intake Depth (ft bmp):
Depth to Water (ft bmp): ~~47.80~~ 47.80
Purge Time: Start 1:05 pm Finish 1:50 pm

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or ~~mS/cm~~) [1]	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
1:05 PM		400		9.5	12.22	494.	139	7.25		47.80
1:10				10.4	12.25	470	137	7.22		
1:15				10.8	12.31	426	133	7.16		47.82
1:20				11.3	12.31	403	127	7.32		
1:25				11.8	12.31	400	121	7.29		47.84
1:30				11.9	12.30	404	120	7.22		
1:35				11.9	12.30	412	115	7.23		47.83
1:40				11.7	12.30	420	112	7.21		
1:45				11.8	12.30	439	110	7.31		47.84
1:50				11.9	12.29	442	108	7.23		

Collected Sample Condition
Color: colorless Odor: odorless Appearance: clear.

Parameter	Container	No.	Preservative

PID Reading:

Comments:

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project NGC Project No. NY001464.0009.0002

Site Location Bethpage, NY Date 03-17-09

Well No. N-10631 Replicate No. Weather Sunny

Sampling Personnel Gary Williams / Sunny Xu. Sampling Time: Begin 14:50 End 15:00

Purge Data

Measuring Point (describe)	
Sounded Well Depth (ft bmp)	67.00
Depth to Water (ft bmp)	35.95
Depth to Packer (ft bmp)	~~41.05~~
Water Column in Well (ft)	41.05
Casing Diameter	2" (0.16)
Gallons in Well	6.56
Gallons Purged Prior to Sampling	21
Pump Intake Setting (ft bmp)	
Packer Pressure (psi)	
Pumping Rate (gpm)	
Evacuation Method	
Sampling Method	
Purge Time Begin ____ End ____	

Field Parameters

	1	1V	2V	3V
Color	Colorless			
Odor	none			
Appearance	clear.			
pH (s.u.)	9.15	9.12	8.34	8.11
Conductivity (~~mS/cm~~) or (µmhos/cm)	664	188.2	114.2	106.2
Temperature (°C)	14.6	14.1	14.0	13.9
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)				8.2
Time				
DTW (ft bmp)				

Remarks:

Parameter	Container	No.	Preservative
See COC.			

PID Reading

Well Casing Volumes

Gal./Ft.				
	$1^{1/4}$" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	$1^{1/2}$" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001464.0607.00002 Task: _____ Well ID: N-10627
Date: 03-17-09 Sampled By: Gary Williams / Sunny Xu
Sampling Time: 13:37 Recorded By: Sunny Xu
Weather: clear Coded Replicate No.: _____

Instrument Identification
Water Quality Meter(s): _____ Serial #: _____

Purging Information
Casing Material: _____ Purge Method: _____
Casing Diameter: 4" Screen Interval (ft bmp): Top 290 Bottom 295
Sounded Depth (ft bmp): _____ Pump Intake Depth (ft bmp): _____
Depth to Water (ft bmp): 30.88 Purge time Start: 12:35 Finish: 13:35

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. µmhos/cm (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
12:35				12.4	8.57	86.5	120	4.25		31.15	
12:40	5			13.1	9.79	90.2	114	2.31			
12:45	10			13.5	10.10	96.2	116	1.62		31.52	
12:50	15			14.0	10.26	102.0	99	1.29			
12:55	20			14.2	10.42	111.4	65	1.12		31.72	
13:00	25			14.2	10.49	119.8	25	1.09			
13:05	30			14.3	10.49	126.9	-25	1.09		31.85	
13:10	35			14.4	10.50	132.3	-38	1.11			
13:15	40			14.4	10.52	134.9	-50	1.13		31.87	
13:20	45			14.4	10.52	138.3	-60	1.17			
13:25	50			14.6	10.52	138.3	-66	1.21		31.90	
13:30	55			14.7	10.52	140.0	-79	1.15			
13:35	60			14.7	10.53	140.8	-85	1.21		31.90	

Sample Condition Color: Colorless Odor: none Appearance: clear

Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading _____

Comments _____

ARCADIS

Laboratory Task Order No./P.O. No. Grumman 0V2

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Project Number/Name NY001492.0409.00002

Project Location Bethpage, NY

Laboratory Columbia Analytical - Rochester

Project Manager Dave Stern

Sampler(s)/Affiliation William J Prizerski

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	40 ml vial VOC 8260	250 ml plastic Total Cr (HNO3)	250 ml plastic Dissolved Cr (HNO3)				Remarks	Total
TB032809-09	L	3/28/09		3							3
Wash Water				3							3
GM-37D2				3							3
FB032909		3/29/09		3							3
GM-21S				3						Sample time 1550	3
MW-1GF		1449			1	1					2
MW-2GF		1411			1	1					2
TB033009		3/30/09		3							3
GM-37D		1434		*9							9
GM-70D2		1704		3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 34

Relinquished by:	Organization: Arcadis	Date 3/30/09	Time 1930	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	
Relinquished by:	Organization:	Date / /	Time	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	

Special Instructions/Remarks: Report to Melissa Reindl

* Please use this sample as a QA/QC MS/MSD sample

Delivery Method: ☐ In Person ☒ Common Carrier Fed Ex ☐ Lab Courier

SPECIFY

ARCADIS

Laboratory Task Order No./P.O. No. N-Grid **CHAIN-OF-CUSTODY RECORD** Page 1 of 1

Project Number/Name Bethpage Water District

Project Location Bethpage, NY

Laboratory H2M

Project Manager

Sampler(s)/Affiliation Prezorski

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	40 ml Vial VOC (HCl)						Remarks	Total
GM-37D	L	3/30/09		2						Sample time 1434	2
GM-70D2	L	↓ 1704		2							2
GM-71D2	L	3/31/09		2						Sample time 1300	2

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 6

Relinquished by: Sunny Xu	Organization: Arcadis	Date 3/31/09	Time 17:31	Seal Intact?	
Received by:	Organization: H2M	Date 3/31/09	Time 17:31	Yes No N/A	
Relinquished by:	Organization:	Date / /	Time	Seal Intact?	
Received by:	Organization:	Date / /	Time	Yes No N/A	

Special Instructions/Remarks:

Delivery Method: ☑ In Person ☐ Common Carrier ☐ Lab Courier

SPECIFY

ARCADIS

Laboratory Task Order No./P.O. No. N-Grumman 002 **CHAIN-OF-CUSTODY RECORD** Page 1 of 1

Project Number/Name NY001492.0409.00002

Project Location Bethpage, NY

Laboratory Columbia Analytical - Rochester

Project Manager Dave Stern

Sampler(s)/Affiliation Prezorski

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 4oz vial VOC (HCl)						Remarks	Total
TB033109	L	3/31/09		3							3
Rep033109	↓	↓		3							3
GM-7ID2	↓	1300		3							3
GM-18I	↓	1513		3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 12

Relinquished by: Ed Prezorski	Organization: Arcadis	Date 3/31/09	Time 1753	Seal Intact? Yes No N/A	
Received by:	Organization:	Date / /	Time		
Relinquished by:	Organization:	Date / /	Time	Seal Intact? Yes No N/A	
Received by:	Organization:	Date / /	Time		

Special Instructions/Remarks: Rpt to Melissa Reindl

Delivery Method: ☐ In Person ☒ Common Carrier Fed Ex SPECIFY ☐ Lab Courier ☐ Other SPECIFY

AS-05-12/01

ARCADIS

Laboratory Task Order No./P.O. No. NGC 04-2 **CHAIN-OF-CUSTODY RECORD** Page 1 of 1

Project Number/Name NGC NY001492.0409.0002

Project Location Bethpage, NY

Laboratory Columbia Analytical Services

Project Manager Mike Wolfert

Sampler(s)/Affiliation Patricia Piezonski / Gary Williams

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40ml vial VOC of MW-2 2ea HCl preserved						Remarks	Total
GM-15I	L	03-31-09		3							3
MW-116-I	L	"		3							3
TB033109B	L	↓		3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 9

Relinquished by: Sunny Xu Organization: Arcadis Date 04/01/2009 Time 15:30

Received by: _____ Organization: _____ Date / / Time _____

Seal Intact? Yes No N/A

Relinquished by: _____ Organization: _____ Date / / Time _____

Received by: _____ Organization: _____ Date / / Time _____

Special Instructions/Remarks: 2 week TAT. Report to Melissa Reinell

Delivery Method: ☐ In Person ☒ Common Carrier Fedex

ARCADIS

CHAIN-OF-CUSTODY RECORD

Laboratory Task Order No./P.O. No. ____

Project Number/Name NGC NY001492.0009.00002

Project Location Bethpage, NY

Laboratory Columbia Analytical Services

Project Manager Mike Wolfert

Sampler(s)/Affiliation Gary Williams

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40 ml vial VOC OLM 4.2 2000 ASP HCl preserved						Remarks	Total
TB4-1-09	L	4-1-09		3							3
GM-18D	L	↓		3							3
GM-21I	L	↓		3							3

Total No. of Bottles/Containers: 9

Sample Matrix: L = Liquid; S = Solid; A = Air

Relinquished by: Sunny Xu	Organization: Arcadis	Date 4/2/09	Time 15:30	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	
Relinquished by:	Organization:	Date / /	Time	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	

Special Instructions/Remarks:

Delivery Method: ☐ In Person ☒ Common Carrier FedEx (SPECIFY) ☐ Lab Courier ☐ Other ____ (SPECIFY)

ARCADIS

Laboratory Task Order No./P.O. No. _____ **CHAIN-OF-CUSTODY RECORD** Page _____ of _____

Project Number/Name N4004H64.0409.0002

Project Location BETHPAGE NY

Laboratory COLUMBIA ANALYTICAL SERV

Project Manager NICKE WOLFERT

Sampler(s)/Affiliation G.W.

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40 ML VOC 624 4.2 (HCl) 2000 ASP						Remarks	Total
GM-17I	L	2-17-09		3							3
GM-17D		2-17-09		3							3
TB 2-17,18-09		2-17-09		3							3
GM-74I		2-18-09		3							3
GM-74D				3							3
GM-74D-2				3							3
GM-73D-2				3							3
GM-73D				9*							9*
REP-2-18-09				3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/ Containers: 33

					Seal Intact?
Relinquished by: D. DW	Organization: ARCADIS	Date 2/18/09	Time 600		
Received by: _____	Organization: _____	Date / /	Time _____		Yes No N/A
Relinquished by: _____	Organization: _____	Date / /	Time _____		Seal Intact?
Received by: _____	Organization: _____	Date / /	Time _____		Yes No N/A

Special Instructions/Remarks:

PLEASE USE THIS SAMPLE FOR AN MS/MS - QA/QC SAMPLE

REPORT TO MEITZ & REZNOL

Delivery Method: ☐ In Person ☒ Common Carrier FED-EX ☐ Lab Courier ☐ Other _____

SPECIFY SPECIFY

AG 05-12/01

ARCADIS

Laboratory Task Order No./P.O. No. NGC 96+102

CHAIN-OF-CUSTODY RECORD

Project Number/Name NY001464.0409.00002
Project Location BETHPAGE NY
Laboratory COLUMBIA ANALYTICAL
Project Manager CARLO SANGIOVANNI
Sampler(s)/Affiliation D. McCAFFERY / ARCADIS

ANALYSIS / METHOD / SIZE: 6 LITER SUMMAS; TO-15; GRAB; STD. TAT; CAN #

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	6 LITER SUMMAS	TO-15	GRAB	STD. TAT		CAN #	Remarks	Total
TOWER 102 INF	A	2/23/09 1019		↓	↓	↓	↓		K675	START VAC -29.50	1
~~TOWER 102 EFF.~~ DH		DH ~~1025~~								DH ~~START VAC~~ END VAC -5.0	
TOWER 102 EFF.		1025							K743	START VAC -29.50	1
										END -5.0	
TOWER 96 INF		1900							K692	START VAC -29.50	1
										END -5.0	
TOWER 96 MID TRAIN		1905							K746	START VAC -29.50	1
										END -5.0	
TOWER 96 TOTAL EFF.	↓	1910		↓	↓	↓	↓		K661	START VAC -29.50	1
										END -5.1	

Sample Matrix: L = Liquid; S = Solid; (A = Air)

Total No. of Bottles/Containers: 6 (1 UNUSED CAN.)

Relinquished by: [signature]	Organization: ARCADIS	Date 2/23/09	Time	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A
Relinquished by:	Organization:	Date / /	Time	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A

Special Instructions/Remarks: ATTN: MIKE PERRY RETURNING 1 UNUSED CAN #65.

Delivery Method: ☐ In Person ☒ Common Carrier FED. EX (SPECIFY) ☐ Lab Courier ☐ Other ______ (SPECIFY)

AG 05-12/01

ARCADIS

Laboratory Task Order No./P.O. No. NGC 9 & 102

CHAIN-OF-CUSTODY RECORD

Project Number/Name NY001464.0409.00002

Project Location BETHPAGE NY.

Laboratory COLUMBIA ANALYTICAL

Project Manager CARLO SAN GIOVANNI

Sampler(s)/Affiliation [signature] / ARCADIS

ANALYSIS / METHOD / SIZE

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	40 ml VOAs	OLM 4.2	GRAB	STD. TAT	PRES. HCL	UNPRESERVED	Remarks	Total
TOWER 102 EFF.	L	2/23/05 0830		3	X	X	↓	X			
TOWER 102 EFF. MS	↓	0830		3	X	X	↓	X			
TOWER 102 EFF. MSD	↓	0830		3	X	X	↓	X			
TOWER 102 INF.	↓	0820		3	X	X	↓	X			
TOWER 102 INF N.G.	↓	0820		2	X	X	↓		X		
TOWER ~~INF~~ 102 EFF NG.	↓	0830		2	X	X	↓		X		
WELL - 19	↓	0840		3	X	X	↓	X			
WELL - 19 NG	↓	0840		2	X	X	↓		X		
WELL 18	↓	0854		3	X	X	↓	X	[illegible]		
WELL 18NG	↓	0854		2	X	X	↓		X		
WELL 17	↓	0905		3	X	X	↓	X		REPORT WELL 17	
WELL 17NG	↓	0905		2	X	X	↓		X		
TOWER 96 INF	↓	0915		3	X	X	↓	X			
TOWER 96 EFF.	↓	0920		3	X	X	↓	X			
WELL - 1	↓	0928		3	X	X	↓	X			

Total No. of Bottles/Containers: 40

Sample Matrix: (L = Liquid;) S = Solid; A = Air

Relinquished by: ______ Organization: ______ Date / / Time ______ Seal Intact? Yes No N/A
Received by: ______ Organization: ______ Date / / Time ______

Relinquished by: ______ Organization: ______ Date / / Time ______ Seal Intact? Yes No N/A
Received by: ______ Organization: ______ Date / / Time ______

Special Instructions/Remarks: ATTN: MIKE PERRY. UNPRESERVED BOTTLES ARE MARKED N.G. FOR THE CLIENT, THEY ARE ALSO YELLOW CAPS. SAMPLE THESE AS YOU NORMALLY WOULD.

Delivery Method: ☐ In Person ☒ Common Carrier FED. EX (SPECIFY) ☐ Lab Courier ☐ Other ______ (SPECIFY)

AG 05-12/01

ARCADIS

Laboratory Task Order No./P.O. No. NGC 96 + 102

CHAIN-OF-CUSTODY RECORD

Project Number/Name N1400464.0409.00002

Project Location BETHPAGE NY

Laboratory COLUMBIA ANALYTICAL

Project Manager CARLO SANGIOVANNI

Sampler(s)/Affiliation J. MCCAFFERY / ARCADIS

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	40 mL VOAS	8260	GRAB	STD. TAT	PRES. HCL	UNPRESERVED	Remarks	Total
WELL 3	L	2/23/09 0955		3	X	X	↓	X			
REP 022309	↓	↓		3	X	X	↓	X			
TRIP BLANKS	↓	↓		3	X		↓	X			
TEMP. BOTTLE	↓			[illegible]							

Sample Matrix: (L = Liquid;) S = Solid; A = Air

Total No. of Bottles/Containers ~~10~~ 9

Relinquished by: [signature] Organization: ARCADIS Date 2/23/09 Time ____ Seal Intact? Yes No N/A

Received by: ____ Organization: ____ Date / / Time ____

Relinquished by: ____ Organization: ____ Date / / Time ____ Seal Intact? Yes No N/A

Received by: ____ Organization: ____ Date / / Time ____

Special Instructions/Remarks:
ATTN: MIKE PERRY 49 TOTAL BOTTLES + 1 TEMP. BLANK. RESULTS TO MELISSA REINDL AT MELVILLE OFFICE.

Delivery Method: ☐ In Person ☐ Common Carrier FED. EX (SPECIFY) ☐ Lab Courier ☐ Other ____ (SPECIFY)

AG 05-12/01

ARCADIS

Laboratory Task Order No./P.O. No. _____ **CHAIN-OF-CUSTODY RECORD** Page ____ of ____

Project Number/Name NY001464.0409.00002

Project Location BETHPAGE NY

Laboratory TEST AMERICA

Project Manager MIKE WOLFERT

Sampler(s)/Affiliation G.W. XX

ANALYSIS / METHOD / SIZE

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	40ml VOA vials w/ 2 drops HCl						Remarks	Total
HW-42S	L	2-23-09		3							3
HW-42I				3							3
HW-40S				3							3
HW-40I				3							3
TB 2-23-09				3							3
FB 2-23-09				3							3

Total No. of Bottles/ Containers 18

Sample Matrix: L = Liquid; S = Solid; A = Air

				Seal Intact?
Relinquished by: J. Hall	Organization: ARCADIS	Date 2/23/09	Time 5:00	
Received by:	Organization:	Date / /	Time	Yes No N/A
Relinquished by:	Organization:	Date / /	Time	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A

Special Instructions/Remarks: REPORT TO MELISSA KENDAL

Delivery Method: ☐ In Person ☐ Common Carrier _____ SPECIFY ☐ Lab Courier ☐ Other _____ SPECIFY

AG 05-12/01

ARCADIS

Laboratory Task Order No./P.O. No. _____ **CHAIN-OF-CUSTODY RECORD** Page 1 of 1

Project Number/Name NGC Niagara 0409.0002

Project Location Bethpage, NY

Laboratory Test America

Project Manager Mike Dolfert

Sampler(s)/Affiliation Gary Williams / Sunny Xu

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	40ml Vial VOC 8260B	250ml Plastic Total Cr/Cd	250ml Plastic Dissolved Cr/Cd				Remarks	Total
GM-78S	W			3	1	1					5
GM-78I	W			3	1	1					5
PT-1 MW-04	W				1	1					2
PT-1 MW-05	W				1	1					2
PT-1 MW-06	W				1	1					2
FB02-24-09	W			3	1						4
TB02-24-09	W			3							3
GM-15SR	W			3	1	1					5

Total No. of Bottles/ Containers 28

Sample Matrix: L = Liquid; S = Solid; A = Air

Relinquished by: Gary Williams	Organization: Arcadis	Date 02/24/09	Time 18:00	Seal Intact?	
Received by: _____	Organization: _____	Date __/__/__	Time _____	Yes No N/A	
Relinquished by: _____	Organization: _____	Date __/__/__	Time _____	Seal Intact?	
Received by: _____	Organization: _____	Date __/__/__	Time _____	Yes No N/A	

Special Instructions/Remarks: Report to Melissa Reindl

Delivery Method: ☐ In Person ☐ Common Carrier _____ SPECIFY ☐ Lab Courier ☒ Other Fedex SPECIFY

AG 05-12/01

ARCADIS

Laboratory Task Order No./P.O. No.

CHAIN-OF-CUSTODY RECORD

Project Number/Name NGC NY001464.0409.00002
Project Location Bethpage, NY
Laboratory ~~Test America~~ Columbia Analytical
Project Manager Mike Wolfert
Sampler(s)/Affiliation Gary Williams / Sunny Xu

ANALYSIS / METHOD / SIZE

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	40ml Vial VOC 01M W.2 2000 Arp						Remarks	Total
GM-34D	W	02-25-09		3							3
GM-34D2	W	02-25-09		3							3
TB02-25-09	W	02-25-09		3							3
FB02-25-09	W	02-25-09		3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 12

Relinquished by: Gary Williams	Organization: Arcadis	Date 02/25/09	Time 17:30	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A
Relinquished by:	Organization:	Date / /	Time	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A

Special Instructions/Remarks:
Report to Melissa Rendl. 2 weeks TAT

Delivery Method: ☐ In Person ☐ Common Carrier ________ SPECIFY ☐ Lab Courier ☒ Other FedEx SPECIFY

AG 05-12/01

ARCADIS

Laboratory Task Order No./P.O. No. ______

CHAIN-OF-CUSTODY RECORD

Project Number/Name NGC NY001464.0409.00002

Project Location Bethpage, NY

Laboratory Columbia Analytical services

Project Manager Melissa Reindl

Sampler(s)/Affiliation Gary Williams / Sunny Xu

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: VOC OLM4.2 2000 ASP 40ml vial						Remarks	Total
HN-24I	L	02-26-09		3							3
FW-03	L	02-26-09		3							3
GM-13D	L	|		9						MS / MSD	9
TB02-26-09	L	|		2							~~3~~ 2
EB02-26-09	L	|		3							3
REP 02-26-09	L	|		3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 23

Relinquished by: Gary Williams	Organization: Arcadis	Date 02/26/09	Time 18:30	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A
Relinquished by:	Organization:	Date / /	Time	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A

Special Instructions/Remarks:
Report to Melissa Reindl - 2 weeks TAT

Delivery Method: ☐ In Person ☐ Common Carrier ______ (SPECIFY) ☐ Lab Courier ☒ Other FedEx (SPECIFY)

ARCADIS

Laboratory Task Order No./P.O. No. ______

CHAIN-OF-CUSTODY RECORD

Page ____ of ____

Project Number/Name NY001464.0409.00002

Project Location BETHPAGE NY.

Laboratory COLUMBIA ANALYTICAL SERVICES

Project Manager MIKE WOLFERT

Sampler(s)/Affiliation G.W. / ARCADIS

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40ml VIAL VOC 8260 (HCl)						Remarks	Total
GM-15D-2	L	2-27-09		3							3
GM-15D	↓	↓		3							3
TB-2-27-09	↓	↓		3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers: 9

Relinquished by: [signature]	Organization: ARCADIS	Date 2/27/09	Time 5:00	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A
Relinquished by:	Organization:	Date / /	Time	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A

Special Instructions/Remarks: REPORT TO MELISSA REINDL

Delivery Method: ☐ In Person ☒ Common Carrier FED EX (SPECIFY) ☐ Lab Courier ☐ Other ______ (SPECIFY)

ARCADIS

Laboratory Task Order No./P.O. No. NGC outpost wells

CHAIN-OF-CUSTODY RECORD

Project Number/Name NGC NY001464.0009.00002

Project Location Lockport, NY

Laboratory Columbia Analytical Services

Project Manager Mike Wolfert

Sampler(s)/Affiliation Pat Brzozoski / Sunny Xu

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: VOC (524.2)	ANALYSIS / METHOD / SIZE: 40 mL Vial (HCl)	ANALYSIS / METHOD / SIZE	ANALYSIS / METHOD / SIZE	ANALYSIS / METHOD / SIZE	ANALYSIS / METHOD / SIZE	Remarks	Total
BPOW 1-1	L	03-03-09		3							3
BPOW 1-2	L	↓		3						Note Analysis VOC 524.2	3
TB03-03-09	L			3							3
REP 03-03-09	L			3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/ Containers: 12

				Seal Intact?
Relinquished by: Sunny Xu	Organization: Arcadis	Date 03/03/09	Time 15:00	Yes No N/A
Received by:	Organization:	Date / /	Time	
Relinquished by:	Organization:	Date / /	Time	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A

Special Instructions/Remarks:

Report to Melissa Reindl. 2 weeks TAT

Delivery Method: ☐ In Person ☒ Common Carrier Fed Ex (SPECIFY) ☐ Lab Courier ☐ Other Fed Ex (SPECIFY)

AG 05-12/01

ARCADIS

Laboratory Task Order No./P.O. No. _____ **CHAIN-OF-CUSTODY RECORD** Page _____ of _____

Project Number/Name NY001469.0409.00002

Project Location BETHPAGE NY

Laboratory PT COLUMBIA ANALYTICAL SERV

Project Manager MEKE WOLFERT

Sampler(s)/Affiliation G.W XX

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40ml VOA HCl						Remarks	Total
BPOW1-3	L	3-4-09		3							3
TB 3-4-09	V	3-4-09		3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/ Containers: 6

Relinquished by: G.W	Organization: ARCADIS	Date 3/4/09	Time 5:50	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	
Relinquished by:	Organization:	Date / /	Time	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	

Special Instructions/Remarks: REPORT TO MELISSA KERNOL

Delivery Method: ☐ In Person ☑ Common Carrier FED EX (SPECIFY) ☐ Lab Courier ☐ Other _____ (SPECIFY)

ARCADIS

Laboratory Task Order No./P.O. No. _____ **CHAIN-OF-CUSTODY RECORD** Page 1 of 1

Project Number/Name NY001644.0009.00002 NFG

Project Location Bethpage NY

Laboratory Test America Analytical Services

Project Manager Mike Bolfert

Sampler(s)/Affiliation Amy Williams / Sandy Xu

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: VOC (524.2)	40mL VIAL (HCL)					Remarks	Total
BPOW 3-1	L	03.06.09		3							3
* BPOW 3-2	L	/		9						MS / MSD	9
TB030609	L	/		3							3
* REP030609	L	/		3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/ Containers 16

Relinquished by: Amy Williams	Organization: Arcadis	Date 03/06/09	Time 18:20	Seal Intact? Yes No N/A
Received by: _____	Organization: _____	Date / /	Time _____	
Relinquished by: _____	Organization: _____	Date / /	Time _____	Seal Intact? Yes No N/A
Received by: _____	Organization: _____	Date / /	Time _____	

Special Instructions/Remarks:

2 weeks TAT ; Report to Melissa Reindl

Delivery Method: ☐ In Person ☒ Common Carrier Fed Ex SPECIFY ☐ Lab Courier ☐ Other _____ SPECIFY

AG 05-12/01

ARCADIS

Laboratory Task Order No./P.O. No.

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Project Number/Name NY001464.0409.00002
Project Location Bethpage NY
Laboratory Columbia Analytical Services
Project Manager Mike Wolfert
Sampler(s)/Affiliation Gary Williams / Sunny Xu

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40 ml vial VOC 524.2						Remarks	Total
TB031309	L	03-13-09		3							3
BPOW4-1	L	03-13-09		3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 6

Relinquished by: Sunny Xu	Organization: Arcadis	Date 03/13/09	Time 19:30	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A
Relinquished by:	Organization:	Date / /	Time	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A

Special Instructions/Remarks: 2 weeks TAT, Report to Nelson Deind[illegible]

Delivery Method: ☐ In Person ☒ Common Carrier FedEx (SPECIFY) ☐ Lab Courier ☐ Other ______ (SPECIFY)

AG 05-12/01

ARCADIS

Laboratory Task Order No./P.O. No. ____________ **CHAIN-OF-CUSTODY RECORD** Page 1 of 1

Project Number/Name NGC NY001464.0409.0002

Project Location Bethpage, NY

Laboratory Columbia Analytical Services

Project Manager Mike Wolfert

Sampler(s)/Affiliation Gary Williams / Sunny Xu

ANALYSIS / METHOD / SIZE

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	40ml vial VOC 524.2	40ml vial VOC OLM 4.2 2008(?) (HCl)					Remarks	Total
BPOW 4-2	L	03-16-09		3							3
TB031609	L	03-16-09		3							3
GM-39D-2	L	03-16-09		~~3~~	3						3
~~[illegible]~~	~~L~~	~~03-16-09~~		~~3~~	~~3~~						~~3~~ 3
~~GM-39D~~	~~L~~	~~3-16-09~~			~~3~~						

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 9

Relinquished by: Sunny Xu	Organization: Arcadis	Date 3/16/09	Time 6:15	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A
Relinquished by:	Organization:	Date / /	Time	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A

Special Instructions/Remarks:

2 weeks TAT; Report to Melissa Reindl

TRIP BLANK MADE WITH LAB SUPPLIED FB WATER

Delivery Method: ☐ In Person ☒ Common Carrier FedEx (SPECIFY) ☐ Lab Courier ☐ Other ________ (SPECIFY)

ARCADIS

Laboratory Task Order No./P.O. No.

CHAIN-OF-CUSTODY RECORD

Project Number/Name NY001464.0409.00002
Project Location BETHPAGE NY
Laboratory COLUMBIA ANALYTICAL SERV
Project Manager MIKE WOLFERT
Sampler(s)/Affiliation G. W. X. X.

ANALYSIS / METHOD / SIZE

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	40ml VOA VOC OLM4.2 2000 as (HCl)	500ml Plastic Total Calc (HNO3)	500ml Plastic Dissolved Calc (HNO3)				Remarks	Total
GM-39D	L	3-16-09		3							3
GM-75D-2	L	3-17-09		3							3
N-10627	L	↓		3							3
N-10631	✓	↓		3	1	1					5
GM-33D-2	✓	↓		3							3
TB3-17-09	✓	↓		3							3
FB3-17-09	✓	↓		3	1						4

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 24

Relinquished by: [signature]	Organization: ARCADIS	Date 3/17/09	Time	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A
Relinquished by:	Organization:	Date / /	Time	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A

Special Instructions/Remarks: REPORT TO MELISSA REINDL

Delivery Method: ☐ In Person ☒ Common Carrier FED-EX (SPECIFY) ☐ Lab Courier ☐ Other ______ (SPECIFY)

AG 05-12/01

ARCADIS

Laboratory Task Order No./P.O. No. ______ **CHAIN-OF-CUSTODY RECORD** Page ____ of ____

Project Number/Name NY001464.0409.00002

Project Location BETHPAGE NY

Laboratory COLUMBIA ANALYTICAL SERV

Project Manager MIKE WOLFERT

Sampler(s)/Affiliation G. WILLIAMS

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40ml VIAL VOC OLM 4.2 2000ASP (HCl)						Remarks	Total
GM-79I	L	3-20-09		3							3
GM-79D	↓	↓		3							3
GM-21D	↓	↓		3							3
TB 3-20-09	↓	↓		3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 12

Relinquished by: [signature]	Organization: ARCADIS	Date 3/20/09	Time 6:25	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A
Relinquished by:	Organization:	Date / /	Time	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A

Special Instructions/Remarks: REPORT TO MELISSA REINOL

Delivery Method: ☐ In Person ☒ Common Carrier FED-EX (SPECIFY) ☐ Lab Courier ☐ Other ______ (SPECIFY)

AG 05-12/01

ARCADIS

Laboratory Task Order No./P.O. No. _____

CHAIN-OF-CUSTODY RECORD

Page _____ of _____

Project Number/Name NY001492040 9.00002

Project Location _____

Laboratory COLUMBIA ANALYTICAL SERVICES

Project Manager MIKE WOLFERT

Sampler(s)/Affiliation G.W.

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40ml VIALS 8260 ASP VOC OLM 4.2 (HCl)						Remarks	Total
6M-20E	L	3-21-09	L	3							3
6M-20D		3-21-09		3							3
6M-38D		3-22-09		3							3
6M-380-2		3-22-09		3							3
6M-350-2	V	3-23-09	V	3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/ Containers: 15

Relinquished by: [signature]	Organization: ARCADIS	Date 3/23/09	Time 3:00	Seal Intact?	
Received by: _____	Organization: _____	Date / /	Time _____	Yes No N/A	
Relinquished by: _____	Organization: _____	Date / /	Time _____	Seal Intact?	
Received by: _____	Organization: _____	Date / /	Time _____	Yes No N/A	

Special Instructions/Remarks: REPORT TO MELISSA REDICK

Delivery Method: ☐ In Person ☒ Common Carrier FED-EX (SPECIFY) ☐ Lab Courier ☐ Other _____ (SPECIFY)

AC 05-12/01

ARCADIS

CHAIN-OF-CUSTODY RECORD

Laboratory Task Order No./P.O. No. ______ Page ____ of ____

Project Number/Name NY001492.0409.00002

Project Location BETHPAGE N.Y.

Laboratory COLUMBIA ANALYTICAL SERV

Project Manager ______

Sampler(s)/Affiliation G.W

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40ml VIAL VOC 8260 (HCL)						Remarks	Total
GM-36D	L	3.24.09		3							3
GM-36D2	↓	↓		3							3
TB3-24-09	↓	↓		3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 9

Relinquished by: [signature]	Organization: ARCADIS	Date 3/24/09	Time 4:00	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A
Relinquished by:	Organization:	Date / /	Time	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A

Special Instructions/Remarks:

REPORT TO MELISSA REINDL

Delivery Method: ☐ In Person ☒ Common Carrier FED EX (SPECIFY) ☐ Lab Courier ☐ Other ______ (SPECIFY)

AG 05-12/01

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: N-Grumman OU2 | Project No.: NW01492.0409.00002
Site Location: Bethpage, NY | Date: 5/19/09
Well No.: BPOW 1-1 | Replicate No.: NA | Weather: clear 70s F
Sampling Personnel: Williams / Prezorski | Sampling Time: Begin _____ End 1301

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	241
Depth to Water (ft bmp)	27.22
Depth to Packer (ft bmp)	169
Water Column in Well (ft)	72
Casing Diameter	4" (0.65)
Gallons in Well	46.8
Gallons Purged	x 3
Prior to Sampling	140
Pump Intake Setting (ft bmp)	
Packer Pressure (psi)	111
Pumping Rate (gpm)	
Evacuation Method	dedicated submersible pump / packer
Sampling Method	3WV
Purge Time	Begin 12:40 End

Field Parameters

	1	1V	2V	3V
Color	colorless	colorless	colorless	colorless
Odor	none	none	none	none
Appearance	clear	clear	clear	clear
pH (s.u.)	5.75	5.30	5.13	5.05
Conductivity (mS/cm) or (µmhos/cm) [1]	473	123.3	110.6	106.1
Temperature (°C)	15.8	12.8	12.8	12.7
DO (mg/L)	–	–	/	/
ORP (mV)	–	–	/	/
Turbidity (NTU)	–	–	/	26
Time	12:40	12:47	12:53	
DTW (ft bmp)				

Remarks: 169 − 0.7 × 1.43 + 50 = PSI

Parameter	Container	No.	Preservative
See COC			

PID Reading: Open at wellhead

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	(4" = 0.65)
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: N-Grumman OU2 | Project No.: N/001492.0409.00002
Site Location: Bethpage, NY | Date: 5/19/09
Well No.: BROW 1-2 | Replicate No.: NA | Weather: clear 70's F
Sampling Personnel: Williams / Prezorski | Sampling Time: Begin _____ End 1456

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	335
Depth to Water (ft bmp)	29.38
Depth to Packer (ft bmp)	294
Water Column in Well (ft)	41
Casing Diameter	4" (0.65)
Gallons in Well	26.65
Gallons Purged	x3
Prior to Sampling	80.0
Pump Intake Setting (ft bmp)	
Packer Pressure (psi)	165
Pumping Rate (gpm)	
Evacuation Method	dedicated submersible pump/packer
Sampling Method	3 WV
Purge Time	Begin 1442 End _____

Field Parameters

	I	1V	2V	3V
Color	colorless	colorless	colorless	colorless
Odor	none	none	none	none
Appearance	clear	clear	clear	clear
pH (s.u.)	5.67	5.66	5.28	5.00
Conductivity (mS/cm) or (µmhos/cm) [1]	57.9	65.7	64.9	65.0
Temperature (°C)	16.3	13.5	11.8	11.3
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)				25
Time				
DTW (ft bmp)				

Remarks: 294 - DTW x 1.43 + 50 = PSI

Parameter	Container	No.	Preservative
see COC			

PID Reading: 0 ppm at wellhead

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: N-Grumman UV2 | Project No.: NY001492.0409.00002
Site Location: Bethpage, NY | Date: 5-19-09
Well No.: BPOW 1-3 | Replicate No.: MS/MSD | Weather: clear 70°F
Sampling Personnel: Williams / Prezorski | Sampling Time: Begin _____ End 1637

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	419
Depth to Water (ft bmp)	29.70
Depth to Packer (ft bmp)	344
Water Column in Well (ft)	75
Casing Diameter	4" (0.65)
Gallons in Well	48.75
Gallons Purged	x 3
Prior to Sampling	146.25
Pump Intake	
Setting (ft bmp)	
Packer Pressure (psi)	185
Pumping Rate (gpm)	
Evacuation Method	Redi-flo2 submersible pump/packer
Sampling Method	3WV
Purge Time	Begin 1600 End _____

Field Parameters

	1	1V	2V	3V
Color	colorless	colorless	colorless	colorless
Odor	None	None	None	None
Appearance	clear	clear	clear	clear
pH (s.u.)	4.43	4.38	4.40	4.37
Conductivity (mS/cm) or (µmhos/cm) [1]	82.1	104.1	91.3	87.3
Temperature (°C)	14.8	12.1	11.3	12.6
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)				27
Time				
DTW (ft bmp)				

Remarks: 344 x 1/3 - DTW x.43 + 50 = pst
Missing 1/4" plug

Parameter	Container	No.	Preservative
See COC			

PID Reading: 0 ppm throughout

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: Northrop Grumman — Project No.: NY001492.0409.0002
Site Location: Bethpage, NY — Date: 5-20-09
Well No.: BPOW3-1 — Replicate No.: N/A — Weather: Sunny 80°F
Sampling Personnel: Pat Prezwalski / Sunny Xu — Sampling Time: Begin 1744 — End

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	516
Depth to Water (ft bmp)	25.28
Depth to Packer (ft bmp)	414
Water Column in Well (ft)	102
Casing Diameter	4" (0.65)
Gallons in Well	66.3
Gallons Purged	x3
Prior to Sampling	199
Pump Intake Setting (ft bmp)	
Packer Pressure (psi)	220
Pumping Rate (gpm)	3 well volume
Evacuation Method	dedicated submersible pump/packer
Sampling Method	3 well volume
Purge Time	Begin 1744 End 1820

Field Parameters

	I	1V	2V	3V
Color	Colorless	Colorless	Colorless	Colorless
Odor	mild	Mild	Mild	Mild
Appearance	clear	clear	clear	clear
pH (s.u.)	4.40	4.07	4.08	4.07
Conductivity (~~mS/cm~~) or (µmhos/cm)	82.2	92.3	93.8	98.2
Temperature (°C)	15.4	13.9	12.2	12.2
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)				
Time	17:46			18:20
DTW (ft bmp)				

Remarks: 414 − 25.28 X.43 + 50 = 220 rounded up
Missing wellhead N_2 connection
Parameters every 6 Tpd

Parameter	Container	No.	Preservative
See COC			

PID Reading: 0ppm at wellhead

Well Casing Volumes

Gal./Ft.				
	$1^{1/4}$" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	$1^{1/2}$" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) **Circle one unit type**

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: Northrop Grumman OU-2 Project No. NY001492.0809.00002
Site Location: Bethpage, NY Date: 5/20/09
Well No.: BPOW 3-2 Replicate No.: N/A Weather: 80F clear
Sampling Personnel: Prezorski, Xu Sampling Time: Begin 1514 End

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	647
Depth to Water (ft bmp)	26.79
Depth to Packer (ft bmp)	503
Water Column in Well (ft)	144
Casing Diameter	4" (0.65)
Gallons in Well	93.6
Gallons Purged	x3
Prior to Sampling	280
Pump Intake	
Setting (ft bmp)	
Packer Pressure (psi)	255
Pumping Rate (gpm)	
Evacuation Method	3 well volume
Sampling Method	Dedicated Submersible/packer
Purge Time	Begin 1521 End 1646

Field Parameters

	I	1V	2V	3V
Color	Colorless	Colorless	→	
Odor	none	none	→	
Appearance	clear	clear	→	
pH (s.u.)	5.45	4.83	4.83	4.80
Conductivity (mS/cm) or (µmhos/cm)[1]	86.1	106.7	92.5	61.8
Temperature (°C)	15.4	10.4	10.4	14.3
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)				12
Time	15:21	15:38	15:50	16:46
DTW (ft bmp)				

Remarks: @ (503 − 26.79) x .43 + 50 = 255 psi

Every 94 gal = pound

Parameter	Container	No.	Preservative
See COC			

PID Reading: 0ppm at well head

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: Northrop Grumman — Project No.: NY001492.0009.0002

Site Location: Bethpage, NY — Date: 5-21-09

Well No.: ~~BPOW 4-1~~ — Replicate No.: _____ — Weather: Sunny / 76°F

Sampling Personnel: Greg Williams / Sammy Yu — Sampling Time: Begin 12:35 — End _____

Purge Data

Measuring Point (describe)	TOC. pipe	TOC. screen
Sounded Well Depth (ft bmp)	652	692
Depth to Water (ft bmp)	~~503~~	~~643~~
Depth to Packer (ft bmp)	503	652
Water Column in Well (ft)	149	40
Casing Diameter	4" (0.66)	2" (0.16)
Gallons in Well	96.85	6.4
Gallons Purged	x3	x3
Prior to Sampling	209 + 19.2 = 309	
Pump Intake Setting (ft bmp)		
Packer Pressure (psi)	245	
Pumping Rate (gpm)		
Evacuation Method		
Sampling Method		
Purge Time	Begin _____	End _____

Field Parameters

	I	1V	2V	3V
Color	Colorless	Colorless	Colorless	Colorless
Odor	none	none	none	none
Appearance	clear	clear	clear	clear
pH (s.u.)	5.86	4.96	5.17	5.15
Conductivity ~~(mS/cm)~~ or (µmhos/cm) [1]	73.2	87.4	54.5	~~48.8~~
Temperature (°C)	15.4	12.9	17.0	14.7
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)				
Time	12:35			15:00
DTW (ft bmp)	42.95			

Remarks: _____

Parameter	Container	No.	Preservative
See COC.			

PID Reading: _____

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: Northrop Grumman OU-2 outpost. Project No.: NY001492.0409.00002

Site Location: Bethpage, NY Date: 5-21-09

Well No.: BPOW 4-2 Replicate No.: Weather: Sunny / 76F.

Sampling Personnel: Greg Williams / Sunny Xu Sampling Time: Begin End

Purge Data

Measuring Point (describe)	TOC.
Sounded Well Depth (ft bmp)	764
Depth to Water (ft bmp)	~~[illegible]~~
Depth to Packer (ft bmp)	503
Water Column in Well (ft)	261
Casing Diameter	4" (0.65)
Gallons in Well	169.65
Gallons Purged	x 3
Prior to Sampling	509.
Pump Intake	
Setting (ft bmp)	
Packer Pressure (psi)	215
Pumping Rate (gpm)	
Evacuation Method	
Sampling Method	
Purge Time	Begin End

Field Parameters

	I	1V	2V	3V
Color	Colorless	Colorless	Colorless	Colorless
Odor	none	none	none	none
Appearance	clear	clear	clear	clear
pH (s.u.)	4.40	4.30	4.41	4.36
Conductivity (mS/cm) or (µmhos/cm) [1]	28.6	99.5	93.3	85.0
Temperature (°C)	16.2	14.2	14.1	13.5
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)				
Time	15:30	16:37	17:02	17:27
DTW (ft bmp)	26.13			

Remarks:

Parameter	Container	No.	Preservative
See COC			

PID Reading

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: N Grammar OU2 | Project No.: NY001492.0409.00002
Site Location: Bethpage, NY | Date: 5/22/09
Well No.: GM-20I | Replicate No.: NA | Weather: 80°F Partly cloudy
Sampling Personnel: Prezorski | Sampling Time: Begin _____ End 1746

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	105
Depth to Water (ft bmp)	34.63
Depth to Packer (ft bmp)	94
Water Column in Well (ft)	11
Casing Diameter	4" (0.65)
Gallons in Well	7.15 ×3
Gallons Purged Prior to Sampling	22
Pump Intake Setting (ft bmp)	
Packer Pressure (psi)	80 (Rounded up)
Pumping Rate (~~gpm~~)	1 Liter/minute
Evacuation Method	dedicated Bladder pump
Sampling Method	3W Volume
Purge Time Begin	1608 End

Field Parameters

	I	1V	2V	3V
Color	colorless	colorless	colorless	colorless
Odor	None	None	None	None
Appearance	clear	clear	clear	clear
pH (s.u.)	11.75	11.88	11.80	11.77
Conductivity (~~mS/cm~~) or (µmhos/cm) [1]	126.4	152.2	156.4	158.1
Temperature (°C)	13.1	12.8	11.9	12.1
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)	—	—	—	23
Time		1650	1716	
~~DTW~~ (ft bmp)		~~½~~	~~½~~	~~½~~

5 gal containers

Remarks: 94 - DTW x .43 + 50 = PSI
94 - 34.63 x .43 + 50 = 75.6
(Purge rate adjusted to 1 Liter/minute (well wizard control box) Rate lowered prior to sampling

Parameter	Container	No.	Preservative
See COC			

PID Reading: 0ppm

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: N-Grumman OU2   Project No.: NY001492.0409.00002
Site Location: Bethpage, NY   Date: 5/22/09
Well No.: GM-20D   Replicate No.: NA   Weather: 80s F Partly cloudy / Breezy
Sampling Personnel: [illegible]   Sampling Time: Begin 1559   End 1603

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	226
Depth to Water (ft bmp)	36.42
Depth to Packer (ft bmp)	215
Water Column in Well (ft)	11
Casing Diameter	4" (0.65)
Gallons in Well	7.15 x3
Gallons Purged Prior to Sampling	22
Pump Intake Setting (ft bmp)	
Packer Pressure (psi)	130
Pumping Rate ~~(gpm)~~ ml/minute	1450 ml per minute
Evacuation Method	Dedicated Bladder/packer
Sampling Method	3 well volume
Purge Time	Begin 1435 End 1550

Field Parameters

	I	1V	2V	3V
Color	colorless	colorless	colorless	colorless
Odor	None	None	None	None
Appearance	clear	clear	clear	clear
pH (s.u.)	6.62	6.56	6.71	6.80
Conductivity ~~(mS/cm)~~ or (µmhos/cm) [1]	91.3	89.8	74.1	71.9
Temperature (°C)	14.7	14.2	14.3	14.5
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)	—	—	—	14
Time	—	1509	1524	1549
5 gal container ~~DTW (ft bmp)~~	—	~~1~~ 1/2	1/2 ~~1~~	~~1~~ 1/2

Remarks: 215 - 36.42 x.43 + 50 = PSI = 130 psi rounded
Adjusted purge rate to 1450 ml/minute (well w/ control box).
(Packer pressure = Depth to packer - DTW x.43 + 50) Rate lowered prior to sampling.

Parameter	Container	No.	Preservative
See COC		~~1~~ = 5 gal containers	

PID Reading: 0ppm

Well Casing Volumes

Gal./Ft.			
1-1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1-1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project NORTHROP-GRUMMAN Project No. NY000493.0809.00002

Site Location BETHPAGE NY Date 5-17-09

Well No. Corn-21I Replicate No. _____ Weather _____

Sampling Personnel GW Sampling Time: Begin 3:00 End 4:15

Purge Data

Measuring Point (describe) _____

Sounded Well Depth (ft bmp) _____

Depth to Water (ft bmp) _____

Depth to Packer (ft bmp) _____

Water Column in Well (ft) 11

Casing Diameter (.65) x 3 = 1

Gallons in Well ~~22.5~~ 7.15 x 3

Gallons Purged

Prior to Sampling 22

Pump Intake

Setting (ft bmp) _____

Packer Pressure (psi) 110 PSI

Pumping Rate (gpm) _____

Evacuation Method _____

Sampling Method _____

Purge Time Begin _____ End _____

Field Parameters

Color COLORLESS

Odor NONE

Appearance CLEAR

	I	1V	2V	3V
pH (s.u.)	8.28	6.21	6.91	6.32
Conductivity (~~mS/cm~~) or (µmhos/cm) [1]	137.0	198.7	169.5	172.5
Temperature (°C)	13.5	14.7	13.7	13.3
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)				<20
Time				
DTW (ft bmp)				

Remarks: SCAN PAILS
1111/2

Parameter	Container	No.	Preservative
SEE COC			

PID Reading ~

Well Casing Volumes

Gal./Ft.				
	$1^{1/4}$" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	$1^{1/2}$" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: NORTHROP-GRUMMAN
Project Number: N40014P3.0809.00002
Site Location:
Well ID: GM-21D
Date: 5-17-09
Sampled By: GW
Sampling Time:
Recorded By: GW
Weather:
Coded Replicate No.:

Instrument Identification
Water Quality Meter(s):
Serial #:

Casing Material: PVC
Purge Method: LOW FLOW
Casing Diameter: 4
Screen Interval (ft bmp) Top: Bottom:
Sounded Depth (ft bmp):
Pump Intake Depth (ft bmp):
Depth to Water (ft bmp): 40.89
Purge Time Start: Finish:

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or mS/cm) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
1:15				16.1	5.21	117.5	109	6.48		40.89
1:20				16.6	5.50	103.8	98	5.47		
1:25				16.6	4.55	104.5	98	5.40		
1:30				15.4	4.48	105.7	120	5.63		
1:35				15.5	4.52	106.0	110	5.59		40.86
1:40				15.4	4.68	106.0	135	5.96		
1:45				14.9	4.70	106.0	119	5.94		40.92
1:50				14.7	4.82	107.3	120	6.05		
1:55				14.7	4.78	107.3	121	5.99		
2:00				14.7	4.83	107.5	121	5.91		
2:05				14.7	4.83	107.5	121	5.95		
2:10				14.7	4.83	107.6	123	6.10		40.90
2:15				14.8	4.87	107.6	123	6.15		

Collected Sample Condition
Color: COLORLESS
Odor: NONE
Appearance: CLEAR

Parameter	Container	No.	Preservative

PID Reading: 0

Comments:

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: N-Grumman OU2
Project Number: NY001464.0409.00002
Date: 5/19/09
Sampling Time: 1538
Weather: Cloudy 70°F
Site Location: Bethpage, NY
Sampled By: Williams
Recorded By: Prezorski
Coded Replicate No.: Rep 051809
Well ID: GM-33D2

Instrument Identification
Water Quality Meter(s): See Instrument calibration form
Serial #: —

Casing Material: PVC
Casing Diameter: 4"
Sounded Depth (ft bmp): 520
Depth to Water (ft bmp): 47.32
Purge Method: Dedicated Bladder pump/Low Flow
Screen Interval (ft bmp): Top 500 Bottom 520
Pump Intake Depth (ft bmp):
Purge Time: Start 1428 Finish 1535

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity ~~umhos~~ or mS/cm) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
1430				17.5	5.91	69.2	121	6.86		
1435				17.6	5.92	69.7	120	6.32		47.28
1440				17.6	5.93	74.9	119	6.72		
1445				17.4	5.94	70.8	121	6.17		47.33
1450				17.5	5.92	71.3	121	5.77		
1455				18.0	5.92	68.5	121	6.08		
1500				18.7	5.92	75.4	122	5.64		47.37
1505				19.4	5.93	69.1	122	5.78		
1510				20.5	5.93	67.8	121	6.08		47.28
1515				20.7	5.93	67.7	121	5.94		
1520				20.7	5.95	68.7	121	6.04		47.34
1525				21.3	5.99	68.80	125	5.49		
1530				20.1	5.98	70.40	124	5.88		47.29
1535				18.8	5.83	68.80	128	6.16	21	

Collected Sample Condition — Color: Colorless Odor: None Appearance: clear

Parameter	Container	No.	Preservative
See COC			

PID Reading: Opened at wellhead

Comments:

1) Circle one unit type

G:\TECHNICL\WOLFERT\Technical Forms\2006\lowflowsampforms.xls - Sheet1

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: Northrop Grumman
Project Number: NY001492.2459.0002
Site Location: Bethpage, NY
Well ID: GM-34D
Date: 5-18-09
Sampled By: Gary Williams / Sunny Xu
Sampling Time:
Recorded By: Sunny Xu
Weather: Sunny / 70°F
Coded Replicate No.:

Instrument Identification
Water Quality Meter(s): Serial #:

Casing Material: Purge Method:
Casing Diameter: 2" Screen Interval (ft bmp) Top: Bottom:
Sounded Depth (ft bmp): Pump Intake Depth (ft bmp):
Depth to Water (ft bmp): 12.29 Purge Time Start: Finish:

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or ~~mS/cm~~) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
11:10	0	400		23.8	6.88	99.5	132	2.28		12.29
11:15	~~0~~ 5			22.6	6.97	190.8	102	2.95		
11:20	10			22.3	7.15	191.7	85	2.37		12.40
11:25	~~15~~			22.8	7.34	189.8	69	1.96		
11:30	20			22.7	7.56	188.3	65	1.76		12.46
11:35	25			21.9	7.74	186.4	55	1.71		
11:40	30			21.2	7.80	184.9	49	1.64		12.38
11:45	~~35~~			20.6	7.87	183.8	46	1.64		
11:50	40			20.4	7.93	183.5	40	1.68		12.40
11:55	45			20.0	8.02	182.0	39	1.68		

Collected Sample Condition: Color Colorless Odor none Appearance clear

Parameter	Container	No.	Preservative
See COC			

PID Reading:

Comments:

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: Northrop Grumman
Project Number: NY001492.0029.00002
Site Location: Bethpage, NY
Well ID: GM-34D2
Date: 5-15-09
Sampled By: Gary Williams / Sunny Xu
Sampling Time:
Recorded By: Sunny Xu
Weather: Sunny / 74°F
Coded Replicate No.: N/A

Instrument Identification
Water Quality Meter(s):
Serial #:

Casing Material:
Purge Method: non-dedicated bladder
Casing Diameter: 4"
Screen Interval (ft bmp) Top: Bottom:
Sounded Depth (ft bmp):
Pump Intake Depth (ft bmp):
Depth to Water (ft bmp): 14.08
Purge Time Start: Finish:

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or mS/cm) [1]	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
12:15		400		22.3	9.00	156.0	54	2.83		14.08
12:20	5			21.5	8.88	141.2	45	2.02		
12:25	10			20.1	8.62	119.3	33	1.06		14.08
12:30	15			19.4	8.50	112.5	22	0.61		
12:35	20			19.2	8.34	110.0	19	0.45		14.08
12:40	25			19.1	8.20	108.7	38	0.37		
12:45	30			19.2	8.14	108.5	22	0.37		14.08
12:50	35			19.3	8.11	108.2	20	0.37		
12:55	40			19.4	8.06	108.0	18	0.37		14.08
13:00	45			19.4	7.99	107.8	15	0.36		

Collected Sample Condition
Color: Colorless
Odor: none
Appearance: clear.

Parameter	Container	No.	Preservative
See COC			

PID Reading:

Comments:

[1] ne unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: N400U92.0409.00002   Project No.: NO.2D4202-6.20mm4W
Site Location: BETHPAGE N.Y.   Date: 5-26-09
Well No.: GM-35D-2   Replicate No. ______   Weather ______

Sampling Personnel: G-W   Sampling Time: Begin 1:00   End 3:10

Purge Data

Measuring Point (describe)	
Sounded Well Depth (ft bmp)	530
Depth to Water (ft bmp)	
Depth to Packer (ft bmp)	508
Water Column in Well (ft)	22
Casing Diameter	4 (0.65)
Gallons in Well	14.3
Gallons Purged Prior to Sampling	43
Pump Intake Setting (ft bmp)	
Packer Pressure (psi)	250
Pumping Rate (gpm)	
Evacuation Method	
Sampling Method	3WV
Purge Time	Begin 1:05 End 3:05

Field Parameters

Color: COLORLESS
Odor: NONE
Appearance: CLEAR

	I	1V	2V	3V
pH (s.u.)	6.25	5.89	5.55	5.57
Conductivity ~~(mS/cm)~~ or (µmhos/cm) [1]	161.4	96.4	83.3	82.2
Temperature (°C)	14.3	14.6	14.1	13.5
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)				
Time				3:05
DTW (ft bmp)				

Remarks: 5GAL PAILS ~~||||~~||
PRESSURE 530-38 = 492 x .43 + 25 = 250 PSI

Parameter	Container	No.	Preservative

PID Reading ______

Well Casing Volumes				
Gal./Ft.	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: N-Grumman OU2
Project Number: NY001462.0409.00002 (92)
Site Location: Bethpage, NY
Well ID: GM-75D2
Date: 5/19/09
Sampled By: Williams
Sampling Time: 1351
Recorded By: Prezorski
Weather: Hazy 70°F
Coded Replicate No.: NA

Instrument Identification
Water Quality Meter(s): See Instrument calibration form
Serial #:

Casing Material: PVC
Casing Diameter: 4"
Sounded Depth (ft bmp): 525
Depth to Water (ft bmp): 33.29
Purge Method: Dedicated Bladder / Low Flow
Screen Interval (ft bmp): Top 505 Bottom 525
Pump Intake Depth (ft bmp):
Purge Time: Start 12:42pm Finish 1350

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (µmhos or mS/cm) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
12:45				15.0	5.61	150.1	120	7.07		
12:50				14.6	5.31	120.6	106	5.49		33.22
12:55				14.7	5.27	114.6	106	5.42		
1300				14.5	5.23	103.0	109	5.46		33.22
1305				14.2	5.18	98.3	111	6.31		
1310				14.3	5.18	93.5	114	5.53		33.25
1315				14.9	5.19	90.3	116	5.66		
1320				15.4	5.16	87.4	117	5.64		33.26
1325				15.8	5.15	86.2	118	5.14		
1330				16.1	5.17	85.6	120	5.24		33.26
1335				16.1	5.18	84.4	120	5.31		
1340				15.6	5.15	83.0	121	5.81		33.24
1345				15.6	5.12	82.9	120	5.35		
1350				15.7	5.17	82.5	121	5.56	23	33.25

Collected Sample Condition: Color Colorless Odor None Appearance Clear

Parameter	Container	No.	Preservative
See COC			

PID Reading: 0 ppm at wellhead

Comments:

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: Northrop Grumman
Project Number: NY001492.0009.00002 Site Location: Bethpage, NY Well ID: GM-79I
Date: 5-14-09 Sampled By: Gary Williams / Sunny Xu.
Sampling Time: Recorded By: Sunny Xu.
Weather: Cloudy Coded Replicate No.: N/A

Instrument Identification
Water Quality Meter(s): Serial #:

Casing Material: PVC Purge Method:
Casing Diameter: 4" Screen Interval (ft bmp) Top: Bottom:
Sounded Depth (ft bmp): Pump Intake Depth (ft bmp):
Depth to Water (ft bmp): 38.20 Purge Time Start: Finish:

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity ~~(umhos or mS/cm)~~ 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
14:25		400		13.3.	5.20.	113.9	148.	5.42		38.20
14:30	5			18.7.	5.23	117.6	140	6.20		
14:35	10			17.4	5.29	112.5	141	6.33		38.22
14:40	15			17.0.	5.30	111.7.	140.	6.50.		
14:45	20			16.7.	5.25	111.2	140	6.38.		38.22
14:50	25			16.7	5.25	111.3	140	6.42.		
14:55	30			16.7	5.32.	111.3	140.	6.42.		38.22
15:00	35			16.7.	5.31	111.4.	140	6.40.		
15:05	40			16.7.	5.31	111.2	141.	6.40.		38.22.
15:10	45			16.7	5.28	110.9	141.	6.39		

Collected Sample Condition Color: Colorless Odor: none Appearance: Clear

Parameter	Container	No.	Preservative
See COC.			

PID Reading:

Comments:

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: NY001492.0607.00002
Project Number: Northrop Grumman
Site Location: Bethpage, NY
Well ID: GM-79D
Date: 6-14-09
Sampled By: Gary Williams / Sunny Xu
Sampling Time:
Recorded By: Sunny Xu
Weather: cloudy
Coded Replicate No.: N/A

Instrument Identification
Water Quality Meter(s):
Serial #:

Casing Material: PVC
Purge Method: Dedicated bladder
Casing Diameter: 4"
Screen Interval (ft bmp): Top: Bottom:
Sounded Depth (ft bmp):
Pump Intake Depth (ft bmp):
Depth to Water (ft bmp): 39.52
Purge Time: Start: Finish:

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or ~~mS/cm~~) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
13:17		400		19.4	6.22	136.5	83	7.61		39.52
13:22	5			19.3	5.82	130.0	92	6.45		
13:27	10			19.2	5.22	125.2	103	4.30		39.52
13:32	15			19.0	5.41	123.1	106	3.65		
13:37	20			18.9	5.32	121.8	113	3.73		39.52
13:42	25			18.8	5.26	121.0	121	3.87		
13:47	30			18.8	5.22	120.0	124	4.09		39.52
13:52	35			18.6	5.20	118.7	126	4.21		
13:57	40			18.4	5.18	117.2	129	4.33		39.52
14:02	45			18.4	5.15	115.9	131	4.41		
14:07	50			18.3	5.11	115.8	134	4.50		39.52
14:12	55			18.2	5.15	115.6	134	4.50		
14:17	60			18.2	5.14	115.4	136	4.49		39.52

Collected Sample Condition: Color: Colorless Odor: none Appearance: clear

Parameter	Container	No.	Preservative
See COC			

PID Reading:

Comments:

1) Circle one unit type

ARCADIS

Laboratory Task Order No./P.O. No. 0002

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Project Number/Name NGC B0014095.0009.00002
Project Location Bethpage, NY
Laboratory Columbia Analytical Services
Project Manager Mike Wolfert
Sampler(s)/Affiliation Barry Williams / Sunny Xu

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40ml VOC OLM4.2 Std ASP						Remarks	Total
TB051409	L	5-14-09		3							3
GM-79D	L	|		3							3
GM-79I	L	|		3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 9

Relinquished by: Sunny Xu	Organization: Arcadis	Date 5/14/09	Time 17:30	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	
Relinquished by:	Organization:	Date / /	Time	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	

Special Instructions/Remarks:

Delivery Method: ☐ In Person ☒ Common Carrier FedEx (SPECIFY) ☐ Lab Courier ☐ Other (SPECIFY)

ARCADIS

Laboratory Task Order No./P.O. No. 04-2

CHAIN-OF-CUSTODY RECORD

Project Number/Name NGC NY001492.0009.00002

Project Location Bethpage, NY

Laboratory Columbia Analytical Services

Project Manager Mike Wolfert

Sampler(s)/Affiliation Gary Williams / Sunny Xu

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40ml Vial VOC 8260, 2000 ASP						Remarks	Total
TB051509	L	05-15-09		3							3
FB051509	L	|		3							3
GM-34D	|	|		3							3
GM-34D2	|	|		3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers

Relinquished by: Sunny Xu	Organization: Arcadis	Date 5/15/09	Time 17:30	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A
Relinquished by:	Organization:	Date / /	Time	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A

Special Instructions/Remarks:

Delivery Method: ☐ In Person ☒ Common Carrier FedEx (SPECIFY) ☐ Lab Courier ☐ Other

ARCADIS

Laboratory Task Order No./P.O. No. N.Grumman 002

CHAIN-OF-CUSTODY RECORD

Project Number/Name: NY001492.0409.00002

Project Location: Bethpage, NY

Laboratory: Columbia Analytical Services - Rochester

Project Manager: Dave Stern

Sampler(s)/Affiliation: Williams / Prezorski

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40ml Vial TCL VOCs NYSDEC ASP Method 2000 (TCL)						Remarks	Total
TB 5-17-09	L	5-17-09		3							3
GM-21I	↓	↓		3							3
GM-21D	↓	↓		3							3
TB 051909	L	5-18-09		3							3
Rep051809	↓	↓		3							3
GM-75D2	↓	↓ 1353		3							3
GM-33D2	↓	↓ 1538		3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers: 21

Relinquished by: Pat Prezorski	Organization: Arcadis	Date 5/19/09	Time 1745	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A
Relinquished by:	Organization:	Date / /	Time	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A

Special Instructions/Remarks:

Report to Melissa Reindl

2 Week TAT

Delivery Method: ☐ In Person ☑ Common Carrier Fed Ex (SPECIFY) ☐ Lab Courier ☐ Other ______ (SPECIFY)

ARCADIS

Laboratory Task Order No./P.O. No. NGC G64102 SYSTEMS

CHAIN-OF-CUSTODY RECORD

Project Number/Name NY001492.6469.00002
Project Location BETHPAGE NY
Laboratory COLUMBIA ANALYTICAL
Project Manager CARLO SANGIOVANNI
Sampler(s)/Affiliation D MCCAFFERY / ARCADIS

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	6 LITER SUMMAS	EPA TO-15 MODIFIED	STD T.A.T.			CAN #	Remarks	Total
96 INTERNEXIT	A	5/18/09 1148		↓	↓	↓			K612 SLC 00058	START VAC -29' END -5	1
96 MID TRAIN	↓	1151		↓	↓	↓			K657 SLC 00065	START VAC -30 END -5	1
96 TOTAL EFF.	↓	1153		↓	↓	↓			K754 SLC 00072	START VAC -30 END -5	1
102 INF	↓	1606		↓	↓	↓		K666 SLC 00092	~~K773 SLC 00104~~	START VAC -29.2 END -5	1
102 EFF	↓	1410		↓	↓	↓			K574 SLC 00115	START VAC -29 END -1.5	1

Sample Matrix: L = Liquid; S = Solid; (A = Air)

Total No. of Bottles/Containers

Relinquished by: AL-MCCAFF Organization: ARCADIS Date 5/18/09 Time 1630
Received by: Organization: Date / / Time
Seal Intact? Yes No N/A

Relinquished by: Organization: Date / / Time
Received by: Organization: Date / / Time
Seal Intact? Yes No N/A

Special Instructions/Remarks:
ATTN, MIKE PERRY RESULTS TO MELISSA ADAMS AT OUR MELVILLE OFFICE.
TANK K773 SLC00104 VOID - THERE WAS A LEAK ON MY END.

Delivery Method: ☐ In Person ☒ Common Carrier FED-EX (SPECIFY) ☐ Lab Courier ☐ Other ____ (SPECIFY)

ARCADIS

Laboratory Task Order No./P.O. No. NGC 96+102 Systems

CHAIN-OF-CUSTODY RECORD

Project Number/Name NY001492.0409.00002
Project Location BETHPAGE, NY.
Laboratory COLUMBIA ANALYTICAL
Project Manager CARLO SANGIOVANNI
Sampler(s)/Affiliation D. McCAFFERY/ARCADIS

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	40 mL VOAs HCl Pres. OLM 4.2	40 mL VOAs No Preservative OLM 4.2	Grab	Std. T.A.T.			Remarks	Total
WELL-19		5/18/09 0809		3		X	X				
WELL-18		0824		3		X	X				
WELL 17		0836		3		X	X				
102 INF.		0925		3		X	X				
102 EFF. MS/MSD		0937		9		X	X			102 EFF. MS/MSD	
WELL 1		0847		3		X	X				
WELL 3		0911		3		X	X				
96-INF.		0855		3		X	X				
96-EFF.		0900		3		X	X				
REP 051809				3		X	X			Report well 19	
WELL-19 NG		0809			2	X	X				
WELL 18 NG		0824			2	X	X				
WELL 17 NG		0836			2	X	X				
102 INF. NG		0925			2	X	X				
102 EFF. NG		0937			2	X	X				

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers

Relinquished by: [signature]	Organization: ARCADIS	Date 5/18/09	Time 1315	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A
Relinquished by:	Organization:	Date / /	Time	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A

Special Instructions/Remarks:
ATTN: MIKE PERRY. RESULTS TO MELISSA REINDL AT OUR MELVILLE OFFICE

Delivery Method: ☐ In Person ☒ Common Carrier Fed. Ex. (SPECIFY) ☐ Lab Courier ☐ Other (SPECIFY)

ARCADIS

Laboratory Task Order No./P.O. No. NEC 96+102 SYSTEMS

CHAIN-OF-CUSTODY RECORD

Project Number/Name NY001492.0409.00002

Project Location BETH PAGE, N.Y.

Laboratory COLUMBIA ANALYTICAL

Project Manager CARLO SANGIOVANNI

Sampler(s)/Affiliation D. McCAFFERTY/ARCADIS

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40 mL VOAs HCL PRES. 02M 1.2	Temp. Bottle	~~DW~~ STD. T.A.T.				Remarks	Total
TRIP BLANK	L	5/18/09		3		X					
TEMP. BOTTLE	↓				1						

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers: 50

Relinquished by: [signature]	Organization: ARCADIS	Date 5/18/09	Time 1315	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A
Relinquished by:	Organization:	Date / /	Time	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A

Special Instructions/Remarks:
ATTN: MIKE PERRY. RESULTS TO MELISSA REINDL AT OUR MELVILLE OFFICE.

Delivery Method: ☐ In Person ☒ Common Carrier FED-EX (SPECIFY) ☐ Lab Courier ☐ Other ________ (SPECIFY)

ARCADIS

Laboratory Task Order No./P.O. No. Grumman Outpost

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Project Number/Name NY001492.0409.00002

Project Location Bethpage, NY

Laboratory Columbia Analytical Services

Project Manager Dave Stern

Sampler(s)/Affiliation Williams / Piczonki

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40ml vial VOC 524.2 (HCL)						Remarks	Total
TB051909	L	5-19-09		3							3
BPOW 1-1		1301		3							3
BPOW 1-2		1456		3							3
BPOW 1-3		1637		+9							9

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/ Containers: 18

Relinquished by: [signature]	Organization: Arcadis	Date 5/19/09	Time 1730	Seal Intact?	
Received by:	Organization:	Date / /	Time	Yes No N/A	
Relinquished by:	Organization:	Date / /	Time	Seal Intact?	
Received by:	Organization:	Date / /	Time	Yes No N/A	

Special Instructions/Remarks: Report to Melissa Reindl ~~X~~ Please use this sample as a QA/QC MS/MSD sample

2-week TAT

Delivery Method: ☐ In Person ☒ Common Carrier FedEx (SPECIFY) ☐ Lab Courier ☐ Other (SPECIFY)

AC 05 12/01

ARCADIS

Laboratory Task Order No./P.O. No. OU-2 outpost Grummor

CHAIN-OF-CUSTODY RECORD

Project Number/Name NGC NY001N92.0009 0002

Project Location Bethpage, NY

Laboratory Columbia Analytical Services

Project Manager Mike Wolfert

Sampler(s)/Affiliation Pat Prorocki / Sunny Xu

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	VOC 524.2 40ml vial with HCl						Remarks	Total
TB052009	L	5-20-09		3							3
BPOW 3-1	L	↓		3							3
BPOW 3-2	L	↓		3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 9

Relinquished by: Sunny Xu	Organization: Arcadis	Date 5/20/09	Time 19:00	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A
Relinquished by:	Organization:	Date / /	Time	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A

Special Instructions/Remarks: Report to Melissa Reindl

Delivery Method: ☐ In Person ☑ Common Carrier FedEx (SPECIFY) ☐ Lab Courier ☐ Other ______ (SPECIFY)

ARCADIS

Laboratory Task Order No./P.O. No. On-2 outpost

CHAIN-OF-CUSTODY RECORD

Project Number/Name NGC N0014Q2.0009.00002

Project Location Bethpage, NY

Laboratory Columbia Analytical Services

Project Manager Mike Wolfert

Sampler(s)/Affiliation Gary Williams/Sunny Xu

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40ml vial VOC 8260 HCl Preserved						Remarks	Total
TB052109	L	5-21-09		3							3
BPOW 4-1	L	↓		3							3
BPOW 4-2	L	↓		3							3
REP 052109	L	↓		3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 12

Relinquished by: Sunny Xu	Organization: Arcadis	Date 5/21/09	Time 7:00	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	
Relinquished by:	Organization:	Date / /	Time	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	

Special Instructions/Remarks:

Report to Melissa Rendl; 2 weeks TAT

Delivery Method: ☐ In Person ☒ Common Carrier FedEx (SPECIFY) ☐ Lab Courier ☐ Other ______ (SPECIFY)

ARCADIS

Laboratory Task Order No./P.O. No. Grumman 002

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Project Number/Name NY001492.0409.00002

Project Location Bethpage, NY

Laboratory Columbia Analytical Services - Rochester

Project Manager Dave Storm

Sampler(s)/Affiliation Prezorski

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40 mL VOA TCL VOCs NYSDEC ASP Method 2000 (+TICs)						Remarks	Total
TB052209	L	5/22/09		3							3
GM-20D	↓	↓ 1603		3							3
GM-20I	↓	↓ 1746		3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/ Containers: 9

Relinquished by: [signature]	Organization: Arcadis	Date 5/22/09	Time 1900	Seal Intact?	
Received by:	Organization:	Date / /	Time	Yes	No N/A
Relinquished by:	Organization:	Date / /	Time	Seal Intact?	
Received by:	Organization:	Date / /	Time	Yes	No N/A

Special Instructions/Remarks: Report to Melissa Reinel

2-week TAT

Delivery Method: ☐ In Person ☑ Common Carrier Fed Ex (SPECIFY) ☐ Lab Courier ☐ Other (SPECIFY)

ARCADIS

Laboratory Task Order No./P.O. No.

CHAIN-OF-CUSTODY RECORD

Page ____ of ____

Project Number/Name NY001492.0409.00002
Project Location BETHPAGE NY
Laboratory COLUMBIA ANALYTICAL SERV
Project Manager MIKE WOLFERT
Sampler(s)/Affiliation G.W. ARCADIS

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40ml VOA VOC OLM4.2 200 ASP (HCl)						Remarks	Total
GM-35D-2	L	5-26-09		3							3
TB 5-26-09		"		3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 6

Relinquished by: [signature]	Organization: ARCADIS	Date 5/26/09	Time 5:00	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	
Relinquished by:	Organization:	Date / /	Time	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	

Special Instructions/Remarks: REPORT TO MELISSA REINOL

Delivery Method: ☐ In Person ☒ Common Carrier FED EX (SPECIFY) ☐ Lab Courier ☐ Other ____ (SPECIFY)

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: Northrop Grumman | Project No.: NY001492.0409.0002

Site Location: Bethpage, NY | Date: 8-6-09

Well No.: BPOW 1-1 | Replicate No.: NA | Weather: cloudy 80sF

Sampling Personnel: Pat Prezorski / Sunny Xu | Sampling Time: Begin 1528 | End 1531

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	241
Depth to Water (ft bmp)	27.17
Depth to Packer (ft bmp)	169
Water Column in Well (ft)	72
Casing Diameter	4" (0.65)
Gallons in Well	46.8 x3
Gallons Purged Prior to Sampling	140
Pump Intake Setting (ft bmp)	
Packer Pressure (psi)	(169-27.17) X0.43+50 = 111 psi
Pumping Rate (gpm)	
Evacuation Method	Dedicated submersible pump/packer
Sampling Method	3 well volume
Purge Time	Begin 1510 End 1528

Field Parameters

	I	1V	2V	3V
Color	Colorless	Colorless	Colorless	colorless
Odor	none	none	none	none
Appearance	clear	clear	clear	clear
pH (s.u.)	5.35	5.30	5.26	5.61
Conductivity ~~(mS/cm)~~ or (~~µmhos/cm~~)	94.6	92.5	92.2	92.1
Temperature (°C)	15.6	12.9	12.9	13.0
DO (mg/L)	—	—	—	—
ORP (mV)	—	—	—	—
Turbidity (NTU)	—	—	—	8.2
Time	15:01	15:11	15:16	15:24
DTW (ft bmp)	27.63	27.65	27.66	27.38

↑ pumping rate lowered

Remarks: 115 PSI roundup

Parameter	Container	No.	Preservative
See COC			

PID Reading: _____

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	(4" = 0.65)
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: Northrop Grumman — Project No.: N[illegible]92.0409.0002
Site Location: Bethpage, NY — Date: 8-6-09
Well No.: BPOW 1-2 — Replicate No.: MS/MSD — Weather: Rain: 80's F
Sampling Personnel: Pat Krozerski / Sunny Xu — Sampling Time: Begin 12:26 End 12:29

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	28.42
Depth to Water (ft bmp)	33.5
Depth to Packer (ft bmp)	294
Water Column in Well (ft)	4.1
Casing Diameter	4" (0.65)
Gallons in Well	26.65 x3
Gallons Purged Prior to Sampling	80
Pump Intake Setting (ft bmp)	
Packer Pressure (psi)	(294-28.42x0.43+50=170 PSI.
Pumping Rate (gpm)	
Evacuation Method	
Sampling Method	dedicated submersible pump/packer
Purge Time	Begin 12:12 End 12:26

Field Parameters

	1	1V	2V	3V
Color	Colorless	Colorless	colorless	colorless
Odor	none	none	none	none
Appearance	clear	clear	clear	clear
pH (s.u.)	5.64	5.74	5.41	5.19
Conductivity ~~(mS/cm) or~~ (µmhos/cm)	55.5	60.5	61.8	63.7
Temperature (°C)	14.0	13.4	11.9	11.9
DO (mg/L)	—	—	—	—
ORP (mV)	—	—	—	—
Turbidity (NTU)	—	—	—	4.6
Time	12:12	12:17	12:20	12:25
DTW (ft bmp)	28.42	30.54	30.52	29.32

Remarks: PSI = 294 - 28.42 x .43 + 50 = 170 rounded up — pumping rate lowered

Parameter	Container	No.	Preservative
See COC			

PID Reading: _____

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: Northrop Grumman Project No.: NY001492.0409.00002
Site Location: Bethpage, NY Date: 8-6-09
Well No.: BPOW 1-3 Replicate No.: RZ080609 Weather: Part cloudy / shower Rain

Sampling Personnel: Pat Brezacki / Sunny Xu Sampling Time: Begin ~~RZ080609~~ End 1357

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	419
Depth to Water (ft bmp)	28.29
Depth to Packer (ft bmp)	344
Water Column in Well (ft)	75
Casing Diameter	4" (0.65)
Gallons in Well	48.75 x3
Gallons Purged Prior to Sampling	146.25
Pump Intake Setting (ft bmp)	
Packer Pressure (psi)	(344-28.29) x0.43+50 = 185 psi
Pumping Rate (gpm)	
Evacuation Method	dedicated submersible pump/ ~~dec~~
Sampling Method	3 well volume
Purge Time	Begin 13:28 End 13:52

Field Parameters

	I	1V	2V	3V
Color	Colorless	Colorless	light brown ~~yellow~~	light brown
Odor	none	none	none	none
Appearance	clear	clear	turbid	turbid
pH (s.u.)	4.48	4.54	4.53	4.60
Conductivity (mS/cm) or	—	—	—	—
(µmhos/cm)[1]	79.7	122.5	117.4	109.9
Temperature (°C)	14.5	12.7	11.0	11.6
DO (mg/L)	—	—	—	—
ORP (mV)	—	—	—	—
Turbidity (NTU)	—	—	—	380
Time	13:28	13:37	13:44	13:52
DTW (ft bmp)	30.44	30.44	30.18	27.98 ↑ Rattlowed

Remarks: missing screw plug.

PSI = 344 - 28.29 x .43 + 50 = 186

Parameter	Container	No.	Preservative
See COC			

PID Reading ______

Well Casing Volumes				
Gal./Ft.	1 1/4" = 0.06	2" = 0.16	3" = 0.37	~~4" = 0.65~~
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: Northrop Grumman OU2 | Project No.: NY001492.0409.0002
Site Location: Bethpage, NY | Date: 8-6-09
Well No.: BPOU3-1 | Replicate No.: N/A | Weather: Sunny / 90°F
Sampling Personnel: Pat Kennedy / Sunny Xu | Sampling Time: Begin 10:43 End 10:44

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	516
Depth to Water (ft bmp)	25.75
Depth to Packer (ft bmp)	414
Water Column in Well (ft)	102
Casing Diameter	4" (0.65)
Gallons in Well	66.3
Gallons Purged	3
Prior to Sampling	198.9
Pump Intake	
Setting (ft bmp)	
Packer Pressure (psi)	(414 − 25.75) x 0.43 + 50 = 220 PSI
Pumping Rate (gpm)	
Evacuation Method	bedrock submersible pump/packer
Sampling Method	3 well volume
Purge Time	Begin ~~9:59~~ 10:05 AM End 10:42

Field Parameters

	1	1V	2V	3V
Color	colorless	colorless	colorless	colorless
Odor	slight	slight	slight	slight
Appearance	clear	clear	clear	clear
pH (s.u.) 4.88	~~4.03~~	4.29	4.31	4.33
Conductivity (mS/cm) or (µmhos/cm)	—	—	—	—
	~~[illegible]~~ 111.5	98.6	91.8	89.3
Temperature (°C)	14.0	12.4	12.0	12.0
DO (mg/L)	—	—	—	—
ORP (mV)	—	—	—	—
Turbidity (NTU)	—	—	—	3.4
Time	10:05	10:17	10:27	10:42
DTW (ft bmp)				

Remarks: PSI = 414 − 25.75 x .43 + 50 = 220 rounded up (packer depth) (OTU)

Parameter	Container	No.	Preservative
see COC			

PID Reading:

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: Northrop Grumman OU2 | Project No.: NY001492.0009.00004
Site Location: Bethpage, NY | Date: 8-5-09
Well No.: BPOU 3-2 | Replicate No.: HA | Weather: Sunny / 90F
Sampling Personnel: Pat Brezinski / Sunny Xia | Sampling Time: Begin ~~1530~~ 1551 | End

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	647
Depth to Water (ft bmp)	26.75
Depth to Packer (ft bmp)	503
Water Column in Well (ft)	144
Casing Diameter	4" (0.65)
Gallons in Well	93.6
Gallons Purged	x3
Prior to Sampling	280.
Pump Intake Setting (ft bmp)	
Packer Pressure (psi)	255
Pumping Rate (gpm)	
Evacuation Method	Dedicated Submersible Pump
Sampling Method	3 well volume
Purge Time	Begin 1530 End

Field Parameters

Color	Colorless →
Odor	Slight →
Appearance	clear →

	1	1V	2V	3V
pH (s.u.)	6.56	5.22	5.18	5.07
Conductivity (~~mS/cm~~) or (µmhos/cm)[1]	—	—	—	—
	122.9	100.6	73.1	60.9
Temperature (°C)	18.7	16.6	14.8	14.3
DO (mg/L)	—	—	—	—
ORP (mV)	—	—	—	—
Turbidity (NTU)	—	—	—	50
Time				
DTW (ft bmp)		27.22	27.22	26.88

Remarks: ~~255~~ 503 - 26.75 x .43 + 50 = 255 psi
packer - DTW x .43 + 50 = psi

Parameter	Container	No.	Preservative
See COC.			

PID Reading:

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	(4" = 0.65)
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project N-Grumman OU2 Project No. NY001492.0409.00002

Site Location Bethpage, NY Date 9/7/09

Well No. BPOW 4-1 Replicate No. NA Weather clear 80°F

Sampling Personnel Przerski / Williams Sampling Time: Begin 12:33 End 12:35

Purge Data

Measuring Point (describe)	~~standpipe~~ TOC	screen
Sounded Well Depth (ft bmp)	652	692
Depth to Water (ft bmp)	27.29	
Depth to Packer (ft bmp)	503	652
Water Column in Well (ft)	149	40
Casing Diameter	4" (0.65)	2" (0.16)
Gallons in Well	96.85	6.4
	x3	x3
Gallons Purged	290	19.2
Prior to Sampling	309 (290+19.2)	
Pump Intake		
Setting (ft bmp)		
Packer Pressure (psi)	255	
Pumping Rate (gpm)		
Evacuation Method	Dedicated submersible pump/packer	
Sampling Method	3 well volume	
Purge Time	Begin 10:35 AM	End 12:33

Field Parameters

	1	1V	2V	3V
Color	colorless	colorless	colorless	colorless
Odor	None	None	None	None
Appearance	clear	clear	clear	clear
pH (s.u.)	7.35	4.91	4.98	5.12
Conductivity (~~mS/cm~~) or (umhos/cm) 1)	159.6	77.5	55.4	45.9
Temperature (°C)	20.4	12.2	12.3	12.6
DO (mg/L)	—	—	—	—
ORP (mV)	—	—	—	—
Turbidity (NTU)	—	—	—	8.4
Time	10:35	10:58	11:17	12:33
DTW (ft bmp)	—	26.44	26.19	25.05

pump rate lowered

Remarks:

Parameter	Container	No.	Preservative
See COC			

PID Reading

Well Casing Volumes

Gal./Ft.				
	$1^{1/4}$" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	$1^{1/2}$" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: N-Grumman OU2 | Project No.: NY001492.0409.00002
Site Location: Bethpage, NY | Date: 8/7/09
Well No.: BPOU 4-2 | Replicate No.: NA | Weather: Breezy clear 90°F
Sampling Personnel: Prezarski/Williams | Sampling Time: Begin 1535 End 1537

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	764
Depth to Water (ft bmp)	25.19
Depth to Packer (ft bmp)	503
Water Column in Well (ft)	261
Casing Diameter	4" (0.65)
Gallons in Well	169.65
Gallons Purged Prior to Sampling	x3 509
Pump Intake Setting (ft bmp)	
Packer Pressure (psi)	255
Pumping Rate (gpm)	
Evacuation Method	Dedicated packer/pump
Sampling Method	3 well volume
Purge Time	Begin 12:46 End 1535

Field Parameters

	1	1V	2V	3V
Color	Colorless	colorless	colorless	colorless
Odor	None	None	None	None
Appearance	clear	clear	clear	clear
pH (s.u.)	4.27	4.35	4.45	4.47
Conductivity (~~mS/cm~~) or (µmhos/cm) 1)	79.9	89.7	80.0	73.3
Temperature (°C)	16.9	14.4	13.1	13.9
DO (mg/L)	—	—	—	—
ORP (mV)	—	—	—	—
Turbidity (NTU)	—	—	—	3.7
Time	12:46	1423	1511	1535
DTW (ft bmp)	26.78	23.84	23.78	23.74 ↑ pump rate lowered

Remarks: PSI = 503 − 25.19 × .43 + 50 = 255
Parameter every 170 gal

Parameter	Container	No.	Preservative
See COC			

PID Reading: _____

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: N-Grumman ow2
Project Number: NY001492.0609.00002
Site Location: Bethpage, NY
Well ID: GM-13D
Date: 9/4/09
Sampled By: Prezorski, Williams
Sampling Time: 1633
Recorded By: Prezorski
Weather: clear 80°F
Coded Replicate No.: MS/MSD

Instrument Identification
Water Quality Meter(s): see calibration log
Serial #:

Casing Material: PVC
Casing Diameter: 4"
Sounded Depth (ft bmp): 210
Depth to Water (ft bmp): 43.71

Purge Method: Dedicated Bladder Low Flow
Screen Interval (ft bmp): Top 200 Bottom 210
Pump Intake Depth (ft bmp):
Purge Time: Start 12:20 Finish see below

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or mS/cm) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
12:20	0	330	—	24.5	6.05	317	101	2.55	—	—
12:25	5	↓	—	23.7	6.04	335	120	1.10	—	43.72
12:30	10		—	22.3	5.58	340	136	0.76	—	—
12:35	15		—	Compressor stopped working					—	
		Waiting for compressor repair. 2nd compressor not starting								
1610		330	—	23.9	5.84	127.8	178	2.37	—	
1615		↓	—	23.3	5.75	129.8	183	1.48	—	43.74
1620			—	22.3	5.71	129.8	189	0.96	—	—
1625			—	21.0	5.71	130.3	195	0.57	—	43.74
1630			—	20.7	5.67	127.6	194	0.52	<50	—

Collected Sample Condition
Color: colorless
Odor: none
Appearance: clear

Parameter	Container	No.	Preservative
see COC			

PID Reading: 0ppm

Comments: Repaired 2nd Grumman compressor not running well. Sample taken at 1633

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project NORTHROP-GRUMMAN Project No. NY001492.0409.00002
Site Location Bethpage, NY Date 8-14-09
Well No. GM-15SR Replicate No. NA Weather humid, hot / 86°F
Sampling Personnel Gary Williams / Sunny Xu Sampling Time: Begin ~~7:52~~ SX 0620 End ~~1620~~ / 1621 SX

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	80.00
Depth to Water (ft bmp)	42.41
Depth to Packer (ft bmp)	—
Water Column in Well (ft)	37.59
Casing Diameter	4" (0.65)
Gallons in Well	24.43
Gallons Purged Prior to Sampling	275 Gal
Pump Intake Setting (ft bmp)	75
Packer Pressure (psi)	—
Pumping Rate (gpm)	—
Evacuation Method	Redi-flow
Sampling Method	
Purge Time	Begin 17:52 End 16:20

Field Parameters

	1	1V	2V	3V
Color	Colorless	Colorless	Colorless	Colorless
Odor	none	none	none	none
Appearance	~~clear~~ cloudy	clear	clear	clear
pH (s.u.)	5.94	6.25	6.35	6.05
Conductivity (mS/cm) or (µmhos/cm) [1]	116.5	107.2	108.4	109.6
Temperature (°C)	18.4	16.2	16.7	16.8
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)		7.9	6.0	
Time	17:52	16:01	16:10	16:20
DTW (ft bmp)				

Remarks:

Parameter	Container	No.	Preservative
See COC			

PID Reading

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: N-Grumman OU2 | Project No.: NY001492.0409.00002
Site Location: Bethpage, NY | Date: 8/27/09
Well No.: GM-15I | Replicate No.: NA | Weather: clear 78°F

Sampling Personnel: Prezorski | Sampling Time: Begin 1830 End 1834

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	105
Depth to Water (ft bmp)	42.59
Depth to Packer (ft bmp)	94
Water Column in Well (ft)	11
Casing Diameter	4" (0.65)
Gallons in Well	7.15 x3
Gallons Purged Prior to Sampling	22
Pump Intake Setting (ft bmp)	/
Packer Pressure (psi)	75
Pumping Rate (gpm)	Start 1150 ml/min / End 1738 1550 ml/min
Evacuation Method	Dedicated Bladder/grabber
Sampling Method	3 well volume
Purge Time	Begin 1719 End 1828

Field Parameters

	1	1V	2V	3V
Color	colorless	colorless	colorless	colorless
Odor	None	None	None	None
Appearance	clear	clear	clear	clear
pH (s.u.)	7.58	5.92	5.89	5.52
Conductivity (mS/cm) or (µmhos/cm) [1]	327	131.7	117.4	108.5
Temperature (°C)	17.7	16.3	15.9	16.9
DO (mg/L)	—	—	—	—
~~ORP~~ (mV) 5 gal container	—	✗ ½	½ ✗	✗ ½
Turbidity (NTU)	—	—	—	<25
Time	1719	1743	1805	1828
DTW (ft bmp)	42.36	41.71	41.13	40.25

Remarks: Purged with Grumman well wizard control box. Rate lowered prior to sampling.
94 - 42.59 x .43 + 50 = psi = 75 rounded up
Well 19 running. ✗ = 5 gal container

Parameter	Container	No.	Preservative
See COC			

PID Reading: 0 ppm

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	(4" = 0.65)
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: Northrop Grumman OU-2
Project Number: NY001492.0409.0002 Site Location: Bethpage, NY Well ID: GM-15D
Date: 8-14-09 Sampled By: Gary Williams / Sunny Xu
Sampling Time: 15:10 Recorded By: Sunny Xu
Weather: humid / 86°F Coded Replicate No.: NA

Instrument Identification
Water Quality Meter(s): See Calibration log Serial #:

Casing Material: PVC Purge Method: Dedicated 2" ϕ bladder pump
Casing Diameter: 4" Screen Interval (ft bmp) Top: 332 Bottom: 342
Sounded Depth (ft bmp): 342 Pump Intake Depth (ft bmp): 337
Depth to Water (ft bmp): 44.84 Purge Time Start: 14:10 Finish: 15:10

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or mS/cm) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
14:10				28.9	5.26	70.6	201	7.00		44.84
14:15	5			27.7	5.22	84.3	204	6.26		
14:20	10			24.6	5.05	91.3	221	3.38		44.89
14:25	15			22.8	4.95	93.4	228	3.39		
14:30	20			22.3	4.90	93.9	235	4.96		44.89
14:35	25			22.0	4.90	94.3	239	5.89		
14:40	30			21.9	4.89	94.4	243	6.46		44.89
14:45	35			21.9	4.91	94.3	245	17.02*		
14:50	40			21.9	4.90	94.1	248	16.80*		44.89
14:55	45			21.8	4.96	93.8	243	18.53*		
15:00	50			21.8	4.91	94.2	246	23.28*		44.89
15:05	55			21.8	4.91	94.1	249	21.60*		
15:10	60			21.9	4.91	94.0	249	26.63*		44.89

Collected Sample Condition Color: Colorless Odor: none Appearance: clear

Parameter	Container	No.	Preservative
See COC			

PID Reading:

Comments: * DO meter not functioning due to high temp.

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: NORTHROP GRUMMAN
Project Number: NY001492.0409.00002
Site Location: BETHPAGE NY
Well ID: GM-150-2
Date: 8-14-09
Sampled By: EW XX
Sampling Time: 13:40
Recorded By: ~~EW~~ XX
Weather: humid / 86°F
Coded Replicate No.: REP 081409 / MS/MSD

Instrument Identification
Water Quality Meter(s): Lee Calibration form.
Serial #:

Casing Material: PVC.
Casing Diameter: 4".
Sounded Depth (ft bmp): 556
Depth to Water (ft bmp): 47.58

Purge Method: Dedicated bladder.
Screen Interval (ft bmp): Top 536 Bottom 556
Pump Intake Depth (ft bmp): 546
Purge Time: Start 12:40 Finish 13:40

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or ~~mS/cm~~) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
12:40				27.1	5.02	101.2	118	6.25		47.58
12:45				24.7	5.12	69.0	142	4.65		
12:50				23.6	5.11	66.7	169	2.14		47.58
12:55				23.4	5.08	66.5	188	1.83		
13:00				23.3	5.10	66.4	192	3.10		47.58
13:05				23.2	5.10	66.6	195	4.39		
13:10				23.4	5.12	66.6	194	5.79		
13:15				23.0	5.12	65.9	198	5.94		
13:20				23.0	5.12	65.9	201	6.34		47.58
13:25				23.0	5.14	65.7	202	6.30		
13:30				22.7	5.14	65.2	206	6.25		47.58
13:35				22.6	5.15	65.0	212	6.22		
13:40				22.6	5.13	65.0	214	6.19	1.8	47.58

Collected Sample Condition
Color: Colorless
Odor: none
Appearance: clear.

Parameter	Container	No.	Preservative
See COC			

PID Reading:

Comments:

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: NORTHROP-GRUMMAN
Project Number: 14001492.0489.00002
Site Location: BETHPAGE NY
Well ID: GM-17DI
Date: 8-12-09
Sampled By: GW Gary Williams
Sampling Time: 1320 pm
Recorded By: GW Gary Williams
Weather: OVERCAST 83°
Coded Replicate No.: NA

Instrument Identification
Water Quality Meter(s): Serial #:

Casing Material: PVC
Purge Method: dedicated bladder
Casing Diameter: 4"
Screen Interval (ft bmp): Top 100 Bottom 120
Sounded Depth (ft bmp): 120
Pump Intake Depth (ft bmp): 110
Depth to Water (ft bmp): 43.46
Purge Time: Start 12:35 Finish 1:20 pm

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or mS/cm) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
12:35				26.0	5.68	648	173	10.25		43.46
12:40				24.9	5.77	622	155	8.79		
12:45				24.8	5.74	624	148	8.83		
12:50				24.5	5.81	618	144	8.92		
12:55				24.1	5.79	614	157	9.05		43.48
1:00				23.9	6.32	616	127	9.08		
1:05				23.6	6.36	620	121	9.38		
1:10				23.5	6.36	620	118	9.83		
1:15				23.3	6.39	623	111	9.78		43.49
1:20				22.9	6.41	623	95	9.86	3.3	
~~1:25~~										
~~1:30~~										
~~1:35~~										

Collected Sample Condition
Color: COLORLESS Odor: NONE Appearance: CLEAR

Parameter	Container	No.	Preservative
See QC			

PID Reading: RADIOLOGICAL

Comments:

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: NORTHROP-GRUMMAN
Project Number: NY001492.0409.00002
Site Location: BETHPAGE NY
Well ID: GM-17D
Date: 8-12-09
Sampled By: GW Gary Williams
Sampling Time: 2:45 pm
Recorded By: GW Gary Williams
Weather: RAINY 75°
Coded Replicate No.: N/A

Instrument Identification
Water Quality Meter(s): _____ Serial #: _____

Casing Material: PVC
Purge Method: dedicated bladder
Casing Diameter: 4"
Screen Interval (ft bmp): Top 278 Bottom 298
Sounded Depth (ft bmp): 298
Pump Intake Depth (ft bmp): 288
Depth to Water (ft bmp): 46.90
Purge Time: Start 1:45 pm Finish 2:45 pm

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or mS/cm) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
1:45				24.0	6.56	184.7	147	10.90		46.90
1:50				22.8	6.56	186.9	135	9.23		
1:55				22.4	6.56	183	147	10.43		
2:00				22.4	6.58	172.9	141	9.80		
2:05				22.3	6.57	173.3	138	9.94		
2:10				22.2	6.64	173.7	144	10.18		
2:15				22.2	6.65	173.5	143	9.88		46.89
2:20				22.1	6.63	173.8	139	10.83		
2:25				22.1	6.64	173.8	137	10.33		
2:30				21.9	6.69	174.0	149	10:55		
2:35				21.7	6.71	173.9	186	10:43		
2:40				21.7	6.71	173.8	187	10:44		
2:45				21.8	6.71	173.4	186	10.35	2.7	46.90

Collected Sample Condition: Color COLORLESS Odor NONE Appearance CLEAR

Parameter	Container	No.	Preservative
See COC			

PID Reading: RAIN

Comments: _____

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: N-Grumman OU2 | Project No.: N/001492.0409.00002
Site Location: Bethpage, NY | Date: 9/24/09
Well No.: GM-18I | Replicate No.: NA | Weather: clear 85°F
Sampling Personnel: Prezorski | Sampling Time: Begin 1407 End 1412

Purge Data		Field Parameters				
				1	1V	2V	3V
Measuring Point (describe)	TOC	Color	colorless	colorless	colorless	colorless
Sounded Well Depth (ft bmp)	105	Odor	none	none	none	none
Depth to Water (ft bmp)	39.96	Appearance	clear	clear	clear	clear
Depth to Packer (ft bmp)	94					
Water Column in Well (ft)	11					
Casing Diameter	4" (0.65)	pH (s.u.)		6.63	5.92	5.62	5.57
Gallons in Well	7.15	Conductivity					
Gallons Purged	x3	(mS/cm) or					
Prior to Sampling	22	(µmhos/cm) [1]		355	140.1	131.8	125.6
Pump Intake							
Setting (ft bmp)		Temperature (°C)		21.6	18.7	18.2	18.3
Packer Pressure (psi)	80 Rounded up						
Pumping Rate (~~gpm~~)	880 ml/min, 970 ml/min (1301)	DO (mg/L)					
Evacuation Method	Dedicated pump/packer	~~ORP (mV)~~ 5 gal container			½	½	½
Sampling Method	3 well volume	Turbidity (NTU)					4.8
Purge Time Begin 12:46 pm End 1405		Time		12:46	1323	1342	1405
		DTW (ft bmp)			38.74	38.74	38.74

Remarks: 94 - 39.96 x .43 + 50 = 75 psi
At 1319 : 1500 ml/min. Rate lowered prior to sampling
½ = 5 gal container

Parameter	Container	No.	Preservative
See COC			

PID Reading: 0 ppm

Well Casing Volumes

Gal./Ft.				
	$1^{1/4}$" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	$1^{1/2}$" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: Northrop Grumman OU-2
Project Number: 40081492.0409.0002 Site Location: Bethpage, NY Well ID: GM-18D
Date: 8-13-09 Sampled By: Gary Williams
Sampling Time: 4:40 pm Recorded By: Gary Williams
Weather: Coded Replicate No.: NA

Instrument Identification
Water Quality Meter(s): See calibration sheet Serial #:

Casing Material: PVC. Purge Method: Dedicated bladder.
Casing Diameter: 4" Screen Interval (ft bmp) Top: 290 Bottom: 300
Sounded Depth (ft bmp): 300 Pump Intake Depth (ft bmp): 295
Depth to Water (ft bmp): 42.60. Purge Time Start: 4:40 pm Finish: 5:40 pm

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or mS/cm) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
4:40		450		24.4	6.49	140.9	165	7.09		42.60
4:45				23.3	5.94	142.3	154	7.28		
4:50				22.1	5.74	143.7	155	9.11		
4:55				22.0	5.73	143.8	154	9.50		42.62
5:00				21.6	5.65	144.0	153	9.64		
5:05				21.3	5.63	144.2	165	10.10		
5:10				21.3	5.57	144.3	170	10.34		
5:15				21.3	5.57	144.4	164	10.24		
5:20				21.3	5.57	144.3	162	10.30		
5:25				21.3	5.57	144.4	163	10.23		
5:30				21.3	5.57	144.4	163	10.57		
5:35				21.3	5.55	144.2	163	10.57	3.0	42.62
5:40				21.3	5.55	144.2	163	10.53	↓	

Collected Sample Condition Color: COLORLESS Odor: ODOROUS Appearance: CLEAR

Parameter	Container	No.	Preservative
See COC			

PID Reading:

Comments:

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: N-Grumman OU2 Project No.: NY001492.0409.00002
Site Location: Bethpage, NY Date: 8/28/09
Well No.: GM-20 I Replicate No.: NA Weather: overcast 71°F Light Rain
Sampling Personnel: Prezorski Sampling Time: Begin 1341 End 1345

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	105
Depth to Water (ft bmp)	34.75
Depth to Packer (ft bmp)	94
Water Column in Well (ft)	11
Casing Diameter	4" (0.65)
Gallons in Well	7.15
Gallons Purged Prior to Sampling	×3 22
Pump Intake Setting (ft bmp)	—
Packer Pressure (psi)	80 Rounded up
Pumping Rate (~~gpm~~)	start 920 ml/hr / 12:23 1120 ml/hr / 1 gallon/min; Rate checked 1325
Evacuation Method	Dedicated Bladder/packer
Sampling Method	3 well volume
Purge Time	Begin 12:11 End 1340

Field Parameters

	I	1V	2V	3V
Color	colorless	colorless	colorless	colorless
Odor	None	None	None	None
Appearance	clear	clear	clear	clear
pH (s.u.)	9.39	9.10	10.81	11.03
Conductivity (mS/cm) or (µmhos/cm) [1]	349	157.1	110.0	106.4
Temperature (°C)	16.1	14.4	14.1	13.8
DO (mg/L)	—	—	—	—
~~ORP (mV)~~ 5 gal containers	—	∅ 1/2	1/2 ∅	∅ 1/2
Turbidity (NTU)	—	—	—	<20
Time	12:11	12:47	1311	1340
DTW (ft bmp)	34.18	34.18	33.94	33.94

Remarks: PSI = 94 − 34.75 × .43 + 50 = 76
Purged with wellwizard control box. Rate Lowered prior to sample
∅ = 5 gal container

Parameter	Container	No.	Preservative
see COC			

PID Reading: Rain, ↑ Humidity

Well Casing Volumes

Gal./Ft.			
$1^{1/4}$" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
$1^{1/2}$" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: N-Grumman OU2 | Project No.: NY001192.0409.00002
Site Location: Bethpage, NY | Date: 8/28/09
Well No.: GM-20D | Replicate No.: NA | Weather: Overcast 70°F

Sampling Personnel: Prezorski | Sampling Time: Begin 1700 | End 1704

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	226
Depth to Water (ft bmp)	36.65
Depth to Packer (ft bmp)	215
Water Column in Well (ft)	11
Casing Diameter	4" (0.65)
Gallons in Well	7.15
Gallons Purged	x 3
Prior to Sampling	22
Pump Intake Setting (ft bmp)	/
Packer Pressure (psi)	130
Pumping Rate (~~gpm~~)	1 Liter/min
Evacuation Method	Dedicated Bladder/packer
Sampling Method	3 well volume
Purge Time	Begin 1525 End 1700

Field Parameters

	1	1V	2V	3V
Color	Colorless	Colorless	Colorless	Colorless
Odor	None	None	None	None
Appearance	clear	clear	clear	clear
pH (s.u.)	10.22	9.16	8.49	7.94
Conductivity (~~mS/cm~~) or (~~µmhos/cm~~) [1]	92.6	91.5	90.3	89.7
Temperature (°C)	14.6	14.5	14.2	14.1
~~DO~~ (mg/L)	—	½	½	½
ORP (mV)	—	—	—	—
Turbidity (NTU)	—	—	—	<20
Time	1525	1556	1628	1700
DTW (ft bmp)	34.99	32.81	27.30	23.69

½ = 5 gal container

Remarks: PSI = 215 − 36.65 × .43 + 50 = 130 rounded up
Purged with well manifold control box. Rate lowered prior to sampling.
N_2 Gas holding steady.

Parameter	Container	No.	Preservative
See COC			

PID Reading: ↑ humidity

Well Casing Volumes

Gal./Ft.				
	1¼" = 0.06	2" = 0.16	3" = 0.37	(4" = 0.65)
	1½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: Northrop Grumman   Project No. NY001092.0409.aw2
Site Location: Bethpage, NY   Date: 8-19-08
Well No.: GM-21S   Replicate No.: NA   Weather: Hot. 90°F

Sampling Personnel: Gary Williams / Sunny Xu   Sampling Time: Begin 14:48   End 14:50

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	67
Depth to Water (ft bmp)	34.29
Depth to Packer (ft bmp)	—
Water Column in Well (ft)	32.71
Casing Diameter	2" (0.16)
Gallons in Well	5.3
Gallons Purged Prior to Sampling	x3 16
Pump Intake Setting (ft bmp)	65
Packer Pressure (psi)	—
Pumping Rate (gpm)	Q=1 t=16 1V=5
Evacuation Method	Redi-flow
Sampling Method	3wV
Purge Time	Begin 14:33 End 14:48

Field Parameters

Color	brown	Colorless	Colorless	Colorless
Odor	none	none	none	none
Appearance	turbid	Clear	clear	clear
	I	1V	2V	3V
pH (s.u.)	8.52	6.91	6.49	6.50
Conductivity ~~(mS/cm) or~~ (µmhos/cm) 1)	315.	96.4.	83.7	78.6.
Temperature (°C)	24.6	20.0	19.7.	19.6.
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)				15
Time				
DTW (ft bmp)	14:33	14:38	14:43	14:48

Remarks:

Parameter	Container	No.	Preservative
See COC.			

PID Reading

Well Casing Volumes				
Gal./Ft.	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project NORTHROP-GRUMMAN Project No. NY001492.0409.00002
Site Location BETHPAGE NY Date 8-13-09
Well No. GM-21I Replicate No. NA Weather OVERCAST 75°
Sampling Personnel GW Gary Williams Sampling Time: Begin _____ End _____

Purge Data

Measuring Point (describe)	10' SCREEN
Sounded Well Depth (ft bmp)	140
Depth to Water (ft bmp)	35.10
Depth to Packer (ft bmp)	128
Water Column in Well (ft)	~~92.00~~ 12.00
Casing Diameter	4 (0.65)
Gallons in Well	7.8
Gallons Purged Prior to Sampling	22.5
Pump Intake Setting (ft bmp)	135
Packer Pressure (psi)	90 PSI
Pumping Rate (gpm)	
Evacuation Method	dedicated bladder/3W. below packer
Sampling Method	
Purge Time Begin	2:05 End

Field Parameters

Color	Colorless	colorless	colorless	colorless
Odor	none	none	none	none
Appearance	clear	clear	clear	clear
	I	1V	2V	3V
pH (s.u.)	6.76	8.58	8.87	9.32
Conductivity (mS/cm) or (µmhos/cm) [1]	176.5	128.7	125.4	121.7
Temperature (°C)	19.3	18.2	18.8	19.2
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)				<20
Time				
DTW (ft bmp)				

Remarks:
128.35 - 92 x .43 + 25 = 90 PSI
5 GAL PAILS III

Parameter	Container	No.	Preservative
see COC			

PID Reading _____

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: NORTHROP-GRUMMAN
Project Number: NY001492.0409.00002
Site Location: BETHPAGE NY
Well ID: GM-21D
Date: 8-12-09
Sampled By: GW Gary Williams
Sampling Time: 4:50 pm.
Recorded By: GW Gary Williams
Weather: RAINY 75°
Coded Replicate No.: N/A

Instrument Identification
Water Quality Meter(s): _____ Serial #: _____

Casing Material: PVC
Casing Diameter: 4"
Sounded Depth (ft bmp): 288.
Depth to Water (ft bmp): 40.76
Purge Method: _____
Screen Interval (ft bmp): Top 278 Bottom 288.
Pump Intake Depth (ft bmp): 283.
Purge Time: Start 3:50 Finish 4:50 pm.

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or mS/cm) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
3:50				22.5	6.32	121.2	180	10.25		40.76
3:55				21.7	6.09	122.9	179	8.08		
4:00				21.2	6.04	124.4	177	7.63		
4:05				21.0	6.13	125.5	176	7.61		
4:10				20.9	6.10	126.8	175	7.62		40.86
4:15				20.8	6.10	128.9	227	7.65		
4:20				20.8	5.45	129.0	218	7.57		
4:25				20.8	5.46	129.0	217	7.71		
4:30				20.8	5.41	129.1	214	7.56		
4:35				20.8	5.36	129.0	211	7.73		
4:40				20.7	5.36	129.5	201	7.83		40.77
4:45				20.6	5.32	129.7	200	7.66	2.4	
4:50										

Collected Sample Condition
Color: COLORLESS Odor: NONE Appearance: CLEAR

Parameter	Container	No.	Preservative
See COC			

PID Reading: _____

Comments: _____

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: Northrop Grumman
Project Number: NY001492.0409.00002
Site Location: Bethpage, NY
Well ID: GM-33D2
Date: 8-18-09
Sampled By: Gary Billiams / Sunny Xu
Sampling Time: 13:20
Recorded By: Sunny Xu
Weather: Hot. 91°F
Coded Replicate No.: NA.

Instrument Identification
Water Quality Meter(s): See calibration log
Serial #:

Casing Material: PVC
Purge Method: electrical bladder pump.
Casing Diameter: 4"
Screen Interval (ft bmp): Top 500 Bottom 520
Sounded Depth (ft bmp): 520.
Pump Intake Depth (ft bmp): 510.
Depth to Water (ft bmp): 47.24
Purge Time: Start 12:10 Finish 13:10.

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (~~mhos~~ or ~~mS/cm~~) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
12:10.		450		28.2.	5.38	66.8	123	6.23		47.28.
12:15	5			24.1	5.79.	65.2.	127	4.94.		
12:20.	10			23.1	5.67	64.5	126	4.88		47.28
12:25	15			22.5	5.53.	63.9	128	4.98		
12:30	20			22.2	5.55	63.7	128	5.03		47.27
12:35	25			22.0.	5.58.	63.5.	133	5.10.		
12:40	30			21.7.	6.00	63.2.	132	5.18.		47.27.
12:45	35			21.7	6.01.	63.2	136.	5.18.		
12:50	40			21.2.	6.05	63.0	135	5.28.		47.28.
12:55	45			21.0.	6.08	62.9	132.	5.27.		
13:00	50			20.9	6.10	62.9	130	5.30.		
13:05	55			20.6	6.14	62.9	127	5.38		
13:10.	60.	↓		20.7	6.18	63.0.	127	5.44		

Collected Sample Condition
Color: Colorless
Odor: None
Appearance: clear.

Parameter	Container	No.	Preservative
See COC.			

PID Reading:

Comments:

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: Northrop Grumman OU2
Project Number: NY001692.0409.00002
Site Location: Bethpage, NY
Well ID: GM-34D
Date: 8/3/09
Sampled By: Pat Prezaski / Sunny Xu
Sampling Time: 1705
Recorded By: Sunny Xu
Weather: Sunny 76°F
Coded Replicate No.: NA

Instrument Identification
Water Quality Meter(s): See calibration log
Serial #:

Casing Material: steel
Casing Diameter: 2"
Sounded Depth (ft bmp): 319
Depth to Water (ft bmp): 12.41

Purge Method: dedicated - bladder/low flow
Screen Interval (ft bmp): Top 309 Bottom 319
Pump Intake Depth (ft bmp):
Purge Time: Start 16:00 Finish 17:05

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (~~µmhos~~ or mS/cm) [1]	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
16:00	0	350	—	22.5	6.44	76.4	33	3.55		12.41
16:05	5		—	21.7	6.68	79.0	-2	3.21		—
16:10	10		—	21.1	7.45	84.3	-46	2.38		12.23
16:15	15		—	20.9	7.97	89.3	-58	2.07		—
16:20	20		—	19.5	8.49	96.1	-74	1.12		12.41
16:25	25		—	18.4	8.78	98.1	-114	0.42		—
16:30	30		—	17.7	9.30	98.0	-177	0.36		12.28
16:35	35		—	17.2	9.87	95.6	-213	0.22		—
16:40	40		—	17.5	10.10	98.0	-234	0.20		12.27
16:45	45		—	17.1	10.24	102.0	-245	0.21		—
16:50	50		—	17.3	10.20	111.2	-229	0.29		12.27
16:55	55		—	17.2	10.17	117.3	-212	0.33		—
17:00	60	↓	—	17.1	10.14	118.5	-197	0.37		12.42
1705	65		—	17.0	9.89	119.8	-188	0.35	9.8	—

Collected Sample Condition
Color: none
Odor: slight
Appearance: clear

Parameter	Container	No.	Preservative
See COC			

PID Reading: 0 ppm

Comments:

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: Northrop Grumman OU2
Project Number: NY001492.0409.00002
Site Location: Bethpage, NY
Well ID: GM-34D2
Date: 8/31/09
Sampled By: Pat Bazarski / Sunny Xu
Sampling Time: 15:30.
Recorded By: Sunny Xu
Weather: Sunny 76°F
Coded Replicate No.: NA

Instrument Identification
Water Quality Meter(s): Ysi calibration log
Serial #:

Casing Material: steel
Purge Method: non-dedicated bladder/low flow
Casing Diameter: 4"
Screen Interval (ft bmp): Top 510 Bottom 520
Sounded Depth (ft bmp): 520
Pump Intake Depth (ft bmp):
Depth to Water (ft bmp): 14.30.
Purge Time: Start 14:30. Finish 15:30.

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos ~~or mS/cm~~) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
14:30	0	350.	—	24.0	5.47	80.1	102.	1.91.	—	—
14:35	5		—	22.9	5.70.	73.7	44	1.46.	—	—
14:40	10		—	21.9	5.86	71.5.	12	0.73	—	14.29.
14:45	15		—	20.1	6.02	70.1	-17	0.48	—	—
14:50	20		—	19.2.	6.12	68.9	-34	0.42	—	14.20.
14:55	25		—	18.2	6.13	68.2	-45	0.39	—	—
15:00	30		—	18.5	6.28	67.7	-52	0.40.	—	14.19
15:05	35		—	18.5	6.27	67.5	-55	0.39	—	—
15:10	40		—	18.6	6.40	66.8	-62	0.38	—	14.27
15:15	45		—	19.5	6.45	66.5	-53.	0.43	—	—
15:20	50		—	19.7	6.49	69.3	-24	0.95	—	14.27
15:25	55		—	19.9	6.43	72.0	-21	1.52.	—	—
15:30.	60		—	19.4	6.39	71.9	-19	1.64.	<50	14.27
15:35	65.		—	—	—	—	—	—	—	—

Collected Sample Condition
Color: none
Odor: slight
Appearance: clear

Parameter	Container	No.	Preservative
See COC			

PID Reading: 0 ppm

Comments:

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: N-Grumman OU2 Project No.: NY001492.0409.00002
Site Location: Bethpage, NY Date: 8/27/09
Well No.: GM-35D2 Replicate No.: Rep082709 Weather: clear 80°F

Sampling Personnel: Prezosti Sampling Time: Begin 1512 End 1521

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	530
Depth to Water (ft bmp)	38.31
Depth to Packer (ft bmp)	507
Water Column in Well (ft)	23
Casing Diameter	4" (0.65)
Gallons in Well	14.95 x3
Gallons Purged Prior to Sampling	45
Pump Intake Setting (ft bmp)	—
Packer Pressure (psi)	255
Pumping Rate (ml/min)	1430 ml/min / 1490 ml/min / 1451 ml/min
Evacuation Method	dedicated pump/packer
Sampling Method	3 well volume
Purge Time	Begin 1307 End 1510

Field Parameters

	I	1V	2V	3V
Color	colorless	colorless	colorless	colorless
Odor	none	none	none	none
Appearance	clear	clear	clear	clear
pH (s.u.)	7.84	8.05	7.54	8.05
Conductivity (mS/cm) or (µmhos/cm) [1]	158.5	178.8	121.2	117.6
Temperature (°C)	15.8	15.4	15.3	17.0
DO (mg/L)	—	—	—	—
5gal count	///|	//|	///|
Turbidity (NTU)	—	—	—	<20
Time	1307	1350	1431	1510
DTW (ft bmp)	38.40	38.36	38.32	38.33

Remarks: 507 − 38.31 x .43 + 50 = 255 rounded up
/ = 5gal container
Split sample with Bethpage Water District (H, M VOC vials filled)
Purged with Grumman well w/ rand control box. Rate lowered prior to sampling.

Parameter	Container	No.	Preservative
See COC			

PID Reading 0 ppm

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: N-Gamma OU2
Project Number: NY001492040900002
Site Location: Bethpage, NY
Well ID: GM-38D
Date: 9/3/09
Sampled By: William Bezanski
Sampling Time: 1352
Recorded By: Grezacki
Weather: clear 80°F
Coded Replicate No.: NA

Instrument Identification
Water Quality Meter(s): See calibration log
Serial #:

Casing Material: PVC
Purge Method: Dedicated Bladder / Low Flow
Casing Diameter: 4"
Screen Interval (ft bmp): Top 320 Bottom 340
Sounded Depth (ft bmp): 340
Pump Intake Depth (ft bmp):
Depth to Water (ft bmp): 37.62
Purge Time: Start 12:50 Finish 1350

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (~~umhos or~~ mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
12:50	0	320	—	18.4	6.96	124.2	39	3.25		—
12:55	5		—	17.3	6.64	124.4	23	1.02		37.59
1300	10	330	—	16.4	6.45	120.4	11	0.34		—
1305	15	↓	—	16.3	6.42	120.2	19	0.35		37.57
1310	20	↓	—	16.2	6.24	111.8	27	0.30		—
1315	25	330	—	15.8	6.22	101.0	58	0.24		37.57
1320	30	↓	—	15.9	5.67	97.7	78	0.29		—
1325	35	↓	—	15.8	5.46	95.4	91	0.31		37.57
1330	40	↓	—	15.8	5.34	94.2	100	0.32		—
1335	45	↓	—	15.8	5.23	93.1	108	0.31		37.57
1340	50	↓	—	15.6	5.17	90.4	117	0.31		—
1345	55	↓	—	15.6	5.13	89.2	121	0.32		
1350	60	↓	—	15.8	5.13	88.9	122	0.32	4.7	37.57

Collected Sample Condition
Color: Colorless
Odor: None
Appearance: clear

Parameter	Container	No.	Preservative
See COC			

PID Reading: 0 ppm

Comments: Split sample with Bethpage Water District
CH2M 40 ml Amber VOA filled - HCl preserved)

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: N-Grumman OU2
Project Number: NY001492.0409.00002
Date: 9/3/09
Sampling Time: 1507
Weather: Clear 80°F
Site Location: Bethpage, NY
Sampled By: Prezorski
Recorded By: Prezorski
Coded Replicate No.: NA
Well ID: GM-38D2

Instrument Identification
Water Quality Meter(s): See calibration log
Serial #: —

Casing Material: PVC
Casing Diameter: 4"
Sounded Depth (ft bmp): 495
Depth to Water (ft bmp): 40.95
Purge Method: Dedicated Sleddy / Low Flow
Screen Interval (ft bmp): Top 475 Bottom 495
Pump Intake Depth (ft bmp): — —
Purge Time: Start 1405 Finish 1505

Field Parameter Measurements During Purging

Time	Minutes Elapsed	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (µmhos or mS/cm)[1]	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
1405	0	320	—	20.7	5.41	118.4	109	8.50		—
1410	5		—	18.6	6.04	134.7	74	5.27		40.92
1415	10		—	18.1	6.17	135.0	72	5.32		
1420	15		—	17.7	6.27	133.9	70	5.57		40.90
1425	20		—	17.5	6.36	132.5	69	5.77		
1430	25		—	17.4	6.46	127.1	73	5.76		40.91
1435	30		—	17.4	6.45	125.2	73	5.55		—
1440	35		—	17.3	6.45	120.9	78	5.44		40.91
1445	40			17.3	6.34	117.4	89	5.23		—
1450	45			17.3	6.37	117.3	91	5.34		40.91
1455	50			17.3	6.25	118.9	105	5.02		—
1500	55			17.3	6.23	120.6	103	4.78		40.93
1505	60			17.3	6.22	122.5	102	4.52	<20	—

Collected Sample Condition — Color: Colorless Odor: None Appearance: Clear

Parameter	Container	No.	Preservative
See COC			

PID Reading: 0ppm

Comments: Split sample with Bethpage Water District
CH2M 40ml Amber Vials filled - HCL preserved)

1) Circle one unit type

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ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: NORTHROP-GRUMMAN
Project Number: NY001492.0409.0002
Site Location: Bethpage, NY
Well ID: GM-39A (GM-3 D)
Date: 8-11-09
Sampled By: Gary Williams
Sampling Time: 3:20 pm
Recorded By: Gary Williams
Weather:
Coded Replicate No.: NA

Instrument Identification
Water Quality Meter(s):
Serial #:

Casing Material: PVC
Purge Method: dedicated bladder
Casing Diameter: 4"
Screen Interval (ft bmp): Top 262 Bottom 282
Sounded Depth (ft bmp): 282
Pump Intake Depth (ft bmp): 272
Depth to Water (ft bmp): 36.35
Purge Time: Start 2:20 pm Finish 3:20 pm

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or mS/cm) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
2:20				26.7	5.57	118.0	206	11.31		36.35
2:25				22.3	5.48	119.6	225	11.90		
2:30				21.6	5.48	119.5	225	11.98		
2:35				21.5	5.51	119.8	224	12.69		36.35
2:40				21.4	5.50	119.6	226	12.53		
2:45				21.3	5.50	120.2	228	12.27		
2:50				21.3	5.50	120.2	229	12.26		
2:55				21.2	5.50	120.5	230	12.38		
3:00				21.2	5.48	120.8	231	12.55		
3:05				21.2	5.48	121.0	233	12.84		36.36
3:10				21.2	5.49	121.0	234	12.52		
3:15				21.2	5.49	121.7	232	12.67		
3:20				21.2	5.49	121.9	234	12.44	4.5	36.36

Collected Sample Condition: Color Colorless Odor None Appearance Clear

Parameter	Container	No.	Preservative
See COC			

PID Reading:

Comments:

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: NORTHROP - GRUMMAN
Project Number: N40001492.0409.00002
Site Location: BETHPAGE #1
Well ID: GM-39DB
Date: 8-11-09
Sampled By: GW
Sampling Time: 4:35 pm
Recorded By: GW
Weather: OVERCAST 85°
Coded Replicate No.: N/A

Instrument Identification
Water Quality Meter(s): _____ Serial #: _____

Casing Material: PVC
Casing Diameter: 4"
Sounded Depth (ft bmp): 420
Depth to Water (ft bmp): 39.20

Purge Method: _____
Screen Interval (ft bmp): Top 410 Bottom 420
Pump Intake Depth (ft bmp): 415
Purge Time: Start 3:35 pm Finish 4:35 pm.

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or mS/cm) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
3:35				23.5	5.29	118.3	243	11.88		39.20
3:40				21.7	5.30	118.2	242	11.24		
3:45				21.9	5.33	118.2	243	12.19		
3:50				21.0	5.23	118.7	256	12.36		
3:55				21.0	5.21	119.2	258	17.22		39.32
4:00				20.8	5.20	119.4	264	11.93		
4:05				20.8	5.18	119.7	263	12.46		
4:10				20.9	5.20	119.3	265	12.55		
4:15				20.9	5.20	119.6	265	12.30		
4:20				20.9	5.20	119.4	267	12.60		39.23
4:25				20.8	5.18	119.5	267	12.21		
4:30				20.9	5.20	119.4	266	12.54		
4:35				20.9	5.20	119.7	267	12.52	7.7	39.24

Collected Sample Condition
Color: COLORLESS Odor: NONE Appearance: CLEAR

Parameter	Container	No.	Preservative
see COC			

PID Reading: RANGING

Comments: _____

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: NORTHROP-GRUMMAN
Project Number: NY001482.0409.00002
Site Location: Bethpage, NY
Well ID: GM-73D
Date: 8-11-09
Sampled By: GW Gary Williams
Sampling Time: 12:10 pm
Recorded By: GW Gary Williams
Weather: Cloudy 88°
Coded Replicate No.: NA

Instrument Identification
Water Quality Meter(s): _____ Serial #: _____

Casing Material: PVC
Casing Diameter: 4"
Sounded Depth (ft bmp): 411
Depth to Water (ft bmp): 41.57
Purge Method: Dedicated bladder.
Screen Interval (ft bmp): Top 401 Bottom 411
Pump Intake Depth (ft bmp): 406
Purge Time: Start 12:10 pm Finish 1:10 pm.

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or mS/cm) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
12:10				26.6	5.03	130.4	238	9.02		41.57
12:15				26.5	5.04	130.4	240	9.28		
12:20				25.3	5.01	.15ms	243	9.56		
12:25				24.6	5.04	.15ms	248	10.23		
12:30				24.6	5.04	.15	254	10.83		
12:35				24.7	5.04	.15ms	252	10.62		41.56
12:40				24.7	5.07	0.15	255	10.68		
12:45				24.8	5.07	0.15	256	10.59		
12:50				24.9	5.07	0.15	257	10.68		41.59
12:55				24.9	5.08	0.15	259	10.81		
1:00				24.7	5.04	134.9	265	11.42		
1:05				24.2	5.05	135.2	259	10.72		
1:10				24.7	5.06	136.3	262	11.55	3.2	41.65

Collected Sample Condition: Color COLORLESS Odor NONE Appearance CLEAR

Parameter	Container	No.	Preservative
See COC			

PID Reading: _____

Comments: _____

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: NORTHROP-GRUMMAN
Project Number: NY001492.0409.00002
Site Location: BETHPAGE
Well ID: GM-730-2
Date: 8-11-09
Sampled By: FW
Sampling Time: 11:35
Recorded By:
Weather:
Coded Replicate No.:

Instrument Identification
Water Quality Meter(s):
Serial #-

Casing Material: PVC
Purge Method: dedicated bladder.
Casing Diameter: 4"
Screen Interval (ft bmp): Top 532 Bottom 552
Sounded Depth (ft bmp): 552
Pump Intake Depth (ft bmp): 542
Depth to Water (ft bmp): 40.67
Purge Time: Start 10:35 Finish 11:35

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or mS/cm) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
10:35		450		26.0	4.91	—	209	8.60		40.67
10:40				24.9	4.91	—	204	8.35		
10:45				24.8	4.67	155.8	204	7.45		
10:50				24.5	4.59	158.1	216	7.59		40.53
10:55				24.3	4.57	159.6	228	8.10		
11:00				24.6	4.52	157.7	236	9.24		
11:05				24.5	4.52	157.5	241	10.27		
11:10				24.3	4.54	157.0	242	10.83		40.61
11:15				24.1	4.55	157.5	243	9.87	10.14	
11:20				24.0	4.59	156.6	244	8.90		
11:25				23.7	4.66	157.0	247	8.08		
11:30				23.7	4.68	157.3	247	8.24		
11:35				23.7	4.77	158.3	250	8.30	3.4	40.68

Collected Sample Condition
Color: COLORLESS
Odor: NONE
Appearance: CLEAR

Parameter	Container	No.	Preservative
See COC			

PID Reading:

Comments:

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: NORTHROP-GRUMMAN
Project Number: N4001492.0409.000002
Site Location: BETHPAGE
Well ID: 6M-74I
Date: 8-10-09
Sampled By: Gary Williams
Sampling Time: 3:00 pm
Recorded By: Gary Williams
Weather:
Coded Replicate No.: NA

Instrument Identification
Water Quality Meter(s):
Serial #:

Casing Material: PVC
Purge Method: dedicated bladder
Casing Diameter: 4"
Screen Interval (ft bmp): Top 94 Bottom 114
Sounded Depth (ft bmp): 114
Pump Intake Depth (ft bmp): 104
Depth to Water (ft bmp): 37.65
Purge Time: Start 2:15 pm Finish 3:00 pm

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or mS/cm) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
2:15		450		26.4	6.33	112.6	79	8.80		37.65
2:20				25.6	6.54	111.6	78	8.50		
2:25				25.1	6.52	110.5	86	9.03		
2:30				24.6	6.63	109.6	90	10.01		
2:35				24.0	6.89	106.9	110	9.80		
2:40				23.8	6.98	107.2	114	9.90		37.71
2:45				23.8	6.99	106.6	118	10.15		
2:50				23.8	7.02	106.9	123	10.79		37.68
2:55				23.7	7.08	106.4	119	11.77		
3:00				23.7	7.08	106.6	119	11.69	2.8	37.68

Collected Sample Condition
Color: COLORLESS
Odor: NONE
Appearance: CLEAR

Parameter	Container	No.	Preservative
See COC			

PID Reading:

Comments:

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: NORTHROP-GRUMMAN
Project Number: NY001492.0409.00002
Site Location: Bethpage, NY
Well ID: GM-74D
Date: 8-10-09
Sampled By: Gary Williams
Sampling Time: 4:10 pm
Recorded By: Gary Williams
Weather:
Coded Replicate No.: NA

Instrument Identification
Water Quality Meter(s): See Calibration Sheet
Serial #:

Casing Material: PVC
Purge Method: dedicated bladder
Casing Diameter: 4"
Screen Interval (ft bmp): Top 295 Bottom 305
Sounded Depth (ft bmp): 305
Pump Intake Depth (ft bmp): 300
Depth to Water (ft bmp): 42.76
Purge Time: Start 3:10 pm Finish 4:10 pm

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or mS/cm) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
3:10				30.3	7.04	107.1	128	15.14		42.76
3:15				28.4	7.03	105.6	165	1.60		
3:20				—	—	—	—	—	—	—
3:25				—	—	—	—	—	—	—
3:30				—	—	—	—	—	—	—
3:35				—	—	—	—	—	—	—
3:40				25.2	7.03		216	21.37 *		
3:45				25.4	7.00		210	29.85		42.80
3:50				24.8	6.91		210	34.75		
3:55				24.7			210	34.83		
4:00				24.5	6.89		215	35.73		
4:05				24.6	6.89		215	35.26		42.82
4:10				24.5	6.87		221	36.11	3.4	

Collected Sample Condition
Color: COLORLESS
Odor: NONE
Appearance: CLEAR

Parameter	Container	No.	Preservative
See COC			

PID Reading:

Comments: * DO PROBE NOT WORKING CORRECTLY

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: NORTHROP GRUMMAN
Project Number: N40014P2.0109.00002 Site Location: Bethpage, NY Well ID: GM-74D-2
Date: 8-10-09 Sampled By: GW Gary Williams
Sampling Time: 1:15 pm Recorded By: GW Gary Williams
Weather: Coded Replicate No.: N/A.

Instrument Identification
Water Quality Meter(s): Serial #:

Casing Material: PVC Purge Method:
Casing Diameter: 4" Screen Interval (ft bmp) Top: 542 Bottom: 562
Sounded Depth (ft bmp): 562 Pump Intake Depth (ft bmp): 552
Depth to Water (ft bmp): Purge Time Start: 4:15 pm Finish: 5:15 pm.

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or mS/cm) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
4:15				30.5			192			
4:30				24.6	6.94	94.5		2.03		
4:35				24.3	6.94	98.4	236	3.11		
4:40				24.3	6.94	95.8	234	3.23		
4:45				24.1	6.91	95.8	232	3.48		
4:50				24.0	6.83	93.0	235	3.80		49.17
4:55				24.0	6.83	90.4	239	3.96		
5:00				24.0	6.78	89.4	239	3.78		
5:05				23.7	6.82	89.7	242	3.44		
5:10				23.4	6.84	89.7	252	3.85		
5:15				23.9	6.83	89.5	249	3.92	1.8	49.36

Collected Sample Condition Color: COLORLESS Odor: NONE Appearance: CLEAR

Parameter	Container	No.	Preservative

PID Reading:

Comments: RECALIBRATED D.O. METER

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: N-Grumman OU2
Project Number: NY001492.0409.00002
Site Location: Bethpage, NY
Well ID: GM-75D2
Date: 9/21/09
Sampled By: Williams / Prezorski
Sampling Time: 1403
Recorded By: Prezorski
Weather: 90°F clear
Coded Replicate No.: NA

Instrument Identification
Water Quality Meter(s): see calibration log
Serial #: /

Casing Material: PVC
Purge Method: Dedicated Bladder / Low flow
Casing Diameter: 4"
Screen Interval (ft bmp): Top 505 Bottom 525
Sounded Depth (ft bmp): 525
Pump Intake Depth (ft bmp): / /
Depth to Water (ft bmp): 33.54
Purge Time: Start 1300 Finish 1400

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or ~~mS/cm~~) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
1300	0	390	—	28.2	5.67	68.9	498	5.70		—
1305	5		—	24.9	5.26	78.3	116	4.91		33.55
1310	10		—	24.2	5.26	80.8	100	5.92		—
1315	15		—	23.9	5.25	83.1	74	6.34		33.55
1320	20		—	23.5	5.18	90.9	56	5.59		—
1325	25		—	23.5	5.20	92.5	54	5.86		33.55
1330	30		—	23.5	5.18	95.4	55	6.54		—
1335	35		—	23.4	5.15	96.9	57	5.72		33.55
1340	40		—	23.3	5.14	97.6	59	5.14		—
1345	45		—	23.4	5.14	98.1	62	5.05		33.55
1350	50		—	23.4	5.06	99.6	60	5.70		—
1355	55		—	23.4	5.09	100.3	66	6.62		33.55
1400	60	↓	—	23.4	5.01	101.1	67	6.53	4.1	—

Collected Sample Condition
Color: Colorless
Odor: None
Appearance: Clear

Parameter	Container	No.	Preservative
See COC			

PID Reading: /

Comments: New bladder installed on pump

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: Northrop Grumman | Project No.: NY001492.0409.0002
Site Location: Bethpage, NY | Date: 8-17-09
Well No.: GM-78S | Replicate No.: NA | Weather: Hot 90's F
Sampling Personnel: Gary Williams / Sunny Xu | Sampling Time: Begin 16:49 End 16:52

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	80
Depth to Water (ft bmp)	38.49
Depth to Packer (ft bmp)	
Water Column in Well (ft)	31.51
Casing Diameter	4 (0.65)
Gallons in Well	20.55
Gallons Purged	X3
Prior to Sampling	61.5
Pump Intake	
Setting (ft bmp)	75
Packer Pressure (psi)	
Pumping Rate (gpm)	Q=1.5 t=41 V=14
Evacuation Method	Redi-flow
Sampling Method	3WV / low-flow grab
Purge Time	Begin 16:07 End 16:49

Field Parameters

	I	1V	2V	3V
Color	Colorless	Colorless	Colorless	Colorless
Odor	none	none	none	none
Appearance	clear	clear	clear	clear
pH (s.u.)	6.38	6.05	6.02	6.06
Conductivity (~~mS/cm~~) or (µmhos/cm) [1]	126.2	129.0	126.7	123.7
Temperature (°C)	21.1	16.5	16.6	17.1
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)	7.5	12		7.2
Time	↑			
DTW (ft bmp)	16:07	16:21	16:35	16:49

Remarks:

Parameter	Container	No.	Preservative
See COC			

PID Reading:

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: Northrop Grumman
Project Number: MT000492.0409.0002
Site Location: Bethpage, NY
Well ID: GM-78I
Date: 8-17-09
Sampled By: Gary Williams / Sunny Xu
Sampling Time: 15:45
Recorded By: Sunny Xu
Weather: ~~78~~ Hot 90°F
Coded Replicate No.: NA

Instrument Identification
Water Quality Meter(s): See calibration sheet
Serial #:

Casing Material: PVC
Casing Diameter: 4"
Sounded Depth (ft bmp): 110.
Depth to Water (ft bmp): 38.77

Purge Method: Redi-flow
Screen Interval (ft bmp): Top 90 Bottom 110
Pump Intake Depth (ft bmp): 100
Purge Time: Start 15:00 Finish 15:45

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (~~umhos~~ or ~~mS/cm~~)[1]	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
15:00		450		21.6	6.35	~~123.3~~ 5x	182	10.23		38.77
15:05	5			17.6	6.11	102.3	161	6.49		
15:10	10			22.4	5.98	105.1	156	5.49		38.77
15:15	15			22.5	5.98	105.3	158	5.99		
15:20	20			23.0	5.99	105.5	158	6.28		38.77
15:25	25			22.2	5.99	106.2	159	6.69		
15:30	30			21.7	6.00	107.0	160	6.88		38.77
15:35	35			21.0	6.02	106.9	161	6.75		
15:40	40			20.9	6.03	106.8	162	6.67		38.77
15:45	45	↓		21.3	6.03	106.8	164	6.72	2.2	

Collected Sample Condition
Color: Colorless
Odor: none
Appearance: clear

Parameter	Container	No.	Preservative
See COC.			

PID Reading:

Comments:

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: Northrop Grumman SW-2. | Well ID: ~~GM-79D~~ GM-79I
Project Number: NY001492.0004.00002 | Site Location: Bethpage, NY
Date: 8-17-09 | Sampled By: Gary Williams / Sunny Xu
Sampling Time: 13:03 | Recorded By: Sunny Xu
Weather: Hot. 90°F | Coded Replicate No.: XA

Instrument Identification
Water Quality Meter(s): See calibration sheet | Serial #:

Casing Material: PVC | Purge Method: dedicated bladder
Casing Diameter: 4" | Screen Interval (ft bmp): Top 170 Bottom 180
Sounded Depth (ft bmp): 180 | Pump Intake Depth (ft bmp): 175
Depth to Water (ft bmp): 38.25 | Purge Time: Start 12:18 Finish 13:03

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (~~umhos or mS/cm~~) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
12:18		450		24	5.25	73.2	169	>6.		38.25
12:23	5			21.5	5.34	69.5	164			
12:28	10			19.8	5.39	68.2	165			38.27
12:33	15			19.8	5.39	68.4	172			
12:38	20			19.8	5.37	68.6	192			38.28
12:43	25			19.7	5.37	68.0	194			
12:48	30			19.4	5.39	67.5	196			38.28
12:53	35			19.6	5.39	67.4	201			
12:58	40			18.1	5.38	67.3	204			38.37
13:03	45	↓		18.1	5.36	67.6	208		4.9	

Collected Sample Condition | Color: color less | Odor: none | Appearance: clear

Parameter	Container	No.	Preservative
See COC			

PID Reading:

Comments:

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: Northrop Grumman
Project Number: NY001492.0809.0002
Date: 8-17-09
Sampling Time: ~~start 9:00~~ 14:20
Weather:

Site Location: Bethpage, NY.
Sampled By: Gary Williams / Sunny Xi
Recorded By: Sunny Xu
Coded Replicate No.: N/A

Well ID: GM-79D.

Instrument Identification
Water Quality Meter(s): See calibration sheet
Serial #:

Casing Material: PVC
Casing Diameter: 4"
Sounded Depth (ft bmp): 290
Depth to Water (ft bmp): 39.88

Purge Method: ~~Pump~~ ~~non~~ dedicated bladder
Screen Interval (ft bmp): Top 280 Bottom 290
Pump Intake Depth (ft bmp): 285
Purge Time: Start 13:20 Finish 14:20

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity ~~(umhos or~~ ~~mS/cm)~~ 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
13:20		450		26.3	5.48	78.6	176	7.42		39.88
13:25	5	↓		25.8	5.42	75.5	192	6.38		
13:30	10			25.5	5.35	73.6	20.5	5.17		39.83
13:35	15			25.3	5.27	72.3	216	4.13		
13:40	20			25.2	5.25	71.7	222	3.97		39.84
13:45	25			24.8	5.23	70.4	227	4.09		
13:50	30			24.8	5.22	70.0	230	4.31		39.84
13:55	35			24.6	5.22	69.5	234	4.54		
14:00	40			24.4	5.20	69.2	236	4.76		39.84
14:05	45			24.3	5.20	68.7	236	4.86		
14:10	50			24.1	5.20	68.3	239	4.80		39.82
14:15	55			23.7	5.20	67.9	241	4.88		
14:20	60	↓		23.4	5.20	67.5	243	4.91	3.1	39.82

Collected Sample Condition Color: Colorless Odor: none Appearance: clear

Parameter	Container	No.	Preservative
See COC			

PID Reading

Comments

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: N-Grumman OU2 | Project No.: NY001492.0409.00002
Site Location: Bethpage, NY | Date: 8/31/09
Well No.: MW-1GF | Replicate No.: NA | Weather: Partly cloudy 76°F
Sampling Personnel: Xu, Prezorski | Sampling Time: Begin 18:13 | End 18:15

Purge Data		Field Parameters				
			1	1V	2V	3V
Measuring Point (describe)	TOC	Color	Colorless	Colorless	Colorless	Colorless
Sounded Well Depth (ft bmp)	58	Odor	none	none	none	none
Depth to Water (ft bmp)	42.02	Appearance	clear	clear	clear	clear
Depth to Packer (ft bmp)	/					
Water Column in Well (ft)	15.98					
Casing Diameter	4" (0.65)	pH (s.u.)	9.22	8.84	8.56	8.30
Gallons in Well	10.4	Conductivity				
Gallons Purged	x3	(mS/cm) or	—	—	—	—
Prior to Sampling	32	(µmhos/cm) [1]	101.2	102.4	103.8	104.9
Pump Intake						
Setting (ft bmp)	Mid-Screen	Temperature (°C)	15.4	15.1	15.1	15.1
Packer Pressure (psi)	/					
Pumping Rate (gpm)	2	DO (mg/L)	—	—	—	—
Evacuation Method	Redflow Pump	ORP (mV)	—	—	—	—
Sampling Method	3 well volume	Turbidity (NTU)	<10.	<10	8.2	5.1
Purge Time Begin 1755 End 18:13		Time	1755	1801	1807	1813
		DTW (ft bmp)	—	—	—	—

Remarks: Q=2 t = ~~32~~ 16 1V=6

Parameter	Container	No.	Preservative
See COC			

PID Reading: 0ppm

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

MW-2GF

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: Northrop Grumman OU-2 Project No.: NY001492.0409.00002
Site Location: NY001492.0409.00002 Bethpage NY Date: 8/31/09
Well No.: MW-2GF Replicate No.: NA Weather: Partly cloudy 76°F
Sampling Personnel: Provost/XU Sampling Time: Begin 1859 End 1902

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	59
Depth to Water (ft bmp)	42.02
Depth to Packer (ft bmp)	—
Water Column in Well (ft)	~~42~~ 16.98
Casing Diameter	4" (0.65)
Gallons in Well	11
Gallons Purged	x3
Prior to Sampling	33
Pump Intake	
Setting (ft bmp)	Mid screen
Packer Pressure (psi)	—
Pumping Rate (gpm)	2
Evacuation Method	Redflow Pump
Sampling Method	3 well volume
Purge Time	Begin 1841 End 1859

Field Parameters

	I	1V	2V	3V
Color	colorless	colorless	Colorless	Colorless
Odor	none	None	none	none
Appearance	clear	clear	clear	clear
pH (s.u.)	7.21	7.14	7.15	7.10
Conductivity (mS/cm) or (µmhos/cm) 1)	17.7	17.21	170.0	162.5
Temperature (°C)	14.5	14.3	14.3	14.3
DO (mg/L)	—	—	—	—
ORP (mV)	—	—	—	—
Turbidity (NTU)	11	16	13	10
Time	1841	1847	1853	1859
DTW (ft bmp)	—	—	—	—

Remarks: Q=2 T=16.5 1V=6

Parameter	Container	No.	Preservative
See COC			

PID Reading: 0ppm

MW-2GF

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	~~4" = 0.65~~
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: N-Grumman OU2 | Project No.: NY001492.0409.00002
Site Location: Bethpage, NY | Date: 8/25/09
Well No.: FW-03 | Replicate No.: NA | Weather: Partly cloudy 85°F

Sampling Personnel: Prezorski / Williams | Sampling Time: Begin 1425 | End 1428

Purge Data		Field Parameters				
			Light Brown	Light Brown	Light Brown
Measuring Point (describe)	TOC	Color	Light Brown			
Sounded Well Depth (ft bmp)	64	Odor	None	None	None	Slight
Depth to Water (ft bmp)	53.27	Appearance	turbid	turbid	turbid	turbid
Depth to Packer (ft bmp)	—					
Water Column in Well (ft)	10.73		I	1V	2V	3V
Casing Diameter	2" (0.16)	pH (s.u.)	6.60	6.51	6.59	6.54
Gallons in Well	1.72	Conductivity				
Gallons Purged	x3	(mS/cm) or	—	—	—	—
Prior to Sampling	6	(µmhos/cm) [1]	446	339	309	192.0
Pump Intake						
Setting (ft bmp)	Approx 5'-6' off bottom	Temperature (°C)	18.8	16.3	15.5	15.3
Packer Pressure (psi)	—					
Pumping Rate (gpm)	≈.75	DO (mg/L)	—	—	—	—
Evacuation Method	Rediflow Pump	ORP (mV)	—	—	—	—
Sampling Method	3 well volume	Turbidity (NTU)	—	—	—	200
Purge Time Begin 1414 End 1423		Time	1414	1418	1421	1423
		DTW (ft bmp)	—	—	—	—

Remarks: Parameters based on purge volume

Parameter	Container	No.	Preservative
See COC			

PID Reading: 0ppm

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: N-Grumman OU2
Project Number: NY001493.0409.00002
Site Location: Bethpage, NY
Well ID: HN-24I
Date: 8/25/09
Sampled By: Prezorski / Williams
Sampling Time: 1553
Recorded By: Prezorski
Weather: Partly cloudy 85°F
Coded Replicate No.: NA

Instrument Identification
Water Quality Meter(s): See calibration log
Serial #:

Casing Material: PVC
Purge Method: Low Flow / Rediflow Pump
Casing Diameter: 4"
Screen Interval (ft bmp): Top 148 Bottom 158
Sounded Depth (ft bmp): 158
Pump Intake Depth (ft bmp): 153
Depth to Water (ft bmp): 52.93
Purge Time: Start 1506 Finish 1551

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or mS/cm) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
1506	0	1000	—	21.6	6.00	347	174	6.10		
1511	5	1000	—	19.0	5.75	343	185	5.48		M-sonde stuck
1516	10	570	—	19.0	5.59	337	201	4.98		—
1521	15	570	—	19.2	5.59	336	204	4.81		52.56
1526	20	↓	—	21.2	5.55	194.8	208	4.72		—
1531	25		—	21.6	5.58	191.4	214	4.90		52.62
1536	30		—	21.0	5.58	188.3	217	4.79		—
1541	35		—	20.7	5.56	185.3	221	4.75		52.62
1546	40		—	20.8	5.54	181.6	222	4.36		—
1551	45	✓	—	21.4	5.54	180.2	225	4.45	9.5	52.63

Collected Sample Condition
Color: colorless
Odor: None
Appearance: clear

Parameter	Container	No.	Preservative
See COC			

PID Reading: 0 ppm

Comments:

1) Circle one unit type

8/25/09

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: N-Grumman OU2 | Project No.: NY001492.0409.00002
Site Location: Bethpage NY | Date: 8/24/09
Well No.: HN-405 | Replicate No.: NA | Weather: clear 85°F
Sampling Personnel: Williams/Brzorski | Sampling Time: Begin 1743 End 1746

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	59
Depth to Water (ft bmp)	46.50
Depth to Packer (ft bmp)	—
Water Column in Well (ft)	12.5
Casing Diameter	4" (0.65)
Gallons in Well	8.125
Gallons Purged	x3
Prior to Sampling	25
Pump Intake	
Setting (ft bmp)	≃4 1/2' off bottom
Packer Pressure (psi)	—
Pumping Rate (gpm)	1
Evacuation Method	2" Redflow Pump
Sampling Method	3 well volume
Purge Time	Begin 1715 End 1742

Field Parameters

	I	1V	2V	3V
Color	colorless	colorless	colorless	colorless
Odor	None	None	None	None
Appearance	clear	clear	clear	clear
pH (s.u.)	5.41	5.37	5.36	5.36
Conductivity (mS/cm) or (µmhos/cm) 1)	94.8	88.2	84.8	83.5
Temperature (°C)	18.2	16.3	16.1	16.0
DO (mg/L)	—	—	—	—
ORP (mV)	—	—	—	—
Turbidity (NTU)	—	—	—	~~7.1~~ 5.7
Time	1715	1724	1733	1742
DTW (ft bmp)	—	46.58	46.57	46.57

Remarks: Q=1 t=25 1V=9

Parameter	Container	No.	Preservative
see COC			

PID Reading: 0 ppm

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	(4" = 0.65)
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: N-Grumman OU2
Project Number: NY001492.0409.00002
Site Location: Bethpage, NY
Well ID: HN-40I
Date: 8/24/09
Sampled By: Prezorski / Williams
Sampling Time: 1653
Recorded By: Prezorski
Weather: clear 85°F
Coded Replicate No.: N/A

Instrument Identification
Water Quality Meter(s): YSI calibration log
Serial #: ✓

Casing Material: PVC
Casing Diameter: 4"
Sounded Depth (ft bmp): 118
Depth to Water (ft bmp): 46.34

Purge Method: Redflow Pump / Low flow
Screen Interval (ft bmp): Top 108 Bottom 118
Pump Intake Depth (ft bmp): 113
Purge Time: Start 1549-1552 set rate Finish 1650

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or mS/cm) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
1550			—	set	rate	—	—	—		—
1555	3	1200	—	16.7	5.85	119.0	131	7.87		—
1600	8		—	16.5	5.49	119.2	141	8.35		46.38
1605	13	1200	—	16.5	5.40	120.4	152	8.35		—
1610	18		—	16.9	5.36	120.9	159	8.10		46.37
1615	23	490	—	17.3	5.34	121.0	172	8.23		—
1620	28	↓	—	19.0	5.34	122.0	180	7.89		46.37
1625	33		—	18.8	5.34	121.5	186	7.35		—
1630	38		—	18.8	5.35	121.3	190	7.25		46.35
1635	43		—	19.0	5.33	121.2	193	7.20		—
1640	48		—	18.8	5.33	120.7	197	7.05		46.35
1645	53		—	19.0	5.33	120.9	201	7.07		—
1650	58	↓	—	18.8	5.32	120.6	202	7.04	4.2	46.35

Collected Sample Condition — Color: Colorless — Odor: None — Appearance: clear

Parameter	Container	No.	Preservative
See COC			

PID Reading:

Comments:

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: Northrop Grumman OU-2 Project No.: NY001492.0609.002.
Site Location: Bethpage, NY. Date: 8-20-09
Well No.: HN-42S Replicate No.: N/A Weather: Hot 90F

Sampling Personnel: Gary Williams / Sunny Xu Sampling Time: Begin 16:09 End 16:10

Purge Data

Measuring Point (describe)	TOC.
Sounded Well Depth (ft bmp)	60.
Depth to Water (ft bmp)	48.86.
Depth to Packer (ft bmp)	—
Water Column in Well (ft)	11.14
Casing Diameter	4" (0.65)
Gallons in Well	7.2
Gallons Purged	x 3
Prior to Sampling	21.6.
Pump Intake	
Setting (ft bmp)	
Packer Pressure (psi)	—
Pumping Rate (gpm)	Q=1 t=21 V=7.
Evacuation Method	
Sampling Method	
Purge Time	Begin 15:47 End

Field Parameters

	I	1V	2V	3V
Color	Colorless	Colorless	Colorless	Colorless
Odor	none	none	none	none
Appearance	clear	clear	clear	clear
pH (s.u.)	9.33	8.11	6.77	6.18
Conductivity ~~(mS/cm)~~ or (µmhos/cm) [1]	453.	421	413.	410.
Temperature (°C)	19.1	16.8.	16.8.	16.3
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)				
Time	15:47	15:54	16:01	16:09
DTW (ft bmp)				

Remarks:

Parameter	Container	No.	Preservative
See COC.			

PID Reading:

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: Northrop Grumman OU-2
Project Number: NY001492.0409.OU2
Site Location: Bethpage, NY
Well ID: HN-42I
Date: 8-20-2009
Sampled By: Gary Williams / Sunny Xu
Sampling Time: 15:30
Recorded By: Sunny Xu
Weather: Hot . 90°F
Coded Replicate No.: N/A.

Instrument Identification
Water Quality Meter(s): See Calibration Sheet.
Serial #:

Casing Material: PVC
Purge Method: Redi-flow.
Casing Diameter: 4"
Screen Interval (ft bmp): Top 100 Bottom 110.
Sounded Depth (ft bmp): 110.
Pump Intake Depth (ft bmp): 105
Depth to Water (ft bmp): 48.11
Purge Time: Start 14:45 Finish 15:30.

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (~~umhos~~ or ~~mS/cm~~) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
14:45		450		18.6	12.33	492.	42.	6.24.		48.11
14:50	5			17.9	12.37	456	86.	5.35		
14:55	10			18.1	12.37	426	-119	5.26		48.20
15:00	15			19.3	12.35	568	-155.	6.01.		
15:05	20			19.3	12.35	566	-162	4.48.		48.24
15:10	25			19.2	12.35	563	-161	4.84		
15:15	30			18.8.	12.37	566.	-160.	5.34.		48.24
15:20	35			19.0	12.37	565	-158	5.17.		
15:25	40			19.3	12.35	565	-156.	5.06		48.21
15:30	45	↓		19.3	12.35	565	-155.	5.04.		

Collected Sample Condition: Color Colorless Odor none Appearance clear.

Parameter	Container	No.	Preservative
See COC			

PID Reading:

Comments:

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: Northrop Grumman — Project No.: NY001492.0009.00002

Site Location: Bethpage, NY — Date: 8-19-09

Well No.: DLTMW-04 — Replicate No.: NA — Weather: Hot 92°F

Sampling Personnel: Gary Williams/Sunny — Sampling Time: Begin 1652 — End 1653

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	56.5
Depth to Water (ft bmp)	41.68
Depth to Packer (ft bmp)	
Water Column in Well (ft)	14.82
Casing Diameter	2" (0.16)
Gallons in Well	2.4
Gallons Purged	X3
Prior to Sampling	7.2
Pump Intake Setting (ft bmp)	49 ft Q=1 T=7 IV=2.5
Packer Pressure (psi)	
Pumping Rate (gpm)	
Evacuation Method	Radi-flow
Sampling Method	3WV / low-flow grab
Purge Time	Begin 1640 End 1651

Field Parameters

	I	1V	2V	3V
Color	brown.	colorless.	colorless	color less
Odor	none.	none	none	none
Appearance	Turbid	clear	clear	clear.
pH (s.u.)	5.74	6.01	6.01	6.08
Conductivity ~~(mS/cm)~~ or (µmhos/cm)[1]	168.5	163.9	166.4	166.1
Temperature (°C)	18.7	15.7	14.6	14.9
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)	>200		6.3	5.0
Time	16:44	16:46	16:48	16:51
DTW (ft bmp)				

Remarks:

Parameter	Container	No.	Preservative
See COC			

PID Reading:

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: Northrop Grumman | Project No.: NY001492.0409.00002

Site Location: Bethpage, NY | Date: 8-19-09

Well No.: PLT1MW-05 | Replicate No.: N/A | Weather: Hot, 92°F

Sampling Personnel: Gary Williams / Sunny Xu. | Sampling Time: Begin 15:53 | End 15:54

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	58.
Depth to Water (ft bmp)	39.50
Depth to Packer (ft bmp)	—
Water Column in Well (ft)	18.5
Casing Diameter	2" (0.16)
Gallons in Well	2.96
Gallons Purged	x3
Prior to Sampling	9
Pump Intake Setting (ft bmp)	48.
Packer Pressure (psi)	—
Pumping Rate (gpm)	Q = 3/4 t = 12 V = 4
Evacuation Method	Redi-flow
Sampling Method	Low / low-flow grab
Purge Time	Begin 15:41 End 15:53

Field Parameters

	I	1V	2V	3V
Color	brown.	brown.	colorless	colorless
Odor	none	none	none	none
Appearance	turbid	turbid	cloudy	clear
pH (s.u.)	6.11	6.17	6.18	6.19
Conductivity ~~(mS/cm)~~ or (µmhos/cm)[1]	161.6	159.9	160.5	156.6
Temperature (°C)	22.4	18.4	17.0	16.9
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)		>200.	50	14
Time	15:41	15:45	15:49	15:53
DTW (ft bmp)				

Remarks:

Parameter	Container	No.	Preservative
See COC.			

PID Reading: _____

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: Northrop Grumman   Project No.: NY001092.0809.002
Site Location: Bethpage, NY   Date: 8-19-09
Well No.: PLTIMW-06   Replicate No.: NA   Weather: Hot, 92°F

Sampling Personnel: Gary Williams   Sampling Time: Begin 16:25   End 16:26

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	62
Depth to Water (ft bmp)	42.65
Depth to Packer (ft bmp)	—
Water Column in Well (ft)	19.35
Casing Diameter	2" (0.16)
Gallons in Well	3
Gallons Purged Prior to Sampling	x3 9
Pump Intake Setting (ft bmp)	55
Packer Pressure (psi)	—
Pumping Rate (gpm)	Q=1 t=9 1V=3
Evacuation Method	Redi-flow
Sampling Method	
Purge Time	Begin 16:16 End 16:25

Field Parameters

	I	1V	2V	3V
Color	brown	colorless	colorless	colorless
Odor	none	none	none	none
Appearance	turbid	cloudy	clear	clear
pH (s.u.)	6.36	5.97	5.93	5.93
Conductivity ~~(mS/cm)~~ or (μmhos/cm)[1]	109.6	102.8	102.0	100.6
Temperature (°C)	19.3	17.1	16.7	17.4
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)	>200	>200	60	45
Time	16:16	16:19	16:22	16:25
DTW (ft bmp)				

Remarks:

Parameter	Container	No.	Preservative
See COC			

PID Reading ______

Well Casing Volumes

Gal./Ft.				
	$1^{1/4}$" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	$1^{1/2}$" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: N-Grumman OU2
Project Number: NY001492.0409.00002 | Site Location: Bethpage, NY | Well ID: N-10624
Date: 8/21/09 | Sampled By: Williams / Prezorski
Sampling Time: 1622 | Recorded By: Prezorski
Weather: cloudy Breezy 90°F | Coded Replicate No.: NA
Instrument Identification
Water Quality Meter(s): See calibration log | Serial #: /
Casing Material: Steel 2" | Purge Method: Non-dedicated Bladder / Low Flow
Casing Diameter: 2" | Screen Interval (ft bmp) Top: 190 Bottom: 194
Sounded Depth (ft bmp): NM | Pump Intake Depth (ft bmp): / /
Depth to Water (ft bmp): 23.72 | Purge Time Start: 1518 Finish: 1620

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (~~umhos~~ or ~~mS/cm~~) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
1520	2	500	—	30.3	6.45	96.2	101	3.29		—
1525	7		—	26.0	6.95	92.5	-23	1.52		35.69
1530	12	506	—	24.9	7.21	91.5	-79	0.65		—
1535	17	500	—	25.1	7.36	92.3	-169	0.14		42.21
1540	22		—	24.7	7.54	91.7	-194	0.19		—
1545	27		—	24.5	7.56	91.4	-188	0.25		44.82
1550	32		—	23.9	7.57	90.7	-184	0.24		—
1555	37		—	24.3	7.61	90.7	-178	0.26		46.95
1600	42		—	24.7	7.62	90.8	-172	0.28		—
1605	47		—	25.4	7.63	90.8	-165	0.32		48.34
1610	52	100	—	25.9	7.63	90.9	-163	0.26		—
1615	57	100	—	27.1	7.63	91.6	-153	0.30		
1620	62	100	—	27.7	7.64	91.7	-149	0.30	30	48.81

Collected Sample Condition | Color: Colorless | Odor: None | Appearance: clear

Parameter	Container	No.	Preservative
See COC			

PID Reading: /

Comments: Silty. Cleared at 1540.
New tubing & screen installed.
Slow drawdown on well during purge.

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: Northrop Grumman
Project Number: NT001492.0409.0002
Site Location: Bethpage, NY
Well ID: N-10627
Date: 8-18-09
Sampled By: Craig Williams / Sienny Xu
Sampling Time: 15:00
Recorded By: Sienny Xu
Weather: Hot 82°F
Coded Replicate No.: N/A

Instrument Identification
Water Quality Meter(s): _____ Serial #: _____

Casing Material: PVC
Purge Method: Non-dedicated Bladder
Casing Diameter: 4"
Screen Interval (ft bmp): Top 290 Bottom 295
Sounded Depth (ft bmp): 291
Pump Intake Depth (ft bmp): 293
Depth to Water (ft bmp): 30.09
Purge Time: Start 14:40 Finish 15:40

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or mS/cm) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
14:40				23.2	5.52	78.2	+51	7.00		30.09
14:45	5			26.7	5.65	78.4	-72	6.00		
14:50	10			28.0	6.78	80.9	-178	3.66		31.10
14:55	15			28.0	8.07	86.7	399	2.49		
15:00	20			27.3	9.76	97.1	402	1.60		31.16
15:05	25			27.1	10.26	106.7	420	0.73		
15:10	30			27.2	10.38	109.8	433	0.48		31.29
15:15	35			27.2	10.46	112.8	437	0.40		
15:20	40			27.0	10.40	117.8	448	0.37		31.27
15:25	45			27.0	10.26	117.7	-81	0.34		
15:30	50			26.8	10.48	113.5	-349	0.35		31.27
15:35	55			27.1	10.44	115.2	-362	0.32		
15:40	60			26.9	10.42	116.0	-364	0.34		

Collected Sample Condition: Color colorless Odor none Appearance clear

Parameter	Container	No.	Preservative
See COC			

PID Reading: _____

Comments: _____

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: Northrop Grumman — Project No.: NY001X92-0409 [illegible]
Site Location: Bethpage, NY — Date: 8-18-09
Well No.: N-10631 — Replicate No.: NA — Weather: Hot, 92°F

Sampling Personnel: Gary Williams / Sunny Xu — Sampling Time: Begin 16:52 — End 16:54

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	67
Depth to Water (ft bmp)	35.98
Depth to Packer (ft bmp)	—
Water Column in Well (ft)	21.12
Casing Diameter	2" (0.16)
Gallons in Well	3.4 x3
Gallons Purged Prior to Sampling	10.2
Pump Intake Setting (ft bmp)	65
Packer Pressure (psi)	—
Pumping Rate (gpm)	Q= t=10 10=3
Evacuation Method	Redi-flow.
Sampling Method	3WV / low-flow sampling
Purge Time	Begin 16:41 End 16:51

Field Parameters

	I	1V	2V	3V
Color	brown	dark	dark	none ~~clear~~.
Odor	strong.	strong	strong..	mild.
Appearance	turbid. silty	silty	turbid	clear.
pH (s.u.)	8.56	8.22.	7.87	7.93
Conductivity ~~(mS/cm)~~ or (µmhos/cm)[1]	92.9	105.6. ~~[illegible]~~ 5X.	106.1	128.4
Temperature (°C)	20.6	17.4	17.6.	16.8
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)		>200	18.	20.
Time				
DTW (ft bmp)	16:41	16:44	16:47	16:50.

Remarks:

Parameter	Container	No.	Preservative
See COC.			

PID Reading

Well Casing Volumes

Gal./Ft.			
1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS

Laboratory Task Order No./P.O. No. outpost Grumman

CHAIN-OF-CUSTODY RECORD

Project Number/Name NY08 1492.0409.00002

Project Location Bethpage, NY

Laboratory Columbia Analytical Services

Project Manager Dave Stern

Sampler(s)/Affiliation Prezorski / Xu

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40 ml vial VOC 524.2 (HCL)						Remarks	Total
TB080509	L	8-5-09		3							3
BPOU 3-2	L	8-5-09		3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 6

Relinquished by: [signature]	Organization: Arcadis	Date 8 / 5 / 09	Time 1820	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A
Relinquished by:	Organization:	Date / /	Time	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A

Special Instructions/Remarks: Report to Melissa Reindl

2 week TAT

Delivery Method: ☐ In Person ☑ Common Carrier Fed Ex (SPECIFY) ☐ Lab Courier ☐ Other (SPECIFY)

AG 05-12/01

ARCADIS

Laboratory Task Order No./P.O. No. Grumman OU-2 not post

CHAIN-OF-CUSTODY RECORD

Project Number/Name NGC NY001092.0009.00002

Project Location Bethpage, NY

Laboratory Columbia Analytical Services

Project Manager Mike Wolfert

Sampler(s)/Affiliation Pat Bezarski / Sunny Xu

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: VOC 8260 40ml vial - HCl						Remarks	Total
TB080609	L	8-6-09		3							3
REP080609	L	↓		3							3
BPOW 3-1	L	↓		3							3
BPOW 1-2	L	↓		9 x						MS/MSD	9
BPOW 1-3	L	↓		3							3
BPOW 1-1	L	8-6-09		3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/ Containers 24

Relinquished by: Xuan Xu	Organization: Arcadis	Date 8/6/09	Time 18:00	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	
Relinquished by:	Organization:	Date / /	Time	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	

Special Instructions/Remarks:
2 weeks TAT, Report to Melissa Reindl
Please use for MS/MSD as QA/QC sample

Delivery Method: ☐ In Person ☑ Common Carrier FedEx (SPECIFY) ☐ Lab Courier ☐ Other ______ (SPECIFY)

AG 05-12/01

ARCADIS

Laboratory Task Order No./P.O. No. Grumman Support

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Project Number/Name NY001492.0409.00002

Project Location Bethpage NY

Laboratory Columbia Analytical Services

Project Manager Dave Stern

Sampler(s)/Affiliation Williams / Prezzatti

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40 ml vial VOC 524.2 (HCL)						Remarks	Total
TB080709	L	8-7-09		3							3
BPOW 4-1	L	12:39		3							3
BPOW 4-2	L	1535		3							3
										Total No. of Bottles/ Containers	9

Sample Matrix: L = Liquid; S = Solid; A = Air

Relinquished by: Cat Prezzatti	Organization: Arcadis	Date 8/7/09	Time 1630	Seal Intact?	
Received by:	Organization:	Date / /	Time	Yes	No N/A
Relinquished by:	Organization:	Date / /	Time	Seal Intact?	
Received by:	Organization:	Date / /	Time	Yes	No N/A

Special Instructions/Remarks: 2-week TAT

Report to Melissa Kendall

Delivery Method: ☐ In Person ☒ Common Carrier Fed Ex (SPECIFY) ☐ Lab Courier ☐ Other (SPECIFY)

AG 05-12/01

ARCADIS

NGC
002

Laboratory Task Order No./P.O. No. [illegible]

CHAIN-OF-CUSTODY RECORD

Project Number/Name NY001492.0409.00002

Project Location BETHPAGE NY

Laboratory COLUMBIA ANALYTICAL

Project Manager CARLO SAN GIOVANNI

Sampler(s)/Affiliation D. MCCAFFERY / ARCADIS

ANALYSIS / METHOD / SIZE

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	6 LTR SUMMAS	TO-15	GRAB	STD TAT	TIMED	CAN #'s	Remarks	Total
T 96 INF.	A	8-AUG 1428		↓	↓	↓	↓	30SEC	SLC 00092	INIT.VAC-29.5 END-5	1
T 96 MID TRAIN	↓	1433		↓	↓	↓	↓	30SEC	SLC 00021	INIT VAC-29.2 END-5	1
T 96 TOTAL EFF.	↓	1438		↓	↓	↓	↓	30SEC	SLC 00093	INIT VAC-29.2 END-5	1
T 102 INF.	↓	8/11/09 0439		↓	↓	↓	↓	30SEC	SLC 00025	INIT VAC-29 END-6	1
T 102 EFF	↓	0444		↓	↓	↓	↓	30SEC	SLC 00045	INIT VAC-29.2 END-5	1

ALSO RETURNING THE UNUSED SUMMA

Sample Matrix: L = Liquid; S = Solid; A = Air (circled)

Total No. of Bottles/Containers: 5

Relinquished by: [signature]	Organization: ARCADIS	Date 8/11/09	Time	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	
Relinquished by:	Organization:	Date / /	Time	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	

Special Instructions/Remarks:
ATTN: MIKE PERRY

Delivery Method: ☐ In Person ☒ Common Carrier FED EX. (SPECIFY) ☐ Lab Courier ☐ Other (SPECIFY)

ARCADIS

Laboratory Task Order No./P.O. No. NGC OU2 Bethpage

CHAIN-OF-CUSTODY RECORD

Project Number/Name N4001492.0409.00002
Project Location BETHPAGE NY.
Laboratory COLUMBIA ANALYTICAL
Project Manager CARLO SAN GIOVANNI
Sampler(s)/Affiliation D McCAFFERTY /ARCADIS

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	40 ml Voas @ HCL	OLM4.2 +TICS	GRAB	STD T.A.T			Remarks	Total
REP 100809	L	8/10/09		3	↓	↓	↓				
T102 INF.		1630		3							
T102 EFF.		1624		3							
WELL 19 MS/MSD		1200		9						MS/MSD OFF WELL 19	
WELL 18		1527		3							
WELL 17		1505		3						REP OFF WELL 17	
T96 INF.		1304		3							
T96 EFF.		1310		3							
WELL 1		1450		3							
WELL 3		1535		3							
TRIP BLANK				3							
TEMP. BOTTLE				1							

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 40

Relinquished by: [signature]	Organization: ARCADIS	Date 8/10/09	Time 1815	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	
Relinquished by:	Organization:	Date / /	Time	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	

Special Instructions/Remarks:
ATTN. MIKE PERRY

Delivery Method: ☐ In Person ☒ Common Carrier FED. EX (SPECIFY) ☐ Lab Courier ☐ Other ________ (SPECIFY)

ARCADIS

Laboratory Task Order No./P.O. No. _____ **CHAIN-OF-CUSTODY RECORD** Page _____ of _____

Project Number/Name NY001492.0409.00002

Project Location BATH/PAGE NY

Laboratory COLUMBIA ANALYTICAL SERVICES

Project Manager MIKE WOLFERT

Sampler(s)/Affiliation G. W.

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40ml VOA VOC 8260 (HCl)						Remarks	Total
GM-74I	L	8-10-09		3							3
GM-740		8-10-09		3							3
GM-74D-2		8-10-09		3							3
TB 8-10,11,-09		8-10-09		3							3
GM-730		8-11-09		3							3
GM-730-2		8-11-09		3							3
GM-39A		8-11-09		3							3
GM-39DB		8-11-09		3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/ Containers: 24

					Seal Intact?
Relinquished by: [signature]	Organization: ARCADIS	Date 8 / 11 / 09	Time 6:00		
Received by: _____	Organization: _____	Date / /	Time _____		Yes No N/A
Relinquished by: _____	Organization: _____	Date / /	Time _____		Seal Intact?
Received by: _____	Organization: _____	Date / /	Time _____		Yes No N/A

Special Instructions/Remarks: _____

Delivery Method: ☐ In Person ☑ Common Carrier FED EX SPECIFY ☐ Lab Courier ☐ Other _____ SPECIFY

AG 05-12/01

ARCADIS

Laboratory Task Order No./P.O. No. _____

CHAIN-OF-CUSTODY RECORD

Page _____ of _____

Project Number/Name NY00 1492.0409.00002

Project Location BETHPAGE NY

Laboratory COLUMBIA ANALYTICAL SERVICES

Project Manager MIKE WOLFERT

Sampler(s)/Affiliation G.W.

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40 ml VOA Vial 8260 (HCl)						Remarks	Total
GM-17I	L	8-12-09		3							3
GM-17D	↓	↓		3							3
GM-21D				3							3
TB 8-12-09				3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/ Containers 12

					Seal Intact?
Relinquished by: G.W.	Organization: ARCADIS	Date 8/12/09	Time 6:00		Yes No N/A
Received by:	Organization:	Date / /	Time		
Relinquished by:	Organization:	Date / /	Time		Seal Intact?
Received by:	Organization:	Date / /	Time		Yes No N/A

Special Instructions/Remarks: REPORT TO MELISSA KETNER

Delivery Method: ☐ In Person ☑ Common Carrier FED-EX (SPECIFY) ☐ Lab Courier ☐ Other _____ (SPECIFY)

ARCADIS

Laboratory Task Order No./P.O. No. _____ **CHAIN-OF-CUSTODY RECORD** Page _____ of _____

Project Number/Name NY001492.0409.00002

Project Location BETHPAGE NY.

Laboratory COLUMBIA ANALYTICAL SERVICES

Project Manager MIKE WOLFERT

Sampler(s)/Affiliation G.W.

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 4 DMI USEPA VOC CLP 4.2 (HCl)						Remarks	Total
GM-21I	L	8-13-09		3							3
GM-18D	L	1		3							3
TB 8-13-09	L	1		3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/ Containers 9

					Seal Intact?
Relinquished by: G.W.	Organization: ARCADIS	Date 8/13/09	Time 6:15		
Received by: _____	Organization: _____	Date / /	Time _____		Yes No N/A
Relinquished by: _____	Organization: _____	Date / /	Time _____		Seal Intact?
Received by: _____	Organization: _____	Date / /	Time _____		Yes No N/A

Special Instructions/Remarks: REPORT TO MELISSA REINOL

Delivery Method: ☐ In Person ☑ Common Carrier FED EX SPECIFY ☐ Lab Courier ☐ Other _____ SPECIFY

AC 05-12/01

ARCADIS

Laboratory Task Order No./P.O. No. OU-2

CHAIN-OF-CUSTODY RECORD

Project Number/Name NGC NY001492.0409.00002

Project Location Bethpage, NY

Laboratory Columbia Analytical Services

Project Manager Mike Wolfert

Sampler(s)/Affiliation Gary Williams/Sunny Xu

ANALYSIS / METHOD / SIZE

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	40ml vial with HCl VOC OLM4.2 2000ASP	Total Cr/Cd Baro (mod) Bottle with HNO3	Dissolved Cr/Cd Baro Filtered Plastic Bottle with HNO3				Remarks	Total
REP081409	L	8-14-09		3							3
TB081409	L	8-14-09		3							3
GM-15D2	L	8-14-09		9*						QA/QC MS/MSD	9
GM-15D	L	8-14-09		3							3
FB081409	L	8-14-09		3	1						4
GW-15SR	L	8-14-09		3	1	1					5

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 27

Relinquished by: Sunny Xu	Organization: Arcadis	Date 8/14/09	Time	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A
Relinquished by:	Organization:	Date / /	Time	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A

Special Instructions/Remarks:

* Please use for QA/QC MS/MSD.

Report to Melissa Renoll ; 2 weeks TAT

Delivery Method: ☐ In Person ☑ Common Carrier Fed Ex (SPECIFY) ☐ Lab Courier ☐ Other ________ (SPECIFY)

AG 05-12/01

ARCADIS

Laboratory Task Order No./P.O. No. CU-2

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Project Number/Name NGC (Y001492.0609.0002)
Project Location Bethpage, NY
Laboratory Columbia Analytical Services
Project Manager Mike Wolfert
Sampler(s)/Affiliation Gary Williams / Sunny Xu

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40ml vial with HCl VOC OLM4.3 2000 ASP	Total Cr/Cd (250ml bottle with HNO3)	Dissolved Cr/Cd (250 bottle with HNO3) Filtered				Remarks	Total
TB081709	L	8-17-09		3							3
FB081709	↓	↓		3	1						4
GM-78I	↓	↓		3	1	1					5
GM-78S	↓	↓		3	1	1					5
GM-79I	↓	↓		3							3
GM-79D	↓	↓		3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 23

Relinquished by: Sunny Xu	Organization: Arcadis	Date 8/17/09	Time 18:30	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	
Relinquished by:	Organization:	Date / /	Time	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	

Special Instructions/Remarks:

Method: ☐ In Person ☒ Common Carrier FedEx (SPECIFY) ☐ Lab Courier ☐ Other (SPECIFY)

AG 05-12/01

ARCADIS

Laboratory Task Order No./P.O. No. OU-2 **CHAIN-OF-CUSTODY RECORD** Page 1 of 1

Project Number/Name NGC NY00 1492.0409.0002

Project Location Bethpage, NY

Laboratory Columbia Analytical Services

Project Manager Mike Wolfert

Sampler(s)/Affiliation Gary Williams / Sunny Xu

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40ml vial with HCl VOC OLM#2	Total bottle with HNO3 Total Cu/Cd	Total bottle with HNO3 Dissolved Cu/Cd Filtered				Remarks	Total
TB081809	L	8-18-09		3							3
FB081809	L	↓		3	1						4
N-10631	L	↓		3	1	1					5
N-10627	L	↓		3							3
[illegible]	L	↓		[illegible]							[illegible]
GM-33D2	L	↓		3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers [illegible]

Relinquished by: Sunny Xu	Organization: Arcadis	Date 8/18/09	Time 18:30	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	
Relinquished by:	Organization:	Date / /	Time	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	

Special Instructions/Remarks:

Delivery Method: ☐ In Person ☒ Common Carrier Fed Ex (SPECIFY) ☐ Lab Courier ☐ Other ______ (SPECIFY)

ARCADIS

Laboratory Task Order No./P.O. No. OU-2

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Project Number/Name NGC NY00N92.0409.00002
Project Location Bethpage, NY
Laboratory Columbia Analytical Services
Project Manager Mike Wolfert
Sampler(s)/Affiliation Gary Williams / Sunny Xu

ANALYSIS / METHOD / SIZE

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	VOC OLM4.2 Low Asp 40ml vial with HCl	Total Cr 250ml bottle with HNO3	Dissolved Cr Filtered 250 bottle with HNO3				Remarks	Total
PLTI MW-04	L	8-19-09			1	1					2
PLTI MW-05	↓	↓			1	1					2
PLTI MW-06					1	1					2
GM-21S				3							3
FB081909				3	1						4
TB081909	↓	↓		3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 16

Relinquished by: Sunny Xu	Organization: Arcadis	Date 8/19/09	Time 18:00	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	
Relinquished by:	Organization:	Date / /	Time	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	

Special Instructions/Remarks:
2 weeks TAT; Report to Melissa Reindl

Delivery Method: ☐ In Person ☒ Common Carrier FedEx (SPECIFY) ☐ Lab Courier ☐ Other (SPECIFY)

ARCADIS

Laboratory Task Order No./P.O. No. OU-2

CHAIN-OF-CUSTODY RECORD

Project Number/Name NGC NY001192.0009.00002

Project Location Bethpage, NY

Laboratory Columbia Analytical Services

Project Manager Mike Wolfert

Sampler(s)/Affiliation Gary Williams / Sunny Xu

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40ml vial with HCl VOC OLM4.2 20mASP						Remarks	Total
FB082009	L	8-20-09		3							3
TB082009	↓	↓		3							3
HN-42I	↓	↓		3							3
HN-42S	↓	↓		3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Relinquished by: Sunny Xu Organization: Arcadis Date 8/20/2009 Time 17:30

Received by: Organization: Date / / Time

Total No. of Bottles/Containers 12

Relinquished by: Organization: Date / / Time

Received by: Organization: Date / / Time

Seal Intact? Yes No N/A

Seal Intact? Yes No N/A

Special Instructions/Remarks: 2 weeks TAT; Report to Melissa Reindl

Delivery Method: ☐ In Person ☒ Common Carrier FedEx

ARCADIS

Laboratory Task Order No./P.O. No. Grumman NZ

CHAIN-OF-CUSTODY RECORD

Project Number/Name NY001492.0409.00002

Project Location Bethpage, NY

Laboratory Columbia Analytical Services

Project Manager Dave Stern

Sampler(s)/Affiliation Prezorski/Williams

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40 ml vial VOC 2000 AP (HCl)						Remarks	Total
TB082109	L	8/21/09		3							3
FB082109	↓	↓		3							3
N-10624	↓	1622		3							3
GM-7502	↓	1403		3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 12

Relinquished by: Cat Gafford	Organization: Arcadis	Date 8/21/09	Time 1730	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A
Relinquished by:	Organization:	Date / /	Time	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A

Special Instructions/Remarks:

Report to Melissa Reindl

2-Week TAT

Delivery Method: ☐ In Person ☒ Common Carrier Fed Ex (SPECIFY) ☐ Lab Courier ☐ Other ______ (SPECIFY)

AG 05-12/01

ARCADIS

Laboratory Task Order No./P.O. No. Grumman 002

CHAIN-OF-CUSTODY RECORD

Project Number/Name NY001492.0409.00002

Project Location Bethpage, NY

Laboratory Columbia Analytical Service

Project Manager Dave Stern

Sampler(s)/Affiliation Prezorski / Williams

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	40ml vial VOC 2000 ASP (HCl)						Remarks	Total
TB082409	L	8/24/09		3							3
FB082409	↓	↓		3							3
GM-18I	↓	1407		3							3
HN-40I	↓	1653		3							3
HN-40S	↓	1743		3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 15

Relinquished by: [signature]	Organization: Arcadis	Date 8/24/09	Time 1820	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	
Relinquished by:	Organization:	Date / /	Time	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	

Special Instructions/Remarks: Report to Melissa Reindl

2-week TAT

Delivery Method: ☐ In Person ☒ Common Carrier Fed Ex (SPECIFY) ☐ Lab Courier ☐ Other ____ (SPECIFY)

AG 05-12/01

ARCADIS

Laboratory Task Order No./P.O. No. Grumman OU2

CHAIN-OF-CUSTODY RECORD

Project Number/Name NY001492.0409.00002
Project Location Bethpage, NY
Laboratory Columbia Analytical Services
Project Manager Dave Stern
Sampler(s)/Affiliation Williams / Prezorski

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	40ml VOA VOC 2000 ASP (HCL)						Remarks	Total
TB082509	L	8/25/09		3							3
FB082509	↓	↓		3							3
FW-03	↓	1425		3							3
HN-24I	↓	1553		3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 12

Relinquished by: [signature]	Organization: Arcadis	Date 8/25/09	Time 1730	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	
Relinquished by:	Organization:	Date / /	Time	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	

Special Instructions/Remarks: Report to Melissa Reindl
2-Week TAT

Delivery Method: ☐ In Person ☒ Common Carrier Fed Ex (SPECIFY) ☐ Lab Courier ☐ Other ______ (SPECIFY)

ARCADIS

Laboratory Task Order No./P.O. No. N-Grumman 1011

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Project Number/Name: Bethpage Water District

Project Location: Bethpage, NY

Laboratory: H2M

Project Manager:

Sampler(s)/Affiliation: Prezorski

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: Amber 40 ml vial VOC (HCL)						Remarks	Total
GM-35D2	L	8/27/09		2						Sample time 1512	2

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers: 2

Relinquished by: Cat Chojnacki	Organization: Arcadis	Date 8/27/09	Time 1640	Seal Intact?	
Received by: M. Wotton	Organization: H2M	Date 8/27/09	Time 1640	Yes No (N/A)	
Relinquished by:	Organization:	Date / /	Time	Seal Intact?	
Received by:	Organization:	Date / /	Time	Yes No N/A	

Special Instructions/Remarks:

Delivery Method: ☒ In Person ☐ Common Carrier ☐ Lab Courier ☐ Other

SPECIFY SPECIFY

AC 05/12/01

ARCADIS

Laboratory Task Order No./P.O. No. N-Grumman 002

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Project Number/Name NY001192.0409.00002

Project Location Bethpage, NY

Laboratory Columbia Analytical Services

Project Manager Dave Stern

Sampler(s)/Affiliation Prezorski

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40 ml vial VOC 8260 ASP (HCL)						Remarks	Total
TB082709	L	8/27/09		3							3
FB082709	↓	↓		3							3
GM-35D2	↓	1512		3							3
GM-15I	↓	1930		3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers: 12

Relinquished by: Cat Prezorski	Organization: Arcadis	Date 8/27/09	Time 1930	Seal Intact?	
Received by:	Organization:	Date / /	Time	Yes	No N/A
Relinquished by:	Organization:	Date / /	Time	Seal Intact?	
Received by:	Organization:	Date / /	Time	Yes	No N/A

Special Instructions/Remarks: Report to Melissa Reindl

2-week TAT

Delivery Method: ☐ In Person ☒ Common Carrier Fed Ex (SPECIFY) ☐ Lab Courier ☐ Other (SPECIFY)

ARCADIS

Laboratory Task Order No./P.O. No. N. Grumman 002 **CHAIN-OF-CUSTODY RECORD** Page 1 of 1

Project Number/Name NY001492.0409.00002

Project Location Bethpage, NY

Laboratory Columbia Analytical Services

Project Manager Dave Stern

Sampler(s)/Affiliation Prezorski

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	40 ml vial Vol 2000 ASP (HCl)						Remarks	Total
TB082809	L	8/28/09		3							3
GM-20I	L	1341		3							3
GM-20D	L	1700		3							3

Total No. of Bottles/Containers 9

Sample Matrix: L = Liquid; S = Solid; A = Air

Relinquished by: Cat Profumo	Organization: Arcadis	Date 8/28/09	Time 1900	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	
Relinquished by:	Organization:	Date / /	Time	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	

Special Instructions/Remarks: Report to Melissa Reindl

2-week TAT

Delivery Method: ☐ In Person ☑ Common Carrier Fed Ex (SPECIFY) ☐ Lab Courier ☐ Other (SPECIFY)

AG 05-12/01

ARCADIS

Laboratory Task Order No./P.O. No. N-Grumman OU2

CHAIN-OF-CUSTODY RECORD

Project Number/Name: NY001492.0409.00002
Project Location: Bethpage, NY
Laboratory: Columbia Analytical Service
Project Manager: Dave Stern
Sampler(s)/Affiliation: XU, Prezorski

ANALYSIS / METHOD / SIZE

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	40 ml vial VOC 2000 ASP (HCL)	300 ml Plastic Total Cd/Cr (HNO3)	300 ml Plastic Dissolved Cd/Cr (HNO3)				Remarks	Total
TB083109	L	8/31/09		3							3
FB083109	↓	↓		3							3
GM-34D2	↓	1530		3							3
GM-34D	↓	1700		3							3
MW-1GF	↓	1813			1	1					2
MW-2GF	↓	1900			1	1					2

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers: 16

Relinquished by: [signature]	Organization: Arcadis	Date 8/31/09	Time 1930	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	
Relinquished by:	Organization:	Date / /	Time	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	

Special Instructions/Remarks: Report to Melissa Reindl
2-week TAT

Delivery Method: ☐ In Person ☒ Common Carrier Fed Ex (SPECIFY) ☐ Lab Courier ☐ Other ______ (SPECIFY)

ARCADIS

Laboratory Task Order No./P.O. No. N- Common

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Project Number/Name: Bethpage Water District

Project Location: Bethpage, NY

Laboratory: H2M

Project Manager:

Sampler(s)/Affiliation: Prezorski / Williams

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: Amber 40ml vial VOC (HCl)						Remarks	Total
GM-38D	L	9/3/09		2						Sample time 1352	2
GM-38D2	L	9/3/09		2						Sample time 1507	2
										Total No. of Bottles/ Containers	4

Sample Matrix: L = Liquid; S = Solid; A = Air

Relinquished by: [signature]	Organization: Arcadis	Date 9/4/09	Time 10:44 AM	Seal Intact?	
Received by: M. Wood	Organization: H2M	Date 9/4/09	Time 10:44AM	Yes No (N/A)	
Relinquished by:	Organization:	Date / /	Time	Seal Intact?	
Received by:	Organization:	Date / /	Time	Yes No N/A	

Special Instructions/Remarks:

Delivery Method: ☒ In Person ☐ Common Carrier ____ (SPECIFY) ☐ Lab Courier ☐ Other ____ (SPECIFY)

AG 05-12/01

ARCADIS

Laboratory Task Order No./P.O. No. Grumman 002

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Project Number/Name: NY00 1492.0409.00002

Project Location: Bethpage, NY

Laboratory: Columbia Analytical Services

Project Manager: Dave Stern

Sampler(s)/Affiliation: Williams / Prezasti

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40ml vial VOC 2000 App (HCL)						Remarks	Total
TB090309	L	9/3/09		3							3
FB090309				3							3
GM-380		1352		3							3
GM-38D2		1507		3							3
Discharge		1735		3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers: 15

Relinquished by: [signature]	Organization: Arcadis	Date 9/3/09	Time 1930	Seal Intact?	
Received by:	Organization:	Date / /	Time	Yes	No N/A
Relinquished by:	Organization:	Date / /	Time	Seal Intact?	
Received by:	Organization:	Date / /	Time	Yes	No N/A

Special Instructions/Remarks:

Report to Melissa Reidl

2-week TAT

Delivery Method: ☐ In Person ☒ Common Carrier Fed Ex (SPECIFY) ☐ Lab Courier ☐ Other (SPECIFY)

AG 05-12/01

ARCADIS

Laboratory Task Order No./P.O. No. Grammar ave

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Project Number/Name NY001192.0109.00002

Project Location Bethpage, NY

Laboratory Columbia Analytical Services

Project Manager Dave Stern

Sampler(s)/Affiliation Prezorski / Williams

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40 ml vial VOC 2000 Ag (HCL)						Remarks	Total
GM-13D	L	9/4/09		#9						↑ 8 Sample time 1633	9
TB090409	L	9/4/09		3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 12

Relinquished by: [signature]	Organization: Arcadis	Date 9/4/09	Time 1630	Seal Intact?	
Received by:	Organization:	Date / /	Time	Yes	No N/A
Relinquished by:	Organization:	Date / /	Time	Seal Intact?	
Received by:	Organization:	Date / /	Time	Yes	No N/A

Special Instructions/Remarks:

2 Week TAT

Report to Melissa Reindl

*Please use this sample as a QA/QC MS/MSD sample

Delivery Method: ☐ In Person ☐ Common Carrier ____ SPECIFY ☐ Lab Courier ☐ Other ____ SPECIFY

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project: Northrop Grumman 042 | Project No. NY001492.0409.00002
Site Location: Bethpage, NY | Date: November 11, 2009
Well No. BPOW 1-1 | Replicate No. — | Weather: cloudy

Sampling Personnel: Williams/Jeromes | Sampling Time: Begin 11:05 | End 11:08

Purge Data

Measuring Point (describe): TOC
Sounded Well Depth (ft bmp): ~~28.63~~ 241
Depth to Water (ft bmp): 28.63
Depth to Packer (ft bmp): 169
Water Column in Well (ft): 212
Casing Diameter: 4" (.65)
Gallons in Well: (below packer) 46.8 | 137.8 (total)
Gallons Purged Prior to Sampling: x3 → 140
Pump Intake Setting (ft bmp):
Packer Pressure (psi): 120
Pumping Rate (gpm):
Evacuation Method: dedicated Bedifler
Sampling Method: 3 volume
Purge Time: Begin 10:38 End 11:08

Field Parameters

Color: clear
Odor: none
Appearance: clear

	1	1V	2V	3V
pH (s.u.)	5.04	4.96	4.92	4.92
Conductivity ~~(mS/cm)~~ or (µmhos/cm) [1]	230	209	218	213
Temperature (°C)	13.1	14.0	12.9	12.9
DO (mg/L)	—	—	—	—
ORP (mV)	—	—	—	—
Turbidity (NTU)	—	—	—	<20
Time	10:40	10:48	10:57	11:05
DTW (ft bmp)		29.12		

Remarks:

Parameter	Container	No.	Preservative
VOC 8260 524.2	40ml VOA	3	HCl

PID Reading 0.0

Well Casing Volumes

Gal./Ft.			
1-1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1-1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project Northrop Grumman Sys. Corp. 042 Project No. NY001492.0409.00002

Site Location Bethpage, NY Date 11/11/09

Well No. BPOW 1-2 Replicate No. — Weather cloudy 50°

Sampling Personnel Williams/Oertling Sampling Time: Begin 12:58 End 13:00

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	335
Depth to Water (ft bmp)	29.08
Depth to Packer (ft bmp)	294
Water Column in Well (ft)	41
Casing Diameter	4"
Gallons in Well	26.65
	x 3
Gallons Purged Prior to Sampling	80
Pump Intake Setting (ft bmp)	
Packer Pressure (psi)	180 psi
Pumping Rate (gpm)	
Evacuation Method	dedicated sub. pump
Sampling Method	3 volume
Purge Time Begin	12:45 End 13:00

Field Parameters

Color: none

Odor: none

Appearance: clear

	I	1V	2V	3V
pH (s.u.)	4.61	4.73	4.67	4.65
Conductivity (mS/cm) or (µmhos/cm) [1]	111	99.7	97.9	97.8
	—	—	—	—
Temperature (°C)	13.1	14.0	14.0	13.9
DO (mg/L)	—	—	—	—
ORP (mV)	—	—	—	—
Turbidity (NTU)	—	—	—	220
Time	12:45	12:48	12:52	12:58
DTW (ft bmp)	29.15			

Remarks: stick up valve & tubing from BPOW 4-1 decomed and used for BPOW 1-1, 1-2, & 1-3

Parameter	Container	No.	Preservative
TVOC 524.2	40ml VOA	3	HCl

PID Reading 0.0

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project NORTHROP-GRUMMAN 042 Project No. NYDO 1492.0409.00002

Site Location BETHPAGE NY Date 11-11-09

Well No. BPOW1-3 Replicate No. REP 11-11-09 + MS/MSD Weather cloudy 50

Sampling Personnel Williams/Oerthing Sampling Time: Begin 13:45 End 13:50

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	419
Depth to ~~Water~~ (ft bmp)	
Depth to Packer (ft bmp)	344
Water Column in Well (ft)	75
Casing Diameter	(0.65) 4"
Gallons in Well	48.75 x 3
Gallons Purged Prior to Sampling	146.25
Pump Intake Setting (ft bmp)	
Packer Pressure (psi)	185 psi
Pumping Rate (gpm)	~5 gpm
Evacuation Method	DEDICATED SUB PUMP
Sampling Method	3 volume
Purge Time	Begin 13:12 End 1350

Field Parameters

Color: light yellow/green

Odor: slight odor

Appearance: murky

	1	1V	2V	3V
pH (s.u.)	4.23	4.33	4.24	4.10
Conductivity ~~(mS/cm)~~ or (µmhos/cm) [1]	239	180.2	166	155.5
Temperature (°C)	13.4	13.4	13.0	12.7
DO (mg/L)	—	—	—	—
ORP (mV)	—	—	—	—
Turbidity (NTU)	—	—	—	—
Time ~~DTW (ft bmp)~~	13:14	13:20	13:27	13:40

Remarks:

344 - 32 x .43 + 50 = 185 PSI

Parameter	Container	No.	Preservative
TOC 524.2	40 ml vial	3	HCl

PID Reading 0.0

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project NY001492.0409.00002 Project No. Northrop Grumman OU2

Site Location Bethpage, NY Date 11/9/09

Well No. BPOW-3-1 Replicate No. — Weather cloudy, 60°

Sampling Personnel G. Williams / J. Oerther Sampling Time: Begin 16:00 End 16:04

Purge Data

Measuring Point (describe): TOC
Sounded Well Depth (ft bmp): 516
Depth to Water (ft bmp): N/A (Blockage in well)
Depth to Packer (ft bmp): 414
Water Column in Well (ft): 102 (below packer)
Casing Diameter: 4"
Gallons in Well (based on volume below packer): 66.3 (below packer)
Gallons Purged Prior to Sampling: 199 (3 volumes)
Pump Intake Setting (ft bmp):
Packer Pressure (psi): 220
Pumping Rate (gpm): 5 gpm
Evacuation Method: packer/ dedicated bladder pump
Sampling Method: 3 volume
Purge Time: Begin 15:18 End 16:04

Field Parameters

	I	1V	2V	3V
Color	clear	clear	clear	clear
Odor	Yes	Yes	slight	slight
Appearance	clear	clear	clear	clear
pH (s.u.)	3.74	3.83	3.89	3.92
Conductivity (mS/cm) or (µmhos/cm) [1]	318	195.3	182.7	180.7
	—	—	—	—
Temperature (°C)	12.7	14.2	13.7	13.6
DO (mg/L)	—	—	—	—
ORP (mV)	—	—	—	—
Turbidity (NTU)	—	—	—	—
Time	15:18	15:30	15:45	16:00
DTW (ft bmp)	N/S			

Remarks: shared N2 fitting with BPOW-3-2

Parameter	Container	No.	Preservative
TVOC 5242	40ml VOA	3	HCl

PID Reading

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project Northrop Grumman 043 Project No. NY001492.0409.00002
Site Location Bethpage, NY Date 11/9/09
Well No. BPOW 3-2 Replicate No. — Weather cloudy 50°

Sampling Personnel Williams/Wolfert Sampling Time: Begin 17:50 End 17:58

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	647
Depth to Water (ft bmp)	27.42
Depth to Packer (ft bmp)	503
Water Column in Well (ft)	144
Casing Diameter	4"
Gallons in Well	94
Gallons Purged Prior to Sampling	280
Pump Intake Setting (ft bmp)	
Packer Pressure (psi)	254
Pumping Rate (gpm)	5
Evacuation Method	dedicated bladder pump
Sampling Method	3 volume
Purge Time Begin	17:10 End

Field Parameters

Color clear
Odor Yes
Appearance clear

	1	1V	2V	3V
pH (s.u.)	5.29	4.65	4.67	4.75
Conductivity (mS/cm) or (µmhos/cm) [1]	100.6	124.3	107.1	102.9
Temperature (°C)	15.7	14.1	13.7	13.3
DO (mg/L)	—	—	—	—
ORP (mV)	—	—	—	—
Turbidity (NTU)	—	—	—	—
Time	17:10	17:27	17:43	17:55
DTW (ft bmp)	27.55	27.57	27.60	27.82

Remarks: shares N2 fitting with BPOW 3-1

Parameter	Container	No.	Preservative
TOC 524.2	40ml VIA	3	HCl

PID Reading

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project NORTHROP-GRUMMAN Project No. NY001492.0409.00002

Site Location BATAVIA NY Date 11-10-09

Well No. BPOW 4-1 Replicate No. — Weather cloudy 55

Sampling Personnel W. Williams / Cathy Sampling Time: Begin 15:20 End 16:22

Purge Data

Measuring Point (describe)	TOC	
Sounded Well Depth (ft bmp)	652	692
Depth to ~~Water~~ Packer (ft bmp)	503	652
~~Depth to Packer (ft bmp)~~		
Water Column in Well (ft)	149	40
Casing Diameter	4(0.65)	2"(0.16)
Gallons in Well	290 / 103	6.4x3 20
Gallons Purged Prior to Sampling	310	
Pump Intake Setting (ft bmp)		
Packer Pressure (psi)		
Pumping Rate (gpm)	7.3	
Evacuation Method	Sed. sub. pump	
Sampling Method	3 volume	
Purge Time	Begin 15:00	End 16:22

Field Parameters

Color COLORLESS

Odor NONE

Appearance CLEAR

	I	1V	2V	3V
pH (s.u.)	4.46	4.58	4.63	4.77
Conductivity (mS/cm) or (µmhos/cm) [1]	74.2	113.6	75.7	77.8
Temperature (°C)	14.4	13.7	13.7	13.5
DO (mg/L)	—	—	—	—
ORP (mV)	—	—	—	—
Turbidity (NTU)	—	—	—	<20
Time	15:00	15:30	15:55	16:20
DTW (ft bmp)	—	—	—	—

Remarks:

Parameter	Container	No.	Preservative
TOC 524.2	40-1 VOA	3	HCl

PID Reading

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Water Sampling Log

Project Northrop Grumman Systems Corp Project No. NY001492.0409.00002
Site Location Bethpage NY Date 11/10/09
Well No. BPOW 4-2 Replicate No. — Weather cloudy 55

Sampling Personnel Williams/Oerthling Sampling Time: Begin 14:24 End 14:26

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	764
Depth to Water (ft bmp)	
Depth to Packer (ft bmp)	
Water Column in Well (ft)	
Casing Diameter	4"
Gallons in Well	170
Gallons Purged Prior to Sampling	510
Pump Intake Setting (ft bmp)	
Packer Pressure (psi)	254
Pumping Rate (gpm)	6 gpm
Evacuation Method	dedicated stainless pump
Sampling Method	3 volume
Purge Time	Begin 12:05 End 14:26

Field Parameters

Color none
Odor none
Appearance clear

	1	1V	2V	3V
pH (s.u.)	4.00	3.72	3.67	3.60
Conductivity (mS/cm) or (µmhos/cm) [1]	133.0	187.8	136.6	111.3
Temperature (°C)	16.6	14.9	15.1	15.1
DO (mg/L)	—	—	—	—
ORP (mV)	—	—	—	—
Turbidity (NTU)	—	—	—	<20
Time	12:05	12:30	13:00	14:24
DTW (ft bmp)				

Remarks: 3:15 off

Parameter	Container	No.	Preservative
TVOC	40 ml VOA	3	HCl

PID Reading

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Page _____ of _____

Water Sampling Log

Project NORTHROP-GRUMMAN Project No. N4001492.0409.00002

Site Location BETHPAGE NY Date 11-12-09

Well No. GM-20S Replicate No. _____ Weather RAINING

Sampling Personnel GW Sampling Time: Begin 2:00 End _____

Purge Data

Measuring Point (describe) TOC

Sounded Well Depth (ft bmp) 105

Depth to Water (ft bmp) 94

Depth to Packer (ft bmp) _____

Water Column in Well (ft) 11

Casing Diameter 4 (0.65)

Gallons in Well 7.15 x 3

Gallons Purged Prior to Sampling 21.45

Pump Intake Setting (ft bmp) _____

Packer Pressure (psi) _____

Pumping Rate (gpm) _____

Evacuation Method _____

Sampling Method _____

Purge Time Begin _____ End _____

Field Parameters

Color _____

Odor _____

Appearance _____

	1	1V	2V	3V
pH (s.u.)	9.72	9.73	9.85	9.93
Conductivity (mS/cm) or (µmhos/cm) [1]	140.5	146.5	148.2	148.1
Temperature (°C)	17.6	17.6	17.3	15.3
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)				
Time	14:15	14:42	1457	15:35
DTW (ft bmp)				

Remarks: 94-35 x .43 +50 = 80 PSI 56 GAL PAILS 1111/2

Parameter	Container	No.	Preservative

PID Reading _____

Well Casing Volumes

1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

One unit type

ARCADIS
Infrastructure, environment, facilities

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Water Sampling Log

Project NORTHROP-GRUMMAN Project No. NY001492.0409.00002

Site Location BETHPAGE NY Date 11-12-09

Well No. GM-20D Replicate No. _____ Weather _____

Sampling Personnel GW Sampling Time: Begin _____ End _____

Purge Data

Measuring Point (describe) TOC

Sounded Well Depth (ft bmp) 226

Depth to Water (ft bmp) _____

Depth to Packer (ft bmp) 215

Water Column in Well (ft) 11

Casing Diameter 4 (0.65)

Gallons in Well 7.15 x 3

Gallons Purged Prior to Sampling 21.45

Pump Intake Setting (ft bmp) _____

Packer Pressure (psi) _____

Pumping Rate (gpm) _____

Evacuation Method _____

Sampling Method _____

Purge Time Begin _____ End _____

Field Parameters

Color _____

Odor _____

Appearance _____

	1	1V	2V	3V
pH (s.u.)	6.88	5.69	5.57	5.72
Conductivity (mS/cm) or (µmhos/cm) [1]	130.2	119.6	117.0	117.8
Temperature (°C)	16.3	15.6	15.5	15.0
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)				
Time				
DTW (ft bmp)				1:59

Remarks: _____

Parameter	Container	No.	Preservative

PID Reading _____

Well Casing Volumes

Gal./Ft.				
	$1^{1/4}$" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	$1^{1/2}$" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Page _____ of _____

Water Sampling Log

Project NORTHROP GRUMMAN Project No. NY001492.0409.00002

Site Location BETHPAGE NY Date 11-13-09

Well No. GM-21S Replicate No. _____ Weather _____

Sampling Personnel _____ Sampling Time: Begin 10:00 End _____

Purge Data

Measuring Point (describe)	TOC
Sounded Well Depth (ft bmp)	140
Depth to Water (ft bmp)	36.26
Depth to Packer (ft bmp)	129
Water Column in Well (ft)	11
Casing Diameter	4 (0.65)
Gallons in Well	7.15
Gallons Purged	x3
Prior to Sampling	21.45
Pump Intake Setting (ft bmp)	
Packer Pressure (psi)	
Pumping Rate (gpm)	
Evacuation Method	
Sampling Method	
Purge Time Begin _____ End _____	

Field Parameters

Color _____

Odor _____

Appearance _____

	I	1V	2V	3V
pH (s.u.)	7.43	8.50	8.72	8.61
Conductivity (mS/cm) or (µmhos/cm) [1]	143.2	139.4	137.9	137.9
Temperature (°C)	15.8	16.2	16.3	16.3
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)				
Time	10:30	11:13	11:35	12:00
DTW (ft bmp)	36.26			

Remarks: _____

Parameter	Container	No.	Preservative

PID Reading _____

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) **Circle one unit type**

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: NORTHROP-GRUMMAN
Project Number: N400.1492.0409.00002
Site Location: BETHPAGE NY
Well ID: GM-21D
Date: 11-13-09
Sampled By: GW
Sampling Time:
Recorded By: GW
Weather: RAINY WINDY
Coded Replicate No.:

Instrument Identification
Water Quality Meter(s):
Serial #:

Casing Material:
Casing Diameter:
Sounded Depth (ft bmp):
Depth to Water (ft bmp): 41.48

Purge Method:
Screen Interval (ft bmp) Top: Bottom:
Pump Intake Depth (ft bmp):
Purge Time Start: Finish:

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or ~~mS/cm~~) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
1:40				15.4	5.33	111.0	202	8.79		41.48
1:45				15.2	5.25	111.8	210	9.64		41.47
1:50				15.2	5.24	112.0	219	9.30		
1:55				15.2	5.24	112.8	217	9.09		
2:00				15.2	5.21	116.1	214	9.51		
2:05				15.2	5.17	116.3	212	9.75		41.49
2:10				15.3	5.14	116.6	233	9.84		
2:15				15.2	5.16	117.0	217	9.76		
2:20				15.2	5.12	116.9	214	9.73		
2:25				15.2	5.09	117.1	192	9.60		41.49
2:30				15.2	5.10	117.1	192	9.65		
2:35				15.2	5.03	116.8	~~216~~	9.48		
2:40				15.2	5.07	116.5	214	9.60		41.49

Collected Sample Condition
Color: COLORLESS
Odor: NONE
Appearance: CLEAR

Parameter	Container	No.	Preservative

PID Reading:

Comments:

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: Northrop Grumman Systems Corporation
Project Number: NY001492.0409.00002
Site Location: Bethpage, NY
Well ID: GM-3302
Date: 11/6/09
Sampled By: Gary Williams + Jerome Oerthy
Sampling Time: 11:45
Recorded By: Jerome Oerthy
Weather: Sunny 48°
Coded Replicate No.: —

Instrument Identification
Water Quality Meter(s): oakton pH/cond., ORP, YSI DO, Lamotte 2020
Serial #: (Grey Van)

Casing Material: PVC
Purge Method: low flow / dedicated bladder
Casing Diameter: 4"
Screen Interval (ft bmp): Top 500 Bottom 520
Sounded Depth (ft bmp): 520
Pump Intake Depth (ft bmp): 510
Depth to Water (ft bmp): 46.87
Purge Time: Start 10:40 Finish

Field Parameter Measurements During Purging

Time	Minutes Elapsed	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or mS/cm) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
10:40	0	450		13.3	5.26	136.2	70	9.70		
10:45	5	↓		13.9	5.22	124.9	65	9.03		
10:50	10			14.6	5.13	118.7	50	8.29		
10:55	15			14.6	5.13	114.5	58	9.04	5.0	47.62
11:00	20			14.4	5.16	113.0	44	8.56		
11:05	25			14.4	5.13	112.3	47	9.58		
11:10	30			14.3	5.15	112.1	49	8.95		
11:15	35			14.2	5.17	111.8	45	9.00		
11:20	40			14.1	5.19	111.4	49	9.02	4.8	47.66
11:25	45			13.7	5.20	111.4	41	9.21		
11:30	50			13.5	5.22	111.4	43	9.20		
11:35	55			13.5	5.21	111.1	39	9.21		
11:40	60	↓		13.4	5.21	111.4	38	9.22		

Collected Sample Condition: Color none Odor none Appearance clear

Parameter	Container	No.	Preservative
VOC	40 ml VOA	3	HCl

PID Reading: 0.0

Comments:

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: Northrop Grumman Systems Corporation OU2
Project Number: NY001492.0709.00002
Site Location: Bethpage, NY
Well ID: GM-34D
Date: 11/5/09
Sampled By: Gary Williams + Jerome Oerthing
Sampling Time: 12:10
Recorded By: Jerome Oerthing
Weather: cloudy 50°
Coded Replicate No.: REP110509

Instrument Identification
Water Quality Meter(s): ocalon pH, cond, ORP, YSI DO, turbidity 2020 Serial #: (gray van)

Casing Material: steel
Casing Diameter: 2"
Sounded Depth (ft bmp): 319
Depth to Water (ft bmp): 12.86

Purge Method: low flow / bladder (dedicated)
Screen Interval (ft bmp): Top 309 Bottom 319
Pump Intake Depth (ft bmp): 314
Purge Time: Start 11:05 Finish 12:15

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or ~~mS~~/cm) [1]	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
11:05	0	400		15.2	7.32	241	150	8.24		
11:10	5			15.2	7.34	235	120	5.78		
11:15	10			15.3	7.35	240	110	2.80		13.02
11:20	15			15.7	7.72	238	-57	1.63		
11:25	20			15.9	7.77	238	-145	1.07	6.8	
11:30	25			15.9	7.79	239	-146	1.10		
11:35	30			15.9	7.83	236	-155	1.07		13.01
11:40	35			16.2	7.90	234	-169	1.05		
11:45	40			16.1	7.91	234	-172	1.01		
11:50	45			15.9	9.13	197.4	-203	1.18		
11:55	50			15.9	9.14	196.2	-205	1.13		
12:00	55			16.0	9.11	230	-205	1.19	8.0	
12:05	60			16.1	9.11	229	-204	1.15		
12:10	65	↓		16.1	9.10	226	-204	1.11		

Collected Sample Condition: Color clear Odor none Appearance clear

Parameter	Container	No.	Preservative
TVOC	40-1 VOA	3	HCl

PID Reading: 0.0

Comments:

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: Northrop Grumman Systems Corporation OU2
Project Number: NY001492.0909.00002 Site Location: Bethpage, NY Well ID: GM-34D2
Date: 11/5/09 Sampled By: Gary Williams + Jerome Oertling
Sampling Time: 13:30 Recorded By: Jerome Oertling
Weather: partly cloudy 50 Coded Replicate No. —

Instrument Identification
Water Quality Meter(s): aahh- pH, cond, ORP, YSI DO, turb 2020 Serial #: grey van

Casing Material: steel Purge Method: low flow, bladder (non dedicated)
Casing Diameter: 4" Screen Interval (ft bmp) Top: 510 Bottom: 520
Sounded Depth (ft bmp): 520 Pump Intake Depth (ft bmp): 515 —
Depth to Water (ft bmp): 14.53 Purge Time Start: 12:25 Finish: 13:33

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or ~~mS/cm~~) [1]	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
12:25	0	350		14.9	8.12	164.2	-130	3.82		
12:30	5			14.8	8.27	165.4	-133	3.34		
12:35	10			14.8	8.33	161.5	-139	2.86		
12:40	15			15.9	8.02	137.6	-156	1.60		
12:45	20			16.6	7.79	126.2	-166	1.07		
12:50	25			16.3	7.60	120.2	-172	0.63	7.8	14.56
12:55	30			16.1	7.58	120.0	-170	0.62		
13:00	35			15.8	7.54	119.3	-168	0.61		
13:05	40			15.7	7.54	118.9	-164	0.59		
13:10	45			15.7	7.52	118.6	-162	0.60		
1315	50			15.6	7.53	117.2	-159	0.65		
1320	55			15.7	7.24	115.7	-150	0.64		
1325	60			15.8	7.22	117.8	-151	0.83	6-5	

Collected Sample Condition: Color none Odor none Appearance clear

Parameter	Container	No.	Preservative
TVOC	40ml VOA	3	HCl

PID Reading: _____

Comments: _____

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Page _____ of _____

Water Sampling Log

Project NORTHROP-GRUMMAN Project No. NY001492.0409.00002

Site Location BETHPAGE Date 11-16-09

Well No. GM-35D-2 Replicate No. _____ Weather _____

Sampling Personnel GW Sampling Time: Begin 2:30 End _____

Purge Data

Measuring Point (describe) TOC

Sounded Well Depth (ft bmp) 530

~~Depth to Water~~ (ft bmp) _____

Depth to Packer (ft bmp) 507

Water Column in Well (ft) 23

Casing Diameter 4"(0.65)

Gallons in Well 14.95 x 3

Gallons Purged Prior to Sampling 45.

Pump Intake Setting (ft bmp) _____

Packer Pressure (psi) _____

Pumping Rate (gpm) _____

Evacuation Method _____

Sampling Method _____

Purge Time Begin 2:45 End 5:10

Field Parameters

Color COLORLESS

Odor SLIGHT

Appearance & CLEAR

	I	1V	2V	3V
pH (s.u.)	6.01	5.00	5.29	5.45
Conductivity (mS/cm) or (µmhos/cm) [1]	193.1	136.3	137.7	137.8
Temperature (°C)	18.3	17.0	15.9	15.4
DO (mg/L)				
ORP (mV)				
Turbidity (NTU)				
Time	2:45	3:51	4:35	5:03
DTW (ft bmp)				

Remarks: ~~IN/III~~ (5 GAL PAILS) REPLACED N2 CYLINDER

507 − 41 x.434 50 = 250 PSI BOUGHT REPLACEMENT PARTS FOR REGULATOR / COOLER

Parameter	Container	No.	Preservative

PID Reading _____

Well Casing Volumes

Gal./Ft.				
	1 1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1 1/2" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: Northrop Grumman Systems Corporation
Project Number: NY001492.0409.00002 Site Location: Bethpage NY Well ID: GM-7502
Date: 11/6/09 Sampled By: Gary Williams + Jerome Oerthing
Sampling Time: 13:50 Recorded By: Jerome Oerthing
Weather: windy, partly sunny 48° Coded Replicate No.:

Instrument Identification
Water Quality Meter(s): oakton pH, cond ORP, YSI DO, turbidity Serial #: (Grey Van)

Casing Material: PVC Purge Method: low flow / dedicated bladder
Casing Diameter: 4" Screen Interval (ft bmp) Top: 505 Bottom: 525
Sounded Depth (ft bmp): 525 Pump Intake Depth (ft bmp): 515
Depth to Water (ft bmp): 33.83 Purge Time Start: 12:50 Finish: 13:55

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or mS/cm) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
12:50	0	400		13.5	5.28	124.1	107	15.86		
12:55	5			13.1	5.18	126.3	118	13.74		33.84
13:00	10			13.1	4.99	132.3	125	10.90		
13:05	15			13.4	4.94	136.7	130	9.30		
13:10	20			13.4	4.95	137.2	131	9.47		
13:15	25			13.5	4.96	138.1	139	9.89		
13:20	30			13.1	4.90	137.3	140	9.68		
13:25	35			13.2	4.97	136.6	146	9.31		
13:30	40			13.2	4.95	136.7	149	9.39		
13:35	45			13.3	4.92	136.4	156	9.29	3.9	
13:40	50			13.2	4.97	136.8	156	9.44		33.86
13:45	55			13.1	4.98	136.2	158	9.68		
13:50	60			13.0	4.95	136.4	160	9.62		

Collected Sample Condition: Color none Odor none Appearance clear

Parameter	Container	No.	Preservative
TVOC	40ml VOA	3	HCl

PID Reading: 0.0

Comments:

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: No. Hoyt Grumman Systems Corporation OU2
Project Number: NY001492.0409.00002 Site Location: Bethpage, NY Well ID: GM-79I
Date: 11/5/09 Sampled By: Gary Williams, Jerome Oeffinger
Sampling Time: 15:40 Recorded By: Jerome Oeffinger
Weather: partly sunny 50 Coded Replicate No. —

Instrument Identification
Water Quality Meter(s): auth. pH, cond, ORP, YSI D.O., turbidity Serial # (graying)

Casing Material: PVC Purge Method: Low Flow / Dedicated Bladder
Casing Diameter: 4" Screen Interval (ft bmp) Top: 170 Bottom: 180
Sounded Depth (ft bmp): 180 Pump Intake Depth (ft bmp): 175 —
Depth to Water (ft bmp): 38.25 Purge Time Start: 14:55 Finish:

Field Parameter Measurements During Purging

Time	Minutes Elasped	Flow Rate (mL/min)	Volume Purged (L)	Temp (°C)	pH (s.u.)	Conductivity (umhos or mS/cm) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
14:55	0	400		14.6	6.10	74.8	10	9.85	11	
15:00	5	↓		14.6	6.00	73.8	11	8.57		38.95
15:05	10			14.9	5.95	79.6	15	7.90		
15:10	15			15.1	5.88	90.7	22	10.22		
15:15	20			15.2	5.88	95.6	30	10.80		
15:20	25			15.2	5.83	100.2	31	9.87		
15:25	30			15.1	5.81	103.5	31	9.44	7.0	38.95
15:30	35			15.1	5.81	105.1	32	9.27		
15:35	40			15.0	5.66	116.8	41	11.22		
15:40	45	↓	20	15.1	5.64	119.0	42	9.49		
15:45	50			15.1	5.72	120.5	43	9.46		

Collected Sample Condition: Color none Odor none Appearance clear

Parameter	Container	No.	Preservative
TVOC	40ml VOA	3	HCl

PID Reading: 0.0

Comments:

1) Circle one unit type

ARCADIS
Infrastructure, environment, facilities

Low-Flow Groundwater Sampling Log

Project: Northrop Grumman Systems Corporation OU2
Project Number: NY001492.0409.00002
Site Location: Bethpage, NY
Well ID: GM-79D
Date: 11/5/09
Sampled By: Gary Williams, Jerome Oertling
Sampling Time: 17:00
Recorded By: Jerome Oertling
Weather: cloudy 50
Coded Replicate No.: MS/MSD

Instrument Identification
Water Quality Meter(s): oakton pH, cond, ORP, YSI D.O., Turbidimeter 2020 Serial #: (Grey Van)

Casing Material: PVC
Purge Method: low flow / dedicated bladder
Casing Diameter: 4"
Screen Interval (ft bmp): Top 280 Bottom 290
Sounded Depth (ft bmp): 290
Pump Intake Depth (ft bmp): 285
Depth to Water (ft bmp): 40.26
Purge Time: Start 16:00 Finish 17:05

Field Parameter Measurements During Purging

Time	Minutes Elapsed	Flow Rate (mL/min)	Volume Purged	Temp (°C)	pH (s.u.)	Conductivity (umhos or mS/cm) 1)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)
16:00	0	400		14.8	5.87	82.1	52	15.47		
16:05	5	↓		14.8	5.73	86.8	55	12.06		
16:10	10			14.6	5.55	102.2	62	10.70	7.0	
16:15	15			14.4	5.53	108.4	64	8.01		
16:20	20			14.3	5.47	115.1	69	6.16		
16:25	25			14.2	5.46	117.3	72	5.91		40.20
16:30	30			14.2	5.45	120.6	75	5.87	6.8	
16:35	35			14.2	5.39	123.6	80	6.20		
16:40	40			14.1	5.39	124.9	89	7.35		
16:45	45			14.1	5.37	126.5	96	7.10		
16:50	50			14.1	5.38	126.6	98	7.00	5.0	
16:55	55			14.1	5.38	127.6	105	7.85		
17:00	60			14.1	5.35	127.6	109	7.81		40.08
17:05	65			14.1	5.34	127.5	108	7.79		

Collected Sample Condition
Color: none
Odor: none
Appearance: clear

Parameter	Container	No.	Preservative
TVOC	40ml VOA	3	HCl

PID Reading: 0.0

Comments

1) Circle one unit type

ARCADIS

Laboratory Task Order No./P.O. No. NOC 042 **CHAIN-OF-CUSTODY RECORD** Page 1 of 1

Project Number/Name NY001492.0409.00002

Project Location Bethpage, NY

Laboratory Columbia Analytical

Project Manager Carlo San Giovanni

Sampler(s)/Affiliation G. Williams / J. Oetting

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	TVOC TCL ASP 2000 NYDEC 40 ml VOA (HCl)						Remarks	Total
TB110509	L	11/5/09		3						2 week TAT	3
FB110509	L	↓		3						↓	3
REP110509	L	↓		3						↓	3
GM-34D	L	↓		3						↓	3
GM-34D2	L	↓		3						↓	3
GM-79I	L	↓		3						↓	3
GM-79D	L	↓		9*	* USE FOR MS/MSD					↓	9

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 27

Relinquished by: Jerome Oetting	Organization: ARCADIS	Date 11/5/09	Time 18:40	Seal Intact?
Received by:	Organization:	Date / /	Time	(Yes) No N/A
Relinquished by:	Organization:	Date / /	Time	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A

Special Instructions/Remarks: Report to Melissa Reindl

Delivery Method: ☐ In Person ☒ Common Carrier Fed Ex (SPECIFY) ☐ Lab Courier ☐ Other ______ (SPECIFY)

ARCADIS

Laboratory Task Order No./P.O. No. NLL 042

CHAIN-OF-CUSTODY RECORD

Project Number/Name NY001492.0409.00002

Project Location Bethpage, NY

Laboratory Columbia Analytical

Project Manager Carlo San Giovanni

Sampler(s)/Affiliation G. Williams / J. Oerthing

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: TVOC TCL Air 2000 (NYDEC) 40ml VOA (HCl)						Remarks	Total
TB110609	L	11/6/09		3						2 week TAT	3
GM-75D2	L	↓		3						↓	3
GM-33D2	L	↓		3						↓	3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 9

Relinquished by: Jerome Oerthing	Organization: ARCADIS	Date 11/06/09	Time 15:00	Seal Intact?
Received by:	Organization:	Date / /	Time	(Yes) No N/A
Relinquished by:	Organization:	Date / /	Time	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A

Special Instructions/Remarks: Report to Melissa Rendl

Delivery Method: ☐ In Person ☒ Common Carrier Fed Ex (SPECIFY) ☐ Lab Courier ☐ Other ____ (SPECIFY)

ARCADIS 2216

Laboratory Task Order No./P.O. No. NCC 002 9111162

CHAIN-OF-CUSTODY RECORD

Project Number/Name AN001492.0409.00002
Project Location BETHPAGE NY
Laboratory COLUMBIA ANALYTICAL
Project Manager CARLO SANGIOVANNI
Sampler(s)/Affiliation D. MCLAFFERTY / ARCADIS

ANALYSIS / METHOD / SIZE

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	40 ml VOAs ASP 2000 HCL	8260B	Temp Bottle	STD. TAT			Remarks	Total
102 INF.	L	11/9/09 0915		3	↓		↓				
102 EFF.		0918		3							
102 EFF. MS		0919		3							
102 EFF. MSD		0920		3							
WELL 19		1040		3							
96 INF.		1148		3							
96 EFF		1150		3							
REP 110909				3						REPORT WELL 19	
WELL 17		1337		3							
WELL 18		1315		3							
WELL 1		1318		3							
WELL 3		1403		3							
TRIP BLANK				3	↓		↓				
TEMP.						1					

Sample Matrix: (L = Liquid;) S = Solid; A = Air

Total No. of Bottles/Containers 40

Relinquished by: [signature]	Organization: ARCADIS	Date 11/09/09	Time [illegible]	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	
Relinquished by:	Organization:	Date / /	Time	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	

Special Instructions/Remarks:
ATTN: MIKE PERRY

Delivery Method: ☐ In Person ☒ Common Carrier FED. EX. (SPECIFY) ☐ Lab Courier ☐ Other ______ (SPECIFY)

AG 05-12/01

ARCADIS 2425

Laboratory Task Order No./P.O. No. NGC 002 9661102

CHAIN-OF-CUSTODY RECORD

Project Number/Name AY001492.0409.00002

Project Location BETHPAGE, N.Y.

Laboratory COLUMBIA ANALYTICAL

Project Manager CARLO SAN GIOVANNI

Sampler(s)/Affiliation D. MCLAFFERTY / ARCADIS

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	6 Liter Summas	TO-15	6 LPB	STD. TAT.		CAN #'s	Remarks	Total
102 INF.	A	11/9/05 1001		↓	↓	↓	↓		SLC 00150	INITIAL -29.3 END -7	1
102 EFF.	↓	1020		↓	↓	↓	↓		SLC 00146	INITIAL -29.3 END -7	1
96 INF.	↓	1301		↓	↓	↓	↓		SLC 00151	INITIAL -29.3 END -7	1
96 MID TRAIN	↓	1305		↓	↓	↓	↓		SLC 00144	INITIAL -29.3 END -7	1
96 TOTAL EFF.	↓	1310		↓	↓	↓	↓	-	SLC 00138	INITIAL -29.5 END -7	1

Sample Matrix: L = Liquid; S = Solid; A = Air (circled)

Total No. of Bottles/Containers: 5

Relinquished by: D. McLafferty Organization: ARCADIS Date 11/9/05 Time 1330 Seal Intact? Yes No N/A

Received by: Organization: Date / / Time

Relinquished by: Organization: Date / / Time Seal Intact? Yes No N/A

Received by: Organization: Date / / Time

Special Instructions/Remarks: ATTN: MIKE PERRY

Delivery Method: ☐ In Person ☒ Common Carrier FED. EX. (SPECIFY) ☐ Lab Courier ☐ Other (SPECIFY)

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ARCADIS Laboratory Task Order No./P.O. No. NGC042 **CHAIN-OF-CUSTODY RECORD** Page 1 of 1

Project Number/Name NY001492.0409.00002

Project Location Bethpage NY

Laboratory Columbia Analytical

Project Manager Carlo San Giovanni

Sampler(s)/Affiliation G. Williams / J. Oettling

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: TVOC per 524.2 40ml VOA (HCl)						Remarks	Total
TB111009	L	—		3						2 week TAT	3
BPOW 3-1	L	11/9/09		3						↓	3
BPOW 3-2	L	11/9/09		3						↓	3
BPOW 4-1	L	11/10/09		3						↓	3
BPOW 4-2	L	11/10/09		3						↓	3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 15

Relinquished by: Jerome Oettling	Organization: ARCADIS	Date 11/10/09	Time 17:40	Seal Intact?
Received by:	Organization:	Date / /	Time	(Yes) No N/A
Relinquished by:	Organization:	Date / /	Time	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A

Special Instructions/Remarks: Report to Melissa Rendl

Delivery Method: ☐ In Person ☒ Common Carrier Fed Ex (SPECIFY) ☐ Lab Courier ☐ Other ______ (SPECIFY)

AG-05-12/01

ARCADIS

Laboratory Task Order No./P.O. No. NOC 042 **CHAIN-OF-CUSTODY RECORD** Page 1 of 1

Project Number/Name NJ001492.0909.00002

Project Location Bethpage, NY

Laboratory Columbia Analytical

Project Manager Carl San Giovanni

Sampler(s)/Affiliation Williams / Oerthing

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: TVOC 624.2	4 oz. VOA (MCL)					Remarks	Total
TB111109	L	11/11/09		3						2 Week TAT	3
REP 11-1109	L			3							3
BPOW 1-1	L			3							3
BPOW 1-2	L			3							3
BPOW 1-3	L			9*	* USE FOR MS/MSD						9

Total No. of Bottles/Containers 21

Sample Matrix: L = Liquid; S = Solid; A = Air

Relinquished by: Jerome Oerthing	Organization: ARCADIS	Date 11/11/09	Time 15:45	Seal Intact? (Yes) No N/A
Received by:	Organization:	Date / /	Time	
Relinquished by:	Organization:	Date / /	Time	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	

Special Instructions/Remarks: Report to Melissa Reid

Delivery Method: ☐ In Person ☒ Common Carrier Fed Ex SPECIFY ☐ Lab Courier ☐ Other SPECIFY

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ARCADIS

Laboratory Task Order No./P.O. No. _____ **CHAIN-OF-CUSTODY RECORD** Page ____ of ____

Project Number/Name NY001492.0109.00002

Project Location BETHPAGE NY

Laboratory COLUMBIA ANALYTICAL SERV.

Project Manager MIKE WOLFERT

Sampler(s)/Affiliation G.W.

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40ml VOA (HCl)	ANALYSIS / METHOD / SIZE: 1Lm 4°C	ANALYSIS / METHOD / SIZE	ANALYSIS / METHOD / SIZE	ANALYSIS / METHOD / SIZE	ANALYSIS / METHOD / SIZE	Remarks	Total
GM-20I	W	11-12-09		3							3
GM-20D	W	11-12-09		3							3
TB 11-12-09	W	11-12-09		3							3

Total No. of Bottles/ Containers: 9

Sample Matrix: L = Liquid; S = Solid; A = Air

Relinquished by: G.W.	Organization: ARCADIS	Date 11/12/09	Time _____	Seal Intact? Yes No N/A
Received by: _____	Organization: _____	Date ___/___/___	Time _____	
Relinquished by: _____	Organization: _____	Date ___/___/___	Time _____	Seal Intact? Yes No N/A
Received by: _____	Organization: _____	Date ___/___/___	Time _____	

Special Instructions/Remarks: REPORT TO MELISSA RIZNOR

Delivery Method: ☐ In Person ☒ Common Carrier FEDEX (SPECIFY) ☐ Lab Courier ☐ Other _____ (SPECIFY)

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ARCADIS

Laboratory Task Order No./P.O. No. _____

CHAIN-OF-CUSTODY RECORD

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Project Number/Name NY001497.0409.00002

Project Location BETHPAGE NY

Laboratory COLUMBIA ANALYTICAL SERV

Project Manager MIKE WOLFERT

Sampler(s)/Affiliation G.W.

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40ml VOA VOC 8260 (HCl)						Remarks	Total
GM-21I	W	11-13-09		3							3
GM-21D	W	11-13-09		3							3
TB 11-13-09	W	11-13-09		3							3

Total No. of Bottles/ Containers: 9

Sample Matrix: L = Liquid; S = Solid; A = Air

Relinquished by: [signature]	Organization: ARCADIS	Date 11/13/09	Time 4:00	Seal Intact?	Yes No N/A
Received by:	Organization:	Date / /	Time		
Relinquished by:	Organization:	Date / /	Time	Seal Intact?	Yes No N/A
Received by:	Organization:	Date / /	Time		

Special Instructions/Remarks: REPORT TO MELISSA REINDL

Delivery Method: ☐ In Person ☒ Common Carrier FED-EX (SPECIFY) ☐ Lab Courier ☐ Other _____ (SPECIFY)

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ARCADIS

Laboratory Task Order No./P.O. No. _____ **CHAIN-OF-CUSTODY RECORD** Page ____ of ____

Project Number/Name NY001492.0409.00002

Project Location BETHPAGE NY

Laboratory COLUMBIA ANALYTICAL SERV

Project Manager MIKE WOLFERT

Sampler(s)/Affiliation G.W.

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40ml VOA VOC 8260 (HCl)						Remarks	Total
GM-35D-2	L	11-16-09		3							3
TB 11-16-09	L	11-16-09		3							3

Sample Matrix: L = Liquid; S = Solid; A = Air

Total No. of Bottles/ Containers: 6

Relinquished by: [signature]	Organization: ARCADIS	Date 11/16/09	Time 5:00	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	
Relinquished by:	Organization:	Date / /	Time	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	

Special Instructions/Remarks: REPORT TO MELISSA KERWOOD

Delivery Method: ☐ In Person ☑ Common Carrier FED EX (SPECIFY) ☐ Lab Courier ☐ Other _____ (SPECIFY)

AC 05-12/01