2004 Annual Groundwater Monitoring Report

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

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Our Ref.:
NY001348.0405.00004

Date:
1 August 2005

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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 Corporation (NGC) Bethpage, New York facility. These activities are currently being conducted by NGC, in accordance with the New York State Department of Environmental Conservation (NYSDEC)-approved OU2 Groundwater Monitoring Plan (ARCADIS Geraghty & Miller, Inc. 2001), to meet the remedial objectives set forth in the March 2001 Record of Decision (ROD) (NYSDEC 2001).

Overall, this report describes the operational and effectiveness monitoring of the on-site portion of the OU2 groundwater remedy for the period from October 1, 2004 through December 30, 2004, which is referred to in this report as the Fourth Quarter 2004 report period. This report also constitutes the 2004 Annual Report, and compares the current data to Year 2004 and, as applicable, to longer-term data. The findings, conclusions, and recommendations made in this report will continue to be re-evaluated in future reports, as additional hydraulic and groundwater quality data become available. The complete description of the monitoring program and rationale/basis for evaluation of data can be found in the 2002 Annual Report (ARCADIS G&M, Inc. 2003a).

On June 3, 2004, ARCADIS submitted a petition to the NYSDEC (ARCADIS G&M Inc., 2004a) to reduce the monitoring frequency for selected wells (from quarterly to semi-annually) that are included in the OU2 Groundwater Monitoring Plan. The petition was conditionally approved by the NYSDEC on June 23, 2004. Therefore, the groundwater sampling conducted for the Second and Fourth Quarters of 2004 included sampling of the wells included in the "quarterly monitoring program" only, as specified in the June petition.

The NYSDEC formally included NGC Industrial Well GP-3 as part of the on-site portion of the OU2 Groundwater Remedy on July 13, 2004 (NYSDEC 2004). Therefore, Well GP-3 will be referred to from now on as a remedial extraction well.

2. Monitoring Program

The results obtained from monitoring activities conducted for this report are provided in Tables 1 through 13 and are described and discussed in the following report

sections: Remedial System Operational Monitoring (Section 3), Groundwater Flow (Section 4), and Groundwater Quality (Section 5).

Except as described on Tables 1 through 13 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 (as described in ARCADIS G&M, Inc. 2003a) and the NYSDEC-approved OU2 Groundwater Monitoring Plan (ARCADIS Geraghty & Miller, Inc. 2001).

The locations of the NGC site, the OU2 on-site groundwater remedy, the neighboring properties (i.e., the Naval Weapons Industrial Reserve Plant [NWIRP] and Occidental Chemical Corporation [OCC]/RUCO Polymer Corporation sites), and existing wells utilized in the monitoring programs are shown on Figure 1. This report also includes the following appendices: Appendix A (water-level measurement logs); Appendix B (groundwater sampling logs); and Appendix C (chain-of-custody records).

3. Remedial System Operational Monitoring

This section summarizes the routine operational monitoring conducted during the Fourth Quarter and Year 2004 for the on-site portion of the OU2 groundwater remedy, which included the following: (1) remedial well water quality monitoring, treatment system effluent water quality monitoring, treatment system efficiency monitoring, and determination of volatile organic compound (VOC) mass removal from the aquifer, and (2) monitoring of remedial well pumpage and treatment system treated effluent discharge to on-site recharge basins.

Also summarized in this report section are troubleshooting and maintenance activities performed by ARCADIS and NGC during the Fourth Quarter 2004.

3.1 Water Quality, Treatment Efficiencies, and Mass Removal

Tables 1 and 9 provide the total VOC (TVOC) concentrations detected in the OU2 remedial wells. Table 1 provides TVOC concentrations and TVOC mass removed by the remedial wells for the Fourth Quarter 2004 and Year 2004, and treatment efficiencies for the GP-1 and ONCT air strippers for the Fourth Quarter 2004.

A total of approximately 2,168 pounds of VOCs were removed from the aquifer by the remedial wells during the Fourth Quarter 2004 (Table 1). For Year 2004, approximately 10,630 lbs of VOC mass were removed from the aquifer and treated by

the OU2 remedial systems. Since full-time remedial remedies system startup in November 1998, approximately 82,836 lbs of VOCs have been removed from the aquifer.

3.2 Remedial System Pumpage and Discharge

Table 1 summarizes the pumpage of the remedial wells (with comparison to design criteria) for the Fourth Quarter 2004. The remedial wells collectively pumped approximately 481.9 million gallons (MG) of groundwater. Remedial Wells GP-1, ONCT-1, ONCT-2, and ONCT-3 pumped approximately 444.9 MG of groundwater, which is equivalent to 101 percent of the design remedial well pumpage volume of 442.2 MG[1]. Based on measurements collected by ARCADIS, the South Recharge Basins collectively received a total discharge of approximately 3,146 gpm of treated effluent discharge as follows: the ONCT remedial system (approximately 2,373 gallons per minute [gpm]), and approximately 773 gpm from the GP-1 remedial system; an unquantified amount of incidental stormwater runoff was also discharged to the basins.

NGC directed approximately 400 gpm of treated effluent from the GP-1 remedial system to the adjacent Calpine facility for consumptive use this quarter (Wolfert, 2004). The West Recharge Basins received an average of approximately 327 gpm from the GP-1 remedial system (i.e. the balance of the treated effluent from the GP-1 remedial system).

For Year 2004, Remedial Wells GP-1, ONCT-1, ONCT-2 and ONCT-3 pumped approximately 1,768 MG, or 99 percent of the design remedial well pumpage volume of 1778.7 MG. The total volume of groundwater removed from the aquifer by the ONCT and GP-1 remedial systems during Year 2004 (including Well GP-3) is approximately 1,981 MG.

3.3 Remedial Well Specific Capacities

Table 2 summarizes the water-level measurement data, corresponding instantaneous pumping rates, and the calculated drawdowns and specific capacities for the OU2 remedial wells for the Fourth Quarter 2004. Based on the data presented herein, the

[1] Remedial Well GP-3 does not currently have a design pumping rate. The design pumping rate is currently being determined and will be documented in a subsequent report.

specific capacities of Remedial Wells ONCT-1, ONCT-2, ONCT-3 and GP-1 exceeded the minimum values needed to maintain the design pumping rates. A specific capacity is not currently available for Well GP-3.

In recent reports, the static depths to water for the remedial wells were adjusted from their baseline values using a correction factor to account for regional changes in water levels which would affect the specific capacity. The adjusted static water levels were used to calculate the specific capacities. This method was developed because a significant change in the static depth to water could make it appear that the specific capacity was changing. The correction factor was calculated using the long-term trend in water levels (early 1980s to present) from a deep monitoring well, located approximately 3½ miles northeast of the NGC site (away from local pumping influences).

However, upon review of this method, it appears that the adjustment factor results in specific capacities which are increasing over time, and since pumping wells usually do not increase in specific capacity over time, it is apparent that the adjustment was not portraying an accurate change in the regional water-level fluctuations. It is possible that the monitoring well used to calculate long-term fluctuations is in a different hydraulic zone than the OU2 remedial wells. A review of monitoring wells screened in the D2 zone at and near the NGC property did not reveal a suitable well outside of the influence of the local public supply and/or the OU2 remedial wells to determine the long-term trend in groundwater levels. Therefore, in this and future reports the specific capacities of the remedial wells will be compared from season to season to account for short-term/seasonal fluctuations.

Based on the comparison of current remedial well specific capacities to respective baseline values (Table 2), redevelopment of the remedial wells is not required at this time. The specific capacities will continue to be calculated and compared to the baseline values to determine if significant decreases are occurring that would require well redevelopment.

3.4 Troubleshooting/Maintenance Activities

As described in the Second and Third Quarter 2004 Groundwater Monitoring Reports, Well ONCT-1 was shut down in late June 2004 to inspect the well and replace the vertical turbine pump. Redevelopment was not warranted for the well, but a new vertical turbine pump was needed. Until the new pump was installed, a temporary submersible pump was installed and operated at approximately 570 gpm. During this

time, the pumping rate at Well ONCT-2 was increased to approximately 1,100 gpm, as a best effort to compensate for the underpumping of Well ONCT-1. A new vertical turbine pump was installed in Well ONCT-1 in September 2004. To compensate for the downtime and underpumping of Well ONCT-1, NGC overpumped Wells ONCT-1 and ONCT-2 at average rates of 1,440 and 925 gpm, respectively, or at 140 percent and 154 percent of their respective design rates from September 5, 2004 through October 10, 2004. After October 10, 2004, the pumping rates in Wells ONCT-1 and ONCT-2 were returned to the design rates of 1,000 and 600 gpm, respectively.

Remedial Well GP-3 was shut down for inspection and redevelopment on November 29, 2004, and remained off-line through the end of Year 2004. Details of the redevelopment of Well GP-3 will be included in a future report.

4. Groundwater Flow

This report section describes the results of hydraulic monitoring performed during the Fourth Quarter 2004. The evaluation of the hydraulic data was performed using methods described in previous quarterly reports.

4.1 Shallow and Intermediate Zones

The water-level measurement data for the subject period are provided in Table 3. Vertical hydraulic gradients calculated for select well pairs and a comparison to model-predicted gradients (see Appendix B of the OU2 Feasibility Study; ARCADIS Geraghty & Miller 2000) are provided in Table 4. Figure 2 depicts the water-table configuration and groundwater flow directions, and Figure 3 depicts the potentiometric surface elevation and groundwater flow directions in the intermediate zone.

The vertical hydraulic gradients in shallow-intermediate well pairs are oriented downward and are close to or greater than model-predicted values (Table 4). Figures 2 and 3 show the extent of the mounding of the water table and potentiometric surface in the shallow and intermediate zones, respectively, during the Fourth Quarter 2004. The observed mounding extends around and beneath the South Recharge Basins and across the NGC site southern boundary. The extent of the mounding is consistent with prior rounds and is typical of the conditions that produce a hydraulic barrier to groundwater flow in the shallow and intermediate zones during normal operation of the on-site portion of the OU2 groundwater remedy.

The hydraulic data described above support the conclusion that shallow recharge at the South Recharge Basins is sufficient to maintain the hydraulic barrier to groundwater flow that continues to be effective in achieving the OU2 remedial goal of preventing the off-site migration of VOC-impacted groundwater in the shallow and intermediate zones.

4.2 Deep and D2 Zones

Vertical hydraulic gradients (see Table 4) in intermediate-deep and deep-deep2 (D2) well pairs are oriented downward and are generally close to or greater than the model-predicted values. These data support the conclusion that groundwater is flowing in a predominantly vertical direction in the deep zone along the NGC site southern boundary.

Figure 4 depicts the potentiometric surface elevation in the D2 zone that illustrates the cumulative capture zone formed by the combined pumpage of the OU2 remedial wells during the Fourth Quarter 2004. The capture zone extends across the entire NGC site southern boundary and approximately 400 ft south of the NGC site in a downgradient direction.

These data are consistent with previous water-level rounds and support the conclusion that the pumpage of the remedial wells forms a hydraulic barrier to groundwater flow that continues to be effective in preventing the off-site migration of VOC-impacted groundwater in the deep and D2 zones.

4.3 Summary of Groundwater Flow Conditions Observed in Year 2004 and Prior Years

Based on the hydraulic data collected since system startup, the on-site portion of the OU2 Groundwater remedy has demonstrated that it can withstand periods when part or all of the system are shutdown. Specifically, the data support that the capture zone created by the remedial wells extends beyond the southern boundary of the NGC site, at some times up to 800 feet south of the NGC site. This provides a considerable margin of safety that will allow the "re-capture" of contaminants that may have migrated off the site while a well(s) is off-line.

The discharge of treated groundwater from the OU2 remedial system as well as the discharge of stormwater (collectively as recharge to the water table) have maintained the hydraulic barrier in the shallow and intermediate zones and the resultant downward component of groundwater flow near the South Recharge Basins. Deep/D2 monitoring

well pairs near the areas of pumping and recharging produced by the on-site portion of the OU2 groundwater remedy continue to exhibit downward vertical hydraulic gradients generally greater than model predictions. The area of capture in the D2 zone produced by the pumpage of the on-site OU2 remedial wells has not substantially changed in Year 2004 and extends across the entire NGC southern boundary and downgradient of the NGC site. Overall, the hydraulic data presented in Year 2004 indicate that operation of the on-site portion of the OU2 groundwater remedy has achieved the remedial goal of creating and maintaining an effective hydraulic barrier throughout the shallow, intermediate, deep and D2 zones that prevents the off-site migration of on-site VOC-impacted groundwater.

5. Groundwater Quality

This report section describes the analytical results of the various groundwater quality monitoring activities for the Fourth Quarter 2004 that are specified in and required under the NYSDEC-approved Groundwater Monitoring Plan (ARCADIS G&M, Inc., 2001) and the PWSCP (ARCADIS G&M Inc., 2003b) as modified in the NYSDEC-approved June 13, 2004 petition (ARCADIS G&M, Inc. 2004a). Analytical results are summarized in Tables 5 through 13.

5.1 Volatile Organic Compounds

The evaluation of VOC concentrations is presented here 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 NGC 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 Values. A discussion of the expected effect on groundwater quality from operating the on-site portion of the OU2 groundwater remedy is provided in the 2002 Annual Report (ARCADIS G&M, Inc. 2003a).

Table 5 provides a summary of total VOC concentrations in select wells at and near the NGC site southern boundary for the current sampling round and Year 2004. Tables 6 to 10 provide the complete results of samples collected for VOCs from wells and treatment systems this round. Time-concentration graphs depicting the long-term trends are shown in Figures 5 to 11.

5.1.1 Shallow and Intermediate Zones

The Fourth Quarter 2004 groundwater quality analytical results for shallow and intermediate monitoring wells are provided in Tables 6 and 7, respectively. The complete period of record of TVOC concentrations in intermediate Wells GM-16I, GM-23I, HN-24I and MW-52S is shown on Figure 7.

In general, the water quality data from the shallow and intermediate wells sampled this quarter and for Year 2004 continue to support the interpretation of 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 shallow and intermediate zones.

All of the five shallow wells sampled this quarter (N-10631, GM-17SR, GM-21S, GM-78S, and MW-3R) that are located near or immediately downgradient of the NGC site southern boundary exhibited non-detectable or trace VOC detections and no SCG exceedences during this quarter (Tables 5 and 6). In comparison to the year-to-date average TVOC concentrations, these wells all exhibited similar TVOC concentrations. Since start-up of the OU2 Groundwater Remedy in November 1998 (or for the period of record, for wells installed since November 1998), TVOC concentrations in these shallow wells have exhibited similar TVOC concentrations.

All of the seven similarly located intermediate wells (GM-17I, GM-18I, GM-20I, GM-21I, GM-74I, GM-78I and GM-79I) exhibited non-detectable or trace VOC detections and no exceedences of SCGs during this quarter (Tables 5 and 7). In comparison to the year-to-date average TVOC concentrations, these wells all exhibited similar TVOC concentrations. Since start-up of the OU2 Groundwater Remedy in November 1998 (or for the period of record, for wells installed since November 1998), TVOC concentrations in these intermediate wells have exhibited similar TVOC concentrations.

As shown on Figure 7, the trend in TVOC concentrations in intermediate wells located upgradient of the remedial wells (i.e. GM-16I, GM-23I, HN-24I, and MW-52S) exhibit either declining or flat trends over the period of record.

5.1.2 Deep Zone

In general, the water quality data from the deep wells sampled during the Fourth Quarter 2004 and Year 2004 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.

Of the five deep wells located along or upgradient of the remedial wells near the NGC site southern boundary (Table 8 and Figure 1), Wells GM-39D_A, GM-39D_B and GM-73D exhibited SCG exceedences for the Fourth Quarter 2004, while Wells GM-15D and GM-74D exhibited trace VOC concentrations. Wells GM-15D, GM-39D_A, GM-39D_B, and GM-73D exhibited SCG exceedences during the Year 2004. The current TVOC concentrations in these five wells are all less than the year-to-date averages. As shown on Figure 6, Wells GM-73D and GM-74D exhibit decreasing trends for the period of record. Well GM-39$_B$ shows a slight decreasing trend, while Wells GM-39$_A$ and GM-15D exhibit no discernable trends for the period of record. Based on evaluation of the hydraulic data that is depicted on Figure 4, these monitoring wells are all within the capture zone of the remedial wells 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.

Three of the four deep wells (GM-17D, GM-20D and GM-21D) located at or immediately downgradient of the NGC site southern boundary (Tables 5 and 8) exhibited no or trace VOC detections and no SCG exceedences during this quarter. Well GM-18D exhibited a single SCG exceedence in the Fourth Quarter 2004. The current TVOC concentrations in these four wells are similar in comparison to the year-to-date averages. For Year 2004, Wells GM-17D, GM-20D and GM-21D exhibited no SCG exceedences.

Deep Wells GM-34D and GM-79D, that are located further downgradient of the NGC site (Figure 1) and beyond the hydraulic barrier, each exhibited one or more SCG exceedences for the Fourth Quarter 2004 (Table 8). For Year 2004, both wells exhibited one or more SCG exceedences each round. The current TVOC concentrations in these wells are similar to the year-to-date averages. These data are consistent with the expected concentrations in the portion of the groundwater VOC plume in the deep zone that is not actively remediated.

Well GM-79D exhibited an increasing trend through mid-2003 (Figure 8); since then, the well is exhibiting a downward trend through the Fourth Quarter 2004. Well GM-37D exhibited no discernible trend through February 2001 (Figure 8); however, a slight decreasing trend has been observed since that time. Well GM-36D has exhibited a

decreasing trend for the period of record; however, the rate of decrease has slowed somewhat since February 2001 (Figure 8).

Well GM-34D shows an increasing trend in TVOC concentration for the period of record (Figure 10). Well GM-38D, the deep well furthest from the site in a southeast direction, exhibits a slight downward trend for the period of record (Figure 11) with comparatively large yearly fluctuations in TVOC concentrations.

5.1.3 Deep2 Zone

Groundwater monitoring data from the D2 zone are summarized in Table 9. In general, water quality data from the D2 wells sampled during the Fourth Quarter 2004 and for Year 2004 continue to support the interpretation of 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. These data, as well as the long-term trends, are described in the following report subsections.

Total VOC concentrations near the remedial wells near the NGC site southern/southwestern boundary remain higher (Year 2004 average concentrations ranged from 576 in Well GP-1 to 2,227 ug/L in Well GP-3) than in the eastern portion of the NGC site southern boundary (Year 2004 average concentrations range from 19 ug/L in Well GM-74D2 to 165 ug/L in Well ONCT-2). TVOC concentrations in Monitoring Well GM-33D2 (at the NGC site southwestern boundary) have decreased significantly over time and are strong evidence that the on-site portion of the remedy is effectively containing the plume on-site.

The trends in TVOC concentrations in the remedial wells are shown on Figures 5 and 6. Well GP-1 continues to exhibit a relatively flat trend since December 2000 (Figure 5), following an earlier decreasing trend. Well ONCT-1 continues to exhibit a downward trend in TVOC concentration, while Well GP-3 continues to show an increasing trend (Figure 5). Well ONCT-2 exhibits a decreasing trend since late 2000/early 2001 (Figure 6). Well ONCT-3 exhibits an increasing trend in TVOC concentrations in both the long- and short-term (Figure 6). Current TVOC concentrations in Wells GP-1, ONCT-2 and ONCT-3 are similar to the year-to-date average TVOC concentrations, while the current TVOC concentration in Well ONCT-1 is less than the year-to-date average TVOC concentration (Table 9).

At the southwestern corner of the NGC site, TVOC concentrations in Well GM-33D2 continue to decrease, from approximately 15,000 ug/L in May 1997 to 80.8 ug/L in the Fourth Quarter of 2004 (Figure 5 and Table 9). The TVOC concentration this round is similar to the year-to-date average. Also, Well GM-73D2 exhibits elevated TVOC levels, but has exhibited a decreasing trend for the Year 2004 (Figure 5 and Table 9). The TVOC concentration in GM-73D2 this round is significantly lower in comparison to the year-to-date average (342.6 ug/L vs. 518 ug/L). These data confirm the hydraulic information discussed in Section 4.2 of this report, which indicates that operation of the on-site portion of the OU2 groundwater remedy continues to prevent the off-site migration of VOC-impacted groundwater in the D2 zone. The decreasing trends in GM-33D2 and GM-73D2 are attributable primarily to the pumping of the on-site portion of the OU2 groundwater remedy (which has been in full time operation since November 1998), and specifically Well ONCT-1. These data are strong evidence that remedial well pumping is causing groundwater to flow from the area around Wells GM-33D2 and GM-73D2 toward the remedial wells.

All three off-site D2 wells located south of the site (GM-34D2, GM-35D2 and GM-75D2) and sampled this round exhibited SCG exceedences with total VOC concentrations ranging from 184 ug/L (Well GM-34D2) to 428 ug/L (Well GM-75D2; Table 9). The current TVOC concentrations for these wells are all less than the year-to-date average concentration.

TVOC concentration trends for downgradient D2 wells located southeast of the site for the period of record are shown in Figures 9, 10 and 11. Wells GM-36D2 and GM-71D2 exhibit no discernable trends with low TVOC concentrations for the period of record (Figure 9). Well GM-37D2 exhibits relatively low TVOC concentrations with an increasing trend through late 2000; however, the trend appears flat since that time (Figure 9). Well GM-70D2 exhibits a decreasing trend for the period of record, although with considerable short-term variations in concentration. Well GM-38D2 (Figure 11) exhibits a long term increasing trend with considerable short-term variations.

Wells GM-34D2 and GM-35D2 exhibit increasing trends over the period of record (Figure 10). Well GM-75D2, which is likely located beyond the remedial well capture zone and upgradient of Wells GM-34D2 and GM-35D2, exhibits an apparent downward trend for the period of record. The downward trend in TVOC concentrations in Well GM-75D2 (Figure 10) may be an indication of the propagation of the "clean zone" caused by VOC plume bifurcation in the D2 zone in this area that is directly related to on-site remedial pumpage.

5.2 Outpost Monitoring

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). The results of the Fourth Quarter 2004 outpost well monitoring round are provided in Table 10. VOCs were not detected in Outpost Wells OW1-2, OW3-1, OW3-2, OW4-1, and OW4-2 this round. Outpost Wells OW1-1, OW1-3, OW2-1 and OW2-2 exhibited detections of site-related VOCs, with two SCG exceedences detected in Well OW1-1 and one SCG exceedence in Well OW1-3. Benzene (not site-related) was also detected, exceeding the SCG, in Well OW2-1.

5.3 Vinyl Chloride Monomer

Vinyl chloride monomer (VCM) concentrations in groundwater samples collected during the Fourth Quarter 2004 are provided in Tables 6 through 9. VCM was not detected in the remedial wells or monitoring wells sampled this round. VCM has been historically detected in Remedial Well GP-3, which was not sampled this quarter (Section 3.4). Additional groundwater monitoring of the extent of the VCM subplume and evaluation of remedial options for VCM is being performed by Oxy.

5.4 Metals

The results of the quarterly monitoring of wells analyzed for cadmium and chromium (Cd/Cr) are provided in Table 11. At the request of the NYSDEC, NGC sampled the five remedial wells and associated remedial treatment systems effluent for the full Target Analyte List (TAL) metals in the Fourth Quarter of 2004. Antimony, selenium and beryllium were detected in the remedial wells at concentrations slightly exceeding their respective SCGs. ARCADIS conducted sampling of the remedial wells and treatment systems effluent for these selected analytes to confirm their detections and have included the results in Table 11; the data indicate that antimony, selenium and beryllium were not detected.

The complete record of Cd and Cr concentrations in groundwater are shown on Figures 12, 13 and 14. Three of the nine wells sampled for Cr this round exhibited detections that exceeded the SCG (GM-15S, MW-05, and MW-06), with no off-site SCG exceedences. On-site Well MW-3R exhibited the only Cd SCG exceedence (Figure 1 and Table 11). For the period of record, the data indicate that the wells shown on Figure 12 exhibit stable to decreasing Cd concentration trends with one off-site exceedence since January 1999.

Wells near former Plant 2 that are monitored for Cr (Figure 13) exhibit stable to decreasing concentration trends for the period of record with no off-site exceedences since mid-2002.

Wells located near the former Plant 1 were monitored for Cr; the complete period of record for the wells is shown on Figure 14. Of the four wells monitored, all but Well MW-04 have consistently exhibited SCG exceedences. Well MW-06 shows a relatively stable trend, while Well GM-15S shows no discernible trend. Well MW-05 shows an increasing trend through the period of record.

The results this round generally show little difference between the filtered and unfiltered sample results, indicating that the metals analyzed for exist predominantly in the dissolved phase.

5.5 Tentatively Identified Compounds

The results of the laboratory qualitative assessment of Tentatively Identified Compound (TIC) concentrations in the samples collected during the Fourth Quarter 2004 are provided in Table 12. A review of these data reveal that two TICs were identified this round: HCFC 123a (or Freon 123a) in Well GM-34D and naphthalene in the effluent sample from the GP-1 System. A review of the cumulative (2000-2004) TIC data shows no discernable trends for the period of record. ARCADIS will continue to monitor the TICs; if trends develop to indicate that a compound(s) is frequently present, we will petition the NYSDEC to add it to the list of constituents monitored.

5.6 QA/QC Samples and Data Validation

The results of analysis of field blanks and trip blanks are provided in Table 13.

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 6 through 13.

6. Annual Model Update

In the Fourth Quarter 2004, ARCADIS issued requests to the water-supply purveyors in the area for public supply well pumpage and water quality data for the period 2001-

2004, in order to determine what, if any, updates are needed for the model. Details on this on-going effort will be included in a future report.

7. Summary and Conclusions

The findings of the OM&M activities performed during the Fourth Quarter 2004 and Year 2004 are summarized below.

1. For the Fourth Quarter 2004, the remedial system pumpage data show that the OU2 remedial wells pumped approximately 444.9 MG, or 101 percent of the design volume of groundwater (442.2 MG); this does not include 37 MG from Well GP-3. The recharge basins received a collective total of 452 MG of treated water this quarter. For Year 2004, the OU2 remedial wells (not including Well GP-3, which pumped 212.8 MG) pumped approximately 1,768.1 MG, or 99 percent, of the design volume of groundwater (1,778.7 MG), and the recharge basins received approximately 1,740.1 MG of treated groundwater.

2. OU2 remedial well specific capacities remain above the minimum required to sustain the design pumping rates.

3. During the Fourth Quarter 2004, approximately 2,168 lbs of VOCs were removed from the aquifer and treated by the on-site portion of the OU2 groundwater remedy. In Year 2004, approximately 10,630 lbs of VOCs were removed from the aquifer and treated, and approximately 82,836 lbs of VOCs were removed and treated since full-time system startup in November 1998.

4. The treatment efficiencies of both groundwater treatment systems remain above 99.9 percent for the current period.

5. The groundwater quality and hydraulic data indicate conditions that are consistent with previous rounds and that remedial goals continue to be met.

6. In the shallow, intermediate and deep zones, the majority of wells located along and immediately downgradient of the NGC site perimeter show trace or non-detectable concentrations of VOCs.

7. Site-related VOCs were detected in Outpost Wells OW1-1, OW1-3, OW2-1 and OW2-2.

8. For the Fourth Quarter 2004, Cd/Cr SCG exceedences are limited to on-site areas. For Year 2004, there was one off-site Cd SCG exceedence.

8. Recommendations

ARCADIS makes no recommendation for modification of the groundwater monitoring program at this time. ARCADIS is currently obtaining and reviewing the most current public supply well pumpage and water quality data to determine if a modeling update is needed. The results of this evaluation will be provided in a separate recommendation to the NYSDEC.

9. References

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Table 1. Summary of Operational Data and Water Balance for the On-Site Portion of the OU2 Groundwater Remedy, Fourth Quarter 2004 and Year 2004, Northrop Grumman Corporation, Bethpage, New York.

Identification	Design Pumping/ Recharge Rate [a] (gpm)	Current Actual Average Pumping/Recharge Rate [b] (gpm)	Design Total Pumpage/Recharge (MG)	Current Actual Total Pumpage/Recharge (MG)	Current Percent of Design Pumpage/ Recharge	Cumulative Year-to-Date Design Total Pumpage/Recharge (MG)	Cumulative Year-to-Date Actual Total Pumpage/Recharge (MG)	Year-to-Date Percent of Design Pumpage/ Recharge	Current TCE Concentration (ug/L)	Current TVOC Concentration [c] ug/L	Current Calculated VOC Mass Removed [d,j] (lbs)	Cumulative Year-to-Date VOC Mass Removed [i,j] (lbs)	Cumulative VOC Mass Removed [i,j] (lbs)
OU2 Remedial Wells				**Groundwater Removed from Aquifer**									
GP-1	1,075	1,064	140.9	137.9	98%	566.6	550.8	97%	400	536	615	2,405	19,641
GP-3 [e,g]	--	436	--	37.0	--	--	212.8	--	2,100 [e,k]	2,227 [f,k]	686	5,068	22,463
ONCT-1	1,000	1,054	131.0	137.2	105%	527.0	482.5	92%	570	599	684	2,445	37,060
ONCT-2	600	613	78.6	77.9	99%	316.2	378.2	120%	140	156	101	478	2,815
ONCT-3	700	706	91.7	91.9	100%	368.9	356.6	97%	79	107.6	82	234	857
Rounded Totals:	**3,375**	**3,873**	**442.2**	**481.9**	**101%**	**1,778.7**	**1,980.9**	**99%**	**--**	**--**	**2,168**	**10,630**	**82,836**
Recharge Basins [a]				**Treated Water Recharged to Aquifer**									
West Recharge Basins	0	327	0	42.6	--	0	254.9	--	--	--	--	--	--
South Recharge Basins	2,231	3,146	292	409.4	140%	1,176	1,485.2	126%	--	--	--	--	--
Rounded Totals:	**2,231**	**3,473**	**292**	**452**	--	**1,176**	**1,740.1**	148%	**--**	**--**	**--**	--	--
				Treated Water Sent to Calpine									
	400	400	52	52	--	211	208.4	--	--	--	--	--	--

Fourth Quarter 2004 Treatment Efficiencies

GP-1 System Air Stripping Efficiency [h] : **>99.9%**

ONCT System Air Stripping Efficiency [h] : **>99.9%**

see footnotes on last page

Table 1. Summary of Operational Data and Water Balance for the On-Site Portion of the OU2 Groundwater Remedy, Fourth Quarter 2004 and Year 2004, Northrop Grumman Corporation, Bethpage, New York.

(a) Remedial well design pumping rates are based on computer modeling (ARCADIS Geraghty & Miller, Inc. 2000). South Recharge Basin design recharge rate of 2,231 gpm is the acceptable minimum recharge rates based on computer modeling (ARCADIS G&M, Inc. 2004b). Total recharge includes remedial well pumpage (minus pipe loss) and incidental runoff from precipitation (not included in above calculations). Current average recharge rates have been determined using the entire 91-day span of time for the Fourth Quarter 2004, as opposed to current average pumping rates, which accounts for varying amounts of system downtime, as indicated below.

(b) Actual Average Pumping Rates were calculated based on Actual Total Pumpage and hours of operation from October 1, 2004 to December 30, 2004 (91 days).

OU2 wells were operational during the Fourth Quarter 2004, at the following percentages: GP-1 (98.9%), GP-3 (64.8%); ONCT-1 (99.3%), ONCT-2 (97.0%), and ONCT-3 (99.3%). The Actual Average Pumping Rates are for when the wells are pumping.

Total Pumpage/Recharge (current and year-to-date) are accurate to +/-15% due to limitations in flow metering.

(c) The TVOC concentration for Wells GP-1, ONCT-1, ONCT-2 and ONCT-3 was calculated based on Fourth Quarter 2004 groundwater monitoring data (Table 9). TVOC concentration from Well GP-3 is based on Third Quarter 2004 sampling.

(d) TVOC mass removed during the Fourth Quarter 2004 was 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) The NYSDEC formally included Well GP-3 in the OU2 remedial well network on July 13, 2004.

(f) Well GP-3 was shut down for maintenance and redevlopement on November 29, 2004, and remained off-line beyond the end of 2004. TCE and TVOC results shown are from the Third Quarter 2004 sampling round.

(g) Well GP-3 does not currently have a design pumping rate; therefore, it is not included in the total and percent of design pumpage calculations.

(h) Air Stripping Efficiency calculated from values above and in Table 9 using the following formula:

$$1 - \left[\frac{\text{System Effluent TVOC Concentration}}{\frac{[\text{TVOC}_{\text{Well 1}} \text{ X } Q_{\text{Well 1}} + (\text{TVOC}_{\text{Well 2}} \text{ X } Q_{\text{Well 2}})]}{(Q_{\text{Well 1}} + Q_{\text{Well 2}})}} \right]$$

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

(i) Cumulative Year to date TVOC mass removed includes the record from December 30, 2003, to December 30, 2004. Cumulative TVOC mass removed includes mass removed since startup of the ONCT system in November 1998.

(j) Current, total, and cumulative TVOC mass removed includes Wells GP-1, GP-3, ONCT-1, ONCT-2, and ONCT-3.

(k) The GP-3 groundwater sample was analyzed by the laboratory as both diluted and undiluted. The TCE concentration in the undiluted sample exceeded the instrument calibration range; however, in the diluted analysis, the TCE concentration was an order of magnitude below both the undiluted concentration and the historical average. Therefore, the TCE concentration shown is from the undiluted analysis, and should be considered an estimate.

--	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
		Q	Pumping Rate

Table 2. OU2 Remedial Well Performance Data, Baseline and Fourth Quarter 2004, Northrop Grumman Corporation, Bethpage, New York.

	Baseline[4]		Fourth Quarter 2004				
Well Identification	Static Depth to Water[1,2] (ft bmp)	Specific Capacity[1,2] (gpm/ft)	Date of Pumping and Water-Level Measurements	Pumping Depth to Water (ft bmp)	Drawdown (ft)	Pumping Rate (gpm)	Specific Capacity (gpm/ft)
ONCT-1	44.12	44.03	2/15/2005	63.8	19.68	1,165	59.2
ONCT-2	50.15	38.09	1/17/2005	64.75	14.60	601	41.2
ONCT-3	49.13	40.12	1/17/2005	66.5	17.37	724	41.7
GP-1	55.75	28.57	1/17/2005	100	44.25	1,070	24.2
GP-3[3]	56.05	8.50	--[3]	--[3]	--[3]	--[3]	--[3]

(1) In previous reports, the static depth to water measurements were adjusted (using a correction factor from a nearby well) to account for regional changes in the water-table elevation. A review of the corrected data shows that this adjustment likely over-inflated the reported specific capacities of the remedial wells because the well used to make the observation may screen a different hydraulic zone as it is located about 3 1/2 miles from the site. Therefore, for the Fourth Quarter 2004, the baseline depth to water readings are used to calculate the current specific capacities. (See Report Section 3.3.)

(2) For Wells ONCT-1, ONCT-2 and ONCT-3, baseline static depth to water measurements were collected in 1997; baseline pumping depth to water and rate measurements were collected in 1999, prior to the start-up of the OU2 Groundwater Remedy.
For Well GP-1, baseline static depth to water and specific capacity measurements were collected in 2001.
For Well GP-3, baseline static depth to water and specific capacity measurements were collected in 2004.

(3) Well GP-3 was not operational at the time of measurement due to well re-development activities that were taking place.

OU2	Operable Unit 2
gpm	gallons per minute
ft bmp	feet below measuring point
ft	feet
gpm/ft	gallons per minute per foot of drawdown
--	Not available

Table 3. Water-Level Measurement Data, January 17 and 18, 2005, Northrop Grumman 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	57.83	66.47
N-9921	94.23	34.03	60.20
N-10597[4]	109.85	--	--
N-10600	102.41	41.28	61.13
N-10631[4]	103.47	--	--
N-10633	103.80	39.95	63.85
N-10634	101.20	40.72	60.48
N-10821	91.58	36.05	55.53
GM-15S	109.44	45.82	63.62
GM-16SR	115.86	50.10	65.76
GM-17SR	115.79	51.02	64.77
GM-18S[4]	107.60	--	--
GM-19S	109.86	43.85	66.01
GM-21S	105.81	36.95	68.86
GM-78S	104.94	43.00	61.94
GM-79S (N-10628)	100.88	41.10	59.78
HN-40S	116.35	50.65	65.70
HN-42S	120.32	52.97	67.35
MW-3R	101.45	35.13	66.32
Intermediate Wells			
N-10624	93.61	33.14	60.47
GM-15I	109.25	45.68	63.57
GM-16I	115.81	50.21	65.60
GM-17I	115.83	51.15	64.68
GM-18I	109.03	44.32	64.71
GM-19I	109.86	44.28	65.58
GM-20I	103.88	35.52	68.36
GM-21I	105.72	38.73	66.99
GM-74I	107.42	40.61	66.81
GM-78I	105.06	43.23	61.83
GM-79I	100.88	41.47	59.41
HN-24I	125.80	57.69	68.11
HN-29I	116.42	48.54	67.88
HN-40I	115.91	50.45	65.46
HN-42I	119.61	52.20	67.41

See notes on last page

Table 3. Water-Level Measurement Data, January 17 and 18, 2005, Northrop Grumman 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	33.91	59.79
GM-13D	113.97	48.00	65.97
GM-15D	109.84	48.20	61.64
GM-17D	115.68	52.04	63.64
GM-18D	108.88	47.07	61.81
GM-20D	103.92	38.60	65.32
GM-21D	105.66	44.04	61.62
GM-34D	71.19	16.00	55.19
GM-36D	91.63	36.42	55.21
GM-37D	97.26	40.56	56.70
GM-38D	91.75	39.60	52.15
$GM\text{-}39D_A$[3]	102.23	40.15	62.08
$GM\text{-}39D_B$[3]	102.08	43.41	58.67
GM-73D	104.87	45.37	59.50
GM-74D	107.43	46.21	61.22
GM-79D	101.25	42.89	58.36
HN-29D	115.11	48.69	66.42
Deep2 Wells			
GM-15D2	109.78	50.77	59.01
GM-33D2	106.85	51.39	55.46
GM-34D2	71.19	17.64	53.55
GM-35D2	96.28	41.12	55.16
GM-36D2	91.60	38.86	52.74
GM-37D2	97.17	41.31	55.86
GM-38D2	91.56	41.40	50.16
GM-70D2[4]	99.58	--	--
GM-71D2	98.45	42.91	55.54
GM-73D2	104.62	47.60	57.02
GM-74D2	107.36	52.55	54.81
GM-75D2	93.63	36.91	56.72
GP-1[1]	116.78	100	16.78
ONCT-1[2]	104.10	63.80	40.30
ONCT-2	110.00	64.75	45.25
ONCT-3	108.70	66.50	42.20

See notes on last page

Table 3. Water-Level Measurement Data, January 17 and 18, 2005, Northrop Grumman 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	30.04	43.61
BPOW1-2	73.54	31.02	42.52
BPOW1-3	73.37	30.78	42.59
BPOW2-1	60.06	20.72	39.34
BPOW2-2	59.96	20.91	39.05
BPOW3-1	63.19	26.89	36.30
BPOW3-2	63.72	28.11	35.61
BPOW4-1	67.34	26.50	40.84
BPOW4-2	67.18	16.32	50.86

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

(2) Water level measurement in Well ONCT-1 was collected on February 15, 2005, 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 feet.

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

(4) Wells N-10631 and GM-18S were not accessible due to construction activities in the area; and Wells N-10597 and GM-70D2 were not accessible due to snow.

ft msl feet relative to mean sea level

ft bmp feet below measuring point

-- Not Measured

Table 4. Comparison of January 17 and 18, 2005, Vertical Hydraulic Gradients to Model-Predicted Gradients, Northrop Grumman 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	63.62			
GM-15I	9.29	63.57	1.98	4.20	-2.21
GM-16SR	66.77	65.76			
GM-16I	-24.19	65.60	1.76	1.11	0.65
GM-17SR	50.79	64.77			
GM-17I	5.83	64.68	2.00	4.50	-2.50
GM-21S	40.81	68.86			
GM-21I	-29.28	66.99	26.68	18.44	8.24
GM-78S	39.94	61.94			
GM-78I	5.56	61.83	3.20	8.73	-5.53
GM-79S	35.88	59.78			
GM-79I	-73.91	59.41	3.37	0.91	2.46
Intermediate-Deep Wells					
GM-15I	9.29	63.57			
GM-15D	-227.34	61.64	8.16	6.52	1.63
GM-17I	5.83	64.68			
GM-17D	-172.32	63.64	5.84	7.86	-2.03
GM-18I	9.03	64.71			
GM-18D	-186.12	61.81	14.86	7.74	7.12
GM-20I	3.88	68.36			
GM-20D	-117.08	65.32	--[3]	18.22	--[3]
GM-21I	-29.28	66.99			
GM-21D	-177.34	61.62	36.27	43.97	-7.70
GM-74I	8.42	66.81			
GM-74D	-192.57	61.22	27.81	20.17	7.64
GM-79I	-73.91	59.41			
GM-79D	-183.75	58.36	9.56	15.48	-5.92

See notes on last page

Table 4. Comparison of January 17 and 18, 2005, Vertical Hydraulic Gradients to Model-Predicted Gradients, Northrop Grumman 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	61.64			
GM-15D2	-436.41	59.01	12.58	14.19	-1.61
GM-18D	-186.12	61.81			
GM-33D2	-403.15	55.46	29.26	12.30	16.96
GM-36D	-117.37	55.21			
GM-36D2	-443.40	52.74	7.58	2.75	4.83
GM-37D	-154.74	56.70			
GM-37D2	-282.83	55.86	6.56	3.88	2.68
GM-38D	-238.25	52.15			
GM-38D2	-393.44	50.16	12.82	6.08	6.74
$GM\text{-}39D_A$ [1]	-169.77	62.08			
$GM\text{-}39D_B$ [1]	-312.92	58.67	23.82	13.46	10.36
GM-73D	-301.13	59.50			
GM-73D2	-437.38	57.02	18.20	18.78	-0.58
GM-74D	-192.57	61.22			
GM-74D2	-444.64	54.81	25.43	28.26	-2.83
N-10627	-198.80	59.79			
GM-75D2	-421.37	56.72	13.79	2.25	11.54

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

ft msl feet relative to mean sea level

(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.

(3) The water level elevation from Well GM-20I appears to be anomalous and was not used herein.

Table 5. Summary of Total Volatile Organic Compound and Cadmium/Chromium Concentrations and Comparison to SCGs for Select Site Boundary Monitoring Wells, Fourth Quarter 2004, Northrop Grumman Corporation, Bethpage, New York. [1] [2]

Shallow Zone

Well Identification:	N-10631	GM-17SR	GM-18S	GM-21S	GM-78S	MW-3R
Fourth Quarter TVOC Concentration (ug/L):	0.8	ND	NS	ND	0.7	0.6
No. of Fourth Quarter VOC SCG Exceedences:	None	None	--	None	None	None
No. of Year 2004 Quarters with VOC SCG Exceedences:	None	None	2	None	None	None
No. of Quarters with VOC SCG Exceedences Since November, 1998 [3]	1	None	8	None	4	6
Fourth Quarter Total Cd Concentration (ug/L):	4.4	<10	NS	NS	<10	25.4
Fourth Quarter Total Cd SCG Exceedences:	None	None	--	--	None	1
No. of Year 2004 Quarters with Cd SCG Exceedences:	1	None	None	--	None	3
No. of Historical Cd SCG Exceedences	10	None	None	--	None	27
Fourth Quarter Total Cr Concentration (ug/L):	34.9	<10	NS	NS	3.7	38.9
Fourth Quarter Total Cr SCG Exceedences:	None	None	--	--	None	None
No. of Year 2004 Quarters with Cr SCG Exceedences:	None	None	None	--	None	2
No. of Historical Cr SCG Exceedences	5	None	None	--	None	27

Intermediate Zone

Well Identification:	GM-17I	GM-18I	GM-20I	GM-2II	GM-74I	GM-78I	GM-79I
Fourth Quarter TVOC Concentration (ug/L):	ND	2	0.7	ND	ND	2	ND
No. Fourth Quarter VOC SCG Exceedences:	None	None	None	None	None	None	None
No. of Year 2004 Quarters with VOC SCG Exceedences:	None	1	None	None	None	None	None
No. of Quarters with VOC SCG Exceedences Since November, 1998 [3]	None	2	1	None	None	1	1
Fourth Quarter Total Cd Concentration (ug/L):	NS	NS	NS	NS	NS	<10	NS
Fourth Quarter Total Cd SCG Exceedences:	--	--	--	--	--	None	--
No. of Year 2004 Quarters with Cd SCG Exceedences:	--	--	--	--	--	None	--
No. of Historical Cd SCG Exceedences	--	None	None	--	--	None	--
Fourth Quarter Total Cr Concentration (ug/L):	NS	NS	NS	NS	NS	<10	NS
Fourth Quarter Total Cr SCG Exceedences:	--	--	--	--	--	None	--
No. of Year 2004 Quarters with Cr SCG Exceedences:	--	--	--	--	--	None	--
No. of Historical Cr SCG Exceedences	--	None	None	--	--	None	--

Deep Zone

Well Identification:	GM-17D	GM-18D	GM-20D	GM-21D
Fourth Quarter TVOC Concentration (ug/L):	0.7	6.6	ND	0.8
No. Fourth Quarter VOC SCG Exceedences:	None	1	None	None
No. of Year 2004 Quarters with VOC SCG Exceedences:	None	1	None	None
No. of Quarters with VOC SCG Exceedences Since November, 1998 [3]	None	6	None	None

see footnotes on last page

Table 5. Summary of Total Volatile Organic Compound and Cadmium/Chromium Concentrations and Comparison to SCGs for Select Site Boundary Monitoring Wells, Fourth Quarter 2004, Northrop Grumman Corporation, Bethpage, New York. [1] [2]

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[1] Well locations are shown on Figure 1. VOC analytical results from shallow, intermediate, and deep wells are provided in Tables 6 through 8, respectively; Cr and Cd analytical results for shallow and intermediate wells are provided in Table 11.

[2] 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 TOGSs (NYSDEC 1998); most stringent value listed.

[3] For wells installed after November 1998, VOC SCG exceedences are shown for the period of record.

VOC Volatile Organic Compound
NS Not Sampled
ND Not Detected
-- Not Applicable
Cd Cadmium
Cr Chromium
TVOC Total Volatile Organic Compound
ug/L Micrograms per liter

Table 6. Concentrations of Volatile Organic Compounds Detected in Shallow Wells, Fourth Quarter 2004, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL:	10631	GM-15S	GM-17S	GM-21S
		SAMPLE ID:	N-10631	GM-15S	GM-17SR	GM-21S
		DATE:	1/11/2005	1/7/2005	1/10/2005	1/10/2005
Chloromethane	5		<5	<5	<5	<5
Bromomethane	5		<5	<5	<5	<5
Vinyl Chloride	2		<2	<2	<2	<2
Chloroethane	5		<5	<5	<5	<5
Methylene chloride	5		<5	<5	<5	<5
Acetone	50		<10	<10	<10	<10
Carbon disulfide	50		<5	<5	<5	<5
1,1-Dichloroethene	5		<5	<5	<5	<5
1,1-Dichloroethane	5		<5	<5	<5	<5
cis-1,2-Dichloroethene	5		<5	<5	<5	<5
trans-1,2-Dichloroethene	5		<5	<5	<5	<5
Chloroform	7		<5	<5	<5	<5
1,2-Dichloroethane	5		<5	<5	<5	<5
2-Butanone	50		<10	<10	<10	<10
1,1,1-Trichloroethane	5		<5	<5	<5	<5
Carbon tetrachloride	5		<5	<5	<5	<5
Bromodichloromethane	50		<5	<5	<5	<5
1,2-Dichloropropane	5		<5	<5	<5	<5
cis-1,3-Dichloropropene	5		<5	<5	<5	<5
Trichloroethene	5		**0.8 J**	**2 J**	<5	<5
Dibromochloromethane	5		<5	<5	<5	<5
1,1,2-Trichloroethane	5		<5	<5	<5	<5
Benzene	0.7		<0.7	<0.7	<0.7	<0.7
trans-1,3-Dichloropropene	5		<5	<5	<5	<5
Bromoform	50		<5	<5	<5	<5
4-Methyl-2-pentanone	50		<10	<10	<10	<10
2-Hexanone	50		<10	<10	<10	<10
Tetrachloroethene	5		<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	5		<5	<5	<5	<5
Toluene	5		<5	<5	<5	<5
Chlorobenzene	5		<5	<5	<5	<5
Ethylbenzene	5		<5	<5	<5	<5
Styrene	5		<5	<5	<5	<5
Xylene (total)	5		<5	<5	<5	<5
Vinyl Acetate	NE		<5	<5	<5	<5
Freon-113 *	5		<5	<5	<5	<5
Fourth Quarter Total VOCs			**0.8**	**2**	0	0
Average Total VOCs for Quarters 1-3			**0.6**	**3**	**1.8**	**0.3**
Average Total VOCs for 2004			**0.7**	**2.8**	**1.4**	**0.3**

(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 TOGSs (NYSDEC 1998); most stringent value listed.

VOCs Volatile organic compounds

ug/L Micrograms per liter

J Estimated value

NYSDEC New York State Department of Environmental Conservation

* Freon 113 also known as 1,1,1-Trichloro-2,2,2-trifluoroethane.

Value exceeds associated SCG value.

NE No SCG established

TOGS Technical and Operational Guidance Series memorandum.

Bold value indicates a detection.

Table 6. Concentrations of Volatile Organic Compounds Detected in Shallow Wells, Fourth Quarter 2004, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL: / SAMPLE ID: / DATE:	GM-78S / GM-78S / 12/28/2004	MW-03R / MW-3R / 1/10/2005
Chloromethane	5		<5	<5
Bromomethane	5		<5	<5
Vinyl Chloride	2		<2	<2
Chloroethane	5		<5	<5
Methylene chloride	5		<5	<5
Acetone	50		<10	<10
Carbon disulfide	50		<5	<5
1,1-Dichloroethene	5		<5	<5
1,1-Dichloroethane	5		<5	<5
cis-1,2-Dichloroethene	5		<5	<5
trans-1,2-Dichloroethene	5		<5	<5
Chloroform	7		<5	<5
1,2-Dichloroethane	5		<5	<5
2-Butanone	50		<10	<10
1,1,1-Trichloroethane	5		<5	<5
Carbon tetrachloride	5		<5	<5
Bromodichloromethane	50		<5	<5
1,2-Dichloropropane	5		<5	<5
cis-1,3-Dichloropropene	5		<5	<5
Trichloroethene	5		**0.7 J**	**0.6 J**
Dibromochloromethane	5		<5	<5
1,1,2-Trichloroethane	5		<5	<5
Benzene	0.7		<0.7	<0.7
trans-1,3-Dichloropropene	5		<5	<5
Bromoform	50		<5	<5
4-Methyl-2-pentanone	50		<10	<10
2-Hexanone	50		<10	<10
Tetrachloroethene	5		<5	<5
1,1,2,2-Tetrachloroethane	5		<5	<5
Toluene	5		<5	<5
Chlorobenzene	5		<5	<5
Ethylbenzene	5		<5	<5
Styrene	5		<5	<5
Xylene (total)	5		<5	<5
Vinyl Acetate	NE		<5	<5
Freon-113 *	5		<5	<5
Fourth Quarter Total VOCs			**0.7**	**0.6**
Average Total VOCs for Quarters 1-3			**0.2**	**4.3**
Average Total VOCs for 2004			**0.4**	**3.4**

(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 TOGSs (NYSDEC 1998); most stringent value listed.

VOCs Volatile organic compounds

ug/L Micrograms per liter

J Estimated value

NYSDEC New York State Department of Environmental Conservation

* Freon 113 also known as 1,1,1-Trichloro-2,2,2-trifluoroethane.

Value exceeds associated SCG value.

NE No SCG established

TOGS Technical and Operational Guidance Series memorandum.

Bold value indicates a detection.

Table 7. Concentrations of Volatile Organic Compounds Detected in Intermediate Wells, Fourth Quarter 2004, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL: / SAMPLE ID: / DATE:	GM-15I GM-15I 1/7/2005	GM-17I GM-17I 1/10/2005	GM-18I GM-18I 1/17/2005	GM-20I GM-20I 12/30/2004	GM-21I GM-21I 1/13/2005
Chloromethane	5		<5	<5	<5	<5	<5
Bromomethane	5		<5	<5	<5	<5	<5
Vinyl Chloride	2		<2	<2	<2	<2	<2
Chloroethane	5		<5	<5	<5	<5	<5
Methylene chloride	5		<5	<5	<5	<5	<5
Acetone	50		<10	<10	<10	<10	<10
Carbon disulfide	50		<5	<5	<5	<5	<5
1,1-Dichloroethene	5		<5	<5	<5	<5	<5
1,1-Dichloroethane	5		<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	5		<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	5		<5	<5	<5	<5	<5
Chloroform	7		<5	<5	<5	<5	<5
1,2-Dichloroethane	5		<5	<5	<5	<5	<5
2-Butanone	50		<10	<10	<10	<10	<10
1,1,1-Trichloroethane	5		<5	<5	<5	<5	<5
Carbon tetrachloride	5		<5	<5	<5	<5	<5
Bromodichloromethane	50		<5	<5	<5	<5	<5
1,2-Dichloropropane	5		<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	5		<5	<5	<5	<5	<5
Trichloroethene	5		**5 J**	<5	**2 J**	**0.7 J**	<5
Dibromochloromethane	5		<5	<5	<5	<5	<5
1,1,2-Trichloroethane	5		<5	<5	<5	<5	<5
Benzene	0.7		<0.7	<0.7	<0.7	<0.7	<0.7
trans-1,3-Dichloropropene	5		<5	<5	<5	<5	<5
Bromoform	50		<5	<5	<5	<5	<5
4-Methyl-2-pentanone	50		<10	<10	<10	<10	<10
2-Hexanone	50		<10	<10	<10	<10	<10
Tetrachloroethene	5		<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	5		<5	<5	<5	<5	<5
Toluene	5		<5	<5	<5	<5	<5
Chlorobenzene	5		<5	<5	<5	<5	<5
Ethylbenzene	5		<5	<5	<5	<5	<5
Styrene	5		<5	<5	<5	<5	<5
Xylene (total)	5		<5	<5	<5	<5	<5
Vinyl Acetate	NE		<5	<5	<5	<5	<5
Freon-113 *	5		<5	<5	<5	<5	<5
Fourth Quarter Total VOCs			**5**	0	**2**	**0.7**	0
Average Total VOCs for Quarters 1-3			**10.2**	0	**5.1**	**0.4**	**0.7**
Average Total VOCs for 2004			**8.9**	0	**4.4**	**0.5**	**0.5**

(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 TOGSs (NYSDEC 1998); most stringent value listed.

NYSDEC New York State Department of Environmental Conservation

VOCs Volatile organic compounds

ug/L Micrograms per liter

J Estimated value

* Freon 113 also known as 1,1,1-Trichloro-2,2,2-trifluoroethane.

[ ] Value exceeds associated SCG value.

NE No SCG established

TOGS Technical and Operational Guidance Series memorandum.

Bold value indicates a detection.

Table 7. Concentrations of Volatile Organic Compounds Detected in Intermediate Wells, Fourth Quarter 2004, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL: / SAMPLE ID: / DATE:	GM-74I GM-74I 1/12/2005	GM-78I GM-78I 1/12/2005	GM-79I GM-79I 12/28/2004
Chloromethane	5		<5	<5	<5
Bromomethane	5		<5	<5	<5
Vinyl Chloride	2		<2	<2	<2
Chloroethane	5		<5	<5	<5
Methylene chloride	5		<5	<5	<5
Acetone	50		<10	<10	<10
Carbon disulfide	50		<5	<5	<5
1,1-Dichloroethene	5		<5	<5	<5
1,1-Dichloroethane	5		<5	<5	<5
cis-1,2-Dichloroethene	5		<5	<5	<5
trans-1,2-Dichloroethene	5		<5	<5	<5
Chloroform	7		<5	<5	<5
1,2-Dichloroethane	5		<5	<5	<5
2-Butanone	50		<10	<10	<10
1,1,1-Trichloroethane	5		<5	<5	<5
Carbon tetrachloride	5		<5	<5	<5
Bromodichloromethane	50		<5	<5	<5
1,2-Dichloropropane	5		<5	<5	<5
cis-1,3-Dichloropropene	5		<5	<5	<5
Trichloroethene	5		<5	**2 J**	<5
Dibromochloromethane	5		<5	<5	<5
1,1,2-Trichloroethane	5		<5	<5	<5
Benzene	0.7		<0.7	<0.7	<0.7
trans-1,3-Dichloropropene	5		<5	<5	<5
Bromoform	50		<5	<5	<5
4-Methyl-2-pentanone	50		<10	<10	<10
2-Hexanone	50		<10	<10	<10
Tetrachloroethene	5		<5	<5	<5
1,1,2,2-Tetrachloroethane	5		<5	<5	<5
Toluene	5		<5	<5	<5
Chlorobenzene	5		<5	<5	<5
Ethylbenzene	5		<5	<5	<5
Styrene	5		<5	<5	<5
Xylene (total)	5		<5	<5	<5
Vinyl Acetate	NE		<5	<5	<5
Freon-113 *	5		<5	<5	<5
Fourth Quarter Total VOCs			0	**2**	0
Average Total VOCs for Quarters 1-3			**0.3**	**0.2**	**0.7**
Average Total VOCs for 2004			**0.3**	**0.7**	**0.5**

(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 TOGSs (NYSDEC 1998); most stringent value listed.

NYSDEC New York State Department of Environmental Conservation

VOCs Volatile organic compounds

ug/L Micrograms per liter

J Estimated value

* Freon 113 also known as 1,1,1-Trichloro-2,2,2-trifluoroethane.

[ ] Value exceeds associated SCG value.

NE No SCG established

TOGS Technical and Operational Guidance Series memorandum.

Bold value indicates a detection.

Table 8. Concentrations of Volatile Organic Compounds Detected in Deep Wells, Fourth Quarter 2004, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL: / SAMPLE ID: / DATE:	GM-15D / GM-15D / 1/7/2005	GM-17D / GM-17D / 1/10/2005	GM-18D / GM-18D / 12/29/2004	GM-20D / GM-20D / 12/30/2004
Chloromethane	5		<5	<5	<5	<5
Bromomethane	5		<5	<5	<5	<5
Vinyl Chloride	2		<2	<2	<2	<2
Chloroethane	5		<5	<5	<5	<5
Methylene chloride	5		<5	<5	<5	<5
Acetone	50		<10	<10	<10	<10
Carbon disulfide	50		<5	<5	<5	<5
1,1-Dichloroethene	5		**2 J**	<5	<5	<5
1,1-Dichloroethane	5		**4 J**	<5	<5	<5
cis-1,2-Dichloroethene	5		**0.7 J**	<5	<5	<5
trans-1,2-Dichloroethene	5		<5	<5	<5	<5
Chloroform	7		<5	<5	<5	<5
1,2-Dichloroethane	5		<5	<5	<5	<5
2-Butanone	50		<10	<10	<10	<10
1,1,1-Trichloroethane	5		<5	<5	<5	<5
Carbon tetrachloride	5		<5	<5	<5	<5
Bromodichloromethane	50		<5	<5	<5	<5
1,2-Dichloropropane	5		<5	<5	<5	<5
cis-1,3-Dichloropropene	5		<5	<5	<5	<5
Trichloroethene	5		**4 J**	<5	**6**	<5
Dibromochloromethane	5		<5	<5	<5	<5
1,1,2-Trichloroethane	5		<5	<5	<5	<5
Benzene	0.7		<0.7	<0.7	<0.7	<0.7
trans-1,3-Dichloropropene	5		<5	<5	<5	<5
Bromoform	50		<5	<5	<5	<5
4-Methyl-2-pentanone	50		<10	<10	<10	<10
2-Hexanone	50		<10	<10	<10	<10
Tetrachloroethene	5		**4 J**	<5	**0.6 J**	<5
1,1,2,2-Tetrachloroethane	5		<5	<5	<5	<5
Toluene	5		<5	<5	<5	<5
Chlorobenzene	5		<5	<5	<5	<5
Ethylbenzene	5		<5	<5	<5	<5
Styrene	5		<5	<5	<5	<5
Xylene (total)	5		<5	<5	<5	<5
Vinyl Acetate	NE		<5	<5	<5	<5
Freon-113 *	5		<5	**0.7 J**	<5	<5
Fourth Quarter Total VOCs			**14.7**	**0.7**	**6.6**	0
Average Total VOCs for Quarters 1-3			**23**	**0.2**	**2.1**	**1.5**
Average Total VOCs for 2004			**20.9**	**0.4**	**3.3**	**1.1**

(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 TOGSs (NYSDEC 1998); most stringent value listed.

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

NYSDEC New York State Department of Environmental Conservation

VOCs Volatile organic compounds

ug/L Micrograms per liter

J Estimated value

D Constituent identified at a secondary dilution.

* Freon 113 also known as 1,1,1-Trichloro-2,2,2-trifluoroethane.

[ ] Value exceeds associated SCG value.

NE No SCG established

TOGS Technical and Operational Guidance Series memorandum.

Bold value indicates a detection.

Table 8. Concentrations of Volatile Organic Compounds Detected in Deep Wells, Fourth Quarter 2004, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL: / SAMPLE ID: / DATE:	GM-21D / GM-21D / 12/30/2004	GM-34D / GM-34D / 1/12/2005	GM-39D$_A$[2] / GM-39D / 12/29/2004	GM-39D$_B$[2] / GM-39D2 / 12/29/2004
Chloromethane	5		<5	<5	<5	<5
Bromomethane	5		<5	<5	<5	<5
Vinyl Chloride	2		<2	<2	<2	<2
Chloroethane	5		<5	<5	<5	<5
Methylene chloride	5		<5	<5	<5	<5
Acetone	50		<10	<10	<10	<10
Carbon disulfide	50		<5	<5	<5	<5
1,1-Dichloroethene	5		<5	**4 J**	<5	<5
1,1-Dichloroethane	5		<5	**1 J**	<5	<5
cis-1,2-Dichloroethene	5		<5	**7**	<5	<5
trans-1,2-Dichloroethene	5		<5	<5	<5	<5
Chloroform	7		<5	**0.6 J**	<5	<5
1,2-Dichloroethane	5		<5	<5	<5	<5
2-Butanone	50		<10	<10	<10	<10
1,1,1-Trichloroethane	5		<5	<5	<5	<5
Carbon tetrachloride	5		<5	<5	<5	<5
Bromodichloromethane	50		<5	<5	<5	<5
1,2-Dichloropropane	5		<5	<5	<5	<5
cis-1,3-Dichloropropene	5		<5	<5	<5	<5
Trichloroethene	5		**0.8 J**	**410 D**	**9**	**46**
Dibromochloromethane	5		<5	<5	<5	<5
1,1,2-Trichloroethane	5		<5	<5	<5	<5
Benzene	0.7		<0.7	<0.7	<0.7	<0.7
trans-1,3-Dichloropropene	5		<5	<5	<5	<5
Bromoform	50		<5	<5	<5	<5
4-Methyl-2-pentanone	50		<10	<10	<10	<10
2-Hexanone	50		<10	<10	<10	<10
Tetrachloroethene	5		<5	**6**	<5	<5
1,1,2,2-Tetrachloroethane	5		<5	<5	<5	<5
Toluene	5		<5	<5	<5	<5
Chlorobenzene	5		<5	<5	<5	<5
Ethylbenzene	5		<5	<5	<5	<5
Styrene	5		<5	<5	<5	<5
Xylene (total)	5		<5	**0.6 J**	<5	<5
Vinyl Acetate	NE		<5	<5	<5	<5
Freon-113 *	5		<5	**29**	<5	<5
Fourth Quarter Total VOCs			**0.8**	**458.2**	**9**	**46**
Average Total VOCs for Quarters 1-3			**1.4**	**480.5**	**29**	**53.2**
Average Total VOCs for 2004			**1.3**	**475**	**24**	**51.4**

(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 TOGSs (NYSDEC 1998); most stringent value listed.

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

NYSDEC New York State Department of Environmental Conservation

VOCs Volatile organic compounds

ug/L Micrograms per liter

J Estimated value

D Constituent identified at a secondary dilution.

* Freon 113 also known as 1,1,1-Trichloro-2,2,2-trifluoroethane.

Value exceeds associated SCG value.

NE No SCG established

TOGS Technical and Operational Guidance Series memorandum.

Bold value indicates a detection.

Table 8. Concentrations of Volatile Organic Compounds Detected in Deep Wells, Fourth Quarter 2004, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL: / SAMPLE ID: / DATE:	GM-73D / GM-73D / 1/13/2005	GM-74D / GM-74D / 1/13/2005	GM-79D / GM-79D / 12/28/2004
Chloromethane	5		<5	<5	<5
Bromomethane	5		<5	<5	<5
Vinyl Chloride	2		<2	<2	<2
Chloroethane	5		<5	<5	<5
Methylene chloride	5		<5	<5	<5
Acetone	50		<10	<10	<10
Carbon disulfide	50		<5	<5	<5
1,1-Dichloroethene	5		<5	<5	<5
1,1-Dichloroethane	5		<5	<5	<5
cis-1,2-Dichloroethene	5		<5	<5	**0.8 J**
trans-1,2-Dichloroethene	5		<5	<5	<5
Chloroform	7		<5	<5	<5
1,2-Dichloroethane	5		<5	<5	<5
2-Butanone	50		<10	<10	<10
1,1,1-Trichloroethane	5		<5	<5	<5
Carbon tetrachloride	5		<5	<5	<5
Bromodichloromethane	50		<5	<5	<5
1,2-Dichloropropane	5		<5	<5	<5
cis-1,3-Dichloropropene	5		<5	<5	<5
Trichloroethene	5		**84**	**3 J**	**62**
Dibromochloromethane	5		<5	<5	<5
1,1,2-Trichloroethane	5		<5	<5	<5
Benzene	0.7		<0.7	<0.7	<0.7
trans-1,3-Dichloropropene	5		<5	<5	<5
Bromoform	50		<5	<5	<5
4-Methyl-2-pentanone	50		<10	<10	<10
2-Hexanone	50		<10	<10	<10
Tetrachloroethene	5		**0.7 J**	**0.5 J**	**2 J**
1,1,2,2-Tetrachloroethane	5		<5	<5	<5
Toluene	5		<5	<5	<5
Chlorobenzene	5		<5	<5	<5
Ethylbenzene	5		<5	<5	<5
Styrene	5		<5	<5	<5
Xylene (total)	5		<5	<5	<5
Vinyl Acetate	NE		<5	<5	<5
Freon-113 *	5		<5	<5	**1 J**
Fourth Quarter Total VOCs			**84.7**	**3.5**	**65.8**
Average Total VOCs for Quarters 1-3			**149.2**	**4.2**	**61.1**
Average Total VOCs for 2004			**133.1**	**4**	**62.3**

(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 TOGSs (NYSDEC 1998); most stringent value listed.

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

NYSDEC New York State Department of Environmental Conservation

VOCs Volatile organic compounds

ug/L Micrograms per liter

J Estimated value

D Constituent identified at a secondary dilution.

* Freon 113 also known as 1,1,1-Trichloro-2,2,2-trifluoroethane.

Value exceeds associated SCG value.

NE No SCG established

TOGS Technical and Operational Guidance Series memorandum.

Bold value indicates a detection.

Table 9. Concentrations of Volatile Organic Compounds Detected in Deep2 Wells and OU2 Groundwater Remedial Treatment Systems, Fourth Quarter 2004, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL: / SAMPLE ID: / DATE:	GM-15D2 / GM-15D2 / 1/7/2005	GM-33D2 / GM-33D2 / 1/11/2005	GM-34D2 / GM-34D2 / 1/12/2005	GM-35D2 / GM-35D2 / 1/14/2005	GM-73D2 / GM-742D2 / 1/13/2005
Chloromethane	5		<5	<5	<5	<5	<5
Bromomethane	5		<5	<5	<5	<5	<5
Vinyl Chloride	2		<2	<2	<2	<2	<2
Chloroethane	5		<5	<5	<5	<5	<5
Methylene chloride	5		<5	<5	<5	<5	<5
Acetone	50		<10	<10	<10	<10	<10
Carbon disulfide	50		<5	<5	<5	<5	<5
1,1-Dichloroethene	5		**0.8 J**	<5	**4 J**	**1 J**	**0.8 J**
1,1-Dichloroethane	5		<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	5		**0.6 J**	**0.8 J**	**16**	**3 J**	**0.8 J**
trans-1,2-Dichloroethene	5		<5	<5	<5	<5	<5
Chloroform	7		<5	<5	<5	<5	<5
1,2-Dichloroethane	5		<5	<5	<5	<5	<5
2-Butanone	50		<10	<10	<10	<10	<10
1,1,1-Trichloroethane	5		<5	<5	<5	<5	<5
Carbon tetrachloride	5		<5	<5	<5	<5	<5
Bromodichloromethane	50		<5	<5	<5	<5	<5
1,2-Dichloropropane	5		<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	5		<5	<5	<5	<5	<5
Trichloroethene	5		**11**	**65**	**150**	**290 D**	**340 D**
Dibromochloromethane	5		<5	<5	<5	<5	<5
1,1,2-Trichloroethane	5		<5	<5	<5	<5	<5
Benzene	0.7		<0.7	<0.7	<0.7	<0.7	<0.7
trans-1,3-Dichloropropene	5		<5	<5	<5	<5	<5
Bromoform	50		<5	<5	<5	<5	<5
4-Methyl-2-pentanone	50		<10	<10	<10	<10	<10
2-Hexanone	50		<10	<10	<10	<10	<10
Tetrachloroethene	5		**16**	**6**	**7**	**7**	**1 J**
1,1,2,2-Tetrachloroethane	5		<5	<5	<5	<5	<5
Toluene	5		<5	<5	<5	<5	<5
Chlorobenzene	5		<5	<5	<5	<5	<5
Ethylbenzene	5		<5	<5	<5	<5	<5
Styrene	5		<5	<5	<5	<5	<5
Xylene (total)	5		<5	<5	<5	<5	<5
Vinyl Acetate	NE		<5	<5	<5	<5	<5
Freon-113 *	5		**1 J**	**9**	**7**	**8**	<5
Fourth Quarter Total VOCs			**29.4**	**80.8**	**184**	**309**	**342.6**
Average Total VOCs for Quarters 1-3			**25.6**	**74.9**	**220.2**	**355**	**577**
Average Total VOCs for 2004			**26.6**	**76.4**	**211.1**	**343.5**	**518.4**

(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 TOGSs (NYSDEC 1998); most stringent value listed.

(2) Replicate sample for ONCT-1.

NYSDEC New York State Department of Environmental Conservation

VOCs Volatile organic compounds

ug/L Micrograms per liter

J Estimated value

D Constituent identified at a secondary dilution.

* Freon 113 also known as 1,1,1-Trichloro-2,2,2-trifluoroethane.

REP Replicate sample

Value exceeds associated SCG value.

NE No SCG established

TOGS Technical and Operational Guidance Series memorandum.

Bold value indicates a detection.

Table 9. Concentrations of Volatile Organic Compounds Detected in Deep2 Wells and OU2 Groundwater Remedial Treatment Systems, Fourth Quarter 2004, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL: / SAMPLE ID: / DATE:	GM-74D2 GM-74D2 1/13/2005	GM-75D2 GM-75D2 1/11/2005	GM-75D2 REP011105 1/11/2005	GP-1 GP-1 2/18/2005	ONCT-1 ONCT-1 2/18/2005
Chloromethane	5		<5	<5	<5	<5	<5
Bromomethane	5		<5	<5	<5	<5	<5
Vinyl Chloride	2		<2	<2	<2	<2	<2
Chloroethane	5		<5	<5	<5	<5	<5
Methylene chloride	5		<5	<5	<5	<5	<5
Acetone	50		<10	<10	<10	<10	<10
Carbon disulfide	50		<5	<5	<5	<5	<5
1,1-Dichloroethene	5		<5	**6**	**6**	**5 J**	**3 J**
1,1-Dichloroethane	5		<5	**1 J**	<5	**2 J**	<5
cis-1,2-Dichloroethene	5		<5	**1 J**	**1 J**	**8**	**3 J**
trans-1,2-Dichloroethene	5		<5	<5	<5	<5	<5
Chloroform	7		<5	<5	<5	<5	<5
1,2-Dichloroethane	5		<5	<5	<5	<5	<5
2-Butanone	50		<10	<10	<10	<10	<10
1,1,1-Trichloroethane	5		<5	**2 J**	**2 J**	<5	<5
Carbon tetrachloride	5		<5	<5	<5	<5	<5
Bromodichloromethane	50		<5	<5	<5	<5	<5
1,2-Dichloropropane	5		<5	<5	<5	**1 J**	<5
cis-1,3-Dichloropropene	5		<5	<5	<5	<5	<5
Trichloroethene	5		**8**	**410 D**	**390 D**	**400 D**	**570 D**
Dibromochloromethane	5		<5	<5	<5	<5	<5
1,1,2-Trichloroethane	5		<5	<5	<5	<5	<5
Benzene	0.7		<0.7	<0.7	<0.7	<0.7	<0.7
trans-1,3-Dichloropropene	5		<5	<5	<5	<5	<5
Bromoform	50		<5	<5	<5	<5	<5
4-Methyl-2-pentanone	50		<10	<10	<10	<10	<10
2-Hexanone	50		<10	<10	<10	<10	<10
Tetrachloroethene	5		**7**	**6**	**5**	**110**	**13**
1,1,2,2-Tetrachloroethane	5		<5	<5	<5	<5	<5
Toluene	5		<5	<5	<5	<5	<5
Chlorobenzene	5		<5	<5	<5	<5	<5
Ethylbenzene	5		<5	<5	<5	<5	<5
Styrene	5		<5	<5	<5	<5	<5
Xylene (total)	5		<5	<5	<5	<5	<5
Vinyl Acetate	NE		<5	<5	<5	<5	<5
Freon-113 *	5		<5	**2 J**	**2 J**	**10**	**10**
Fourth Quarter Total VOCs			**15**	**428**	**406**	**536**	**599**
Average Total VOCs for Quarters 1-3			**20.3**	**754**	**754**	**596.5**	**694.1**
Average Total VOCs for 2004			**19**	**672.5**	**672.5**	**576.3**	**662.4**

(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 TOGSs (NYSDEC 1998); most stringent value listed.

(2) Replicate sample for ONCT-1.

NYSDEC New York State Department of Environmental Conservation

VOCs Volatile organic compounds

ug/L Micrograms per liter

J Estimated value

D Constituent identified at a secondary dilution.

* Freon 113 also known as 1,1,1-Trichloro-2,2,2-trifluoroethane.

REP Replicate sample

Value exceeds associated SCG value.

NE No SCG established

TOGS Technical and Operational Guidance Series memorandum.

Bold value indicates a detection.

Table 9. Concentrations of Volatile Organic Compounds Detected in Deep2 Wells and OU2 Groundwater Remedial Treatment Systems, Fourth Quarter 2004, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL: / SAMPLE ID: / DATE:	ONCT-1 / ONCT-4[2] / 2/18/2005	ONCT-2 / ONCT-2 / 2/18/2005	ONCT-3 / ONCT-3 / 2/18/2005	EFFL GP-1/3 TOWER EF / 2/18/2005	EFFL ONCT TOWER EFF / 2/18/2005
Chloromethane	5		<5	<5	<5	<5	<5
Bromomethane	5		<5	<5	<5	<5	<5
Vinyl Chloride	2		<2	<2	<2	<2	<2
Chloroethane	5		<5	<5	<5	<5	<5
Methylene chloride	5		<5	<5	<5	<5	<5
Acetone	50		<10	<10	<10	<10	<10
Carbon disulfide	50		<5	<5	<5	<5	<5
1,1-Dichloroethene	5		**3 J**	**4 J**	**1 J**	<5	<5
1,1-Dichloroethane	5		<5	**1 J**	**1 J**	<5	<5
cis-1,2-Dichloroethene	5		**3 J**	**1 J**	**17**	<5	<5
trans-1,2-Dichloroethene	5		<5	<5	<5	<5	<5
Chloroform	7		<5	<5	**0.9 J**	<5	<5
1,2-Dichloroethane	5		<5	<5	<5	<5	<5
2-Butanone	50		<10	<10	<10	<10	<10
1,1,1-Trichloroethane	5		<5	<5	<5	<5	<5
Carbon tetrachloride	5		<5	<5	<5	<5	<5
Bromodichloromethane	50		<5	<5	<5	<5	<5
1,2-Dichloropropane	5		<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	5		<5	<5	<5	<5	<5
Trichloroethene	5		**540 D**	**140**	**79**	<5	<5
Dibromochloromethane	5		<5	<5	<5	<5	<5
1,1,2-Trichloroethane	5		<5	<5	<5	<5	<5
Benzene	0.7		<0.7	<0.7	<0.7	<0.7	<0.7
trans-1,3-Dichloropropene	5		<5	<5	<5	<5	<5
Bromoform	50		<5	<5	<5	<5	<5
4-Methyl-2-pentanone	50		<10	<10	<10	<10	<10
2-Hexanone	50		<10	<10	<10	<10	<10
Tetrachloroethene	5		**13**	**8**	**8**	<5	<5
1,1,2,2-Tetrachloroethane	5		<5	<5	<5	<5	<5
Toluene	5		<5	<5	<5	<5	<5
Chlorobenzene	5		<5	<5	<5	<5	<5
Ethylbenzene	5		<5	<5	<5	<5	<5
Styrene	5		<5	<5	<5	<5	<5
Xylene (total)	5		<5	<5	<5	<5	<5
Vinyl Acetate	NE		<5	<5	<5	<5	<5
Freon-113 *	5		**10**	**2 J**	**0.7 J**	<5	<5
Fourth Quarter Total VOCs			**569**	**156**	**107.6**	0	0
Average Total VOCs for Quarters 1-3			**694.1**	**170**	**84.3**	**0.3**	0
Average Total VOCs for 2004			**662.4**	**165.3**	**92.1**	**0.2**	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 TOGSs (NYSDEC 1998); most stringent value listed.

(2) Replicate sample for ONCT-1.

NYSDEC New York State Department of Environmental Conservation

VOCs Volatile organic compounds

ug/L Micrograms per liter

J Estimated value

D Constituent identified at a secondary dilution.

* Freon 113 also known as 1,1,1-Trichloro-2,2,2-trifluoroethane.

REP Replicate sample

Value exceeds associated SCG value.

NE No SCG established

TOGS Technical and Operational Guidance Series memorandum.

Bold value indicates a detection.

Table 10. Concentrations of Site-Related Volatile Organic Compounds Detected in Outpost Wells, Fourth Quarter 2004, Northrop Grumman Corporation, Bethpage, New York. [1]

CONSTITUENT (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[2]	SITE / SAMPLE ID / DATE	OW 1-1 BPOW 1-1 1/4/2005	OW 1-2 BPOW 1-2 1/4/2005	OW 1-3 BPOW 1-3 1/4/2005	OW 2-1[3] BPOW 2-1 1/3/2005	OW 2-2 BPOW 2-2 1/3/2005	OW 3-1 BPOW 3-1 1/5/2005	OW 3-2 BPOW 3-2 1/5/2005	OW 4-1 BPOW 4-1 1/6/2005	OW 4-1 REP010605 1/6/2005	OW 4-2 BPOW 4-2 1/6/2005
Chlorobenzene	5		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethene	5		**5.2**	<0.50	**3.2**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethane	5		**2.3**	<0.50	**1.4**	**1.4**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-Dichloroethene	5		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethene	5		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroform	7		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	5		<0.50	<0.50	<0.50	**2.1**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1-Trichloroethane	5		**7.6**	<0.50	**5.3**	**0.6**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon tetrachloride	5		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethene	5		**3.2**	<0.50	**1.1**	**2**	**0.66**	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	5		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	5		<0.50	<0.50	<0.50	**0.9**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Freon-113 *	5		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	5		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Total Site-Related VOCs:			**18.3**	0	**11**	**7**	**0.66**	0	0	0	0	0
Year-to-Date Average Total Site-Related VOCs:			**24.9**	0	**4.5**	**4.6**	**0.2**	0	0	0	--	0

Footnotes:

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

(2) 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 TOGSs (NYSDEC 1998); most stringent value listed.

(3) Benzene was detected in Outpost Well OW 2-1 on 1/3/2005 at an estimated concentration of 66 ug/L, which exceeds the SCG criterion of 0.7 ug/L.

General Notes:

- Samples analyzed and reported as a NYSDEC Category A deliverable per the NYS DER-10 Guidance Document (NYSDEC 2002).
- Samples analyzed by EPA Method 502.2, as specified in the OU2 Record of Decision.
- Results were validated by ARCADIS by following the contract laboratory program national functional guidelines for organic data review (USEPA 1999).

Definitions:

OU2	Operable Unit 2
VOCs	Volatile organic compounds
ug/L	Micrograms per liter
NYSDEC	New York State Department of Environmental Conservation
*	Freon 113 also known as 1,1,1-Trichloro-2,2,2-trifluoroethane.
	Value exceeds associated SCG value.
TOGS	Technical and Operational Guidance Series memorandum.
--	Not applicable

Bold value indicates a detection.

Table 10. Concentrations of Site-Related Volatile Organic Compounds Detected in Outpost Wells, Fourth Quarter 2004, Northrop Grumman Corporation, Bethpage, New York. [1]

CONSTITUENT (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[2]	SITE SAMPLE ID	TRIP BLANK TB010305	TRIP BLANK TB010405	TRIP BLANK TB010505	TRIP BLANK TB010605
		DATE	1/3/2005	1/4/2005	1/5/2005	1/6/2005
Chlorobenzene	5		<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethene	5		<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethane	5		<0.50	<0.50	<0.50	<0.50
trans-1,2-Dichloroethene	5		<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethene	5		<0.50	<0.50	<0.50	<0.50
Chloroform	7		<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	5		<0.50	<0.50	<0.50	<0.50
1,1,1-Trichloroethane	5		<0.50	<0.50	<0.50	<0.50
Carbon tetrachloride	5		<0.50	<0.50	<0.50	<0.50
Trichloroethene	5		<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	5		<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	5		<0.50	<0.50	<0.50	<0.50
Freon-113 *	5		<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	5		<0.50	<0.50	<0.50	<0.50
Total Site-Related VOCs:			0	0	0	0
Year-to-Date Average Total Site-Related VOCs:			--	--	--	--

Footnotes:

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

(2) 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 TOGSs (NYSDEC 1998); most stringent value listed.

(3) Benzene was detected in Outpost Well OW 2-1 on 1/3/2005 at an estimated concentration of 66 ug/L, which exceeds the SCG criterion of 0.7 ug/L.

General Notes:

- Samples analyzed and reported as a NYSDEC Category A deliverable per the NYS DER-10 Guidance Document (NYSDEC 2002).
- Samples analyzed by EPA Method 502.2, as specified in the OU2 Record of Decision.
- Results were validated by ARCADIS by following the contract laboratory program national functional guidelines for organic data review (USEPA 1999).

Definitions:

OU2	Operable Unit 2
VOCs	Volatile organic compounds
ug/L	Micrograms per liter
NYSDEC	New York State Department of Environmental Conservation
*	Freon 113 also known as 1,1,1-Trichloro-2,2,2-trifluoroethane.
	Value exceeds associated SCG value.
TOGS	Technical and Operational Guidance Series memorandum.
--	Not applicable

Bold value indicates a detection.

Table 11. Concentrations of Metals in Groundwater and Blank Samples, Fourth Quarter 2004, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT (ug/L)	NYSDEC SCGs[1]	SITE:	10631	GM-15S	GM-17S	GM-78S	GM-78I	MW-03R	MW-04	MW-05	MW-06	GP-1	ONCT-1
		SAMPLE ID:	N-10631	GM-15S	GM-17SR	GM-78S	GM-78I	MW-3R	PLT1 MW-04	PLT1 MW-05	PLT1 MW-06	GP-1	ONCT-1
		DATE:	1/11/2005	1/7/2005	1/10/2005	12/28/2004	1/12/2005	1/10/2005	1/7/2005	1/7/2005	1/7/2005	2/18/2005	2/23/2005
Cadmium	5		4.4 B	--	<10	<10	<10	**25.4**	--	--	--	--	--
Cadmium (Dissolved)	5		4.3 B	--	<10	--	--	**24.6**	--	--	--	--	--
Chromium	50		**34.9**	**394**	<10	3.7 B	<10	**38.9**	5.6 B	**1190**	**281**	--	--
Chromium (Dissolved)	50		**26.4**	--	<10	--	--	**38.5**	--	--	--	--	--
Antimony[2]	3		--	--	--	--	--	--	--	--	--	<20	<20
Beryllium[2]	3		--	--	--	--	--	--	--	--	--	<5	<5
Selenium[2]	10		--	--	--	--	--	--	--	--	--	<30	<30

(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 TOGSs (NYSDEC 1998); most stringent value listed.

(2) ARCADIS performed a single-time sampling event to confirm these metals that were detected by NGC during a single-time sampling event that assessed the presence of the full Target Analyte List (TAL) metals in the remedial wells. Testing done per NYSDEC request.

NYSDEC New York State Department of Environmental Conservation

ug/L Micrograms per liter

B Detected between the IDL and CRDL

IDL Instrument detection limit

CRDL Contract-required detection limit

Value exceeds associated SCG value.

Bold Constituent detected above IDL.

TOGS Technical and Operational Guidance Series memorandum.

-- Not analyzed

Table 11. Concentrations of Metals in Groundwater and Blank Samples, Fourth Quarter 2004, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT (ug/L)	NYSDEC SCGs [1]	SITE: / SAMPLE ID: / DATE:	ONCT-2 ONCT-2 2/23/2005	ONCT-3 ONCT-3 2/23/2005	EFFL GP-1/3 TOWER EF 2/18/2005	EFFL ONCT TOWER EFF. 2/23/2005	FIELD BLANK FB122804 12/28/2004	FIELD BLANK FB010705 1/7/2005	FIELD BLANK FB011005 1/10/2005	FIELD BLANK FB011105 1/11/2005	FIELD BLANK FB011205 1/12/2005
Cadmium	5		--	--	--	--	<10	--	<10	<10	<10
Cadmium (Dissolved)	5		--	--	--	--	--	--	--	--	--
Chromium	50		--	--	--	--	<10	<10	<10	<10	<10
Chromium (Dissolved)	50		--	--	--	--	--	--	--	--	--
Antimony[2]	3		<20	<20	<20	<20	--	--	--	--	--
Beryllium[2]	3		<5	<5	<5	<5	--	--	--	--	--
Selenium[2]	10		<30	<30	<30	<30	--	--	--	--	--

(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 TOGSs (NYSDEC 1998); most stringent value listed.

(2) ARCADIS performed a single-time sampling event to confirm these metals that were detected by NGC during a single-time sampling event that assessed the presence of the full Target Analyte List (TAL) metals in the remedial wells. Testing done per NYSDEC request.

NYSDEC New York State Department of Environmental Conservation

ug/L Micrograms per liter

B Detected between the IDL and CRDL

IDL Instrument detection limit

CRDL Contract-required detection limit

Value exceeds associated SCG value.

Bold Constituent detected above IDL.

TOGS Technical and Operational Guidance Series memorandum.

-- Not analyzed

Table 12. Qualitative Concentrations of Tentatively Identified Compounds (TICs) Detected in Groundwater Samples, Fourth Quarter 2004, Northrop Grumman Corporation, Bethpage, New York.

WELL IDENTIFICATION (Units in ug/L)	SAMPLE ID	DATE	Naphthalene	HCFC 123a*
GM-34D	GM-34D	01/12/05	--	8 NJ
GP-1/3 EFFL	GP-1/3 TOWER EFF	02/18/05	5 NJ	--

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

ug/L Micrograms per liter

-- Not Detected

N Presumtive evidence of this constituent. Calibrations were not run for this constituent; therefore, the results should be used for qualitative purposes only.

J Estimated value

* HCFC 123a is also known as Freon 123a or 1,2-dichloro-1,1,2-trifluoroethane.

Table 13. Concentrations of Volatile Organic Compounds Detected in Blank Samples, Fourth Quarter 2004, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT (Units in ug/L)	SAMPLE TYPE:	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK
	SAMPLE ID:	TB122804	TB122904	TB123004	TB010705	TB011005	TB011105	TB011205
	DATE:	12/28/2004	12/29/2004	12/30/2004	1/7/2005	1/10/2005	1/11/2005	1/12/2005
Chloromethane		<5	<5	<5	<5	<5	<5	<5
Bromomethane		<5	<5	<5	<5	<5	<5	<5
Vinyl Chloride		<2	<2	<2	<2	<2	<2	<2
Chloroethane		<5	<5	<5	<5	<5	<5	<5
Methylene chloride		<5	<5	<5	<5	<5	<5	<5
Acetone		<10	<10	<10	<10	<10	<10	<10
Carbon disulfide		<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethene		<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethane		<5	<5	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene		<5	<5	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene		<5	<5	<5	<5	<5	<5	<5
Chloroform		<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroethane		<5	<5	<5	<5	<5	<5	<5
2-Butanone		**3 J**	<10	<10	<10	<10	<10	<10
1,1,1-Trichloroethane		<5	<5	<5	<5	<5	<5	<5
Carbon tetrachloride		<5	<5	<5	<5	<5	<5	<5
Bromodichloromethane		<5	<5	<5	<5	<5	<5	<5
1,2-Dichloropropane		<5	<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene		<5	<5	<5	<5	<5	<5	<5
Trichloroethene		<5	<5	<5	<5	<5	<5	<5
Dibromochloromethane		<5	<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane		<5	<5	<5	<5	<5	<5	<5
Benzene		<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
trans-1,3-Dichloropropene		<5	<5	<5	<5	<5	<5	<5
Bromoform		<5	<5	<5	<5	<5	<5	<5
4-Methyl-2-pentanone		<10	<10	<10	<10	<10	<10	<10
2-Hexanone		<10	<10	<10	<10	<10	<10	<10
Tetrachloroethene		<5	<5	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane		<5	<5	<5	<5	<5	<5	<5
Toluene		<5	<5	<5	<5	<5	<5	<5
Chlorobenzene		<5	<5	<5	<5	<5	<5	<5
Ethylbenzene		<5	<5	<5	<5	<5	<5	<5
Styrene		<5	<5	<5	<5	<5	<5	<5
Xylene (total)		<5	<5	<5	<5	<5	<5	<5
Vinyl Acetate		<5	<5	<5	<5	<5	<5	<5
Freon-113 *		<5	<5	<5	<5	<5	<5	<5
Total VOCs		**3**	0	0	0	0	0	0

VOCs Volatile organic compounds
ug/L Micrograms per liter
J Estimated value
B Detected in an associated method blank.
* Freon 113 also known as 1,1,1-Trichloro-2,2,2-trifluoroethane.
Bold value indicates a detection.

Table 13. Concentrations of Volatile Organic Compounds Detected in Blank Samples, Fourth Quarter 2004, Northrop Grumman Corporation, Bethpage, New York.

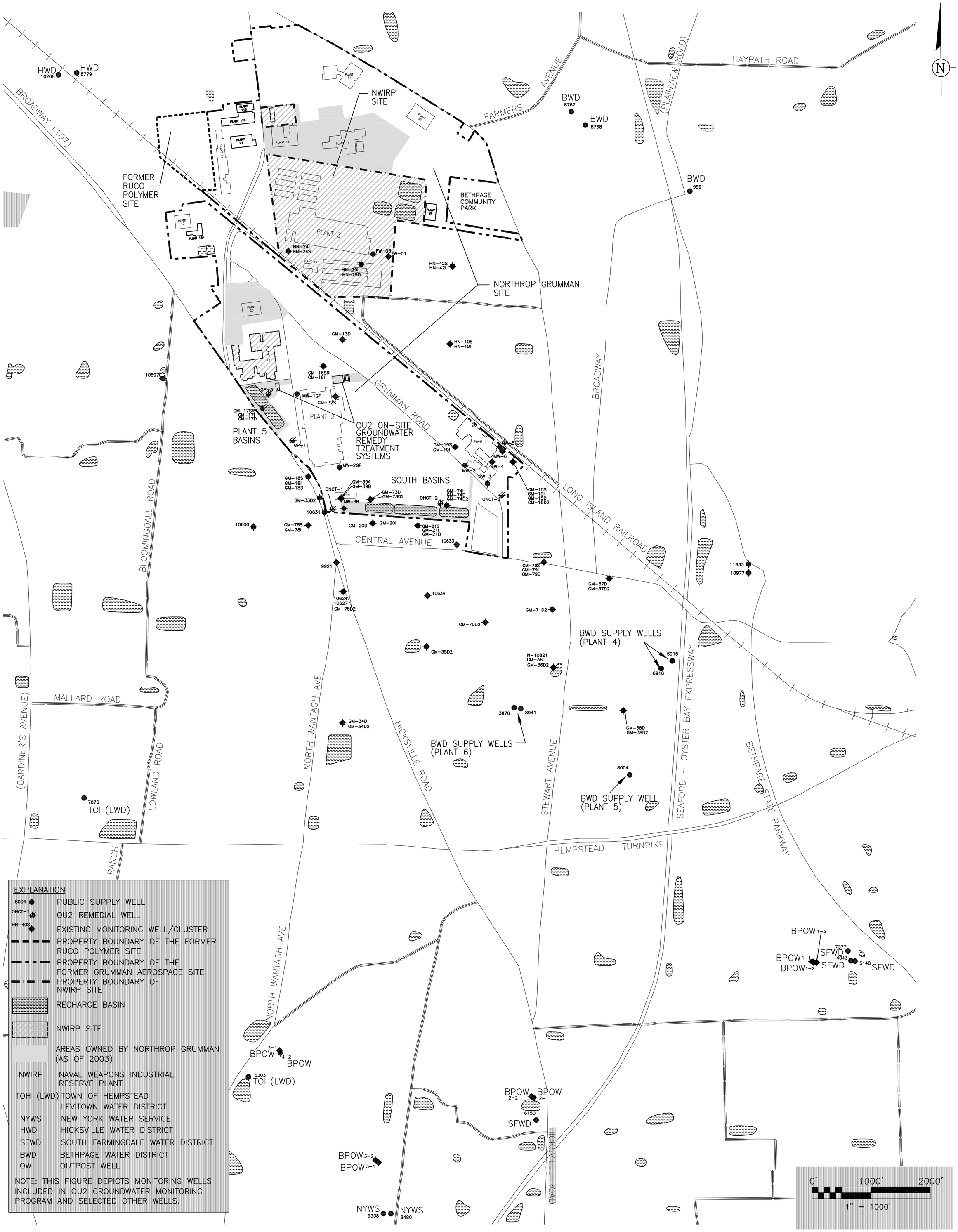
CONSTITUENT (Units in ug/L)	SAMPLE TYPE:	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	FIELD BLANK	FIELD BLANK	FIELD BLANK
	SAMPLE ID:	TB011305	TB011405	TB011705	TB021805	FB122804	FB010705	FB011005
	DATE:	1/13/2005	1/14/2005	1/17/2005	2/18/2005	12/28/2004	1/7/2005	1/10/2005
Chloromethane		<5	<5	<5	<5	<5	<5	<5
Bromomethane		<5	<5	<5	<5	<5	<5	<5
Vinyl Chloride		<2	<2	<2	<2	<2	<2	<2
Chloroethane		<5	<5	<5	<5	<5	<5	<5
Methylene chloride		<5	<5	<5	**12 B**	<5	<5	**3 J**
Acetone		<10	<10	<10	<10	<10	<10	<10
Carbon disulfide		<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethene		<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethane		<5	<5	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene		<5	<5	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene		<5	<5	<5	<5	<5	<5	<5
Chloroform		<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroethane		<5	<5	<5	<5	<5	<5	<5
2-Butanone		<10	<10	<10	<10	<10	<10	<10
1,1,1-Trichloroethane		<5	<5	<5	<5	<5	<5	<5
Carbon tetrachloride		<5	<5	<5	<5	<5	<5	<5
Bromodichloromethane		<5	<5	<5	<5	<5	<5	<5
1,2-Dichloropropane		<5	<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene		<5	<5	<5	<5	<5	<5	<5
Trichloroethene		<5	<5	<5	<5	<5	<5	<5
Dibromochloromethane		<5	<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane		<5	<5	<5	<5	<5	<5	<5
Benzene		<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
trans-1,3-Dichloropropene		<5	<5	<5	<5	<5	<5	<5
Bromoform		<5	<5	<5	<5	<5	<5	<5
4-Methyl-2-pentanone		<10	<10	<10	<10	<10	<10	<10
2-Hexanone		<10	<10	<10	<10	<10	<10	<10
Tetrachloroethene		<5	<5	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane		<5	<5	<5	<5	<5	<5	<5
Toluene		<5	<5	<5	<5	<5	<5	<5
Chlorobenzene		<5	<5	<5	<5	<5	<5	<5
Ethylbenzene		<5	<5	<5	<5	<5	<5	<5
Styrene		<5	<5	<5	<5	<5	<5	<5
Xylene (total)		<5	<5	<5	<5	<5	<5	<5
Vinyl Acetate		<5	<5	<5	<5	<5	<5	<5
Freon-113 *		<5	<5	<5	<5	<5	<5	<5
Total VOCs		0	0	0	**12**	0	0	**3**

VOCs Volatile organic compounds
ug/L Micrograms per liter
J Estimated value
B Detected in an associated method blank.
* Freon 113 also known as 1,1,1-Trichloro-2,2,2-trifluoroethane.
Bold value indicates a detection.

Table 13. Concentrations of Volatile Organic Compounds Detected in Blank Samples, Fourth Quarter 2004, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT (Units in ug/L)	SAMPLE TYPE:	FIELD BLANK	FIELD BLANK
	SAMPLE ID:	FB011105	FB011205
	DATE:	1/11/2005	1/12/2005
Chloromethane		<5	<5
Bromomethane		<5	<5
Vinyl Chloride		<2	<2
Chloroethane		<5	<5
Methylene chloride		**2 J**	**2 J**
Acetone		<10	<10
Carbon disulfide		<5	<5
1,1-Dichloroethene		<5	<5
1,1-Dichloroethane		<5	<5
cis-1,2-Dichloroethene		<5	<5
trans-1,2-Dichloroethene		<5	<5
Chloroform		<5	<5
1,2-Dichloroethane		<5	<5
2-Butanone		<10	<10
1,1,1-Trichloroethane		<5	<5
Carbon tetrachloride		<5	<5
Bromodichloromethane		<5	<5
1,2-Dichloropropane		<5	<5
cis-1,3-Dichloropropene		<5	<5
Trichloroethene		<5	<5
Dibromochloromethane		<5	<5
1,1,2-Trichloroethane		<5	<5
Benzene		<0.7	<0.7
trans-1,3-Dichloropropene		<5	<5
Bromoform		<5	<5
4-Methyl-2-pentanone		<10	<10
2-Hexanone		<10	<10
Tetrachloroethene		<5	<5
1,1,2,2-Tetrachloroethane		<5	<5
Toluene		<5	<5
Chlorobenzene		<5	<5
Ethylbenzene		<5	<5
Styrene		<5	<5
Xylene (total)		<5	<5
Vinyl Acetate		<5	<5
Freon-113 *		<5	<5
Total VOCs		**2**	**2**

VOCs Volatile organic compounds
ug/L Micrograms per liter
J Estimated value
B Detected in an associated method blank.
* Freon 113 also known as 1,1,1-Trichloro-2,2,2-trifluoroethane.
Bold value indicates a detection.



EXPLANATION

- 8004 — PUBLIC SUPPLY WELL
- ONCT-1 — OU2 REMEDIAL WELL
- HN-40S — EXISTING MONITORING WELL/CLUSTER
- PROPERTY BOUNDARY OF THE FORMER RUCO POLYMER SITE
- PROPERTY BOUNDARY OF THE FORMER GRUMMAN AEROSPACE SITE
- PROPERTY BOUNDARY OF NWIRP SITE
- RECHARGE BASIN
- NWIRP SITE
- AREAS OWNED BY NORTHROP GRUMMAN (AS OF 2003)

NWIRP	NAVAL WEAPONS INDUSTRIAL RESERVE PLANT
TOH (LWD)	TOWN OF HEMPSTEAD LEVITOWN WATER DISTRICT
NYWS	NEW YORK WATER SERVICE
HWD	HICKSVILLE WATER DISTRICT
SFWD	SOUTH FARMINGDALE WATER DISTRICT
BWD	BETHPAGE WATER DISTRICT
OW	OUTPOST WELL

NOTE: THIS FIGURE DEPICTS MONITORING WELLS INCLUDED IN OU2 GROUNDWATER MONITORING PROGRAM AND SELECTED OTHER WELLS.

Acad Version : R16.2s (LMS Tech)
User Name : ehughes
Date\Time : Mon, 22 Aug 2005 - 3:13pm
Path\Name : G:\APROJECT\Northrop Grumman\Cadd\OU2SYS-LOCATION-OLD\OU2SYS_LOCATION_REV6.dwg

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PROJECT TITLE

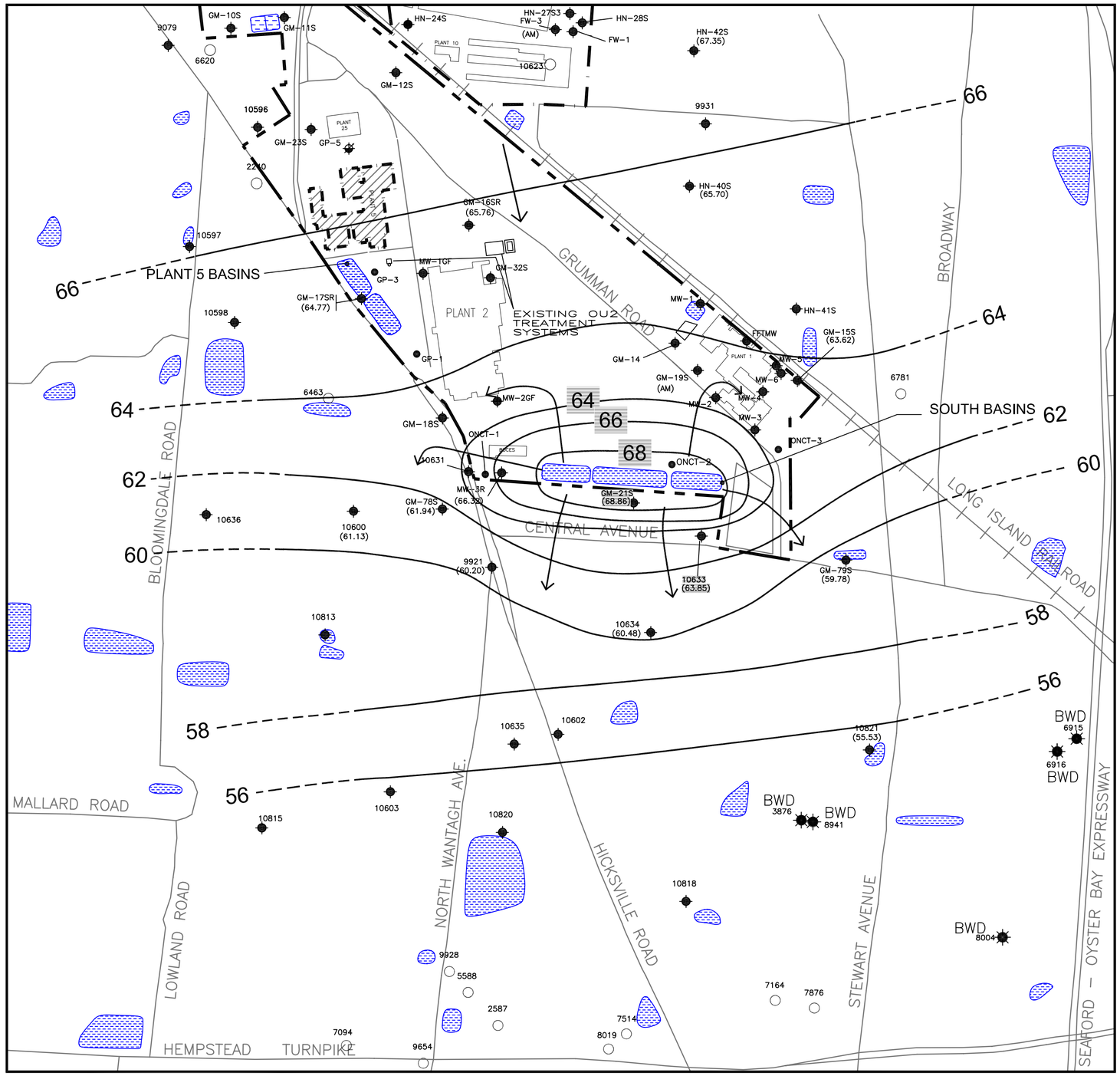
OPERABLE UNIT 2
NORTHROP GRUMMAN CORPORATION
BETHPAGE, NEW YORK

PROJECT MANAGER	DEPARTMENT MANAGER	LEAD DESIGNER	CHECKED BY
C. SAN GIOVANNI	M. WOLFERT		M. SAURBORN

SHEET TITLE

LOCATION OF OU2 ON-SITE GROUNDWATER REMEDY AND WELLS

TASK/PHASE NUMBER	DRAWN BY
00004	E. HUGHES
PROJECT NUMBER	DRAWING NUMBER
NY001348.0405	1



800 0 800 1600

SCALE: 1" = 800'

N

EXPLANATION

- PROPERTY BOUNDARY OF FORMER GRUMMAN AEROSPACE CORPORATION SITE
- PROPERTY BOUNDARY OF THE U.S. NAVY SITE
- RECHARGE BASIN
- GM-15S (63.62) — LOCATION AND DESIGNATION OF SHALLOW MONITORING WELL AND WATER-LEVEL ELEVATION IN FEET RELATIVE TO MEAN SEA LEVEL
- 3876 — LOCATION AND DESIGNATION OF BETHPAGE WATER DISTRICT PUBLIC SUPPLY WELL (SHOWN FOR REFERENCE ONLY)
- 7164 — LOCATION AND DESIGNATION OF ADDITIONAL WELL
- GP-5 — LOCATION AND DESIGNATION OF GRUMMAN INDUSTRIAL SUPPLY WELL (SHOWN FOR REFERENCE ONLY)
- ONCT-1 — LOCATION AND DESIGNATION OF ON-SITE OU2 REMEDIAL WELL (SHOWN FOR REFERENCE ONLY)
- HORIZONTAL COMPONENT OF GROUNDWATER FLOW
- 60 — LINE OF EQUAL WATER-LEVEL ELEVATION IN FEET RELATIVE TO MEAN SEA LEVEL (DASHED WHERE APPROXIMATE)

OU2 OPERABLE UNIT 2

BWD BETHPAGE WATER DISTRICT

USGS UNITED STATES GEOLOGICAL SURVEY

AM ANOMALOUS MEASUREMENT

NOTES:

1. THIS FIGURE INCLUDES LOCATIONS OF MONITORING WELLS AND PUBLIC SUPPLY WELLS AS OF SEPTEMBER 25, 2001.
2. OU2 WELLS ONCT-1, ONCT-2, ONCT-3, GP-1 AND GP-3 ARE SCREENED IN THE D2 ZONE.
3. BWD WELL 3876 IS SCREENED IN THE DEEP ZONE.
4. BWD WELLS 6915, 6916, 8004, AND 8941 ARE SCREENED IN THE D2 ZONE.
5. BASIN LOCATIONS OBTAINED FROM USGS TOPOGRAPHIC MAPS (HICKSVILLE, AMITYVILLE, HUNTINGTION, AND FREEPORT QUADRANGLES), AND INFORMATION PROVIDED BY NORTHROP GRUMMAN.

REV. ISSUED DATE DESCRIPTION

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PROJECT TITLE
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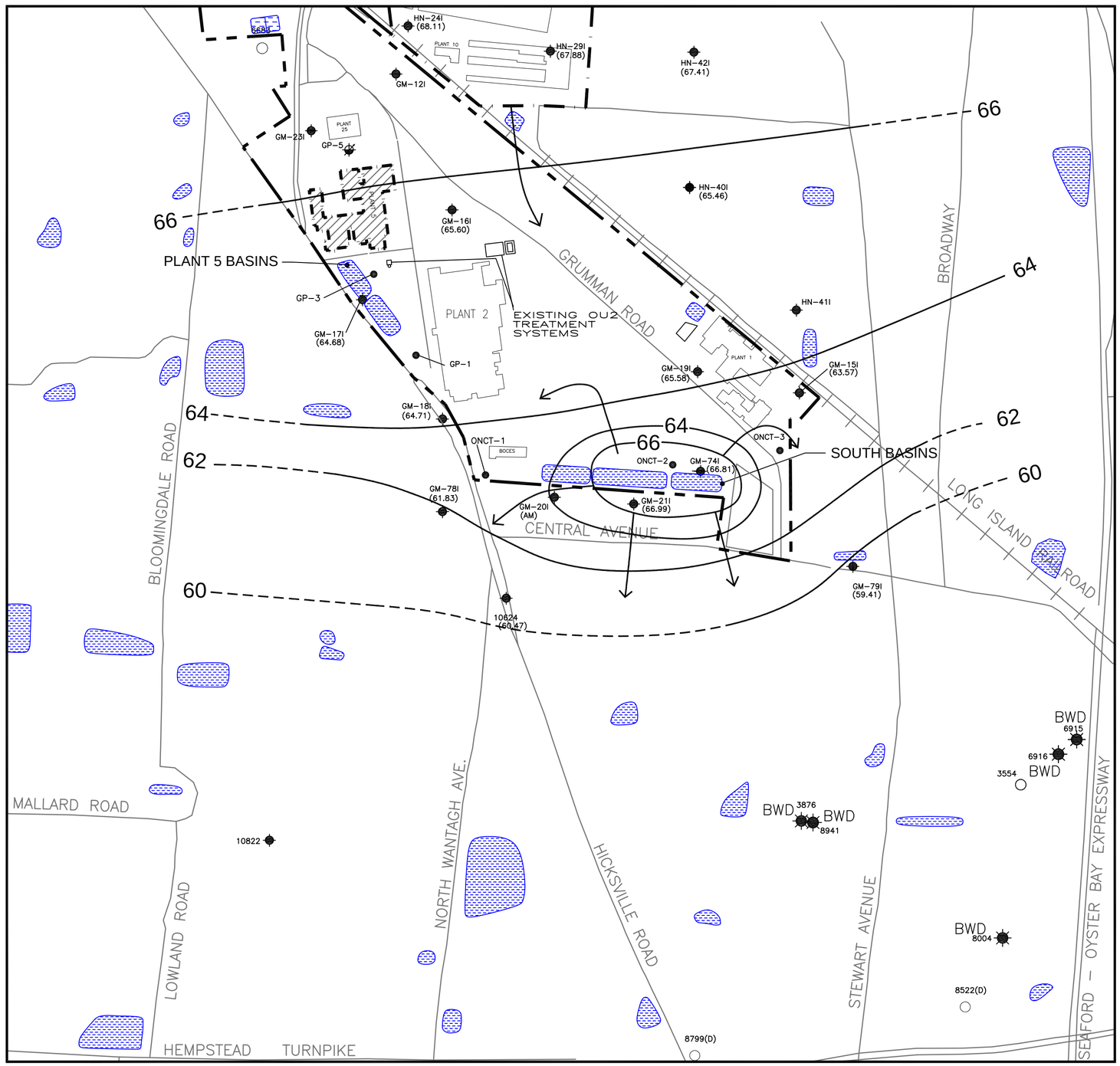
CORPORATION
BETHPAGE, NEW YORK

PROJECT MANAGER	DEPARTMENT MANAGER	LEAD DESIGN PROF.	CHECKED BY
C. SAN GIOVANNI	M. WOLFERT		M. SAURBORN

SHEET TITLE
WATER-TABLE CONFIGURATION AND HORIZONTAL GROUNDWATER FLOW DIRECTIONS IN THE SHALLOW ZONE JANUARY 17 and 18, 2005

TASK/PHASE NUMBER	DRAWN BY
00004	E. HUGHES
PROJECT NUMBER	DRAWING NUMBER
NY001348.0405	2



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SCALE: 1" = 800'

N

EXPLANATION

- PROPERTY BOUNDARY OF FORMER GRUMMAN AEROSPACE CORPORATION SITE
- PROPERTY BOUNDARY OF THE U.S. NAVY SITE
- RECHARGE BASIN
- GM-15I (63.57) — LOCATION AND DESIGNATION OF INTERMEDIATE MONITORING WELL AND WATER-LEVEL ELEVATION IN FEET RELATIVE TO MEAN SEA LEVEL
- 3876 — LOCATION AND DESIGNATION OF BETHPAGE WATER DISTRICT PUBLIC SUPPLY WELL (SHOWN FOR REFERENCE ONLY)
- 3554 — LOCATION AND DESIGNATION OF ADDITIONAL WELL
- GP-5 — LOCATION AND DESIGNATION OF GRUMMAN INDUSTRIAL SUPPLY WELL (SHOWN FOR REFERENCE ONLY)
- ONCT-1 — LOCATION AND DESIGNATION OF ON-SITE OU2 REMEDIAL WELL (SHOWN FOR REFERENCE ONLY)
- HORIZONTAL COMPONENT OF GROUNDWATER FLOW
- 60 — LINE OF EQUAL WATER-LEVEL ELEVATION IN FEET RELATIVE TO MEAN SEA LEVEL (DASHED WHERE APPROXIMATE)

OU2 OPERABLE UNIT 2

BWD BETHPAGE WATER DISTRICT

USGS UNITED STATES GEOLOGICAL SURVEY

AM ANOMOLOUS MEASUREMENT

NOTES:

1. THIS FIGURE INCLUDES LOCATIONS OF MONITORING WELLS AND PUBLIC SUPPLY WELLS AS OF SEPTEMBER 25, 2001.
2. OU2 WELLS ONCT-1, ONCT-2, ONCT-3, GP-1 AND GP-3 ARE SCREENED IN THE D2 ZONE.
3. BWD WELL 3876 IS SCREENED IN THE DEEP ZONE.
4. BWD WELLS 6915, 6916, 8004, AND 8941 ARE SCREENED IN THE D2 ZONE.
5. BASIN LOCATIONS OBTAINED FROM USGS TOPOGRAPHIC MAPS (HICKSVILLE, AMITYVILLE, HUNTINGTON, AND FREEPORT QUADRANGLES), AND INFORMATION PROVIDED BY NORTHROP GRUMMAN.

REV. ISSUED DATE DESCRIPTION

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PROJECT TITLE
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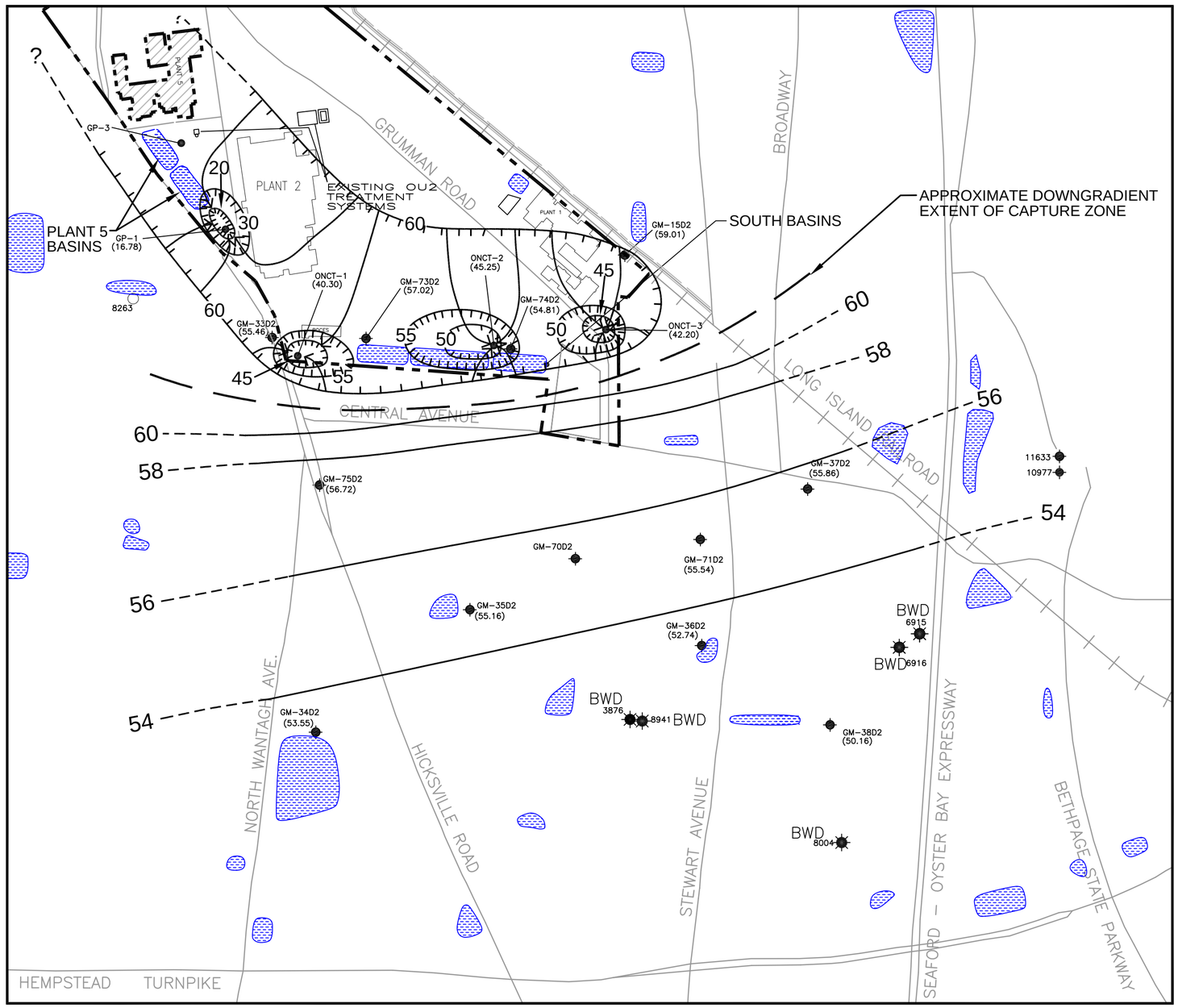
BETHPAGE, NEW YORK

PROJECT MANAGER	DEPARTMENT MANAGER	LEAD DESIGN PROF.	CHECKED BY
C. SAN GIOVANNI	M. WOLFERT		M. SAURBORN

SHEET TITLE
POTENTIOMETRIC SURFACE ELEVATION AND HORIZONTAL GROUNDWATER FLOW DIRECTIONS IN THE INTERMEDIATE ZONE JANUARY 17 and 18, 2005

TASK/PHASE NUMBER	DRAWN BY
00004	E. HUGHES
PROJECT NUMBER	DRAWING NUMBER
NY001348.0405	3



800 0 800 1600

SCALE: 1" = 800'

EXPLANATION

- PROPERTY BOUNDARY OF FORMER GRUMMAN AEROSPACE CORPORATION SITE
- RECHARGE BASIN
- GM-36D2 (52.74) — LOCATION AND DESIGNATION OF D2 MONITORING WELL AND WATER-LEVEL ELEVATION IN FEET RELATIVE TO MEAN SEA LEVEL.
- 3876 — LOCATION AND DESIGNATION OF BETHPAGE WATER DISTRICT PUBLIC SUPPLY WELL
- 8263 — LOCATION AND DESIGNATION OF ADDITIONAL WELL
- ONCT-3 (42.20) — LOCATION AND DESIGNATION OF ON-SITE OU2 REMEDIAL WELL AND WATER-LEVEL ELEVATION IN FEET RELATIVE TO MEAN SEA LEVEL
- HORIZONTAL COMPONENT OF GROUNDWATER FLOW
- 60 — LINE OF EQUAL WATER-LEVEL ELEVATION IN FEET RELATIVE TO MEAN SEA LEVEL (DASHED WHERE APPROXIMATE)
- LINE OF EQUAL WATER-LEVEL ELEVATION DENOTING A DECREASE IN POTENTIOMETRIC SURFACE ELEVATION IN FT. MSL.

OU2 OPERABLE UNIT 2
GPM GALLONS PER MINUTE
BWD BETHPAGE WATER DISTRICT
USGS UNITED STATES GEOLOGICAL SURVEY
AM ANOMALOUS MEASUREMENT

NOTES:

1. THIS FIGURE INCLUDES LOCATIONS OF MONITORING WELLS AND PUBLIC SUPPLY WELLS AS OF SEPTEMBER 25, 2001.
2. OU2 REMEDIAL WELLS GP-1, GP-3, ONCT-1, ONCT-2 AND ONCT-3 ARE SCREENED IN THE D2 ZONE. WELLS GP-1, ONCT-1, ONCT-2 AND ONCT-3 WERE PUMPING AT 1,070 GPM, 1166 GPM, 601 GPM AND 724 GPM, RESPECTIVELY, AT THE TIME OF WATER-LEVEL MEASUREMENT; WELL GP-3 WAS OFF-LINE FOR RE-DEVELOPMENT. DEPTH TO WATER READING AT ONCT-1 WAS COLLECTED ON FEBRUARY 15, 2005.
3. BWD WELL 3876 IS SCREENED IN THE DEEP ZONE.
4. BWD WELLS 6915, 6916, 8004, AND 8941 ARE SCREENED IN THE D2 ZONE.
5. BASIN LOCATIONS OBTAINED FROM USGS TOPOGRAPHIC MAPS (HICKSVILLE, AMITYVILLE, HUNTINGTON, AND FREEPORT QUADRANGLES), AND INFORMATION PROVIDED BY NORTHROP GRUMMAN.

REV. ISSUED DATE DESCRIPTION

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PROJECT TITLE
OPERABLE UNIT 2
NORTHROP GRUMMAN CORPORATION
BETHPAGE, NEW YORK

PROJECT MANAGER	DEPARTMENT MANAGER	LEAD DESIGN PROF.	CHECKED BY
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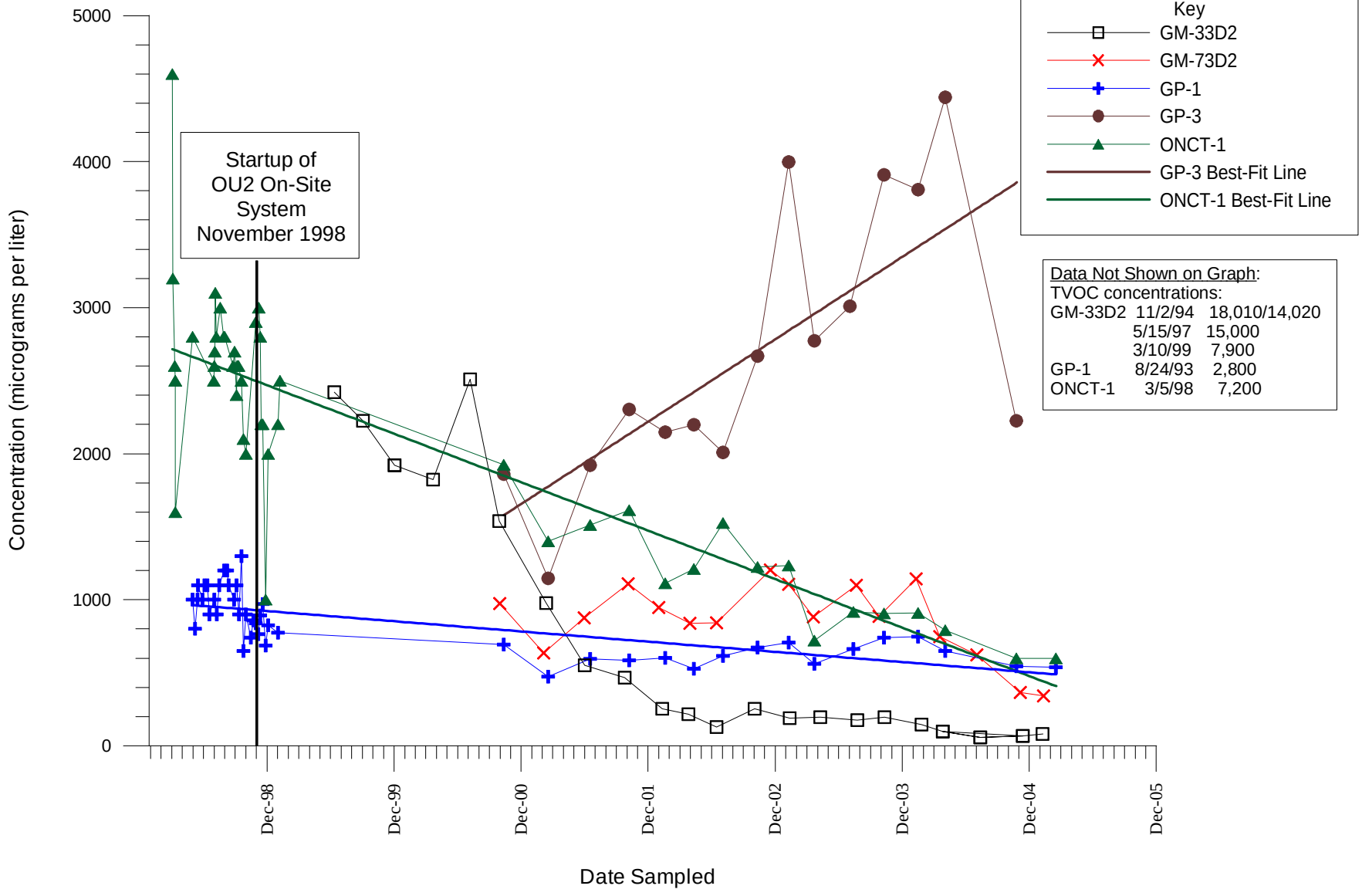
SHEET TITLE
POTENTIOMETRIC SURFACE ELEVATION AND HORIZONTAL GROUNDWATER FLOW DIRECTIONS IN THE D2 ZONE JANUARY 17 and 18, 2005

TASK/PHASE NUMBER	DRAWN BY
00004	E. HUGHES
PROJECT NUMBER	DRAWING NUMBER
NY001348.0405	4



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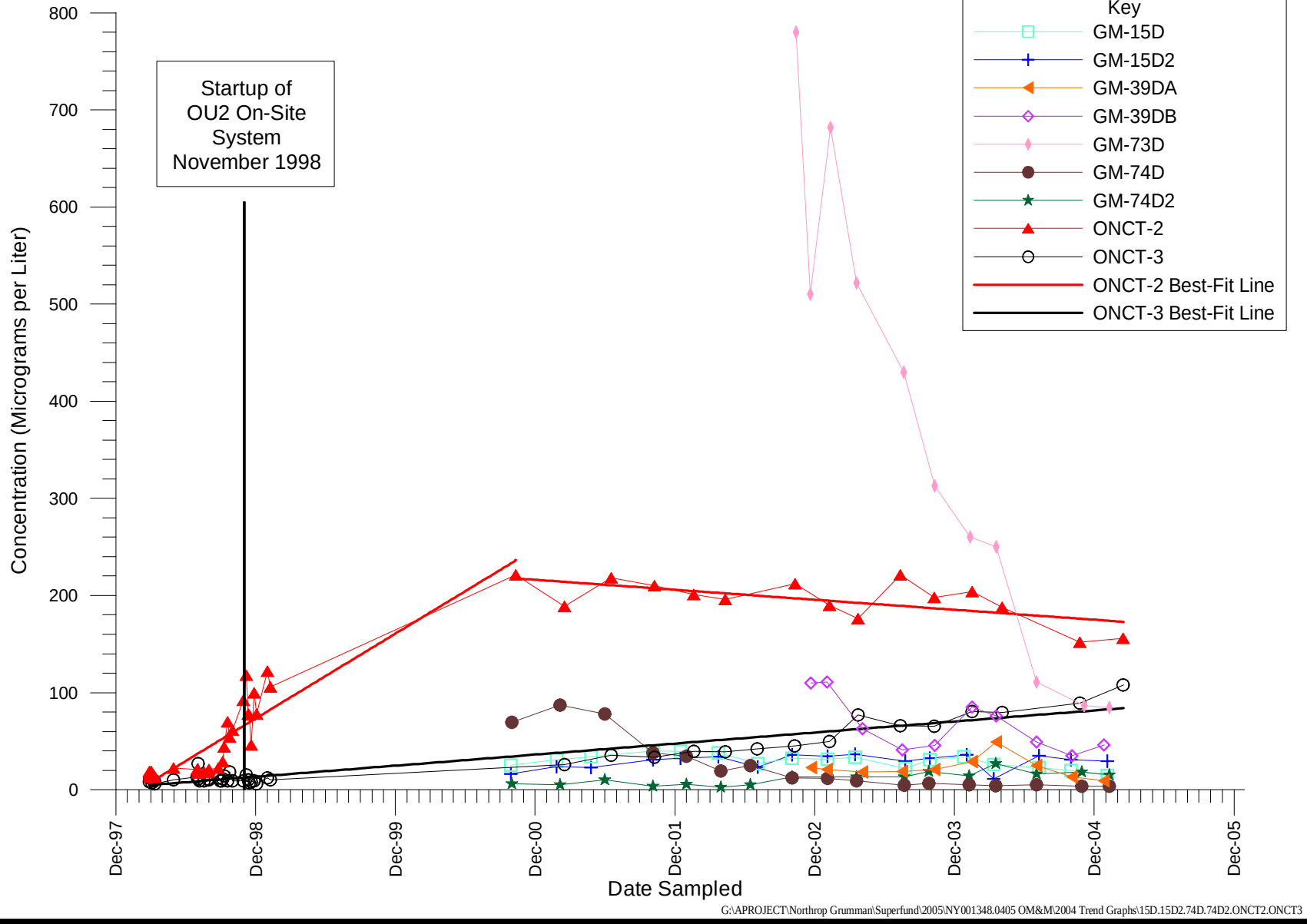
ARCADIS

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

FIGURE 5



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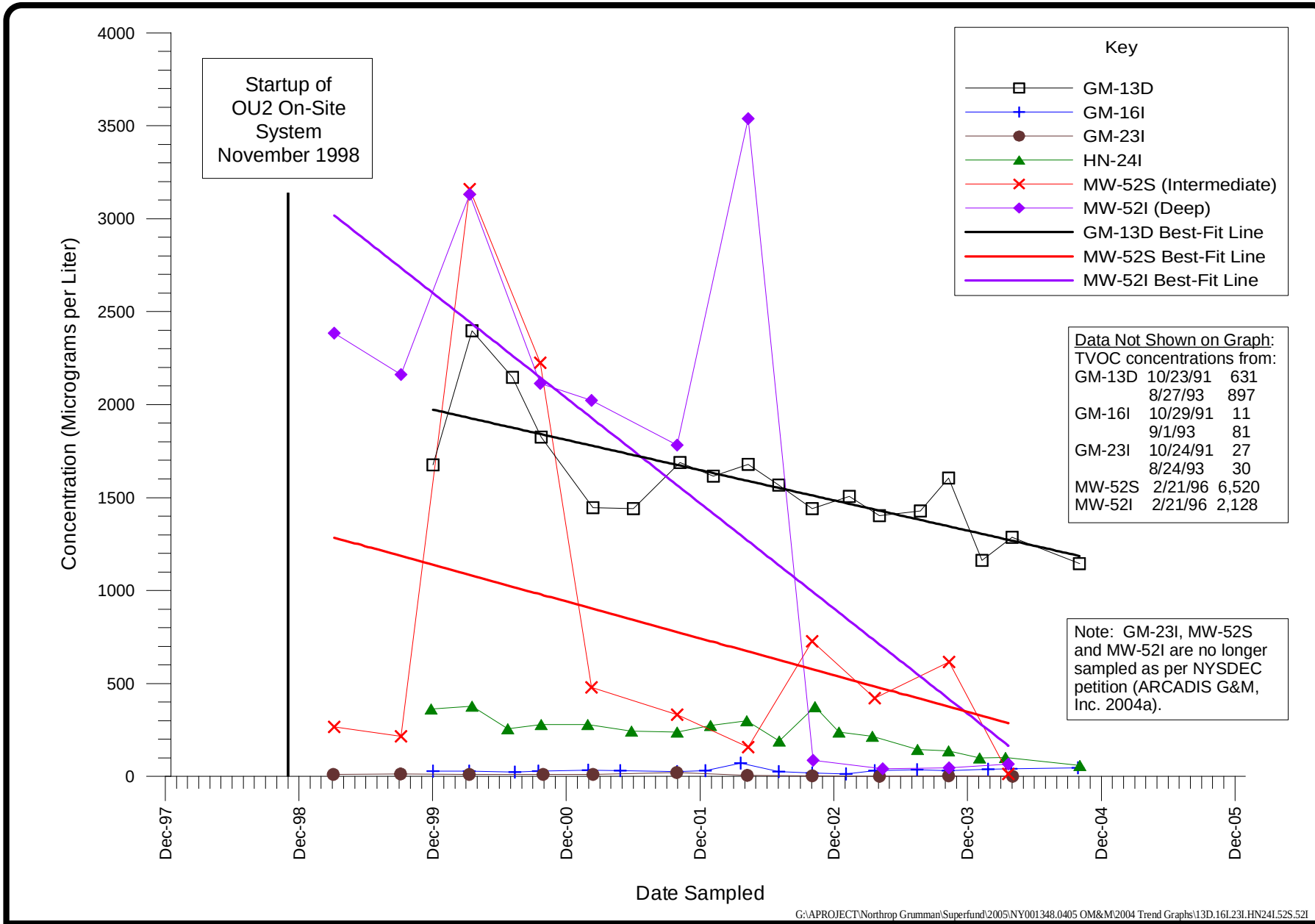
ARCADIS

**Total Volatile Organic Compound Concentrations
(Southeastern Site Boundary) in On-site Deep and Deep2
Monitoring Wells and OU2 Remedial Wells ONCT-2 and ONCT-3
Northrop Grumman Corporation, Bethpage, New York**

**FIGURE
6**



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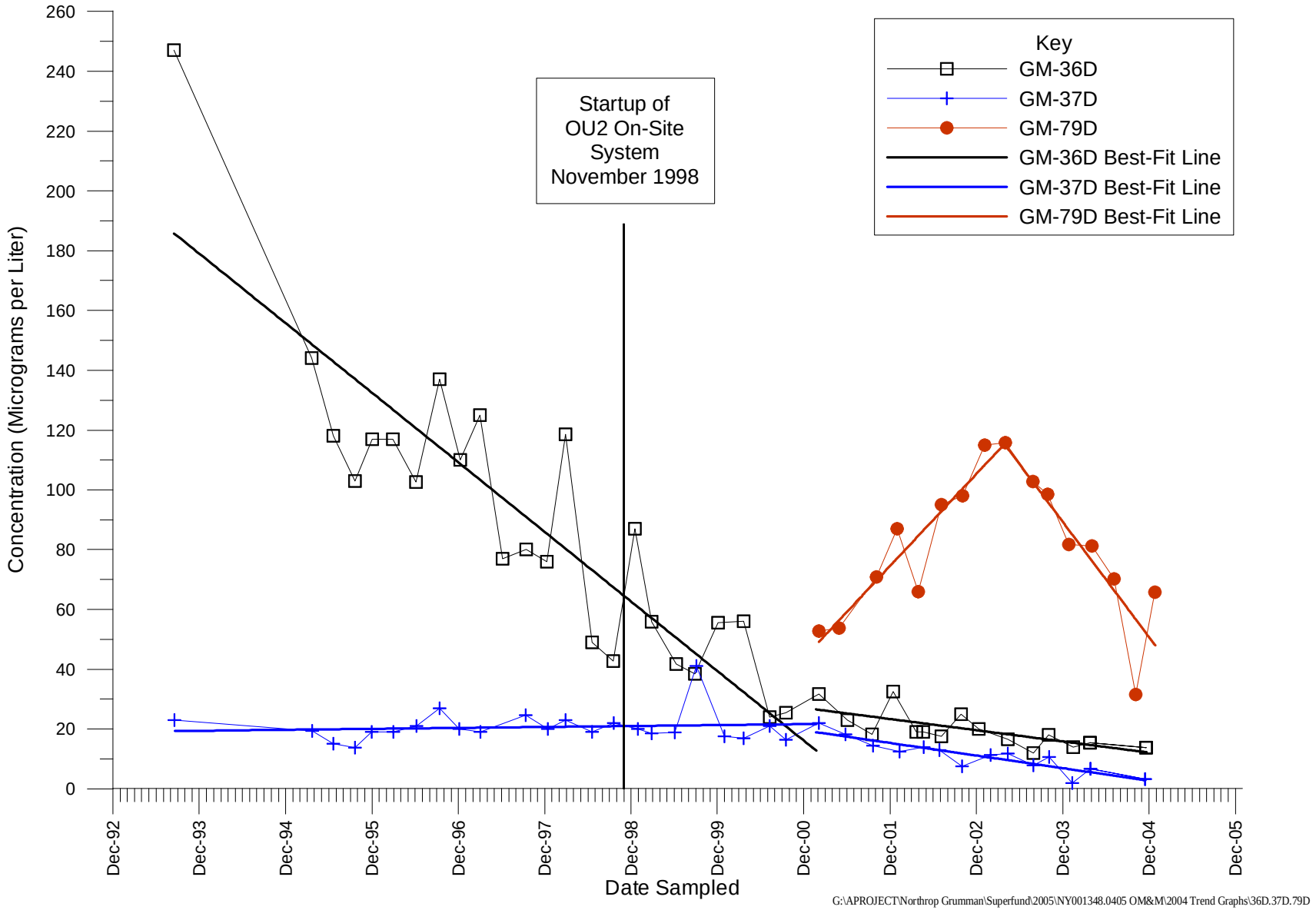
Total Volatile Organic Compound Concentrations in On-site Intermediate and Deep Monitoring Wells Northrop Grumman Corporation, Bethpage, New York

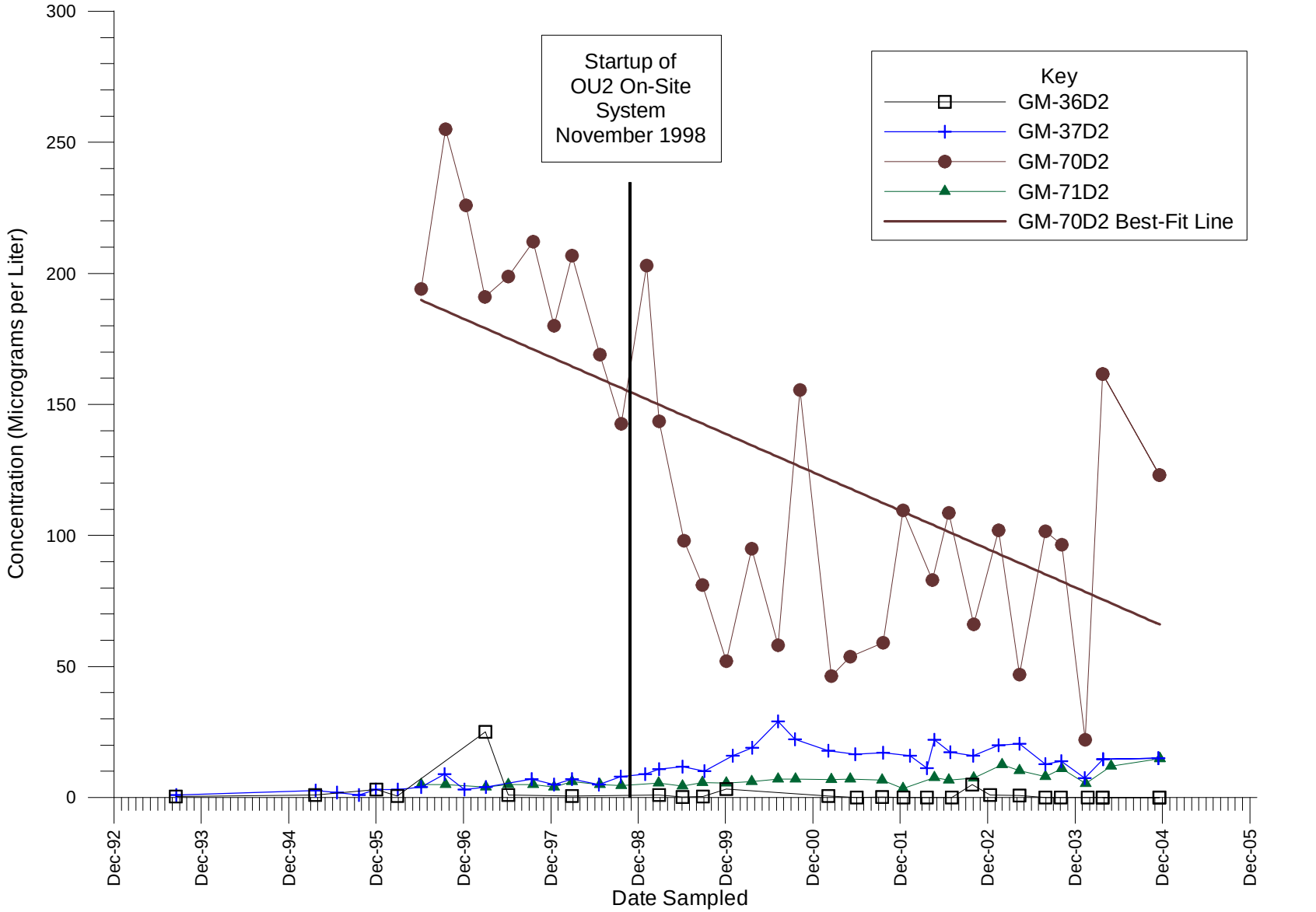
FIGURE 7



ARCADIS

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

FIGURE 8



G:\APROJECT\Northrop Grumman\Superfund\2005\NY001348.0405 OM&M\2004 Trend Graphs\36D2.37D2.70D2.71D2

ARCADIS

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

FIGURE 9

Appendix A

Water-Level Measurement Logs

ARCADIS G&M

Water Level Record

Project NY001348.0404.00002

Date 11/7/05

Well (s)	Depth to Water (ft)	Time	Remarks
ONCT-3	66.50	11:45 AM	Pumpage Rate 724.0 GPM
GM-15S	45.82	-	-
GM-15I	45.68	-	Missing Bolts
GM-15D2	50.77	-	Missing Bolts
GM-15D	48.20	-	-
GM-19S	43.85	-	-
GM-19I	44.28	-	-
GM-13D	48.00	-	Needs lock
FW-03	57.83	-	-
HN-29I	48.54	-	-
HN-29D	48.69	-	-
HN-24I	57.69	-	Needs Lock
HN-24S	53.92	-	-
GP-1	-	-	100 Reading 120' Length of tube, 1070 GPM
GM-16I	50.21	-	-
GM-16SR	50.10	-	Needs New Manhole (8" cover)
GM-17SR	51.02	-	-
GM-17I	51.15	-	-
GM-17D	52.04	-	-
GM-18D	47.07	-	-
GM-18I	44.32	-	-
ONCT-1	-	-	1166 GPM
MW-3R	35.13	-	-
GM-74I	40.61	-	-
GM-74D	46.21	-	-
GM-74D2	52.55	-	-
ONCT-2	64.75	-	601 GPM
GM-73D2	47.60	-	-
GM-73D	45.37	-	-
GM-39D2	43.41	-	-
GM-39D	40.15	-	Needs lock
N-10600	41.28	-	-
GM-78S	43.00	-	-
GM-78I	43.23	-	-
GM-75D2	36.91	-	-
N-10627	33.91	-	-
N-10624	33.14	-	-
BPOW 1-1	30.04	-	-
BPOW 1-2	31.02	-	-
BPOW 1-3	30.78	-	-

Water Level Record

Project NY001348.0404.00002

Date 1/17/05

Well (s)	Depth to Water (ft)	Time	Remarks
BPOW 2-2	20.91	–	–
BPOW 2-1	20.72	–	–
BPOW 3-2	28.11	–	–
BPOW 3-1	26.89	–	–
BPOW 4-2	16.32	–	–
BPOW 4-1	26.50	–	–
N-10634	40.72	–	–
GM-35D2	41.12	–	–
GM-71D2	42.91	–	–
N-10821	36.05	–	–
GM-36D	36.42	–	–
GM-36D2	38.86	–	–
GM-38D	39.60	–	–
GM-38D2	41.40	–	–
GM-37D	40.56	–	1-18-05
GM-37D2	41.31	–	1-18-05
GM-34D2	17.64	–	1-18-05
GM-34D	16.00	–	1-18-05
GM-20I	35.52	–	1-18-05
GM-20D	38.60	–	1-18-05
N-10633	39.95	–	1-18-05
GM-21D	44.04	–	1-18-05
GM-21I	38.73	–	1-18-05
GM-21S	36.95	–	1-18-05
GM-33D2	51.39	–	1-18-05
GM-18S	Inaccessible	–	1-18-05
N-10631	Inaccessible	–	1-18-05
N-9921	34.03	–	1-18-05
GM-79S	41.10	–	1-18-05
GM-79D	42.89	–	1-18-05
GM-79I	41.47	–	1-18-05
HN-40S	50.65	–	1-18-05
HN-40I	50.45	–	1-18-05
HN-42S	52.97	–	1-18-05
HN-42I	52.20	–	1-18-05
	–	–	–
	–	–	–
	–	–	–
–	–	–	–
–	–	–	–

Appendix B

Groundwater Sampling Logs

Water Sampling Log

Project: Northrop Grumman NY001348.1004.00002 | Project No.: — | Page 1 of 1

Site Location: BETHPAGE, New York | Date: 1-7-05

Site/Well No.: GM-15S | Replicate No.: N/A | Code No.: —

Weather: 40° | Sampling Time: Begin 3:22pm End 3:25pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	80
Depth to Water (ft bmp)	45.75
Water-Level Elevation (ft)	
Water Column in Well (ft)	34.25
Casing Diameter/Type	4" (0.65)
Gallons in Well	22.26
Gallons Pumped/Bailed Prior to Sampling	66.78 (x3)
Sample Pump Intake Setting (ft bmp)	—
Purge Time	begin 2:49 end 3:21
Pumping Rate (gpm)	2gpm
Evacuation Method	Rediflow pump

Field Parameters

Field Parameters	1	1U	2U	3U
Color	—	—	—	Colorless
Odor	—	—	—	None
Appearance	—	—	—	Cloudy
pH (s.u.)	6.77	6.06	6.08	5.77
Conductivity (mS/cm) → (µmhos/cm)	447	481	486	474
	—	—	—	—
Turbidity (NTU)	383	68	16.3	11.7
Temperature (°C)	15.2	15.1	14.6	15.2
Dissolved Oxygen (mg/L)	—	—	—	—
Salinity (%)	2.18	2.39	3.10	3.21

Sampling Method: 3 well volume

Remarks: Q=2 T=33 V=11

PID reading at wellhead: Zero

Constituents Sampled	Container Description	Number	Preservative
SOF COC			

Sampling Personnel: C.W. PE

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS GERAGHTY & MILLER

Water Sampling Log

Project: Northrop Grumman Project No. NY001348.0404.00002 Page 1 of 1

Site Location: Bethpage, New York Date 11/7/05

Site/Well No. GM-15I Replicate No. N/A Code No. —

Weather: Mostly cloudy Sampling Time: Begin 3:05pm End 3:07pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	105
Depth to ~~Water~~ packer (ft bmp)	94
Water-Level Elevation (ft)	—
Water Column in Well (ft)	11
Casing Diameter/Type	4" (0.65)
Gallons in Well	7.15 x 3
Gallons Pumped/Bailed Prior to Sampling	21.45
Sample Pump Intake Setting (ft bmp)	—
Purge Time	begin 2:07pm end 3:05pm
Pumping Rate (gpm)	—
Evacuation Method	Dedicated Bladder/packer

Field Parameters	I	1V	2V	3V
Color	Colorless	Colorless	Colorless	Colorless
Odor	None	None	None	None
Appearance	clear	clear	clear	clear
pH (s.u.)	5.75	5.68	5.72	5.74
Conductivity ~~(mS/cm)~~	—	—	—	—
(µmhos/cm)	241	241	248	260
Turbidity (NTU)	—	—	—	9.90
Temperature (°C)	11.3	14.1	12.5	14.8
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ 5 gallon containers	—	½	½	½

Sampling Method: 3 well volume

Remarks: PID reading at wellhead zero

DTW = 46.64

94 - 46.64 x .43 + 50 = 75 PSI (Rounded up)

Needs new lock

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: B.P.

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Milisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 00002 Well ID: GM-15D
Date: 1/7/05 Sampled By: PP
Sampling Time: 11:35AM Recorded By: PP
Weather: Mostly cloudy 40 Coded Replicate No.: N/A

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

Purging Information
Casing Material: PVC Purge Method: Dedicated Bladder/Low Flow
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): 49.33 Purge time Start: 10:35AM Finish: 11:35AM

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. (µS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
10:35	-	-	-	10.6	5.55	163.6	160.7	6.75	-	-	-
10:40	-	-	-	12.4	5.16	166.2	198.2	2.34	-	49.33	-
10:45	-	-	-	12.2	5.14	169.7	213	2.36	-	-	-
10:50	-	-	-	11.0	5.11	172.6	223	2.72	-	49.33	-
10:55	-	-	-	10.6	5.09	173.2	228	2.89	-	-	-
11:00	-	-	-	10.7	5.08	173.2	223	2.81	-	49.33	-
11:05	-	-	-	10.6	5.08	173.5	224	2.70	-	-	-
11:10	-	-	-	10.7	5.08	173.7	224	2.68	-	49.33	-
11:15	-	-	-	10.9	5.08	173.2	223	2.64	-	-	-
11:20	-	-	-	10.9	5.08	172.1	220	2.58	-	49.33	-
11:25	-	-	-	10.8	5.08	171.7	206	2.73	-	-	-
11:30	-	-	-	10.8	5.08	171.6	209	2.57	-	49.33	-
11:35	-	-	-	10.7	5.08	171.1	212	2.57	9.68	-	-

Sample Condition Color: Colorless Odor: None Appearance: Clear

Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading: At wellhead 0.0, BZ 0

Comments: ———

C:\PROJECT\WHCS Methods\ERD Flow Test\lowflowsampleforms.xls-LoFlo-GW-Samp

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 00002 Well ID: GM-15D2

Date: 1/7/05 Sampled By: PP

Sampling Time: 1:30pm Recorded By: PP

Weather: Mostly cloudy, 42° Coded Replicate No.: N/A

Instrument Identification

Water Quality Meter(s): / Serial #: /

Purging Information

Casing Material: PVC Purge Method: Dedicated Bladder / Low Flow

Casing Diameter: 4" Screen Interval (ft bmp): Top 536 Bottom 556

Sounded Depth (ft bmp): 556 Pump Intake Depth (ft bmp): 546

Depth to Water (ft bmp): 52.14 Purge time Start: 12:30pm Finish: 1:30pm

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. (mS/cm) μS	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
12:30	-	-	-	9.4	5.53	121.3	171.6	5.79	-		-
12:35	-	-	-	12.4	5.40	91.9	173.0	1.96	-	52.14	-
12:40	-	-	-	12.9	5.34	81.8	177.5	3.41	-	-	-
12:45	-	-	-	11.6	5.38	90.7	183.8	5.23	-	52.14	-
12:50	-	-	-	11.7	5.39	80.5	186.4	4.71	-	-	-
12:55	-	-	-	11.9	5.39	80.0	186.7	5.31	-	52.14	-
1:00	-	-	-	12.1	5.40	79.4	191.8	5.46	-	-	-
1:05	-	-	-	12.0	5.40	79.2	194.8	5.41	-	52.14	-
1:10	-	-	-	11.8	5.39	79.2	197.1	5.10	-	-	-
1:15	-	-	-	11.8	5.39	79.1	195.0	5.31	-	52.14	-
1:20	-	-	-	12.0	5.41	78.8	202	5.23	-	-	-
1:25	-	-	-	11.9	5.39	79.1	204	5.31	-	52.15	-
1:30	-	-	-	11.8	5.40	79.1	205	5.26	6.92	-	-

Sample Condition Color: Colorless Odor: None Appearance: Clear

Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading: At Wellhead 1.9, Breathing Zone 0

Comments: Need New lock on well

ARCADIS GERAGHTY & MILLER

Water Sampling Log

Project: Northrop Grumman Project No. NY001348.0404.00002 Page 1 of 1

Site Location: Bethpage, New York Date 1/10/05

Site/Well No. GM-17SR Replicate No. N/A Code No. —

Weather Mostly cloudy 46° Sampling Time: Begin 2:21pm End 2:25pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	70
Depth to Water (ft bmp)	51.95
Water-Level Elevation (ft)	—
Water Column in Well (ft)	18.05
Casing Diameter/Type	4" (0.65)
Gallons in Well	11.73 × 3
Gallons Pumped/Bailed Prior to Sampling	35.2
Sample Pump Intake Setting (ft bmp)	Q=1 T=36 1V=12
Purge Time	begin 1:44pm end 2:20pm
Pumping Rate (gpm)	1gpm
Evacuation Method	Rediflow pump

Field Parameters	I	1V	2V	3V
Color	colorless	colorless	colorless	colorless
Odor	None	None	None	None
Appearance	clear	clear	clear	clear
pH (s.u.)	5.90	6.47	6.49	6.49
Conductivity ~~(mS/cm)~~	—	—	—	—
(µmhos/cm)	79.3	78.9	78.5	78.5
Turbidity (NTU)	12	11	10	9.6
Temperature (°C)	12.8	13.5	13.6	13.6
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ Time	1:44	1:56	2:08	2:20 pm

Sampling Method: 3 well Volume

Remarks: PID reading at wellhead Zero

Hole in hose

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: G.W. P.P.

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Milisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Miligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 00002 Well ID: GM-17 I
Date: 1/10/05 Sampled By: G.W. / P.P.
Sampling Time: 1:30 pm Recorded By: PP
Weather: Partly cloudy 46° Coded Replicate No.: N/A

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

Purging Information
Casing Material: PVC Purge Method: Dedicated Bladder / Low Flow
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): 52.12 Purge time Start: 12:40 pm Finish: 1:30 pm

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. (uS)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
12:40	—	—	—	11.6	6.26	107.3	184.4	8.40	—	—	—
12:45	—	—	—	12.2	6.32	104.5	183.4	7.88	—	52.10	—
12:50	—	—	—	12.8	6.47	103.3	181.4	7.97	—	—	—
12:55	—	—	—	12.9	6.49	103.2	182.0	7.33	—	52.10	—
1:00	—	—	—	13.4	6.50	102.6	187.2	7.30	—	—	—
1:05	—	—	—	13.7	6.50	102.5	148.8	7.61	—	52.10	—
1:10	—	—	—	13.8	6.51	102.5	162.9	7.89	—	—	—
1:15	—	—	—	13.7	6.51	102.8	171.1	7.96	—	52.10	—
1:20	—	—	—	13.7	6.52	102.5	176.3	7.28	—	—	—
1:25	—	—		—	—	—	—	—	—	—	Set rediflow pump
1:30	—	—	—	—	6.52	—	—	—	10.0	52.10	—

Sample Condition Color: Colorless Odor: None Appearance: clear

Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading: At wellhead Zero

Comments: /

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 00002 Well ID: GM-17 D

Date: 1/10/05 Sampled By: G.W. P.P.

Sampling Time: 12:30pm Recorded By: PP

Weather: Partly cloudy 45° Coded Replicate No.: N/A

Instrument Identification

Water Quality Meter(s): / Serial #: /

Purging Information

Casing Material: PVC Purge Method: Dedicated Bladder/Low Flow

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): 53.12 Purge time Start: 11:30 A.M. Finish: 12:30pm

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. (uS) ~~(mS/cm)~~	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
11:30	—	—	—	11.6	5.52	101.9	171.8	9.53	—	—	
11:35	—	—	—	12.8	5.55	100.6	189.5	6.34	—	53.13	
11:40	—	—	—	13.2	5.55	99.9	197.4	7.06	—	—	
11:45	—	—	—	13.5	5.55	100.3	216	6.73	—	53.13	
11:50	—	—	—	13.5	5.55	100.7	174.1	6.48	—	—	
11:55	—	—	—	13.4	5.54	100.5	197.7	6.76	—	53.13	
12:00	—	—	—	13.4	5.52	100.6	208	7.18	—	—	
12:05	—	—	—	13.4	5.52	100.6	211	7.01	—	53.13	
12:10	—	—		13.5	5.52	100.9	215	6.44	—	—	
12:15	—	—	—	13.5	5.52	100.9	219	6.88	—	53.13	
12:20	—	—	—	13.4	5.52	100.8	221	6.44	—	—	
12:25	—	—	—	13.4	5.51	100.6	222	7.07	—	53.13	
12:30	—	—	—	13.5	5.51	100.5	223	6.85	9.5	—	

Sample Condition Color: Colorless Odor: None Appearance: Clear

Sample Collection

Parameter: See COC Container: No. Preservative:

PID Reading At Wellhead Zero

Comments /

C:\AFPROJECT\WHCS Melville\ERD Pilot Test\lowflowsamplorms.xls-LoFlo-GW-Samp

Water Sampling Log

Project: Northrop Grumman | Project No. NY001348.0404.0002 | Page 1 of 1

Site Location: Bethpage, NY | Date: 11/17/05

Site/Well No.: GM-18I | Replicate No.: N/A | Code No.: —

Weather: Partly cloudy Light Breeze 33° | Sampling Time: Begin 2:21pm End 2:23pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	105
Depth to ~~Water~~ Packer (ft bmp)	94
Water-Level Elevation (ft)	—
Water Column in Well (ft)	11
Casing Diameter/Type	4" (0.65) / PVC
Gallons in Well	7.15 x3
Gallons Pumped/Bailed Prior to Sampling	22
Sample Pump Intake Setting (ft bmp)	—
Purge Time	begin 12:25pm end 2:21pm
Pumping Rate (gpm)	—
Evacuation Method	Dedicated Bladder/packer

Field Parameters

Field Parameters	I	1V	2V	3V
Color	Colorless	Colorless	Colorless	Colorless
Odor	NONE	NONE	NONE	NONE
Appearance	clear with some Black specks	Clear w/ trace Black specks		Clear w/ trace Black specks
pH (s.u.)	6.14	6.00	5.81	5.75
Conductivity ~~(mS/cm)~~ (µmhos/cm)	114.2	228	309	387
Turbidity (NTU)	—	—	—	29
Temperature (°C)	15.9	15.1	16.0	16.0
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ 5 gallon container	—	½	½	½

Sampling Method: 3 well volume

Remarks: PID reading at wellhead zero. Restarted after replacing threaded coupling.

DTW = 44.32

94 − 44.32 x .43 + 50 = 90 PSI Rounded up

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: PP

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Milisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 00002 Well ID: GM-18D
Date: 12/29/04 Sampled By: PB
Sampling Time: 4:40pm Recorded By: PB
Weather: Overcast 44° Coded Replicate No.: N/A

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

Purging Information
Casing Material: PVC Purge Method: Dedicated Bladder / Low Flow
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): 48.54 Purge time Start: 3:40pm Finish: 4:40pm

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. ~~mS/cm~~ µS/cm	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
3:40	—	—	—	14.1	5.90	109.0	294	8.20	—	—	—
3:45	—	—	—	14.1	5.82	104.7	296	7.40	—	48.53	—
3:50	—	—	—	14.0	5.83	103.8	299	7.22	—	—	—
3:55	—	—	—	13.2	5.87	104.4	302	6.61	—	48.53	—
4:00	—	—	—	12.9	5.88	104.7	261	7.00	—	—	—
4:05	—	—	—	12.9	5.85	104.7	264	6.73	—	48.54	—
4:10	—	—	—	12.9	5.87	104.5	275	7.21	—	—	—
4:15	—	—	—	13.0	5.87	104.6	279	6.83	—	48.53	—
4:20	—	—	—	12.9	5.87	104.4	286	7.32	—	—	—
4:25	—	—	—	12.9	5.86	104.6	290	7.08	—	48.54	—
4:30	—	—	—	12.8	5.85	104.4	253	6.65	—	—	—
4:35	—	—	—	12.8	5.86	104.4	272	6.81	—	48.53	—
4:40	—	—	—	12.8	5.88	104.5	277	7.03	9.98	—	—

Sample Condition Color: — Odor: — Appearance: —
Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading: At Wellhead Zero

Comments: —

Water Sampling Log

Project: Northrop Grumman | Project No. NY001348.0404.00002 | Page 1 of 1
Site Location: Bethpage, NY | Date: 12/30/04
Site/Well No.: GM-20I | Replicate No.: N/A | Code No.: —
Weather: clear 45° | Sampling Time: Begin 1:58pm End 2:00pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	/
Land Surface Elevation (ft)	/
Sounded Well Depth (ft bmp)	105
Depth to ~~Water~~ Packer (ft bmp)	94
Water-Level Elevation (ft)	/
Water Column in Well (ft)	11
Casing Diameter/Type	4" (0.65)
Gallons in Well	7.15 x 3
Gallons Pumped/Bailed Prior to Sampling	21.45
Sample Pump Intake Setting (ft bmp)	/
Purge Time	begin 12:45 pm end 1:58pm
Pumping Rate (gpm)	/
Evacuation Method	Dedicated Bladder/packer

Field Parameters

Field Parameters	I	1V	2V	3V
Color	Colorless	colorless	colorless	colorless
Odor	None	None	None	None
Appearance	clear	clear	clear	clear
pH (s.u.)	10.65	10.76	10.68	10.63
Conductivity ~~(mS/cm)~~	—	—	—	—
(µmhos/cm)	131.8	135.6	131.1	137.2
Turbidity (NTU)	—	—	—	12.3
Temperature (°C)	15.2	15.7	15.6	15.5
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ 5 gallon container	—	½	½	½

Sampling Method: 3 well Volume

Remarks: DTW = 38.94

Depth to packer − DTW x .43 (4" casing) + 50 = PSI (Round up)

94 − 38.94 x .43 + 50 = 80 PSI

PID reading at wellhead Zero

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: QP

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Milisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

Water Sampling Log

Project: Northrop Grumman | Project No. NY001348.0404.0002 | Page 1 of 1

Site Location: Bethpage, New York | Date: 12/30/04

Site/Well No.: GM-20D | Replicate No.: N/A | Code No.: —

Weather: clear 45° | Sampling Time: Begin 11:45AM | End 11:47AM

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	226
Depth to ~~Water~~ packer (ft bmp)	215
Water-Level Elevation (ft)	—
Water Column in Well (ft)	11
Casing Diameter/Type	4" (0.65)
Gallons in Well	7.15 x 3
Gallons Pumped/Bailed Prior to Sampling	21.45
Sample Pump Intake Setting (ft bmp)	—
Purge Time	begin 10:00 AM end 11:45 AM
Pumping Rate (gpm)	—
Evacuation Method	Dedicated Bladder/packer

Field Parameters

Field Parameters	I	1V	2V	3V
Color	Colorless	colorless	colorless	colorless
Odor	None	None	None	None
Appearance	clear	clear	clear	clear
pH (s.u.)	5.94	6.13	6.02	5.96
Conductivity ~~(mS/cm)~~	—	—	—	—
(µmhos/cm)	99.4	102.9	104.2	102.9
Turbidity (NTU)	—	—	—	9.91
Temperature (°C)	14.4	14.3	14.1	14.3
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ 5 gallon containers	—	~~½~~	½	~~½~~

Sampling Method: 3 well volume

Remarks: DTW = 40.31

Depth to packer − DTW × .43 (4" casing) + 50 = 130 PSI

215 − 40.31 × .43 + 50 = Rounded up

PID reading at wellhead zero

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: PP

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Milisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Miligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

Water Sampling Log

Project: Northrop Grumman | Project No. NY001349.0404.00002 | Page 1 of 1

Site Location: Bethpage, NY | Date 11/10/05

Site/Well No. GM-21S | Replicate No. N/A | Code No. —

Weather: Windy 45° | Sampling Time: Begin 4:58 pm End 5:00 pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	67
Depth to Water (ft bmp)	36.40
Water-Level Elevation (ft)	—
Water Column in Well (ft)	
Casing Diameter/Type	2" (0.16)
Gallons in Well	4.896 × 3
Gallons Pumped/Bailed Prior to Sampling	15
Sample Pump Intake Setting (ft bmp)	Q=1 T=15 1v=5
Purge Time	begin 4:42 pm end 4:57 pm
Pumping Rate (gpm)	1 gpm
Evacuation Method	Rediflow pump

Field Parameters

Field Parameters	I	1v	2v	3v
Color	Brown	tan	colorless	Colorless
Odor	slight	None	None	
Appearance	Turbid	turbid	clear	clear
pH (s.u.)	9.02	9.24	8.05	7.84
Conductivity ~~(mS/cm)~~	—	—	—	—
(µmhos/cm)	94.1	105.3	106.6	106.6
Turbidity (NTU)	—	—	—	17
Temperature (°C)	12.2	11.2	11.1	11.1
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ Time	4:42	4:47	4:52	4:57

Sampling Method: 3 well Volume

Remarks: PID reading at wellhead Zero

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: G.W. I.P.

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Milisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Miligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

Water Sampling

Project: Northrop Grumman Project No. N400134B.0404.00002 Page 1 of 1

Site Location: Bethpage, New York Date: 1/13/05

Site/Well No.: GM-21I Replicate No.: N/A Code No.: —

Weather: Fog 55° Sampling Time: Begin 5:04pm End 5:06pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	140
Depth to ~~Water~~ packer (ft bmp)	129
Water-Level Elevation (ft)	—
Water Column in Well (ft)	11
Casing Diameter/Type	4" (0.65)
Gallons in Well	7.15
Gallons Pumped/Bailed Prior to Sampling	x3 21.45
Sample Pump Intake Setting (ft bmp)	—
Purge Time	begin 4:20 pm end 5:04pm
Pumping Rate (gpm)	—
Evacuation Method	Dedicated Bladder Ipacker

Field Parameters	I	1V	2V	3V
Color	Colorless	Colorless	Colorless	Colorless
Odor	None	None	None	None
Appearance	Clear	Clear	Clear	Clear
pH (s.u.)	10.23	10.43	10.36	10.26
Conductivity ~~(mS/cm)~~	—	—	—	—
(µmhos/cm)	99.4	112.7	113.8	114.3
Turbidity (NTU)	—	—	—	10
Temperature (°C)	13.0	13.2	13.0	13.2
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ 5 gallon Containers	—	½	½	½

Sampling Method: 3 well volume

Remarks: No PID due to fog

DTW = 38.72

129 - 38.72 x .43 + 50 = 90 PSI (Rounded up)

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: P.P.

Well Casing Volumes

Gal./Ft.

1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404
Date: 12/30/04
Sampling Time: 3:30pm
Weather: clear 45°

Task: 00002
Sampled By: PP
Recorded By: PP
Coded Replicate No.: N/A

Well ID: GM-21D

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

Purging Information
Casing Material: PVC
Casing Diameter: 4"
Sounded Depth (ft bmp): 288
Depth to Water (ft bmp): 45.42

Purge Method: Dedicated Bladder/Low Flow
Screen Interval (ft bmp): Top 278 Bottom 288
Pump Intake Depth (ft bmp): 283
Purge time Start: 2:30pm Finish: 3:30pm

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
2:30	–	–	–	10.3	6.76	106.8	227	6.70	–	–	–
2:35	–	–	–	11.2	5.77	107.2	246	5.39	–	45.45	–
2:40	–	–	–	12.5	5.08	100.7	270	5.32	–	–	–
2:45	–	–	–	12.4	4.94	98.5	279	5.58	–	45.43	–
2:50	–	–	–	12.1	4.92	95.6	262	5.08	–	–	–
2:55	–	–	–	12.1	4.92	95.2	284	5.08	–	45.45	–
3:00	–	–	–	11.9	4.92	95.1	288	5.45	–	–	–
3:05	–	–	–	11.8	4.90	94.1	294	5.13	–	45.45	–
3:10	–	–	–	12.0	4.90	94.2	298	5.05	–	–	–
3:15	–	–	–	12.1	4.90	94.7	300	5.51	–	45.43	–
3:20	–	–	–	11.8	4.99	94.5	262	5.54	23.0	–	–
3:25	–	–	–	12.0	4.99	95.4	290	5.63	–	45.43	–
3:30	–	–	–	11.9	4.99	94.5	295	5.62	22.30	–	–

Sample Condition Color: — Odor: — Appearance: —

Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading: At wellhead Zero

Comments: —

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404　Task: 00002　Well ID: GM-33D2
Date: 1/11/05　Sampled By: PP
Sampling Time: 1:15pm　Recorded By: PP
Weather: overcast 40°　Coded Replicate No.: N/A

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

Purging Information
Casing Material: PVC　Purge Method: Dedicated Bladder / Low Flow
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): 52.51　Purge time Start: 12:15 pm　Finish: 1:15pm

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. (uS)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
12:15	–	–	–	11.1	6.22	92.6	243	7.51	–	–	–
12:20	–	–	–	12.4	5.86	88.7	236	6.51	–	52.55	–
12:25	–	–	–	12.5	5.75	87.6	229	6.59	–	–	–
12:30	–	–	–	12.6	5.67	87.9	222	7.00	–	52.50	–
12:35	–	–	–	12.8	5.63	87.5	222	7.26	–	–	–
12:40	–	–	–	12.9	5.55	88.0	218	7.36	–	52.50	–
12:45	–	–	–	12.9	5.54	88.2	219	7.33	–	–	–
12:50	–	–	–	13.0	5.52	88.3	214	7.26	–	52.50	–
12:55	–	–	–	12.9	5.56	87.9	215	7.48	–	–	–
1:00	–	–	–	13.0	5.58	87.3	214	7.43	–	52.50	–
1:05	–	–	–	13.0	5.66	86.5	212	7.66	–	–	–
1:10	–	–	–	13.1	5.78	86.1	204	7.66	–	52.50	–
1:15	–	–	–	13.1	5.85	85.9	192.3	7.76	10.0	–	–

Sample Condition Color: Colorless　Odor: None　Appearance: clear

Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading: No PID due to Rain

Comments: Needs new manhole
Well inside Construction site during sampling

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 00002 Well ID: GM-34D

Date: 1/12/05 Sampled By: GW/PP

Sampling Time: 12:35pm Recorded By: PP

Weather: Light Drizzle, Overcast 42 Coded Replicate No.: N/A

Instrument Identification

Water Quality Meter(s): Serial #:

Purging Information

Casing Material: Steel Purge Method: Non-dedicated Bladder / Low Flow

Casing Diameter: 2" Screen Interval (ft bmp): Top 309 Bottom 319

Sounded Depth (ft bmp): 319 Pump Intake Depth (ft bmp): 314

Depth to Water (ft bmp): 16.98 Purge time Start: 11:35 AM Finish: 12:35pm

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. µS	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
11:35	–	–	–	10.5	7.79	158.4	-187.7	2.56	–	–	–
11:40	–	–	–	11.6	8.33	160.3	-155.2	1.44	–	14.53	–
11:45	–	–	–	11.6	8.49	161.6	-151.7	1.07	–	–	–
11:50	–	–	–	11.6	8.53	162.3	-142.6	.94	–	13.58	–
11:55	–	–	–	12.1	9.07	154.1	-215	.81	–	–	–
12:00	–	–	–	12.5	9.46	149.1	-268	.69	–	13.55	–
12:05	–	–	–	12.5	9.29	161.9	-256	.56	–	–	–
12:10	–	–	–	12.5	8.75	172.5	-212	.66	–	13.78	–
12:15	–	–	–	12.7	8.16	172.2	-163.3	.54	–	–	–
12:20	–	–	–	12.6	7.81	171.9	-147.6	.68	–	13.78	–
12:25	–	–	–	12.7	7.39	170.5	-126.7	.62	–	–	–
12:30	–	–	–	12.8	7.17	171.0	-113.2	.68	–	15.42	–
12:35	–	–	–	12.9	6.99	170.6	-101.4	.58	20	–	–

Sample Condition Color: Colorless Odor: None Appearance: Clear

Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading: Rain

Comments:

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404
Task: 00002
Well ID: GM-34D2
Date: 11/12/05
Sampled By: GW PP
Sampling Time: 11:15 AM
Recorded By: PP
Weather: Overcast 45°
Coded Replicate No.: N/A

Instrument Identification

Water Quality Meter(s): ——
Serial #: ——

Purging Information

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): 515
Depth to Water (ft bmp): 18.50
Purge time Start: 10:15 AM **Finish:** 11:15 AM

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. µS	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
10:15	—	—	—	10.1	6.32	87.5	175.7	3.91	—	—	—
10:20	—	—	—	11.5	6.74	85.4	163.2	2.23	—	17.78	—
10:25	—	—	—	12.3	7.12	83.6	131.0	1.51	—	—	—
10:30	—	—	—	12.5	7.41	82.9	115.7	1.37	—	17.42	—
10:35	—	—	—	12.6	7.49	82.7	110.2	1.29	—	—	—
10:40	—	—	—	12.7	7.68	82.3	99.1	1.30	—	—	—
10:45	—	—	—	12.7	7.78	82.1	97.6	1.19	—	17.52	—
10:50	—	—	—	12.8	7.78	80.8	-78.9	1.09	—	18.52	—
10:55	—	—	—	12.8	7.19	87.4	-129.7	.96	—	—	—
11:00	—	—	—	13.0	6.64	116.2	-141.9	.64	—	18.48	—
11:05	—	—	—	13.0	6.58	126.0	-133.8	.64	—	—	—
11:10	—	—	—	13.0	6.45	128.7	-98.2	.78	—	—	—
11:15	—	—	—	12.9	6.37	125.6	-74.4	1.02	400	—	—

Sample Condition Color: Black tint Odor: None Appearance: Turbid

Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading: Rain

Comments: ——

Project: Northrop Grumman | Project No. NY001348.0404.00002 | Page 1 of 1

Site Location: Bethpage, New York | Date: 11/14/05

Site/Well No.: GM-35D2 | Replicate No.: N/A | Code No.: —

Weather: Rain 42° | Sampling Time: Begin 12:29 pm | End 12:32 pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	/
Land Surface Elevation (ft)	/
Sounded Well Depth (ft bmp)	530
Depth to ~~Water~~ Packer (ft bmp)	507
Water-Level Elevation (ft)	/
Water Column in Well (ft)	23
Casing Diameter/Type	4" (0.65) / PVC
Gallons in Well	14.95
Gallons Pumped/Bailed Prior to Sampling	x 3 = 45
Sample Pump Intake Setting (ft bmp)	/
Purge Time	begin 11:11 AM end 12:27 pm
Pumping Rate (gpm)	/
Evacuation Method	Dedicated Bladder/packer

Field Parameters	I	1V	2V	3V
Color	Colorless	colorless	colorless	Colorless
Odor	None	None	None	None
Appearance	clear	clear	clear	clear
pH (s.u.)	5.27	5.26	5.33	5.39
Conductivity ~~(mS/cm)~~ (µmhos/cm)	113.4	119.9	119.5	119.1
Turbidity (NTU)	10.0	10	9.4	9.4
Temperature (°C)	15.6	15.1	15.4	15.3
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ 5 gallon containers	—	✗✗✗	✗✗✗	✗✗✗

Sampling Method: 3 well volume

Remarks: NO PID reading due to Rain
DTW = 40.98; parameter every 15 gallons
507 − 40.98 × .43 + 50 = 251 PSI
Bolts on well do not tighten

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: PP

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 00002 Well ID: GM-39D
Date: 12/29/04 Sampled By: PP
Sampling Time: 1:25 pm Recorded By: PP
Weather: Clear 46° Coded Replicate No.: N/A

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

Purging Information
Casing Material: PVC Purge Method: Dedicated Bladder / Low Flow
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): 41.95 Purge time Start: 12:25pm Finish: 1:25pm

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. ~~mS/cm~~ µS	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Cond. Comments
12:25	—	—	—	12.6	6.30	*	219	7.10	—	—	* meter not working
12:30	—	—	—	13.0	6.21	—	226	6.24	—	41.94	
12:35	—	—	—	12.8	6.11	—	232	6.53	—	—	
12:40	—	—	—	12.9	6.15	—	242	6.85	—	41.94	
12:45	—	—	—	12.9	6.14	—	254	6.62	—	—	
12:50	—	—	—	13.0	6.12	111.8	261	6.77	—	41.94	spare meter
12:55	—	—	—	12.9	6.11	111.0	249	6.86	—	—	
1:00	—	—	—	13.1	6.15	109.9	262	7.24	—	41.94	
1:05	—	—	—	13.0	6.15	110.4	276	6.96	—	—	
1:10	—	—	—	12.8	6.15	110.4	284	6.55	—	41.94	
1:15	—	—	—	12.9	6.15	111.0	262	6.52	—	—	
1:20	—	—	—	12.9	6.15	110.8	271	6.73	—	41.94	
1:25	—	—	—	12.8	6.17	110.9	281	6.71	10.22	—	

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

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading: At wellhead Zero
Comments: NO lock ON well

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 0002 Well ID: GM-39D2
Date: 12/29/04 Sampled By: RP
Sampling Time: 3:00pm Recorded By: RP
Weather: clear 47° Coded Replicate No.: N/A

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

Purging Information
Casing Material: PVC Purge Method: Dedicated Bladder / Low Flow
Casing Diameter: 4" Screen Interval (ft bmp): Top 410 Bottom 420
Sounded Depth (ft bmp): 420 Pump Intake Depth (ft bmp): 415
Depth to Water (ft bmp): 44.87 Purge time Start: 2:00pm Finish: 3:00 pm

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. µS (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
2:00	—	—	—	9.3	5.86	121.5	288	8.87	—	—	—
2:05	—	—	—	11.1	5.75	124.6	292	7.38	—	44.86	—
2:10	—	—	—	11.1	5.75	124.9	297	7.42	—	—	—
2:15	—	—	—	11.0	5.73	124.5	304	7.55	—	44.86	—
2:20	—	—	—	11.0	5.73	124.4	307	7.28	—	—	—
2:25	—	—	—	11.2	5.74	124.0	265	7.26	—	44.86	—
2:30	—	—	—	11.2	5.73	123.9	277	7.25	—	—	—
2:35	—	—	—	11.2	5.73	123.9	289	7.29	—	44.86	—
2:40	—	—	—	11.3	5.73	124.2	296	7.39	—	—	—
2:45	—	—	—	11.3	5.73	124.0	291	7.01	—	44.86	—
2:50	—	—	—	11.3	5.73	124.1	291	7.25	—	—	—
2:55	—	—	—	11.2	5.73	124.2	303	7.24	—	44.87	—
3:00	—	—	—	11.2	5.70	124.3	302	7.14	9.99	—	—

Sample Condition Color: Colorless Odor: None Appearance: Clear

Sample Collection

Parameter:	Container:	No.	Preservative:
See CoC			

PID Reading: At wellhead Zero

Comments: —

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 00002 Well ID: GM-73 D

Date: 1/13/05 Sampled By: PP

Sampling Time: 3:35pm Recorded By: PP

Weather: Fog 53° Coded Replicate No.: MS/MSD

Instrument Identification

Water Quality Meter(s): Serial #:

Purging Information

Casing Material: PVC Purge Method: Dedicated Bladder / Low Flow

Casing Diameter: 4" Screen Interval (ft bmp): Top 401 Bottom 411

Sounded Depth (ft bmp): 411 Pump Intake Depth (ft bmp): 406

Depth to Water (ft bmp): 46.01 Purge time Start: 2:35 pm Finish: 3:35pm

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
2:35	–	–	–	12.6	5.22	113.7	89.9	7.00	–	–	–
2:40	–	–	–	14.7	5.04	112.8	131.5	5.97	–	46.02	–
2:45	–	–	–	14.8	5.06	113.4	146.8	6.20	–	–	–
2:50	–	–	–	14.8	5.06	114.0	155.5	6.68	–	46.02	–
2:55	–	–	–	14.8	5.07	114.0	162.5	6.55	–	–	–
3:00	–	–	–	14.8	5.08	114.5	165.6	7.19	–	46.03	–
3:05	–	–	–	14.9	5.07	114.3	169.9	6.61	–	–	–
3:10	–	–	–	14.9	5.08	114.3	171.6	7.34	–	46.05	–
3:15	–	–	–	14.9	5.08	114.3	175.6	6.95	–	–	–
3:20	–	–	–	14.9	5.07	114.3	175.6	7.07	–	46.06	–
3:25	–	–	–	14.9	5.07	114.1	178.7	7.28	–	–	–
3:30	–	–	–	14.9	5.07	114.1	182.7	6.58	–	46.08	–
3:35	–	–	–	14.9	5.07	114.1	182.0	7.55	9.5	–	–

Sample Condition Color: Colorless Odor: None Appearance: Clear

Sample Collection

Parameter: See COC Container: No. Preservative:

PID Reading: Fog

Comments:

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Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 00002 Well ID: GM-73D2
Date: 1/13/05 Sampled By: PP
Sampling Time: 2:20 pm Recorded By: PP
Weather: overcast 53° Coded Replicate No.: N/A

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

Purging Information
Casing Material: PVC Purge Method: Dedicated Bladder / Low Flow
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): 47.84 Purge time Start: 1:20 pm Finish: 2:20 pm

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. (mS/cm) µS	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
1:20	—	—	—	12.6	5.17	104.5	171.3	9.17	—	—	—
1:25	—	—	—	15.1	5.13	105.6	162.8	5.42	—	46.54	—
1:30	—	—	—	15.0	5.13	106.1	162.8	4.98	—	—	—
1:35	—	—	—	14.9	4.98	108.6	161.0	5.43	—	46.58	—
1:40	—	—	—	15.0	5.03	109.6	158.3	5.98	—	—	—
1:45	—	—	—	15.0	5.00	110.4	156.6	6.49	—	46.57	—
1:50	—	—	—	15.0	5.06	110.3	154.0	6.10	—	—	—
1:55	—	—	—	15.0	5.07	109.9	151.3	5.97	—	46.62	—
2:00	—	—	—	14.9	5.07	110.7	148.2	6.13	—	—	—
2:05	—	—	—	14.9	5.07	110.9	136.5	5.95	—	46.02	—
2:10	—	—	—	15.0	5.05	111.0	145.5	6.09	—	—	—
2:15	—	—	—	14.9	5.07	111.2	138.6	5.86	—	45.91	—
2:20	—	—	—	14.9	5.06	111.2	144.4	5.50	9.9	—	—

Sample Condition Color: Colorless Odor: None Appearance: Clear

Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading: At wellhead Zero

Comments: —

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 00002 Well ID: GM-74 I

Date: 1/12/05 Sampled By: PP

Sampling Time: 4:15pm Recorded By: PP

Weather: Overcast 40° Coded Replicate No.: N/A

Instrument Identification

Water Quality Meter(s): — Serial #: —

Purging Information

Casing Material: PVC Purge Method: Dedicated Bladder / Low Flow

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): 40.84 Purge time Start: 3:30pm Finish: 4:15pm

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. (uS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
3:30	—	—	—	8.9	5.49	94.8	143.5	8.72	—	—	—
3:35	—	—	—	10.1	5.65	92.5	159.1	8.33	—	40.89	—
3:40	—	—	—	10.3	5.68	92.7	161.9	8.11	—	—	—
3:45	—	—	—	10.6	5.68	92.8	170.6	8.41	—	40.94	—
3:50	—	—	—	10.6	5.68	92.6	172.3	8.49	—	—	—
3:55	—	—	—	10.6	5.68	92.9	178.5	8.36	—	40.94	—
4:00	—	—	—	10.5	5.67	92.7	182.7	8.43	—	—	—
4:05	—	—	—	10.5	5.67	92.9	182.4	8.07	—	40.94	—
4:10	—	—	—	10.6	5.67	92.8	183.3	8.62	—	—	—
4:15	—	—	—	10.6	5.67	92.6	187.8	8.52	10	40.94	—

Sample Condition Color: Colorless Odor: None Appearance: clear

Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading: Rain

Comments: Need New lock

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ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 00002 Well ID: GM-74 D
Date: 1/13/05 Sampled By: PP
Sampling Time: 11:20 AM Recorded By: PP
Weather: Fog 52° Coded Replicate No.: N/A

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

Purging Information
Casing Material: PVC Purge Method: Dedicated Bladder / Low Flow
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): 47.26 Purge time Start: 10:20 AM Finish: 11:20 AM

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. (mS/cm) µS	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
10:20	—	—	—	11.1	4.59	110.2	138.6	6.10	—	—	—
10:25	—	—	—	11.7	4.69	93.1	154.6	5.63	—	47.26	—
10:30	—	—	—	11.8	4.67	87.4	174.0	6.00	—	—	—
10:35	—	—	—	11.9	4.71	86.5	180.5	6.24	—	47.25	—
10:40	—	—	—	11.9	4.67	86.3	188.4	6.52	—	—	—
10:45	—	—	—	12.0	4.70	86.0	191.7	6.45	—	47.26	—
10:50	—	—	—	12.0	4.72	86.6	193.7	6.32	—	—	—
10:55	—	—	—	12.1	4.73	86.4	193.1	6.65	—	47.26	—
11:00	—	—	—	12.0	4.69	86.7	198.7	6.75	—	—	—
11:05	—	—	—	12.0	4.73	86.5	204	6.57	—	47.25	—
11:10	—	—	—	12.0	4.74	86.7	205	6.33	—	—	—
11:15	—	—	—	12.0	4.75	86.9	202	6.52	—	47.24	—
11:20	—	—	—	12.0	4.71	87.4	204	6.20	8.9	—	—

Sample Condition Color: Colorless Odor: None Appearance: Clear

Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading: Thick fog

Comments: —

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 00002 Well ID: GM-74D2
Date: 1/13/05 Sampled By: PP
Sampling Time: 12:40 pm Recorded By: PP
Weather: overcast 52° Coded Replicate No.: N/A

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

Purging Information
Casing Material: PVC Purge Method: Dedicated Bladder / Low Flow
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): 53.57 Purge time Start: 11:40 AM Finish: 12:40 pm

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. (µS)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
11:40	–	–	–	11.4	5.05	74.9	194.0	5.97	–	–	–
11:45	–	–	–	11.8	5.02	75.0	195.2	2.48	–	53.57	–
11:50	–	–	–	11.9	5.04	76.0	197.8	1.25	–	–	–
11:55	–	–	–	11.8	5.06	77.4	193.5	1.91	–	53.56	–
12:00	–	–	–	11.9	5.06	74.5	193.0	2.48	–	–	–
12:05	–	–	–	11.9	5.05	71.3	191.7	2.61	–	53.56	–
12:10	–	–	–	11.9	5.06	70.3	195.4	2.58	–	–	–
12:15	–	–	–	11.9	5.03	70.6	199.2	2.67	–	53.57	–
12:20	–	–	–	11.9	5.02	70.7	196.8	2.73	–	–	–
12:25	–	–	–	12.0	5.03	72.1	204	3.01	–	53.57	–
12:30	–	–	–	12.0	4.99	72.3	211	3.20	–	–	–
12:35	–	–	–	12.1	5.01	72.9	215	3.02	–	53.57	–
12:40	–	–	–	12.1	4.96	73.1	217	3.02	9.2	–	–

Sample Condition Color: Colorless Odor: None Appearance: clear

Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading: At wellhead .5, BZ 0

Comments: /

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 | Task: 00002 | Well ID: GM-75D2

Date: 1/11/05 | Sampled By: PP

Sampling Time: 11:25AM | Recorded By: PP

Weather: Overcast 42° | Coded Replicate No.: Rep 1/11/05

Instrument Identification

Water Quality Meter(s): — Serial #: —

Purging Information

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): 515

Depth to Water (ft bmp): 38.03 | Purge time Start: 10:25AM Finish: 11:25AM

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. (µS)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
10:25	—	—	—	10.1	5.26	130.2	241	7.32	—	—	—
10:30	—	—	—	12.8	5.33	131.2	259	4.91	—	38.00	—
10:35	—	—	—	12.4	5.33	131.1	261	5.39	—	—	—
10:40	—	—	—	11.8	5.31	130.6	263	5.46	—	37.99	—
10:45	—	—	—	11.6	5.34	129.3	233	5.85	—	—	—
10:50	—	—	—	11.6	5.36	128.9	242	5.60	—	38.01	—
10:55	—	—	—	11.4	5.35	129.1	245	5.60	—	—	—
11:00	—	—	—	11.1	5.36	129.5	253	5.70	—	38.00	—
11:05	—	—	—	11.2	5.33	129.3	254	5.55	—	—	—
11:10	—	—	—	11.3	5.34	129.0	228	5.90	—	38.00	—
11:15	—	—	—	11.4	5.34	128.9	238	5.66	—	—	—
11:20	—	—	—	11.5	5.35	128.6	246	5.89	—	38.01	—
11:25	—	—	—	11.2	5.35	128.8	250	5.91	9.3	—	—

Sample Condition Color: Colorless Odor: None Appearance: clear

Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading: At wellhead Zero

Comments: Need new lock

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 00002 Well ID: GM-78S
Date: 12/28/04 Sampled By: GW/PP
Sampling Time: 1:05 pm Recorded By: PP
Weather: Mostly cloudy 30! Coded Replicate No.: N/A

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

Purging Information
Casing Material: PVC Purge Method: Rediflow Pump / Low Flow
Casing Diameter: 4" Screen Interval (ft bmp): Top 60 Bottom 70
Sounded Depth (ft bmp): 70 Pump Intake Depth (ft bmp): 65
Depth to Water (ft bmp): 44.36 Purge time Start: 12:05pm Finish: 1:05pm

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. ~~mS/cm~~ µS	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
12:05	—	—	—	13.3	6.11	199.0	—	4.73	18.4	—	—
12:10	—	—	—	13.4	6.15	196.2	—	4.44	20.4	—	—
12:15	—	—	—	11.1	6.17	195.6	156.3	4.32	26.8	44.32	—
12:20	—	—	—	10.9	6.20	197.1	160.1	4.41	21.6	—	—
12:25	—	—	—	10.8	6.20	197.6	158.2	4.37	20.6	44.32	—
12:30	—	—	—	10.9	6.19	196.0	155.0	4.20	19.3	—	—
12:35	—	—	—	11.0	6.21	197.8	153.6	4.23	18.1	—	—
12:40	—	—	—	11.2	6.22	196.3	152.9	4.32	17.3	44.27	—
12:45	—	—	—	11.5	6.22	193.7	153.0	4.01	15.9	—	—
12:50	—	—	—	11.3	6.22	194.2	153.4	4.21	15.7	44.29	—
12:55	—	—	—	11.5	6.22	193.8	152.4	4.28	15.2	—	—
1:00	—	—	—	11.6	6.21	193.6	151.4	4.23	14.7	44.32	—
1:05	—	—	—	11.8	6.21	192.8	152.1	4.22	14.3	—	—

Sample Condition Color: Colorless Odor: None Appearance: clear

Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading: At wellhead Zero

Comments: Low Flow sampling on GM-78S instead of 3 well volume

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 00002 Well ID: GM-78 I
Date: 1/12/05 Sampled By: GW/PP
Sampling Time: 3:00pm Recorded By: PP
Weather: Overcast 43° Coded Replicate No.: N/A

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

Purging Information
Casing Material: PVC Purge Method: Rediflow pump / Low Flow
Casing Diameter: 4" Screen Interval (ft bmp): Top 90 **Bottom** 110
Sounded Depth (ft bmp): 110 Pump Intake Depth (ft bmp): 100
Depth to Water (ft bmp): 44.54 Purge time Start: 2:15pm **Finish:** 3:00pm

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
2:15	—	—	—	13.3	5.98	133.9	100.7	5.86	—	—	—
2:20	—	—	—	13.3	5.97	136.3	100.6	5.49	12	—	—
2:25	—	—	—	12.8	5.97	139.7	101.9	5.44	11	44.54	—
2:30	—	—	—	13.3	5.94	143.0	101.5	5.28	9.9	—	—
2:35	—	—	—	13.6	5.94	143.8	97.4	5.43	10	44.54	—
2:40	—	—	—	14.1	5.95	143.4	88.6	5.62	9.5	—	—
2:45	—	—	—	14.2	5.95	142.4	89.4	5.57	8.8	44.54	—
2:50	—	—	—	14.1	5.94	142.2	90.3	5.57	9.6	—	—
2:55	—	—	—	14.1	5.94	142.3	94.4	5.58	9.1	44.54	—
3:00	—	—	—	14.1	5.94	142.6	95.4	5.52	9.0	—	—

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

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading: Rain

Comments: —

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 00002 Well ID: GM-79I
Date: 12/28/04 Sampled By: GW/PP
Sampling Time: 4:40 pm Recorded By: PP
Weather: Overcast 30's Coded Replicate No.: N/A

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

Purging Information
Casing Material: PVC Purge Method: Dedicated Bladder / Low Flow
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): 42.35 Purge time Start: 3:55 pm Finish: 4:40 pm

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. ~~mS/cm~~ µS/cm	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
3:55	—	—	—	10.0	5.63	106.2	296	7.41	—	—	—
4:00	—	—	—	12.5	5.65	106.5	274	6.25	—	—	—
4:05	—	—	—	13.0	5.66	106.9	288	6.62	—	42.41	—
4:10	—	—	—	13.1	5.66	107.3	291	6.29	—	—	—
4:15	—	—	—	13.4	5.66	106.7	290	6.43	—	42.40	—
4:20	—	—	—	13.4	5.66	106.9	289	6.13	—	—	—
4:25	—	—	—	13.5	5.66	106.5	260	6.62	—	42.38	—
4:30	—	—	—	13.5	5.66	106.6	279	6.25	—	—	—
4:35	—	—	—	13.7	5.65	106.4	283	6.75	—	—	—
4:40	—	—	—	13.6	5.65	106.7	286	6.61	12.1	42.37	—

Sample Condition Color: / Odor: / Appearance: /
Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading: At wellhead Zero
Comments: No lock on well

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 0002 Well ID: GM-79 D
Date: 12/28/04 Sampled By: Gulp
Sampling Time: 3:50pm Recorded By: PB
Weather: Mostly cloudy 30s Coded Replicate No.: N/A

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

Purging Information
Casing Material: PVC Purge Method: Dedicated Bladder / Low Flow
Casing Diameter: 4" Screen Interval (ft bmp): Top 280 Bottom 290
Sounded Depth (ft bmp): 296 Pump Intake Depth (ft bmp): 285
Depth to Water (ft bmp): 43.77 Purge time Start: 2:50pm Finish: 3:50pm

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
2:50	—	—	—	13.0	5.49	97.9	214	3.23	—	—	—
2:55	—	—	—	13.3	5.56	96.8	224	5.07	—	—	—
3:00	—	—	—	13.6	5.49	96.2	245	5.38	—	43.84	—
3:05	—	—	—	13.6	5.53	96.0	273	5.04	—	—	—
3:10	—	—	—	13.2	5.53	96.0	284	4.36	—	43.78	—
3:15	—	—	—	13.2	5.47	96.2	260	4.61	—	—	—
3:20	—	—	—	13.0	5.52	96.6	284	4.31	—	43.78	—
3:25	—	—	—	12.9	5.49	97.4	295	4.53	—	—	—
3:30	—	—	—	12.9	5.51	97.2	303	4.45	—	43.78	—
3:35	—	—	—	12.9	5.47	97.4	308	4.19	—	—	—
3:40	—	—	—	13.0	5.50	97.0	274	4.13	—	43.78	—
3:45	—	—	—	13.1	5.49	97.1	288	4.40	—	—	—
3:50	—	—	—	13.2	5.51	96.9	295	4.24	10.41	43.78	—

Sample Condition Color: Colorless Odor: NONE Appearance: clear

Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading At wellhead Zero

Comments ✓

ARCADIS GERAGHTY & MILLER

Water Sampling Log

Project: Northrop Grumman | Project No. NY001348.0404.00002 | Page 1 of 1

Site Location: Bethpage, NY | Date 1/10/05

Site/Well No. MW-3R | Replicate No. N/A | Code No. —

Weather: windy, partly cloudy 46° | Sampling Time: Begin 3:53pm End 3:56pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	55
Depth to Water (ft bmp)	37.88
Water-Level Elevation (ft)	—
Water Column in Well (ft)	17.12
Casing Diameter/Type	2" (0.16) PVC
Gallons in Well	2.74
Gallons Pumped/Bailed Prior to Sampling	x3 8.22
Sample Pump Intake Setting (ft bmp)	9=1 T=9 1V=3
Purge Time	begin 3:40pm end 3:53pm
Pumping Rate (gpm)	1gpm
Evacuation Method	Rediflow pump

Field Parameters

Field Parameters	I	1V	2V	3V	4V
Color	Brown	tan	light tan	Colorless	Colorless
Odor	None	None	None	None	None
Appearance	turbid	turbid	turbid	clear	clear
pH (s.u.)	6.13	6.22	6.24	6.15	6.16
Conductivity ~~(mS/cm)~~ (µmhos/cm)	106.9	107.6	103.6	102.1	101.8
Turbidity (NTU)	7200	600	200	50.	25
Temperature (°C)	14.8	14.7	14.8	15.1	14.7
Dissolved Oxygen (mg/L)	—	—	—	—	—
~~Salinity (%)~~ Time	3:41	3:44	3:47	3:50	3:53pm

Sampling Method: 3 well volume

Remarks: PID reading at wellhead Zero

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: G.W. / P.P.

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Milisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

Water Sampling Log

Project: Northrop Grumman | Project No. NY001348.0404.0002 | Page 1 of 1

Site Location: Bethpage, New York | Date: 1-7-05

Site/Well No.: PLT1 MW-04 | Replicate No.: N/A | Code No.: —

Weather: 40° | Sampling Time: Begin 5:20pm End 5:21pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	56.5
Depth to Water (ft bmp)	45.62
Water-Level Elevation (ft)	—
Water Column in Well (ft)	10.88
Casing Diameter/Type	2" (0.16)
Gallons in Well	1.74 x 3
Gallons Pumped/Bailed Prior to Sampling	6
Sample Pump Intake Setting (ft bmp)	G=1 T=6 IV=2
Purge Time	begin 5:14pm end 5:20pm
Pumping Rate (gpm)	1gpm
Evacuation Method	Rediflow Pump

Field Parameters

Field Parameters	I	IV	2V	3V
Color	—	—	—	colorless
Odor	None	None	None	None
Appearance	—	—	—	clear
pH (s.u.)	6.33	6.13	6.35	6.30
Conductivity (mS/cm)	—	—	—	—
(µmhos/cm)	248	241	256	242
Turbidity (NTU)	20	11	8.4	7.8
Temperature (°C)	11.5	11.6	12	12.4
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ Time	5:14pm	5:16	5:18	5:20pm

Sampling Method: 3 well volume

Remarks: PID reading at wellhead zero

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: G.W. I.O.P.

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS GERAGHTY & MILLER

Water Sampling Log

Project: Northrop Grumman Project No. NY001348.0404.00002 Page 1 of 1

Site Location: Bethpage, NY Date: 1/7/05

Site/Well No.: PLT1 MW-05 Replicate No.: N/A Code No.: —

Weather: Mostly cloudy 40° Sampling Time: Begin 4:32 pm End 4:34 pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	58
Depth to Water (ft bmp)	44.35
Water-Level Elevation (ft)	—
Water Column in Well (ft)	13.65
Casing Diameter/Type	2" (0.16)
Gallons in Well	2.184
Gallons Pumped/Bailed Prior to Sampling	— x3
Sample Pump Intake Setting (ft bmp)	Q=1 T=7 1v=3
Purge Time	begin 4:17 pm end 4:31 pm
Pumping Rate (gpm)	1gpm
Evacuation Method	Rediflow pump

Field Parameters	I	1v	2v	3v	4v
Color	Brown	tan	—	colorless	colorless
Odor	None	None	None	None	None
Appearance	Turbid	Turbid	—	clear	clear
pH (s.u.)	6.25	6.07	6.01	6.10	6.13
Conductivity ~~(mS/cm)~~ (µmhos/cm)	174.5	171.3	165.2	167.8	163.8
Turbidity (NTU)	7200	—	100	50	24
Temperature (°C)	12.5	12.4	13.9	13.8	13.9
Dissolved Oxygen (mg/L)	—	—	—	—	—
~~Salinity (%)~~ Time	4:18 pm	4:21	4:24	4:27	4:30 pm

Sampling Method: 3 well volume

Remarks: PID reading at wellhead zero

DTW = 44.35

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: G.W. I.P.P

Well Casing Volumes

Gal./Ft.

1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS

Water Sampling Log

Project: Northrop Grumman — Project No. NY001348.0404.00002 — Page 1 of 1

Site Location: Bethpage, New York — Date 11/7/05

Site/Well No. PLT1 MW-06 — Replicate No. N/A — Code No. —

Weather: Mostly cloudy 40° — Sampling Time: Begin 4:58pm — End 5:00pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	62
Depth to Water (ft bmp)	46.75
Water-Level Elevation (ft)	/
Water Column in Well (ft)	15.25
Casing Diameter/Type	2" (0.16)
Gallons in Well	2.44
Gallons Pumped/Bailed Prior to Sampling	8 x 3
Sample Pump Intake Setting (ft bmp)	q=1 T=8 1v=3
Purge Time	begin 4:46pm end 4:58pm
Pumping Rate (gpm)	1gpm
Evacuation Method	Rediflow Pump

Field Parameters	I	1v	2v	3v
Color	Brown	Light tan	colorless	colorless
Odor	None	None	None	None
Appearance	Turbid	turbid	clear	clear
pH (s.u.)	6.00	5.96	5.96	5.90
Conductivity ~~(mS/cm)~~	—	—	—	—
(µmhos/cm)	320	337	331	334
Turbidity (NTU)	>200	230	55	23
Temperature (°C)	11.7	12.8	13.0	13.2
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ Time	4:48pm	4:51	4:54	4:57pm

Sampling Method: 3 well volume

Remarks: PID reading at wellhead zero

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: G.W. I.P.O.

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

Water Sampling

Project: Northrop Grumman | Project No. NY001348.0404.0002 | Page 1 of 1

Site Location: Bethpage, New York | Date: 1/11/05

Site/Well No.: N-10631 | Replicate No.: N/A | Code No.: —

Weather: overcast 40° | Sampling Time: Begin 3:01pm End 3:05pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	67
Depth to Water (ft bmp)	41.67
Water-Level Elevation (ft)	—
Water Column in Well (ft)	25.33
Casing Diameter/Type	2" (0.16) / steel
Gallons in Well	4.05 x 3
Gallons Pumped/Bailed Prior to Sampling	12
Sample Pump Intake Setting (ft bmp)	Q=.5 T=12 IV=8
Purge Time	begin 2:37pm end 3:01pm
Pumping Rate (gpm)	.5 gpm
Evacuation Method	Rediflow Pump

Field Parameters	I	1V	2V	3V
Color	Colorless	Colorless	Colorless	colorless
Odor	slight	None	None	None
Appearance	clear	clear	clear	clear
pH (s.u.)	6.51	6.40	6.40	6.30
Conductivity (~~mS/cm~~)	—	—	—	—
(µmhos/cm)	151.3	155.4	150.6	148.7
Turbidity (NTU)	40	18	14	12
Temperature (°C)	15.0	15.1	15.3	15.3
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ Time	2:37	2:45	2:53	3:01

Sampling Method: 3 well volume

Remarks: No PID due to Rain

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: G.W. I.P.

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Milisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

Water Sampling

Project: Northrop Grumman | Project No.: NY013480404.0002 | Page: 1 of 1

Site Location: Bethpage, New York | Date: 1/4/05

Site/Well No.: BPOW 1-1 | Replicate No.: N/A | Code No.: —

Weather: overcast 49° | Sampling Time: Begin 10:53 AM | End 10:54 AM

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	/
Land Surface Elevation (ft)	/
Sounded Well Depth (ft bmp)	241
Depth to ~~Water~~ Packer (ft bmp)	169
Water-Level Elevation (ft)	/
Water Column in Well (ft)	72
Casing Diameter/Type	4" (0.65)
Gallons in Well	46.9
	x3
Gallons Pumped/Bailed Prior to Sampling	140
Sample Pump Intake Setting (ft bmp)	/
Purge Time	begin 10:29 AM end 10:53 AM
Pumping Rate (gpm)	/
Evacuation Method	Dedicated submersible pump/packer

Field Parameters	I	1v	2v	3v
Color	Colorless	Colorless	Colorless	Colorless
Odor	None	None	None	None
Appearance	clear	clear	clear	clear
pH (s.u.)	4.95	5.06	5.05	5.03
Conductivity ~~(mS/cm)~~ (µmhos/cm)	238	218	233	231
Turbidity (NTU)	—	—	—	19.9
Temperature (°C)	13.1	12.5	12.4	12.4
~~Dissolved Oxygen (mg/L)~~ Time	10:29 AM	10:36 AM	10:43	—
~~Salinity (%)~~ DTW	31.12	30.94	30.93	—

Sampling Method: 3 well volume

Remarks: NO PID due to Rain

Well vault flooded

169 − 31.12 × .43 + 50 = 120 PSI

Depth to packer − Depth to Water × .43 + 50 = PSI Rounded up

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: G.W. R.P.

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

Water Sampling Log

Project: Northrop Grumman | Project No. NY001348.0404.00002 | Page 1 of 1

Site Location: Bethpage New York | Date: 1-4-05

Site/Well No.: BPOW 1-2 | Replicate No.: N/A | Code No.: —

Weather: overcast 51° | Sampling Time: Begin 12:16pm End 12:17pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	/
Land Surface Elevation (ft)	/
Sounded Well Depth (ft bmp)	335
Depth to ~~Water~~ Packer (ft bmp)	294
Water-Level Elevation (ft)	/
Water Column in Well (ft)	41
Casing Diameter/Type	4" (0.65)
Gallons in Well	26.65 x 3
Gallons Pumped/Bailed Prior to Sampling	80
Sample Pump Intake Setting (ft bmp)	/
Purge Time	begin 12:02 pm end 12:16pm
Pumping Rate (gpm)	/
Evacuation Method	Dedicated submersible pump/packer

Field Parameters

Field Parameters	I	1V	2V	3V
Color	Colorless	colorless	colorless	colorless
Odor	strong	strong	Moderate	slight
Appearance	clear	clear	clear	clear
pH (s.u.)	5.18	4.83	4.79	4.75
Conductivity ~~(mS/cm)~~ (µmhos/cm)	— / 53.3	— / 54.4	— / 55.4	— / 56.4
Turbidity (NTU)	—	—	—	10.04
Temperature (°C)	12.6	11.7	12.2	11.7
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity~~ DTW (%)	31.58	31.73	31.86	31.98

Sampling Method: 3 well volume

Remarks: 294 - 31.58 x .43 + 50 = 180 PSI Rounded up

No PID due to Rain

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: G.W I.P.P.

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS GERAGHTY & MILLER

Water Sampling Log

Project: Northrop Grumman | Project No. NY001348.0404.00002 | Page 1 of 1

Site Location: Bethpage, New York | Date: 1/4/05

Site/Well No.: BPOW 1-3 | Replicate No.: N/A | Code No.: —

Weather: Overcast 53° | Sampling Time: Begin 2:38pm End 2:39pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	419
Depth to ~~Water~~ Packer (ft bmp)	344
Water-Level Elevation (ft)	—
Water Column in Well (ft)	75
Casing Diameter/Type	4" (0.65)
Gallons in Well	48.75
Gallons Pumped/Bailed Prior to Sampling	x 3 = 146.25
Sample Pump Intake Setting (ft bmp)	—
Purge Time	begin 2:10pm end 2:38pm
Pumping Rate (gpm)	—
Evacuation Method	Dedicated Submersible pump/packer

Field Parameters

Field Parameters	I	1V	2V	3V
Color	colorless	colorless	colorless	Light Grey
Odor	slight	None	None	None
Appearance	clear	cloudy	cloudy	cloudy
pH (s.u.)	5.25	5.34	5.35	5.38
Conductivity ~~(mS/cm)~~ (µmhos/cm)	139.5	266	196.1	159.7
Turbidity (NTU)	—	—	—	198
Temperature (°C)	12.5	12.2	12.1	11.9
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ DTW	31.45	33.02	32.24	31.78
Sampling Method	3 Well Volume			

Remarks: No PIP due to rain

344 − 31.45 x .43 + 50 = 185 psi

Depth to packer − DTW x .43 + 50 = PSI (4" casing)

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: G.W. P.P

Well Casing Volumes

Gal./ft.: 1-¼" = 0.06; 1-½" = 0.09; 2" = 0.16; 2-½" = 0.26; 3" = 0.37; 3-½" = 0.50; 4" = 0.65; 6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/l	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

Water Sampling Log

Project: Northrop Grumman — Project No. N00134B.0404.00002 — Page 1 of 1

Site Location: Bethpage, NY — Date: 1/3/05

Site/Well No.: BPOW 2-1 — Replicate No.: N/A — Code No.: —

Weather: Overcast 58° — Sampling Time: Begin 2:26pm — End 2:28pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	/
Land Surface Elevation (ft)	/
Sounded Well Depth (ft bmp)	400
Depth to ~~Water~~ Packer (ft bmp)	310
Water-Level Elevation (ft)	/
Water Column in Well (ft)	90
Casing Diameter/Type	4" (0.65)
Gallons in Well	58.5
Gallons Pumped/Bailed Prior to Sampling	175.5 (x 3)
Sample Pump Intake Setting (ft bmp)	/
Purge Time	begin 2:02pm end 2:26pm
Pumping Rate (gpm)	/
Evacuation Method	Dedicated submersible pump/packer

Field Parameters

Field Parameters	I	1V	2V	3V
Color	Colorless	Colorless	colorless	Colorless
Odor	None	None	None	None
Appearance	clear	clear	clear	clear
pH (s.u.)	4.66	4.76	4.85	4.76
Conductivity ~~(mS/cm)~~	—	—	—	—
(µmhos/cm)	94.2	166.5	123.7	105.6
Turbidity (NTU)	—	—	—	21.9
Temperature (°C)	15.0	14.2	13.8	13.4
Time				
~~Dissolved Oxygen (mg/L)~~	2:02	2:10pm	2:17pm	2:26pm
DTW				
~~Salinity (%)~~	20.94	20.53	20.35	—

Sampling Method: 3 well Volume

Remarks: 310 − 20.94 x .43 + 50 = 175 PSI

Depth to packer − DTW x .43 (for 4" casing) + 50 = PSI

PID reading at wellhead Zero

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: G.W IPP

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/l	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

Water Sampling Log

Project: Northrop Grumman | Project No. NYa1348.0404.00002 | Page 1 of 1

Site Location: Bethpage, New York | Date: 11/3/05

Site/Well No.: BPOW 2-2 | Replicate No.: N/A | Code No.: —

Weather: Overcast 50's | Sampling Time: Begin 12:02 | End 12:03pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	495
Depth to ~~Water~~ packer (ft bmp)	419
Water-Level Elevation (ft)	—
Water Column in Well (ft)	76
Casing Diameter/Type	4" (0.65)
Gallons in Well	49.40 x 3
Gallons Pumped/Bailed Prior to Sampling	148.20
Sample Pump Intake Setting (ft bmp)	—
Purge Time	begin 11:39 AM end 12:02pm
Pumping Rate (gpm)	—
Evacuation Method	Dedicated submersible pump/packer

Field Parameters

Field Parameters	I	IV	2V	3V colorless
Color	colorless	colorless	colorless	
Odor	NONE	NONE	NONE	NONE
Appearance	clear	clear	clear	clear
pH (s.u.)	4.65	4.76	4.70	4.72
Conductivity ~~(mS/cm)~~ (µmhos/cm)	73	71.4	71.4	70.1
Turbidity (NTU)	—	—	—	9.39
Temperature (°C)	15.0	13.8	13.4	13.5
~~Dissolved Oxygen (mg/L)~~ DTW	20.98	22.37	22.35	—
~~Salinity (%)~~ Time	11:39	11:46 AM	11:53	12:02

Sampling Method: 3 well volume

Remarks: PID reading at wellhead 2ppm

419 - 20.98 x .43 + 50 = 221 PSI

Depth to packer − DTW × .43 + 50 = PSI for 4" casing

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: G.W. / P.P

Well Casing Volumes

Gal./Ft.

1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Milisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Miligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS

Water Sampling Log

Project: Northrop Grumman Project No. NY001348.0404.00002 Page 1 of 1

Site Location: Bethpage, New York Date 1/5/05

Site/Well No. BPOW 3-1 Replicate No. N/A Code No. —

Weather: Rain 40° Sampling Time: Begin 3:42pm End 3:45

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	516
Depth to ~~Water~~ packer (ft bmp)	414
Water-Level Elevation (ft)	—
Water Column in Well (ft)	102
Casing Diameter/Type	4" (0.65)
Gallons in Well	66.3
Gallons Pumped/Bailed Prior to Sampling	x3 198.9
Sample Pump Intake Setting (ft bmp)	—
Purge Time	begin 2:13pm end 3:42pm
Pumping Rate (gpm)	—
Evacuation Method	Dedicated submersible pump/packer

Field Parameters

Field Parameters	I	1V	2V	3V
Color	Colorless	Colorless	Colorless	Colorless
Odor	Strong	Strong	Moderate	None
Appearance	Clear	Clear	Clear	Clear
pH (s.u.)	4.52	4.33	4.24	4.21
Conductivity ~~(mS/cm)~~ (µmhos/cm)	127.7	129.1	139.0	138.1
Turbidity (NTU)	—	—	—	10.92
Temperature (°C)	14.0	13.2	11.5	12.5
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ DTW	27.88	33.49	33.49	29.88

Sampling Method: 3 well volume

Remarks: No PID due to rain

414 - 27.88 x .43 + 50 = 220 psi

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: G.W. / G.O.

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Milisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Miligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

Water Sampling Log

Project: Northrop Grumman | Project No.: NY001349.0404.00002 | Page 1 of 1

Site Location: Bethpage, NY | Date: 1/5/05

Site/Well No.: BPOW 3-2 | Replicate No.: N/A | Code No.: —

Weather: Rain 38° | Sampling Time: Begin 12:43pm End 12:45pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	64.7
Depth to Water (ft bmp)	50.3
Water-Level Elevation (ft)	—
Water Column in Well (ft)	14.4
Casing Diameter/Type	4" (0.65)
Gallons in Well	93.6
Gallons Pumped/Bailed Prior to Sampling	280.8
Sample Pump Intake Setting (ft bmp)	—
Purge Time	begin 11:15 AM end 12:43pm
Pumping Rate (gpm)	—
Evacuation Method	Dedicated Submersible pump/packer

Field Parameters	I	1V	2V	3V
Color	Colorless	colorless	colorless	colorless
Odor	Moderate	slight	slight	none
Appearance	clear	clear	clear	clear
pH (s.u.)	5.47	5.05	5.25	5.13
Conductivity (mS/cm)	—	—	—	—
(µmhos/cm)	59.3	81.2	62.5	60.3
Turbidity (NTU)	—	—	—	14.2
Temperature (°C)	13.5	13.0	12.0	12.4
Dissolved Oxygen (mg/L)	—	—	—	—
Salinity (%)	DTW 30.21	30.58	30.37	30.34

Sampling Method: 3-well Volume

Remarks: NC PID due to rain

503 - 30.21 x .43 + 50 = 255.85 ft

Constituents Sampled	Container Description	Number	Preservative
Se; COC			

Sampling Personnel: G.W. / B.P.

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS GERAGHTY & MILLER

Water Sampling Log

Project: Northrop Grumman | Project No. NY001348.0404.00002 | Page 1 of 1

Site Location: Bethpage, NY | Date: 1/6/05

Site/Well No.: BPOW 4-1 | Replicate No.: Rep 1/6/05 | Code No.: —

Weather: Rain 37° | Sampling Time: Begin 12:52pm End 12:55pm

Evacuation Data

	Stand pipe	Screen
Measuring Point	TOC	
MP Elevation (ft)	/	
Land Surface Elevation (ft)		
Sounded Well Depth (ft bmp)	652	692
Depth to ~~Water~~ Packer (ft bmp)	503	652
Water-Level Elevation (ft)	/	/
Water Column in Well (ft)	149	40
Casing Diameter/Type	4" (0.65)	2" (0.16)
Gallons in Well	96.85	6.4
	x3	x3
Gallons Pumped/Bailed Prior to Sampling	309	(290+19.2)
Sample Pump Intake Setting (ft bmp)	/	
Purge Time	begin 11:23 AM	end 12:52pm
Pumping Rate (gpm)	/	
Evacuation Method	Dedicated submersible pump/packer	

Field Parameters

Field Parameters	I	1V	2V	3V
Color	colorless	colorless	colorless	colorless
Odor	None	None	None	None
Appearance	clear	cloudy	cloudy	cloudy
pH (s.u.)	5.21	9.69	6.02	5.91
Conductivity ~~(mS/cm)~~	—	—	—	—
(µmhos/cm)	26.5	116.7	54.2	46.4
Turbidity (NTU)	—	—	—	116
Temperature (°C)	12.7	12.7	11.4	11.9
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ DTW	28.03	29.90	29.74	—

Sampling Method: 3 well volume

Remarks: No PID due to Rain

503 - 28.03 x .43 + 50 = 255 psi

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: G.W. I P.P

Well Casing Volumes

Gal./Ft.: 1-¼" = 0.06; 1-½" = 0.09; 2" = 0.16; 2-½" = 0.26; 3" = 0.37; 3-½" = 0.50; 4" = 0.65; 6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Milisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS GERAGHTY & MILLER

Water Sampling Log

Project: Northrop Grumman Project No. NY001348.0404.00002 Page 1 of 1

Site Location: Bethpage, New York Date 1/6/05

Site/Well No. BPOW 4-2 Replicate No. MS/MSD Code No. —

Weather Rain 40° Sampling Time: Begin 4:53pm End 4:55pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	764
Depth to ~~Water~~ packer (ft bmp)	503
Water-Level Elevation (ft)	—
Water Column in Well (ft)	261
Casing Diameter/Type	4" (0.65)
Gallons in Well	169.65
Gallons Pumped/Bailed Prior to Sampling	509 (x3)
Sample Pump Intake Setting (ft bmp)	—
Purge Time	begin 2:31pm end 4:53pm
Pumping Rate (gpm)	—
Evacuation Method	Dedicated submersible pump/packer

Field Parameters	I	1V	2V	3V
Color	colorless	Brown	tan	tan
Odor	None	None	None	None
Appearance	clear	very turbid	turbid	turbid
pH (s.u.)	5.03	4.80	5.01	5.14
Conductivity ~~(mS/cm)~~ (µmhos/cm)	51.3	135.9	78.7	85.7
Turbidity (NTU)	—	—	—	44
Temperature (°C)	14.1	12.4	13.3	13.3
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ DTW	27.54	27.10	27.00	—

Sampling Method: 3 well volume

Remarks: No PID due to Rain

503 - 27.54 x .43 + 50 = 255 PSI

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: G.W. P.P.

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

Appendix C

Chain Of Custody Records

ARCADIS

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

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Project Number/Name _____

Project Location _____

Laboratory _____

Project Manager _____

Sampler(s)/Affiliation _____

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE						Remarks	Total
										Total No. of Bottles/ Containers	

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: _____

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 ____ of ____

Project Number/Name NY001348.0004.00002

Project Location [illegible] NY

Laboratory [illegible] - [illegible] SHELTON

Project Manager DAVE STERN

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

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40ml VOA 95 1498	500ml [illegible] (all)					Remarks	Total
GM-78S	L	12/28/04		2	1						
GM-79I	↓	↓		2							
GM-79D				2							
FB-12-28-04				2	1						
TB 12-28-04	↓	↓		2							

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

Total No. of Bottles/Containers ____

Relinquished by: [illegible]	Organization: ARCADIS	Date 12/28/04	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: ____

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: NYSDEC / [illegible]

Project Location: Bethpage, New York

Laboratory: Severn Trent Shelton

Project Manager: Dave Stern

Sampler(s)/Affiliation: [illegible]

ANALYSIS / METHOD / SIZE

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	40 ml vial VOC 95-1 (low)						Remarks	Total
TB 12-29-04	L	12/29/04		2							
GM-39D2	↓	↓		2							
GM-39D	↓	↓		2							
GM-16D	↓	↓		2							

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

Total No. of Bottles/Containers: [illegible]

Relinquished by: [illegible]	Organization: Arcadis	Date 12/29/04	Time 6 [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: Report to Dave Stern

Delivery Method: ☐ In Person ☒ Common Carrier [illegible] (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 [illegible]

Project Location Bethpage, NY

Laboratory Severn Trent Shelton

Project Manager Dan Stern

Sampler(s)/Affiliation [illegible]

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: [illegible]						Remarks	Total
TB 123104	L	12/30/04		2							
GM-20D	↓	↓		2							
GM-20I	↓	↓		2							
GM-21D				2							

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

Total No. of Bottles/Containers ______

Relinquished by: [illegible]	Organization: Arcadis	Date 12/ /04	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 Dave Stern

Delivery Method: ☐ In Person ☐ Common Carrier [illegible] (SPECIFY) ☐ Lab Courier ☐ Other ______ (SPECIFY)

ARCADIS

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

Project Number/Name

Project Location

Laboratory

Project Manager

Sampler(s)/Affiliation

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE						Remarks	Total
		1/3/05									

Total No. of Bottles/ Containers: 6

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:

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

ARCADIS

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

Project Number/Name [illegible]

Project Location [illegible]

Laboratory Severn Trent Laboratories

Project Manager Dave Stern

Sampler(s)/Affiliation [illegible]

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE						Remarks	Total
TB 1/4/05	L	1/4/05		2							2
FB01 1-1	L	1/4/05		2							2
RB01 1-1	L	1/4/05		2							2
BP-1 1-3	L	1/4/05		2							2

Total No. of Bottles/ Containers 8

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

					Seal Intact?
Relinquished by: [illegible]	Organization: Arcadis	Date 1/4/05	Time [illegible]		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: [illegible]

☐ Lab Courier ☐ Other

ARCADIS

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

CHAIN-OF-CUSTODY RECORD

Project Number/Name

Project Location

Laboratory

Project Manager

Sampler(s)/Affiliation

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE						Remarks	Total
	L			2							2
	L			2							2
	L			2							2

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

Total No. of Bottles/ Containers: 6

Relinquished by:	Organization: Arcadis	Date 1/5/06	Time 1000	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. [illegible]

CHAIN-OF-CUSTODY RECORD

Project Number/Name [illegible]

Project Location [illegible]

Laboratory [illegible]

Project Manager [illegible]

Sampler(s)/Affiliation [illegible]

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: [illegible]						Remarks	Total
[illegible]	L	[illegible]		2							2
[illegible]											
[illegible]											
[illegible]				6*							6

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

Total No. of Bottles/ Containers

Relinquished by: [illegible]	Organization: Arcadis	Date 1 / 6 / 05	Time [illegible]	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: [illegible]

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

AG 05-17/01

ARCADIS

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

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Project Number/Name _____

Project Location _____

Laboratory _____

Project Manager _____

Sampler(s)/Affiliation _____

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE						Remarks	Total

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

Total No. of Bottles/ Containers

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

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 ____ of ____

Project Number/Name: [illegible]

Project Location: [illegible] York

Laboratory: Severn Trent Lab - [illegible]

Project Manager: Dave Stern

Sampler(s)/Affiliation: G.H. P.P.

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: [illegible]	[illegible]	[illegible]				Remarks	Total
TE [illegible]	L	11/11/05		2							2
FC [illegible]	↓	↓		2	1						3
GM-17S[illegible]	↓	↓		2	1	1					4
GM-17D	↓	↓		2							2
GM-17[illegible]	↓	↓		2							2
MW-2R	↓	↓		2	1	1					4
[illegible]	↓	↓		2							

Total No. of Bottles/Containers: [illegible]

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

Relinquished by: [illegible]	Organization: Arcadis	Date [illegible]	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 Dave Stern

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 NY001348.0404.00002
Project Location Bethpage, New York
Laboratory Severn Trent Shelton
Project Manager Dave Stern
Sampler(s)/Affiliation G.U. P.P.

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	40ml vial VOC 95-1 ASP (CLP)	500 ml plastic Total Cd, Cr (HNO3)	500 ml plastic Diss. Cd, Cr (HNO3)				Remarks	Total
TB 1/11/05	L	1/11/05		2							2
Rep 1/11/05	↓	↓		2							2
GM-75D2	↓	↓		2							
GM-33D2	↓	↓		2							2
N-10631	↓	↓		2	1	1					4
FB 1/11/05	↓	↓		2	1						

Total No. of Bottles/Containers 11

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

Relinquished by: [signature]	Organization: Arcadis	Date 1/11/05	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: Report to Dave Stern

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

Project Number/Name NY[illegible]
Project Location Bethpage, New York
Laboratory Severn Trent Sh. Hav
Project Manager Dave Stern
Sampler(s)/Affiliation GH TP

ANALYSIS / METHOD / SIZE

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	[illegible]	[illegible]					Remarks	Total
TB 11/1/05	L	11/1/05		2							2
FB 11/1/05	↓	↓		2	1						3
GM 34D2	↓	↓		2							2
GM-34D	↓	↓		2							2
GM-78 I	↓	↓		2	1						3
GM-74I	↓	↓		2							2

Total No. of Bottles/Containers 14

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

Relinquished by: [illegible]	Organization: Arcadis	Date 11/1/05	Time 5:00pm	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 Dave Stern

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: NY[illegible]
Project Location: Bethpage, New York
Laboratory: Severn Trent Shelton
Project Manager: Dave Stern
Sampler(s)/Affiliation: P.P.

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: [illegible]						Remarks	Total
TB 1-1 05	L	11/1/05		2							2
GM-74D	↓	↓		2							
GM-74D2	↓	↓		2							
GM-72D2	↓	↓		2							
GM-73D	↓	↓		6*							
GM-[illegible] I	↓	↓		2							

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

Total No. of Bottles/Containers: 16

Relinquished by: [illegible]	Organization: Arcadis	Date 1/1[illegible]/05	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:
[illegible] Dave Stern
[illegible]

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

AG 05-12/01

ARCADIS

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

CHAIN-OF-CUSTODY RECORD

Project Number/Name NY000498.0404.00002

Project Location Bethpage, New York

Laboratory Severn Trent - Shelton

Project Manager Dave Stern

Sampler(s)/Affiliation P.P.

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40 ml vial VOC 95-1 [illegible]						Remarks	Total
TB 11/14/05	L	11/14/05		2							2
GM-35D2	↓	↓		2							2

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

Total No. of Bottles/Containers 4

Relinquished by: Pat [illegible]	Organization: Arcadis	Date 11/14/05	Time 3:50 pm	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 Dave Stern

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 1 of 1

Project Number/Name: Bethpage Water District

Project Location: Bethpage, NY

Laboratory: H2M

Project Manager: _____

Sampler(s)/Affiliation: PP

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40 ml vial VOC CHCL						Remarks	Total
GM-35D2	L	1/14/05		2							2

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

Total No. of Bottles/ Containers: 2

Relinquished by: Robert Chojnacki	Organization: Arcadis	Date 1/14/05	Time 16.05	Seal Intact?	
Received by: [signature]	Organization: H2M Labs	Date 1/14/05	Time 16.05	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. ______

CHAIN-OF-CUSTODY RECORD

Project Number/Name [illegible]
Project Location [illegible] New York
Laboratory Severn Trent [illegible]
Project Manager Dave Stern
Sampler(s)/Affiliation [illegible]

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: [illegible] VOC [illegible]						Remarks	Total
[illegible]	L	11/17/05		2							2
[illegible]	↓	↓		2							2

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

Total No. of Bottles/Containers: 4

Relinquished by: [illegible]	Organization: Arcadis	Date 11/17/05	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: Report to Dave Stern

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

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