First Quarter 2001
Groundwater Monitoring Report

Groundwater Interim Remedial Measure
Northrop Grumman Corporation,
Bethpage, New York

P R E P A R E D F O R

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1. Introduction

This groundwater monitoring report was prepared as part of the operation, maintenance, and monitoring (OM&M) activities for the groundwater Interim Remedial Measure (IRM) at the Northrop Grumman Corporation (Northrop Grumman) Bethpage, New York facility. Both the hydraulic (groundwater elevation measurements) and groundwater quality monitoring described in this report are currently being conducted by Northrop Grumman on a voluntary basis. The purpose of the monitoring is to evaluate the effectiveness of the groundwater IRM at achieving the remedial goal of preventing the off-site migration of volatile organic compound (VOC)-impacted groundwater. A groundwater Record of Decision (ROD) for the Northrop Grumman and Naval Weapons Industrial Reserve Plant (NWIRP) sites was signed and issued by the New York State Department of Environmental Conservation (NYSDEC) on March 29, 2001. In addition to other items, the ROD incorporated the IRM system into the final groundwater remedy for the sites. Upon execution of a Remedial Design/Remedial Action (RD/RA) Consent Order, an OM&M plan will be prepared and submitted to the NYSDEC for review. Following NYSDEC approval of the plan, the specified groundwater monitoring and reporting will be implemented as a required component of the groundwater remedy.

In anticipation of the change in status from an IRM to the final groundwater remedy and submittal/approval of a formal OM&M plan, starting with this quarter the quarterly reports will have a slightly different emphasis from past quarterly reports. The same information will continue to be collected and provided as in past quarterly reports except that precipitation data, while being collected as before, will only be reported and evaluated in the annual groundwater monitoring report. Hydraulic data (water-level measurements) will continue to be collected, analyzed/evaluated, and reported quarterly due to the need to document containment of on-site VOC-impacted groundwater and because changes in containment, if any, can occur over a shorter time frame than corresponding changes in groundwater quality. Groundwater quality data will continue to be collected, analyzed/evaluated, and reported quarterly, however the evaluation will be limited to comparing the results to NYSDEC standards and the previous quarters results. Interpretation of groundwater quality graphs and the long-term data trends will only be done in the annual reports. This is appropriate as groundwater moves relatively slowly and as such, changes in groundwater quality also occur relatively slowly. Additionally, as bodies of contaminated groundwater tend to be somewhat heterogeneous, short-term changes in water quality will occur due to this heterogeneity that would not be related to site remediation activities. Therefore,

enough data points, sufficiently spaced in time are required so that long-term trends can be confidently determined and differentiated from short-term fluctuations.

Therefore, this report discusses short-term changes in groundwater flow, if any, IRM system operation, groundwater quality observed during the first quarter of 2001 (January to March 2001) and presents a comparison of the first quarter data to the results from the previous quarter. As in previous groundwater monitoring reports, this report also includes findings, conclusions, and recommendations for modifications to the current groundwater monitoring program. The 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 and recommendations will be incorporated, as appropriate, into the final OM&M Plan.

2. Monitoring Program

Except as described in Section 2.3 (Modifications to the Field Program) of this report, the first quarter 2001 groundwater monitoring network (hydraulic and groundwater quality) is consistent with the network listed in the draft Groundwater Monitoring Plan (ARCADIS Geraghty & Miller, Inc. 2000a), which was given interim approval by the NYSDEC. The Northrop Grumman site, the location of the groundwater IRM, neighboring properties (i.e., the NWIRP and Occidental Chemical Corporation/RUCO Polymer Corporation sites), and monitoring well locations are shown on Figure 1.

The hydrogeologic zones monitored include the shallow zone, the intermediate zone, the deep zone, and the deep2 (D2) zone. These zones were defined and discussed in detail in the groundwater flow modeling report, provided as Appendix B of the Groundwater Feasibility Study (ARCADIS Geraghty & Miller, Inc. 2000b).

Hydraulic and groundwater quality monitoring for the first quarter 2001 was conducted from January 22 to February 20, 2001. Appendix A contains water-level measurement logs, Appendix B contains groundwater sampling logs, Appendix C contains chain-of-custody records, and Appendix D contains data validation memoranda.

2.1 Hydraulic Monitoring

Field conditions encountered during the first quarter 2001 monitoring round prevented measuring water levels in two wells in the hydraulic monitoring network (see Section 2.3 – Modifications to the Field Program).

Water levels were measured to determine the hydraulic effects, both horizontally and vertically, of pumping the IRM wells and Well GP-3. The results of the first quarter 2001 hydraulic monitoring round are described in Section 4 (Groundwater Flow) of this report.

2.2 Groundwater Quality Monitoring

Field conditions encountered during the first quarter 2001 monitoring round prevented sampling one well in the groundwater quality monitoring network; (see Section 2.3 – Modifications to Field Program). Section 5 (Groundwater Quality) of this report summarizes the analytical results of groundwater samples collected during the first quarter of 2001.

2.3 Modifications to Field Program

The number of wells where water levels were measured and groundwater samples were collected were modified this round, as follows:

- A water-level probe access port does not exist at IRM Well GP-1; therefore water levels cannot currently be measured in this well. Repairs to the well pump are currently underway. As part of this effort, an airline will be installed which will permit the measurement of water levels in this well in future rounds.

- Water-level measurements and groundwater samples cannot currently be obtained from Monitoring Well N-10624 due to silt in the well screen.

- Existing Monitoring Wells HN-40S, HN-40I, HN-42S, and HN-42I were added to the groundwater monitoring rounds (groundwater quality) in response to NYSDEC comments on the groundwater monitoring plan (ARCADIS Geraghty & Miller, Inc, 2000a).

- New monitoring wells installed by the U.S. Navy (GM-18D, GM-79I, and GM-79D) were added to the quarterly groundwater monitoring network (hydraulic and groundwater quality monitoring for VOCs).

3. IRM Operational Monitoring

Northrop Grumman collected water samples from the IRM wells (GP-1, ONCT-1, ONCT-2, and ONCT-3), Industrial Supply Well GP-3, and the influent and effluent

streams from the two IRM groundwater treatment facilities (i.e., Plants 5 [GP-1] and 5E [ONCT] systems) on a weekly basis in the first quarter 2001. These samples were analyzed by Northrop Grumman's internal laboratory for trichloroethene (TCE) or TCE and vinyl chloride monomer (VCM). TCE and/or TCE/VCM concentrations for the IRM wells/industrial supply wells and the IRM treatment systems during the first quarter of 2001 are provided in Tables 1 and 2, respectively. Section 5 (Groundwater Quality) of this report discusses the results of the weekly operational monitoring of the IRM system. Northrop Grumman also records the total pumpage of the IRM wells and Industrial Supply Well GP-3 on a weekly basis (see Section 3.1 – Pumpage).

Water samples were collected by ARCADIS G&M as part of the quarterly monitoring activities from IRM Wells GP-1, ONCT-1, ONCT-2, and, ONCT-3, Well GP-3, and the influent and effluent water streams from Plants 5 and 5E. These samples analyzed for the full Target Compound List (TCL) for VOCs. Section 5 (Groundwater Quality) of this report discusses the results of the quarterly sampling of the IRM wells. Additionally, ARCADIS G&M collects hydraulic (pumping depth to water) measurements and instantaneous pumping rates from IRM Wells ONCT-1, ONCT-2, and ONCT-3 during each round of hydraulic measurements (GP-1 cannot currently be measured) (see Section 3.1 – Pumpage).

Collectively, the above data are utilized as follows:

- to determine the volume of groundwater pumped which permits comparing the pumpage recorded this quarter to the design pumpage,
- to document and monitor IRM well specific capacity,
- to calculate the VOC mass removed (in combination with the pumpage data) by the IRM wells and Well GP-3, and
- monitor VOC concentrations in the IRM system and IRM wells. Table 3 summarizes the pumpage from the IRM wells and Well GP-3, as well as the VOC mass removed during the first quarter of 2001. Details on the rationale and sampling/measurement procedures for IRM operational monitoring and quarterly monitoring are provided in the 2000 Annual Groundwater Monitoring Report (ARCADIS Geraghty & Miller, Inc. 2001).

3.1 Pumpage

The design pumping rates (i.e., rates required to prevent the off-site migration of VOC-impacted groundwater) of IRM Wells GP-1, ONCT-1, ONCT-2, and ONCT-3 are 1,075 gallons per minute (gpm), 1,000 gpm, 600 gpm, and 700 gpm, respectively (Geraghty & Miller, Inc. 1996), for a total rate of 3,375 gpm. If the wells were pumped continuously at the design rates, this would result in a total of 437.4 million gallons (MG) being pumped in the first quarter of 2001.

The total pumpage and average pumping rate for each IRM well during the first quarter of 2001 were calculated using methods described in previous quarterly reports. Pumpage from Industrial Supply Well GP-3 supplemented the total gallons pumped during the first quarter of 2001. The number of days each IRM well was operational out of a possible 90 days during the first quarter of 2001 and their average pumping rates when operational is provided in Table 3. These periods of operation and pumping totals equate to approximately 427.9 MG pumped by the IRM wells during the first quarter of 2001, or approximately 98 percent of the total designed pumpage given above. Industrial Supply Well GP-3 was operational for nearly all of the first quarter 2001 and pumped at an average rate of 620 gpm; this equates to 80.3 MG pumped in addition to the quantity pumped by the IRM wells.

The brief periods of IRM system downtime during the first quarter of 2001 were the result of the performance of routine O&M activities and temporary power outages.

Table 4 summarizes the performance of data collected from the IRM wells for the last quarter of 2000 and first quarter 2001. Based on instantaneous pumping rates and drawdowns measured during the first quarter of 2001, the specific capacities for the IRM wells are as follows: ONCT-1 (43.9 gpm/ft); ONCT-2 (37.1 gpm/ft); and ONCT-3 (36.0 gpm/ft). A water level cannot currently be measured in Well GP-1 and therefore, its specific capacity cannot be calculated. For Wells ONCT-1, ONCT-2, and ONCT-3, the specific capacities calculated for the first quarter 2001 exceed the minimum required for optimum pump performance (Geraghty & Miller, Inc. 1996).

3.2 Treatment Plant Operational Data

The data collected by Northrop Grumman shows that the average IRM treatment system influent TCE concentrations for the first quarter 2001 were as follows: GP-1/3 (563 µg/L) and ONCT (584 µg/L). The ranges of TCE concentrations were as follows: GP-1/3 (456 to 809 µg/L) and ONCT (344 to 690 µg/L). The average IRM treatment

system effluent TCE concentrations were both less than 2 µg/L. Based on the average influent and effluent TCE concentrations, treatment efficiency for both systems was 99.7 percent. The quarterly monitoring data collected by ARCADIS G&M, show that TVOC concentrations in the Plant 5 influent and effluent water were 731 µg/L and non-detect, respectively. TVOC concentrations in the Plant 5E influent and effluent water were 610 µg/L and non-detect, respectively. Therefore, the data collected from the Plant 5 and 5E influent and effluent water equate to a greater than 99.99 percent removal of VOCs from extracted groundwater for both systems. The data overall show a good correlation between the weekly operational data and the quarterly monitoring data in evaluating IRM treatment plant efficiency.

Based on the VOC concentrations and pumping totals from the IRM wells, a total of 2,301 pounds (lbs) of VOCs were removed from groundwater and treated by the IRM treatment facilities during the first quarter of 2001 (Table 3).

4. Groundwater Flow

This report section presents the results of the first quarter 2001 groundwater level measurement round and evaluates the effectiveness of the groundwater IRM at achieving the remedial goal of preventing the off-site migration of VOC-impacted groundwater. The evaluation of the hydraulic data is performed using methods described in previous quarterly monitoring reports.

The first quarter 2001 hydraulic measurement round was conducted on February 20, 2001 while the groundwater IRM was operating; the wells measured and water-level data obtained are summarized in Table 5. During the measurement round, the instantaneous flow rate at the ONCT IRM wells (currently the only wells where an instantaneous flow rate can be measured) were as follows: 1,098 gpm (ONCT-1); 1,125 (ONCT-2); and 607 gpm (ONCT-3). The average pumping rates for the IRM wells during the week prior to the hydraulic measurement round were as follows: 855 gpm (GP-1); 1,047 gpm (ONCT-1); 722 gpm (ONCT-2); and 562 gpm (ONCT-3). During this period, Well GP-3 was pumped at an average rate of 734 gpm. Using the water-level data collected, maps showing the water-table configuration and directions of groundwater flow (i.e., the shallow zone) and the potentiometric surface configuration and groundwater flow directions in the intermediate and D2 zones were prepared. These maps illustrate the effect (i.e., hydraulic containment) of the operation of the groundwater IRM on horizontal groundwater flow patterns. To evaluate the effect of the groundwater IRM on vertical groundwater flow patterns, vertical hydraulic gradients were calculated using water-level data from shallow/intermediate,

intermediate/deep, and deep/D2 monitoring well clusters; vertical hydraulic gradients are presented in Table 6.

4.1 Shallow Zone

The configuration of the water table and directions of groundwater flow in the shallow zone during the first quarter 2001 are shown on Figure 2. The following text describes the effects of the groundwater IRM treatment plant discharges and stormwater runoff (as recharge to the South Recharge Basins and the Plant 5 Recharge Basins) on shallow groundwater flow during the first quarter 2001. This section also describes vertical hydraulic gradients measured during the first quarter 2001 and compares these gradients to the simulated steady-state vertical gradients predicted by the groundwater flow model (ARCADIS Geraghty & Miller 2000).

As shown on Figure 2, the configuration of the water table on February 20, 2001 shows two areas of groundwater mounding situated on the Northrop Grumman site; one mound is centered on the South Recharge Basins and the other is centered on the Plant 5 Recharge Basins.

The maximum elevation of the mounding beneath and around the Plant 5 Basins is greater than 70 ft msl. As a result of the mounding, the horizontal direction of shallow groundwater flow in the vicinity of the Plant 5 Basins is radially to the north, south, west, and east away from the basins. This radial horizontal groundwater flow creates a hydraulic barrier and prevents on-site VOC-impacted groundwater in this area from migrating off-site in this zone. In addition, observed mounding also increases the vertical hydraulic gradient in the vicinity of the basins, resulting in a downward vertical component of groundwater flow from the shallow zone to the intermediate zone. Using water-level data from the first quarter 2001 round, vertical gradients (Table 6) were calculated for the shallow-intermediate monitoring well clusters in the area of the Plant 5 Recharge Basins (GM-16SR/16I and GM-17SR/GM-17I). As expected, the vertical gradients at these well clusters are oriented downward with the steepest gradient occurring at the Plant 5 Basins (i.e., center of the mounding). Away from the Plant 5 Recharge Basins in the south-central portion of the Northrop Grumman site, the horizontal direction of shallow groundwater flow is to the south-southeast.

As shown on Figure 2, the maximum elevation of the mound beneath and around the South Recharge Basins is greater than 64 ft msl, and the mound extends across most of the width of the southern boundary of the site. Similar to the situation described above

for the Plant 5 Basins, the horizontal direction of shallow groundwater flow in the vicinity of the South Recharge Basins is radially to the north, south, west, and east away from the basins, thereby creating an hydraulic barrier and preventing on-site VOC-impacted groundwater in this area from migrating off-site in the shallow zone. Similar to the Plant 5 Basins, the mounding around the South Recharge Basins also increases the vertical gradient in the vicinity of the basins, resulting in a downward vertical groundwater flow component from the shallow zone to the intermediate zone. Similar to the Plant 5 area, water-level data for the first quarter 2001 from the shallow-intermediate monitoring well clusters near the South Recharge Basins (GM-19S/GM-19I, GM-15S/GM-15I and GM-21S/GM-21I [Figure 2 and Table 6]) show that the vertical gradients are oriented downward with the steepest gradient at the well cluster nearest the basins (i.e., GM-21S/GM-21I).

Monitoring well cluster vertical gradients that are close to groundwater flow model predictions are a key indicator that the groundwater IRM, through pumpage from the D2 zone and recharge to the shallow zone, has created an effective hydraulic barrier to off-site groundwater flow. As shown on Table 6, vertical gradients this quarter in the monitoring well clusters located near the basins (GM-16S/GM-16I, GM-19S/GM-19I, and GM-21S/GM-21I) are oriented downward and are greater than the gradients predicted by the groundwater flow model. The vertical gradients in new Well Clusters GM-15S/GM-15I and GM-17SR/GM-17I are oriented downward and are close to model predictions. These data indicate that there is a strong downward vertical component of groundwater flow in the vicinity of the basins from the shallow zone toward the intermediate zone.

In conclusion, the downward vertical gradients coupled with the radial horizontal flow components near the recharge basins collectively create a hydraulic barrier that prevents on-site VOC-impacted groundwater from migrating off-site in the shallow zone.

4.2 Intermediate Zone

The configuration of the potentiometric surface and groundwater flow directions in the intermediate zone during the first quarter 2001 are shown on Figure 3. The following text describes the effect of groundwater IRM treatment plant discharges and stormwater runoff on groundwater flow and compares this flow to model predictions using the same methods as those described in Section 4.1 (Shallow Zone). Table 6 summarizes vertical gradient calculations for intermediate/deep wells.

As shown on Figure 3, the configuration of the potentiometric surface in the intermediate zone is similar to the water-level configuration observed in the shallow zone, with mounding centered beneath the Plant 5 and South Recharge Basins (maximum water-level elevation at the Plant 5 Basins is greater than 68 ft msl, while the maximum water-level elevation at the South Recharge Basins is greater than 64 ft msl). This indicates that IRM system discharge and stormwater runoff (as recharge to these basins) are substantially affecting groundwater flow in the intermediate zone, with the horizontal component of flow nearest the basins oriented radially away from the basins. The resultant vertical gradients in monitoring well clusters are oriented downward and are similar to or greater than model predictions.

Collectively, the data indicate that the hydraulic barrier to groundwater flow extends vertically downward to the intermediate zone and is similar in extent to that observed in the shallow zone, thereby preventing the off-site migration of VOC-impacted groundwater in the intermediate zone.

4.3 Deep Zone

As stated in previous reports, since groundwater in the deep zone is expected to be flowing in a predominantly vertical (downward) direction in the general vicinity of the groundwater IRM, the analysis of the effectiveness of the groundwater IRM at achieving the remedial goals in this zone is conducted using vertical gradient calculations for deep/D2 monitoring well clusters. Table 6 summarizes the vertical hydraulic gradients calculated from data collected from well clusters in the deep/D2 zones during the first quarter 2001 round and compares them to model-predicted gradients.

As expected, the vertical gradients in Well Clusters GM-15D/GM-15D2 (east of the South Basins) and GM-74D/GM-74D2 (at the South Basins) are oriented downward and are close to or greater than model predictions.

For deep/D2 well clusters generally located between the Northrop Grumman site boundary and off-site supply wells, vertical gradients were also calculated based on the first quarter 2001 data and are oriented downward and are greater than the model-predicted gradients.

In conclusion, vertical hydraulic gradients calculated for the first quarter 2001 from deep/D2 monitoring well clusters are oriented downward and are greater than or close to steady-state gradients predicted by the groundwater flow model. Furthermore,

vertical gradients in well clusters near the Northrop Grumman site boundary indicate that the mounding of the water table coupled with pumping wells in the D2 zone is forcing on-site groundwater downward toward the pumpage in the D2 zone, and continues to prevent groundwater from flowing off-site in the deep zone.

4.4 D2 Zone

On February 20, 2001, water-levels were measured in on- and off-site D2 monitoring wells and IRM Wells ONCT-1, ONCT-2, and ONCT-3 (GP-1 cannot currently be measured) which are screened in the D2 zone. Figure 4 depicts the potentiometric surface configuration and groundwater flow directions in the D2 zone under pumping conditions.

The result of pumping the IRM wells and Well GP-3 is the formation of cones of depression (areas of depressed water levels) in the D2 zone centered on each well that coalesce into one large zone of capture that extends along the entire southern boundary and extends northwest along with western boundary of the Northrop Grumman site. Although Wells GP-1 and GP-3 cannot currently be measured, it is reasonable to assume that the cones of depression around these wells cause the cumulative zone of capture shown on Figure 4 to extend to the northwest. At its farthest downgradient extent (south of Well ONCT-1) the zone of capture extends approximately 900 ft south of the Northrop Grumman site boundary. Within the zone of capture (upgradient and up to 900 ft downgradient of the IRM), groundwater flow directions are oriented toward the centers of pumping indicating that groundwater in this area is fully contained and captured by the IRM system. Beyond the downgradient extent of the zone of capture, groundwater continues to flow downgradient until it is influenced by the pumping of nearby public supply wells or continues to flow south-southeast in the direction of the regional groundwater flow.

Collectively, the data from the D2 zone indicate that the pumpage of the IRM wells has created a hydraulic barrier in this zone, thereby preventing the off-site migration of VOC-impacted groundwater across the entire southern boundary of the Northrop Grumman site.

4.5 Summary of Groundwater Flow Conditions

This quarter, the hydraulic monitoring data indicate that groundwater flow conditions are consistent with prior rounds which have shown that in the area of the Plant 5 recharge basins and the South Recharge Basins, groundwater mounding (from

stormwater runoff and discharge of treated effluent) beneath and around the basins prevents the off-site movement of groundwater in the shallow and intermediate zones and forces groundwater vertically downward through the deep zone and into the D2 zone. Within the D2 zone, the pumping of the IRM wells controls groundwater movement and groundwater is captured by the IRM wells before it can move off-site. Treated groundwater from the IRM wells is then discharged to the Plant 5 and South Recharge Basins, where it is reintroduced to the groundwater system. Further off-site, groundwater flows until it is influenced by the pumping of nearby public supply wells or continues to flow south-southeast in the direction of the regional groundwater flow.

In conclusion, the hydraulic data presented in this quarterly report indicate that operation of the groundwater IRM has maintained an effective hydraulic barrier throughout the shallow, intermediate, deep, and D2 zones, which prevents the off-site migration of on-site VOC-impacted groundwater.

5. Groundwater Quality

The first quarter 2001 groundwater sampling round was conducted from January 22, 2001 to February 20, 2001. This report section describes the results of the first quarter 2001 groundwater monitoring round and compares them to standards and the previous quarters results.

5.1 Volatile Organic Compounds

The goal of the on-site groundwater pumping and treatment system (IRM) is to capture, remove, and treat groundwater from the on-site portion of the VOC plume and thereby, prevent VOC-impacted groundwater from moving off-site. The operation of the groundwater IRM will cause the plume to bifurcate into an on-site section and an off-site section. As treated groundwater and precipitation continue to recharge the aquifer a clean zone will develop within which VOC impacts will not occur or will be minimal. This clean zone will increase in size as VOC-impacted groundwater downgradient (south) and beyond the capture zone of the IRM wells continues to migrate through the aquifer in the regional direction of groundwater flow to the south-southeast. The continued growth of this clean zone will be dependant on maintaining the hydraulic barrier created by the IRM, and the rate of growth will largely depend on the regional groundwater velocity, which is generally less than one foot per day in the Magothy aquifer.

Based on the above considerations groundwater samples collected from wells immediately south (off-site) of the IRM wells will be the first to show water quality improvement (i.e., a decreasing trend in contaminant concentrations over time) although the improvement will be slow due to the natural slow groundwater velocity. Further off site, monitoring wells will take a longer time to show an improvement in groundwater quality as compared to wells immediately south of the IRM wells due to the relatively slow groundwater velocity.

VOC-impacted groundwater that migrated off-site prior to the implementation of the IRM would have to migrate past off-site monitoring wells before the wells would show groundwater quality improvement related to operation of the IRM system. Depending on the contaminant concentrations and heterogeneity of the off-site groundwater, monitored water quality in off-site wells may show several trend changes before a long term trend associated with IRM operation is revealed.

Depending on well location, water quality in on-site wells may either increase, decrease, or stay the same over the short to mid-term, but over the long term a general decrease in VOC concentrations will also be observed.

To evaluate this, the following subsections of this report focus on the on- and off-site detections of VOCs in groundwater samples collected.

Specifically, in the following subsections of this report, the distribution of VOCs in the shallow, intermediate, deep, and D2 zones is described and VOC concentrations are compared to New York State Standards, Criteria, and Guidance Values (SCGs). Furthermore, this rounds water quality results are also compared to the results of the previous groundwater monitoring round. The occurrence and distribution of VCM in groundwater is discussed in Section 5.2 (Vinyl Chloride Monomer) of this report.

5.1.1 VOCs in the Shallow and Intermediate Zones

Groundwater monitoring data from the shallow and intermediate monitoring wells are summarized in Tables 7 and 8. The data from the shallow and intermediate wells sampled this quarter confirms the effectiveness of the hydraulic barrier in preventing off-site movement of VOC-impacted groundwater in the shallow and intermediate zones. Wells with the highest VOC concentrations and the most SCG exceedences are located substantial distances north of the South Recharge Basins and lie within the on-site VOC plume. Wells at and near the southern property boundary (i.e., in the general area of the hydraulic barrier created by the mounding of the water table) generally have

low TVOC concentrations with most wells having no SCG exceedences. A detailed discussion of these data follows.

Of the 13 shallow wells sampled this quarter, nine wells exhibited no VOCs detected, three wells exhibited TVOC values ranging from 1 µg/L to 6 µg/L, and one well (FW-03) exhibited a TVOC concentration of 38 µg/L. TCE was the main constituent detected in each well with detectable VOC concentrations. The SCG for TCE (5 µg/L) was exceeded in Wells GM-15S and FW-03 and the SCG for tetrachloroethene (PCE) (5 µg/L) was exceeded in Well FW-03. No other shallow wells exhibited SCG exceedences. Well FW-03, located over 4,000 ft north and upgradient of the IRM extraction wells (Figure 1) exhibited the highest TVOC result, as was the case the previous sampling round. With the exception of Well FW-03, results this round for other shallow wells sampled are essentially the same as last round. Well FW-03 exhibited a TVOC concentration that was twice the value detected last round with the same compounds detected both rounds. Wells N-10631, N-10634, GM-17SR, and GM-21S which exhibited no VOC detections this quarter, are located at or downgradient of the South Recharge Basins/Plant 5 Recharge Basins and attest to the effectiveness of the hydraulic barrier in preventing VOC-impacted groundwater from migrating off-site in the shallow zone.

Thirteen of fourteen intermediate wells sampled this round exhibited essentially the same results and compounds detected (i.e., PCE; TCE; 1,1,1-TCA; 1,2-DCE; 1,1-DCE; and 1,1-DCA) as last quarter. In general, there were fewer detections of the breakdown products (i.e., 1,2-DCE; 1,1-DCE; and 1,1-DCA) this round. Of the 14 intermediate wells sampled, six exhibited no VOCs, and five wells exhibited TVOC concentrations ranging from 1.8 µg/L to 10 µg/L with two exceedences of SCGs (TCE detected in Wells GM-23I and GM-79I at 6 µg/L). Similar to the shallow zone, intermediate wells with the highest TVOC concentrations were detected upgradient of the IRM and wells with no or few VOC detections were located at or immediately south of the Northrop Grumman southern property boundary.

Groundwater monitoring data from intermediate wells are summarized in Table 8. Well GM-16I exhibited a TVOC concentration of 34 µg/L; Well HN-24I exhibited a TVOC concentration of 280 µg/L; and Well MW-52S exhibited a VOC concentration of 478 µg/L with PCE and VCM exceeding SCGs of 5µg/L and 2 µg/L, respectively; VOC results for all three wells were similar to or less than the previous round (see Section 5.2 [Vinyl Chloride Monomer] for a complete discussion of VCM results). TCE was detected in Wells GM-16I and HN-24I exceeding the SCG at concentrations of 25 µg/L and 200 µg/L, respectively. Other VOCs detected in Well HN-24I

exceeding their respective SCGs of 5 µg/L included 1,1-DCE; 1,1-DCA; 1,2-DCE (total); 1,1,1-TCA; and PCE. At the Northrop Grumman southern boundary, Well GM-79I (6 µg/L) was sampled for the first time this round, so no comparison can be made. Wells GM-15I, GM-17I, GM-18I, GM-20I, GM-21I, and GM-74I which were non-detect for VOCs this quarter, are located at/near or downgradient of the South Recharge Basins/Plant 5 Recharge Basins attesting to the effectiveness of the hydraulic barrier at preventing VOC-impacted groundwater from migrating off-site in the intermediate zone.

5.1.2 VOCs in the Deep Zone

Groundwater monitoring data from deep monitoring wells are summarized in Table 9. The data from the deep wells sampled this quarter confirms the effectiveness of the hydraulic barrier in preventing off-site movement of VOC-impacted groundwater in the deep zones. Wells with the highest VOC concentrations and the most SCG exceedences are generally located substantial distances north of the South Recharge Basins and are located within the on-site VOC plume. Wells at and near the southern property boundary (i.e., in the general area of the hydraulic barrier created by the mounding of the water table) generally have low TVOC concentrations with most wells having no SCG exceedences. A detailed discussion of these data follows.

Of the 15 deep wells sampled, four wells exhibited no detections or exhibited trace concentrations of VOCs with no exceedences of SCGs. Eight wells exhibited TVOC concentrations ranging from 12 µg/L to 113 µg/L. In these eight wells, TCE was the compound that most frequently exceeded its SCG; other VOCs detected exceeding SCGs included 1,2-DCE; 1,2-DCA; and PCE. The majority of these eight wells are located south of the Northrop Grumman site. The three remaining wells had substantially higher TVOC concentrations, as follows: Well GM-13D exhibited a TVOC concentration of 1,446 µg/L (PCE; TCE; 1,1-DCE; 1,1-DCA; 1,2-DCE [total]; and 1,1,1-TCA exceeded SCGs); Well GM-38D exhibited a TVOC concentration of 590 µg/L (TCE exceeded its SCG); and Well MW-52I exhibited a TVOC concentration of 2,023 µg/L (VCM [see Section 5.2]; PCE; TCE; and 1,2-DCE [total] exceeded SCGs), respectively. Nine of fifteen wells sampled this round exhibited essentially the same VOC results and compounds detected exceeding SCGs as last round, while Wells MW-52I, MW-52D, GM-13D, and GM-38D exhibited a decrease in VOC concentrations in comparison to last round. Wells GM-18D and GM-79D were sampled for the first time this round, therefore, no comparison can be made.

Wells GM-13D and MW-52I are located on the Northrop Grumman site, upgradient of the IRM system, and Well GM-38D is located in the off-site area; these wells have historically exhibited persistent elevated VOC concentrations in the deep zone (see Figure 1). Three of the four wells that exhibited trace or non-detectable VOC concentrations (GM-17D, GM-18D, GM-20D) are located along the Northrop Grumman site boundary (Figure 1), with the fourth well (HN-29D), located on the NWIRP site. Wells N-10627, GM-15D, and GM-74D, located along or near the Northrop Grumman southern boundary and Wells GM-34D, GM-36D, and GM-37D located more than 2,000 ft downgradient of the southern boundary of the Northrop Grumman site, exhibited VOC concentrations similar to the previous round. Collectively, the data indicate stable to decreasing VOC concentrations in the deep zone on and near the site.

5.1.3 VOCs in the D2 Zone

Groundwater monitoring data from the D2 zone are summarized in Table 10. As stated in Section 3 (IRM Operational Monitoring) Northrop Grumman collected weekly operational water samples from the IRM wells and treatment systems and analyzed the samples for select VOCs (i.e., TCE or TCE/VCM). ARCADIS G&M collected quarterly groundwater samples from IRM Wells GP-1, ONCT-1, ONCT-2, ONCT-3 and Industrial Well GP-3 and influent/effluent water samples from the Plant 5 (GP-1) and Plant 5E (ONCT) systems. In addition, ARCADIS G&M collected groundwater samples from the network of D2 monitoring wells listed in the groundwater monitoring plan. All quarterly water samples were analyzed for the TCL VOCs. The following text describes the results of this round of monitoring of the IRM wells, compares the weekly operational data to the quarterly monitoring data and to the previous groundwater monitoring round results, describes the VOC analytical results from the D2 monitoring wells, and compares the results from the monitoring wells to SCGs and the results from the previous groundwater monitoring round.

5.1.3.1 IRM System

As shown on Table 1, the average TCE concentrations in each of the IRM wells and Well GP-3 from the weekly operational samples for the first quarter 2001 are as follows: GP-1 (393 micrograms per liter, or µg/L); GP-3 (909 µg/L); ONCT-1 (1,098 µg/L); ONCT-2 (122 µg/L); and ONCT-3 (11 µg/L). The corresponding ranges of TCE concentrations are as follows: GP-1 (220 to 602 µg/L); GP-3 (658 to 1,152 µg/L); ONCT-1 (944 to 1,248 µg/L); ONCT-2 (101 to 139 µg/L); and ONCT-3 (7 to 13 µg/L). Compared with the prior round of data (which included samples collected from July to

December 2000), the average TCE concentration in the IRM wells has decreased, with the exception of Well ONCT-3, which has remained essentially unchanged.

From the quarterly monitoring of the IRM and supply wells pumping to the Plant 5 system, TVOC concentrations in IRM Well GP-1 (473 µg/L) and Well GP-3 (1,145 µg/L) have remained essentially the same as the previous round. Overall, the quarterly monitoring data show a good correlation to the weekly operational data.

From the quarterly monitoring of the IRM wells pumping to the Plant 5E system, TVOC concentrations in IRM Wells ONCT-1, ONCT-2, (1,400 µg/L and 189 µg/L, respectively) have decreased, while the TVOC concentration in Well ONCT-3 (26 µg/L) has remained essentially the same as the previous round. Overall, the quarterly monitoring data show a good correlation to the weekly operational data (see Section 3.2 – Treatment Plant Operational Data).

5.1.3.2 Monitoring Wells

VOC concentrations in the D2 zone (Table 10) have either decreased or remained essentially the same in comparison to the previous groundwater monitoring round. Near the site southern boundary, VOC concentrations in Wells GM-15D2 (24 µg/L) (TCE and PCE exceeded SCGs) and GM-74D2 (5 µg/L) (no exceedences) have remained essentially the same as the previous round. Wells GM-33D2 (966 µg/L) (TCE and PCE exceeded SCGs) and GM-73D2 (635 µg/L) (TCE exceeded its SCG) both located near Well ONCT-1 exhibited a lower VOC concentration in comparison to the previous round. The decline in VOC concentrations in both these wells in comparison to the previous round appears to indicate that the IRM system continues to be effective in reducing VOC concentrations in the D2 zone in these areas. Excluding the GM-38 Area, VOC concentrations off-site in the D2 zone range from 0.6 µg/L in Well GM-36D2 to 157 µg/L in Well GM-35D2 with concentrations decreasing or remaining essentially the same in comparison to the previous round. TCE was the compound most frequently detected off-site in the D2 zone exceeding SCGs; other VOCs detected less frequently at concentrations exceeding SCGs included PCE; 1,1-DCE; and 1,1-DCA. The VOC concentration in the D2 zone in the GM-38 Area (1,000 µg/L in Well GM-38D2) has remained essentially the same in comparison to the previous round, with TCE exceeding the SCG this round.

As stated above, continued monitoring of water quality in off-site wells may show several trend changes before a long-term trend associated with IRM operation is revealed.

5.2 Vinyl Chloride Monomer

Groundwater monitoring of the VCM subplume emanating from the RUCO Polymer site (near the NWIRP area) is performed on a semi-annual basis (twice yearly). This section discusses the results of the first quarter 2001 monitoring round and compares these results to those of the previous round. VCM is a parameter that is monitored in all wells sampled for VOCs and Section 5.1 (Volatile Organic Compounds) of this report provides a complete discussion of other VOCs detected in the VCM monitoring well network. Tables 7 through 10 provide the results for VCM concentrations in groundwater for the first quarter 2001 and the previous round.

VCM was not detected in the shallow zone (Table 7). Monitoring Well MW-52S (located in the Plant 12 Area – see Figure 1) exhibited the only detected concentration of VCM (470 µg/L) in the intermediate zone; this result exceeded the SCG but is substantially lower than the result from the previous groundwater monitoring round (Table 8).

In the deep zone, Well MW-52I (located in the Plant 12 Area) exhibited the only detected concentration of VCM (2,023 µg/L); this result exceeds the SCG and is essentially the same as the result from the previous groundwater monitoring round (Table 9).

In the D2 zone, based on the operational sampling conducted by Northrop Grumman, VCM was detected in Well GP-3 above the SCG at concentrations ranging from 4.1 µg/L to 7.4 µg/L (Table 1). The quarterly sampling data for VCM (first quarter 2001) for Well GP-3 were not useable based on the results of data validation. Since Well GP-3 is located substantially farther south (downgradient) than the upgradient monitoring well network and it is deeper than any monitoring well in the network, it is reasonable to conclude that the extent of the VCM subplume is greater than previously defined by RUCO. VCM was not detected in any other D2 zone well (Table 10).

5.3 Tentatively Identified Compounds

For all groundwater samples collected during this round, in addition to the TCL VOCs, the laboratory was requested to perform an analysis and library search to identify and evaluate whether volatile Tentatively Identified Compounds (TICs) exist in the groundwater samples. TICs detected in groundwater samples collected during the first quarter 2001 round are summarized in Table 11. Overall, six TICs were identified at estimated concentrations ranging from 5 µg/L to 56 µg/L. Since the laboratory

instruments cannot be calibrated to determine exact TIC concentrations (i.e., they are not included in the TCL VOC list), the concentrations should be used for qualitative purposes only.

5.4 Quality Control Samples - VOCs

Based on the analytical results (Table 12) for the first quarter 2001 round, low levels of VOCs (acetone and methylene chloride) were detected.

5.5 Semi-Volatile Organic Compounds

The first quarter 2001 round groundwater data for the shallow monitoring Well GM-14, located downgradient of the Plant 1 Fuel Depot, are provided in Table 13. SVOCs were not detected this round which is essentially the same as the results from the previous round. Diethylphthalate (0.7 µg/L) was the only SVOC detected in the associated field blank QA/QC sample.

5.6 Cadmium and Chromium

Groundwater monitoring data from shallow monitoring wells for the first quarter 2001 and the previous round for total cadmium (Cd) and total chromium (Cr) are provided in Table 14. The data were compared to SCGs. The cadmium concentration in Monitoring Well MW-3R (south of Plant 2) (32.4 µg/L) exceeded the SCG of 5 µg/L; concentrations have increased since the last monitoring round. Cadmium was detected below the SCG in Monitoring Well N-10631 (1 µg/L), was not detected in Well GM-16SR and is essentially the same in these two wells as the results from the previous monitoring round. The chromium concentration in Monitoring Well MW-3R (67.6 µg/L) exceeds its SCG of 50 µg/L; concentrations have decreased in comparison to the last monitoring round. Chromium was detected below the SCG in Monitoring Wells N-10631(11.7 µg/L) and was not detected in Well GM-16SR this round. The chromium concentration in Well GM-16SR is essentially the same while the concentration has increased in Well N-10631 compared to the results from the previous round.

5.7 Quality Control Samples - Cadmium/Chromium

Cadmium/chromium were not detected in the equipment blank samples collected in the first quarter 2001 round (Table 14).

5.8 Data Validation

ARCADIS G&M performed validation of the groundwater quality data (including TICs) collected from monitoring wells by following the contract laboratory program national functional guidelines for organic and inorganic data review (USEPA 1994). The quality of the data is considered acceptable with the appropriate qualifications indicated on Tables 7 through 14. Data validation memoranda are provided in Appendix D.

6. Summary and Conclusions

6.1 IRM System

1. Overall a total of 427.9 MG were pumped and treated during the first quarter 2001, which is approximately 98 percent of the total design pumpage. Pumpage of Well GP-3 supplemented the total gallons pumped by an additional 80.3 MG.

2. The average TVOC concentration in the IRM wells has decreased in comparison to the previous round of measurements. IRM well specific capacity remains above minimum pump performance criteria. During the first quarter 2001, a total of 2,301 lbs of VOCs were removed from the aquifer and treated by the IRM treatment facilities. Based on samples collected by Northrop Grumman from the IRM wells and IRM system, VOC removal efficiency for both treatment plants is greater than 99.7 percent. Based on samples collected by ARCADIS G&M from the IRM wells and IRM system, VOC removal efficiency for both treatment plants is greater than 99.99 percent. Overall, comparison of the operational and quarterly data shows a good correlation between both sets of data.

6.2 Groundwater Flow

1. Water-level data in the shallow and intermediate zones from the first quarter 2001 indicate that operation of the IRM has maintained the groundwater mounding in the Plant 5 Recharge Basins and the South Recharge Basins areas. Overall conditions are consistent with the prior round. Consequently, the hydraulic barrier in the shallow zone has been maintained, and extends to the immediate zone and prevents the off-site migration of on-site VOC-impacted groundwater in the shallow and intermediate zones.

2. Downward vertical hydraulic gradients near the Plant 5 Recharge Basins and South Recharge Basins areas remain close to or greater in magnitude than those predicted by the groundwater flow model and result in downward groundwater movement. This indicates that the mounding of the water table coupled with pumpage from the D2 zone is continuing to force on-site groundwater to move downward toward the pumping IRM wells in the D2 zone, which therefore prevents VOC-impacted groundwater from flowing off-site in the intermediate and deep zones.

3. The configuration of the potentiometric surface in the D2 zone indicates that the zone of capture, due to pumpage of the IRM Wells extends across the entire Northrop Grumman southern property boundary and continues to fully control and contain groundwater on-site and more than 900 ft south of the site.

6.3 Groundwater Quality

1. As expected, the analytical results from shallow and intermediate monitoring wells in areas within the VOC plume on the Northrop Grumman and NWIRP sites upgradient of the IRM system exhibited the highest concentrations of VOCs in these zones. At the southern property boundary and immediately south of it, shallow and intermediate monitoring wells exhibited stable low or non-detectable concentrations of VOCs. These results confirm the effectiveness of the IRM in preventing the off-site migration of VOC-impacted groundwater in the shallow and intermediate zones.

2. Groundwater quality data from on-site deep monitoring wells are consistent with the current understanding of the on-site VOC groundwater plume configuration. Deep wells along the Northrop Grumman southern site perimeter exhibit low to non-detectable VOC concentrations. The pumpage of the IRM wells is the apparent reason for the low to non-detectable VOC concentrations, which attest to the effectiveness of the IRM in preventing the off-site migration of VOC-impacted groundwater in the deep zone. Further downgradient of the sites, TVOC concentrations are unchanged in comparison to the previous round.

3. VOC concentrations in D2 zone wells that are located near the Northrop Grumman site southern boundary are consistent with previous rounds, with wells closest to the IRM extraction wells exhibiting a continued decrease in VOC concentrations, which indicates that the IRM system continues to be effective in reducing VOC concentrations in the D2 zone in these areas. Off-site, VOC concentrations in the

D2 zone have remained essentially the same or have decreased in comparison to the previous round. Continued monitoring of water quality in off-site wells may show several trend changes before a long-term trend associated with IRM operation is revealed.

4. VCM was not detected in the shallow zone. VCM was detected in the intermediate and deep zones only at the MW-52 well cluster south (downgradient) of the RUCO site. VCM concentrations in the intermediate and deep zones have substantially decreased since the previous round. Well GP-3, screened in the D2 zone, exhibited a VCM concentration above the SCG indicating that the extent of the VCM subplume (horizontal and vertical) is greater than previously defined by RUCO.

5. VOCs and SVOCs were not detected above SCGs downgradient of the Plant 1 Fuel Depot.

6. Cadmium was detected above the SCG in Well MW-3R and the concentration has increased compared to the result from the previous round. Cadmium concentrations in Wells N-10631 and GM-16SR were below the SCG and are essentially the same in comparison to the previous round. Chromium was detected above the SCG in Well MW-3R and the concentration has decreased in comparison to the previous round. Chromium concentrations were below the SCG in Wells GM-16SR and N-10631 this round and the results are essentially the same as the results from the previous round.

7. Recommendations

ARCADIS G&M does not recommend any additional changes or modifications to the groundwater monitoring program at this time.

8. References

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Table 1. Selected VOC Concentrations in Water Samples Collected from Groundwater IRM Wells and Industrial Supply Wells, First Quarter 2001, Northrop Grumman Corporation, Bethpage, New York.

		IRM WELLS				INDUSTRIAL SUPPLY WELLS					
	Well ID:	GP-1	ONCT-1	ONCT-2	ONCT-3	GP-3		GP-10		GP-11	
Sample Collection	Units:	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)		(ug/L)		(ug/L)	
Date	Analyte:	TCE	TCE	TCE	TCE	VCM	TCE	VCM	TCE	VCM	TCE
1/10/01		388	960	139	12	7.2	658	NA	59	NS	NS
1/17/01		376	1,244	115	13	7.4	932	NA	63	NS	NS
1/24/01		400	1,248	127	13	6.0	896	NA	62	NS	NS
1/31/01		455	1,186	120	13	6.3	832	NA	66	NS	NS
2/7/01		450	1,090	124	13	6.4	810	NA	60	NS	NS
2/14/01		492	1,040	120	12	6.0	863	NA	63	NS	NS
2/21/01		602	1,128	122	10	NA	1,076	NS	NS	NA	8
2/28/01		444	1,165	127	10	4.2	1,152	NS	NS	NA	11
3/6/01		312	1,056	136	13	4.1	1,024	NS	NS	NA	9
3/14/01		220	1,064	104	11	6.8	936	NS	NS	NA	13
3/21/01		313	1,048	127	10	5.1	878	NS	NS	NA	10
3/28/01		265	944	101	7	5.3	845	NS	NS	NA	19
Average Concentration:		393	1,098	122	11	6	909	--	62	--	12

Note: Water samples were collected and analyzed for TCE and VCM by Northrop Grumman; results were not validated.

IRM Interim Remedial Measure
ug/L Micrograms per liter
TCE Trichloroethene
VCM Vinyl Chloride Monomer
NS Not sampled; well not operating.
NA Not Analyzed
-- Not Applicable

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Table 2. Trichloroethene Concentrations in Water Samples Collected from the IRM System Influent and Effluent, First Quarter 2001, Northrop Grumman Corporation, Bethpage, New York.

Sample Collection Date	Sample ID: / Units:	ONCT System (WWRP-5E) Influent (ug/L)	ONCT System (WWRP-5E) Effluent (ug/L)	GP-1 System (WWRP-5) Influent (ug/L)	GP-1 System (WWRP-5) Effluent (ug/L)
1/10/01		512	2.0	480	2.9
1/17/01		643	2.9	760	2.0
1/24/01		640	2.5	498	4.0
1/31/01		668	1.5	502	2.0
2/7/01		675	1.3	475	1.7
2/14/01		690	1.1	492	1.2
2/21/01		654	2.6	734	0.8
2/28/01		600	1.4	809	1.3
3/6/01		560	2.6	616	1.0
3/14/01		364	2.6	456	<0.5
3/21/01		344	0.5	466	1.0
3/28/01		656	1.2	473	<0.5
Average Concentration:		584	1.9	563	1.8

Note: Water samples were collected and analyzed by Northrop Grumman; results were not validated.

IRM Interim Remedial Measure
ug/L Micrograms per liter
WWRP Wastewater Recovery Plant
WWRP-5E WWRP 5E system influent and effluent consists of water from IRM Extraction Wells ONCT-1 (Well 17), ONCT-2 (Well 18), and ONCT-3 (Well 19).
WWRP5 WWRP 5 system influent and effluent consists of water from IRM Well GP-1 and Industrial Supply Wells GP-3.

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Table 3. Operational Summary of the Groundwater Interim Remedial Measure and Industrial Supply Well GP-3, First Quarter 2001, Northrop Grumman Corporation, Bethpage, New York.

Well/System Identification	Average Pumping Rate (a) (gpm)	Total Pumpage (a) (MG)	Design Pumpage (MG)	Percent of Design Pumpage	Average Influent TCE Concentration (ug/L)	Average Influent TVOC Concentration [(b)] (ug/L)	TVOC Mass Removed [(b)] (lbs)
IRM Wells							
GP-1	892	115.5	139.3	--	393	432	415
ONCT-1	1,023	122.4	129.6	--	1,098	1,109	1,131
ONCT-2	829	101.9	77.8	--	122	128	109
ONCT-3	765	88.0	90.7	--	11	18	13
Industrial Supply Well							
GP-3	620	80.2	--	--	909	947	632
TOTALS:	**--**	**427.9**	**437.4**	**98%**	**--**	**--**	**2,301**

Notes:

(a) - Average pumping rate and total pumpage based on Northrop Grumman records of operation from January 1 to March 31, 2001.
- Days wells were operational from January to March are as follows: IRM Well GP-1 (89.9); IRM Well ONCT-1 (83.1); IRM Well ONCT-2 (85.4); IRM Well ONCT-3 (79.9); Supply Well GP-3 (89.9).
- Pumping rates accurate to +/-15% due to limitations in flow metering.

(b) - TVOC concentration and TVOC mass in each well were estimated from first quarter 2001 groundwater monitoring data which indicated that TCE concentrations were a percentage of the TVOC concentration, as follows: GP-1 (91 percent); ONCT-1 (99 percent); ONCT-2 (95 percent); ONCT-3 (62 percent); and GP-3 (96 percent).

- TVOC mass removed during the first quarter 2001 was based on the TCE/TVOC ratios given above and the following formula:

$$\frac{((\text{TCE concentration}) \times (\text{gallons pumped}) \times (3.785\ \text{L/gal}) \times (1 \times 10^{-6}\ \text{g/ug}) \times (2.2 \times 10^{-3}\ \text{lb/g}))}{(\text{TCE concentration} / \text{TVOC concentration})}$$

IRM	Interim Remedial Measure
gpm	gallons per minute
MG	Million Gallons
ug/L	micrograms per liter
lbs	pounds
--	Not Available or Not Applicable
TCE	Trichloroethene
TVOC	Total Volatile Organic Compound
L/gal	Liters per gallon
g/ug	grams per microgram
lb/g	pounds per gram

Table 4. Groundwater IRM Extraction Well Performance Data, Last Quarter 2000 and First Quarter 2001, Northrop Grumman Corporation, Bethpage, New York.

IRM Well Identification	Baseline Round Static Depth to Water 5/9/97 (ft bmp)	Last Two Water-Level Measurement Dates	Pumping Depth to Water (ft bmp)	Pumping Rate (gpm)	Drawdown (ft)	Specific Capacity (gpm/ft)
ONCT-1	44.12	October 16, 2000	66.41	928	22.29	41.6
		February 20, 2001	69.15	1098	25.03	43.9
ONCT-2	50.15	October 16, 2000	69.92	708	19.77	35.8
		February 20, 2001	80.45	1125	30.30	37.1
ONCT-3	49.13	October 16, 2000	67.88	669	18.75	35.7
		February 20, 2001	66.00	607	16.87	36.0
GP-1	--	October 16, 2000	--	783*	--	--
		February 20, 2001	--	892*	--	--

Note: Specific capacity is calculated by dividing the pumping rate (Q) by the drawdown (s).

IRM	Interim Remedial Measure
gpm	gallons per minute
ft bmp	feet below measuring point
--	Data could not be collected
*	Based on pumpage data collected by Northrop Grumman personnel
ft	feet
gpm/ft	gallons per minute per foot of drawdown

Table 5. Water-Level Measurement Data, First Quarter 2001, Northrop Grumman Corporation, Bethpage, New York.

Well Designation	Measuring Point Elevation (ft msl)	Depth to Water February 20, 2001 (ft bmp)	Water-Level Elevation February 20, 2001 (ft msl)
Shallow Wells			
N-9921	94.23	35.42	58.81
N-10597	109.85	44.93	64.92
N-10600	102.41	41.84	60.57
N-10631	103.47	42.00	61.47
N-10633	103.80	42.36	61.44
N-10634	101.20	42.95	58.25
N-10821	91.58	37.05	54.53
GM-15S	109.35	47.82	61.53
GM-16SR	115.77	50.54	65.23
GM-17SR	115.79	45.61	70.18
GM-18S	107.60	43.38	64.22
GM-19S	109.86	46.13	64.41
GM-21S	105.81	40.05	65.76
GM-79S	100.88	42.58	58.67
Intermediate Wells			
N-10624*	93.61	--	--
GM-15I	109.13	47.65	61.48
GM-16I	115.81	50.71	65.10
GM-17I	115.83	45.91	69.92
GM-18I	109.03	45.05	63.98
GM-19I	109.86	46.45	63.96
GM-20I	103.88	40.84	63.04
GM-21I	105.72	41.94	63.78
GM-74I	107.42	43.00	64.42

See notes on last page

Table 5. Water-Level Measurement Data, First Quarter 2001, Northrop Grumman Corporation, Bethpage, New York.

Well Designation	Measuring Point Elevation (ft msl)	Depth to Water February 20, 2001 (ft bmp)	Water-Level Elevation February 20, 2001 (ft msl)
Deep Wells			
N-10627	93.70	35.46	58.24
GM-13D	113.97	49.67	64.30
GM-15D	109.66	50.01	59.65
GM-17D	115.68	52.11	63.57
GM-20D	103.92	42.44	61.48
GM-34D	71.19	17.15	54.04
GM-36D	91.63	37.50	54.13
GM-37D	97.26	41.55	55.71
GM-38D	91.75	40.10	51.65
GM-74D	107.43	47.24	60.19
Deep2 Wells			
GM-15D2	109.59	52.46	57.13
GM-33D2	106.85	52.45	54.40
GM-34D2	71.19	18.85	52.34
GM-35D2	96.28	42.31	53.97
GM-36D2	91.60	39.41	52.19
GM-37D2	97.17	42.07	55.10
GM-38D2	91.56	41.77	49.79
GM-70D2	99.58	43.73	55.85
GM-71D2	98.45	43.95	54.50
GM-73D2	104.62	49.06	55.56
GM-74D2	107.36	56.48	50.88
IRM Extraction Wells			
GP-1 **	--	--	--
ONCT-1	104.10	69.15	34.95
ONCT-2	110.00	80.45	29.55
ONCT-3	108.70	66.00	42.70

* Water-level measurements collected from Well N-10624 are considered anomalous due to silt in the well screen.

** Water-levels could not be measured in Well GP-1.

ft msl feet relative to mean sea level

ft bmp below measuring point

-- Not Measured

Table 6. Comparison of Vertical Hydraulic Gradients from the First Quarter 2001 Groundwater Monitoring Round to Model-Predicted Gradients, Northrop Grumman Corporation, Bethpage, New York.

Well Pairing ID	Measuring Point Elevation (ft msl)	Well Screen Midpoint Elevation (ft msl)	20-Feb-01 Water-Level Elevation (ft msl)	20-Feb-01 Vertical Gradient (ft/ft) * 10^{-3}	Model-Predicted, IRM Steady-State Vertical Gradient (ft/ft) * 10^{-3}	Increase Compared to Model-Predicted, Steady-State Vertical Gradient
Shallow-Intermediate Wells						
GM-15S	109.35	34.53	61.53			
GM-15I	109.13	9.29	61.48	1.98	4.20	-2.21
GM-16SR	115.77	66.77	65.23			
GM-16I	115.81	-24.19	65.10	1.43	1.11	0.32
GM-17SR	115.79	50.79	70.18			
GM-17I	115.83	5.83	69.92	5.78	8.02	-2.24
GM-18S	107.60	42.60	64.22			
GM-18I	109.03	9.03	63.98	7.15	1.78	5.37
GM-19S	109.86	64.36	64.41			
GM-19I	109.86	-25.14	63.96	5.03	2.44	2.58
GM-21S	105.81	40.81	65.76			
GM-21I	105.72	-29.28	63.78	28.25	18.44	9.80
Intermediate-Deep Wells						
GM-15I	109.29	9.29	61.48			
GM-15D	109.66	-227.34	59.65	7.73	6.52	1.21
GM-17I	115.83	5.83	69.92			
GM-17D	115.68	-172.32	63.57	35.64	7.86	27.78
GM-20I	103.88	3.88	63.04			
GM-20D	103.92	-117.08	61.48	12.90	18.22	-5.33
GM-74I	107.42	8.42	64.42			
GM-74D	107.43	-192.57	60.19	21.05	20.17	0.87
Deep-Deep 2 Wells						
GM-15D	109.66	-227.34	59.65			
GM-15D2	109.59	-436.41	57.13	12.05	14.19	-2.13
GM-34D	71.19	-242.81	54.04			
GM-34D2	71.19	-443.81	52.34	8.46	2.33	6.12
GM-36D	91.63	-117.37	54.13			
GM-36D2	91.60	-443.40	52.19	5.95	2.75	3.20
GM-37D	97.26	-154.74	55.71			
GM-37D2	97.17	-282.83	55.10	4.76	3.88	0.89
GM-38D	91.75	-238.25	51.65			
GM-38D2	91.56	-393.44	49.79	11.99	6.08	5.90
GM-74D	107.43	-192.57	60.19			
GM-74D2	107.36	-444.64	50.88	36.93	28.26	8.68

Vertical hydraulic gradients are calculated as follows:

$$\frac{(\text{Water-Level Elevation}_1 - \text{Water-Level Elevation}_2)}{(\text{Screen Midpoint Elevation}_1 - \text{Screen Midpoint Elevation}_2)}$$

A positive "+" gradient value indicates a downward hydraulic gradient.
A negative "-" gradient value indicates an upward hydraulic gradient.

ft msl feet relative to mean sea level
ft feet

Table 7. Concentrations of Volatile Organic Compounds Detected in Shallow Wells, Last Quarter 2000 and First Quarter 2001 Groundwater Monitoring Rounds, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL:	10631		10631		10634		10634	
		SAMPLE ID:	N10631		MW-10631		N10634		10634	
		DATE:	9/26/00		1/26/01		9/25/00		1/23/01	
Chloromethane	5		< 10	J	< 10		< 10	J	< 10	
Bromomethane	5		< 10		< 10		< 10		< 10	
Vinyl Choride	2		< 0.2	J	< 0.2		**0.8**	**J**	< 0.2	
Chloroethane	5		< 10	J	< 10		< 10	J	< 10	
Methylene chloride	5		< 10		< 10		< 10		< 10	
Acetone	50		< 10	J	< 10		< 10	J	< 10	
Carbon disulfide	50		< 10		< 10		< 10		R	
1,1-Dichloroethene	5		< 10		< 10		< 10		< 10	
1,1-Dichloroethane	5		< 10		< 10		< 10		< 10	
1,2-Dichloroethene (total)	5		< 10		< 10		< 10		< 10	
Chloroform	7		< 10		< 10		< 10		< 10	
1,2-Dichloroethane	5		< 10		< 10		< 10		< 10	
2-Butanone	50		< 10		< 10		< 10	J	< 10	
1,1,1-Trichloroethane	5		< 10		< 10		< 10		< 10	
Carbon tetrachloride	5		< 10		< 10		< 10		< 10	
Bromodichloromethane	50		< 10		< 10		< 10		< 10	
1,2-Dichloropropane	5		< 10		< 10		< 10		< 10	
cis-1,3-Dichloropropene	5		< 10		< 10		< 10		< 10	
Trichloroethene	5		**0.4**	**J**	< 10		< 10		< 10	
Dibromochloromethane	5		< 10		< 10		< 10		< 10	
1,1,2-Trichloroethane	5		< 10		< 10		< 10		< 10	
Benzene	0.7		< 10		< 10		< 10		< 10	
trans-1,3-Dichloropropene	5		< 10		< 10		< 10		< 10	
Bromoform	50		< 10		< 10		< 10		< 10	
4-Methyl-2-pentanone	50		< 10		< 10		< 10	J	< 10	
2-Hexanone	50		< 10		< 10		< 10	J	< 10	
Tetrachloroethene	5		< 10		< 10		< 10		< 10	
1,1,2,2-Tetrachloroethane	5		< 10		< 10		< 10	J	< 10	
Toluene	5		< 10		< 10		< 10		< 10	
Chlorobenzene	5		< 10		< 10		< 10		< 10	
Ethylbenzene	5		< 10		< 10		< 10		< 10	
Styrene	5		< 10		< 10		< 10		< 10	
Xylene (total)	5		< 10		< 10		< 10		< 10	
Total VOCs			**0.4**		0		**0.8**		0	

VOCs	Volatile organic compounds.
ug/L	Micrograms per liter.
J	Estimated value.
R	Non-detect unusable data based on calibration results.
NYSDEC	New York State Department of Environmental Conservation.
(1)	Standards Criteria and Guidance values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000).
*	Additional sampling round.
	Value exceeds associated Standard Criteria and Guidance value.

Table 7. Concentrations of Volatile Organic Compounds Detected in Shallow Wells, Last Quarter 2000 and First Quarter 2001 Groundwater Monitoring Rounds, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL: SAMPLE ID: DATE:	FW-03 FW-03 9/27/00	FW-03 FW-03 2/1/01	GM-14 GM-14 10/2/00	GM-14 GM-14 1/26/01
Chloromethane	5		< 10 J	< 10	< 10	< 0.7
Bromomethane	5		< 10	< 10	< 10	< 0.7
Vinyl Choride	2		< 0.2 J	< 0.2	< 0.2	< 0.2
Chloroethane	5		< 10 J	< 10	< 10	< 0.4
Methylene chloride	5		< 10	< 10	< 10	< 1.1
Acetone	50		< 10 J	< 10	< 10 J	< 2.7
Carbon disulfide	50		< 10	< 10	< 10	< 0.3
1,1-Dichloroethene	5		< 10	< 10	< 10	< 0.3
1,1-Dichloroethane	5		1 J	< 10	< 10	< 0.6
1,2-Dichloroethene (total)	5		< 10	< 10	< 10	< 0.6
Chloroform	7		< 10	< 10	< 10	< 0.4
1,2-Dichloroethane	5		< 10	< 10	< 10	< 0.3
2-Butanone	50		2 J	< 10	< 10	< 1.1
1,1,1-Trichloroethane	5		10	3 J	< 10	< 0.4
Carbon tetrachloride	5		< 10	< 10	< 10	< 0.4
Bromodichloromethane	50		< 10	< 10	< 10	< 0.4
1,2-Dichloropropane	5		< 10	< 10	< 10	< 0.6
cis-1,3-Dichloropropene	5		< 10	< 10	< 10	< 0.4
Trichloroethene	5		3 J	14	< 10	< 0.3
Dibromochloromethane	5		< 10	< 10	< 10	< 0.5
1,1,2-Trichloroethane	5		< 10	< 10	< 10	< 0.4
Benzene	0.7		< 10	< 10	< 10	< 0.4
trans-1,3-Dichloropropene	5		< 10	< 10	< 10	< 0.4
Bromoform	50		< 10 J	< 10	< 10	< 0.8
4-Methyl-2-pentanone	50		< 10 J	< 10	< 10	< 1.1
2-Hexanone	50		< 10 J	< 10	< 10	< 1.3
Tetrachloroethene	5		3 J	12	< 10	< 0.7
1,1,2,2-Tetrachloroethane	5		< 10	< 10	< 10	< 0.7
Toluene	5		< 10	< 10	< 10	< 0.5
Chlorobenzene	5		< 10	< 10	< 10	< 0.4
Ethylbenzene	5		< 10	< 10	< 10	< 0.4
Styrene	5		< 10	< 10	< 10	< 0.5
Xylene (total)	5		< 10	< 10	< 10	< 1.4
Total VOCs			19	38	0	0

VOCs	Volatile organic compounds.
ug/L	Micrograms per liter.
J	Estimated value.
R	Non-detect unusable data based on calibration results.
NYSDEC	New York State Department of Environmental Conservation.
(1)	Standards Criteria and Guidance values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000).
*	Additional sampling round.
[ ]	Value exceeds associated Standard Criteria and Guidance value.

Table 7. Concentrations of Volatile Organic Compounds Detected in Shallow Wells, Last Quarter 2000 and First Quarter 2001 Groundwater Monitoring Rounds, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL:	GM-15S	GM-15S	GM-16SR	GM-16SR
		SAMPLE ID:	GM-15S	GM-15S	GM-16SR	GM-16SR
		DATE:	9/28/00	1/30/01	9/26/00	2/2/01
Chloromethane	5		< 10 J	< 10	< 10 J	< 10 J
Bromomethane	5		< 10	< 10	< 10	< 10
Vinyl Choride	2		< 0.2 J	< 0.2	< 0.2 J	< 0.2 J
Chloroethane	5		< 10 J	< 10	< 10 J	< 10 J
Methylene chloride	5		< 10	< 10	< 10	< 10
Acetone	50		< 10 J	< 10	< 10 J	< 10 J
Carbon disulfide	50		< 10	< 10	< 10	< 10
1,1-Dichloroethene	5		< 10	< 10	< 10	< 10
1,1-Dichloroethane	5		< 10	< 10	< 10	< 10
1,2-Dichloroethene (total)	5		**1 J**	< 10	< 10	< 10
Chloroform	7		< 10	< 10	< 10	< 10
1,2-Dichloroethane	5		< 10	< 10	< 10	< 10
2-Butanone	50		< 10 J	< 10	< 10	< 10
1,1,1-Trichloroethane	5		< 10	< 10	< 10	< 10
Carbon tetrachloride	5		< 10	< 10	< 10	< 10
Bromodichloromethane	50		< 10	< 10	< 10	< 10
1,2-Dichloropropane	5		< 10	< 10	< 10	< 10
cis-1,3-Dichloropropene	5		< 10	< 10	< 10	< 10
Trichloroethene	5		**7 J**	**6 J**	< 10	< 10
Dibromochloromethane	5		< 10	< 10	< 10	< 10
1,1,2-Trichloroethane	5		< 10	< 10	< 10	< 10
Benzene	0.7		< 10	< 10	< 10	< 10
trans-1,3-Dichloropropene	5		< 10	< 10	< 10	< 10
Bromoform	50		< 10 J	< 10	< 10	< 10
4-Methyl-2-pentanone	50		< 10 J	< 10	< 10	< 10
2-Hexanone	50		< 10 J	< 10	< 10	< 10
Tetrachloroethene	5		< 10	< 10	< 10	< 10
1,1,2,2-Tetrachloroethane	5		< 10	< 10	< 10	< 10
Toluene	5		< 10	< 10	< 10	< 10
Chlorobenzene	5		< 10	< 10	< 10	< 10
Ethylbenzene	5		< 10	< 10	< 10	< 10
Styrene	5		< 10	< 10	< 10	< 10
Xylene (total)	5		< 10	< 10	< 10	< 10
Total VOCs			**8**	**6**	0	0

VOCs Volatile organic compounds.
ug/L Micrograms per liter.
J Estimated value.
R Non-detect unusable data based on calibration results.
NYSDEC New York State Department of Environmental Conservation.
(1) Standards Criteria and Guidance values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000).
* Additional sampling round.
[ ] Value exceeds associated Standard Criteria and Guidance value.

Table 7. Concentrations of Volatile Organic Compounds Detected in Shallow Wells, Last Quarter 2000 and First Quarter 2001 Groundwater Monitoring Rounds, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL: SAMPLE ID: DATE:	GM-17SR GM-17SR 9/29/00		GM-17SR GM-17SR 1/31/01		GM-18S GM-18S 9/25/00		GM-18S GM-18S 1/23/01	
Chloromethane	5		< 10	J	< 10		< 10	J	< 10	
Bromomethane	5		< 10	J	< 10		< 10		< 10	
Vinyl Choride	2		< 0.2	J	< 0.2		< 0.2	J	< 0.2	
Chloroethane	5		< 10	J	< 10		< 10	J	< 10	
Methylene chloride	5		< 10		< 10		< 10		< 10	
Acetone	50		< 10	J	< 10		< 10	J	< 10	
Carbon disulfide	50		< 10		< 10		< 10		R	
1,1-Dichloroethene	5		< 10		< 10		< 10		< 10	
1,1-Dichloroethane	5		< 10		< 10		< 10		< 10	
1,2-Dichloroethene (total)	5		< 10		< 10		< 10		< 10	
Chloroform	7		< 10		< 10		< 10		< 10	
1,2-Dichloroethane	5		< 10		< 10		< 10		< 10	
2-Butanone	50		< 10		< 10		< 10		< 10	
1,1,1-Trichloroethane	5		< 10		< 10		< 10	J	< 10	
Carbon tetrachloride	5		< 10		< 10		< 10		< 10	
Bromodichloromethane	50		< 10		< 10		< 10		< 10	
1,2-Dichloropropane	5		< 10		< 10		< 10		< 10	
cis-1,3-Dichloropropene	5		< 10		< 10		< 10		< 10	
Trichloroethene	5		< 10		< 10		**6**	**J**	**1**	**J**
Dibromochloromethane	5		< 10		< 10		< 10		< 10	
1,1,2-Trichloroethane	5		< 10		< 10		< 10		< 10	
Benzene	0.7		< 10		< 10		< 10		< 10	
trans-1,3-Dichloropropene	5		< 10		< 10		< 10		< 10	
Bromoform	50		< 10		< 10		< 10		< 10	
4-Methyl-2-pentanone	50		< 10	J	< 10		< 10	J	< 10	
2-Hexanone	50		< 10	J	< 10		< 10	J	< 10	
Tetrachloroethene	5		< 10		< 10		**0.2**	**J**	< 10	
1,1,2,2-Tetrachloroethane	5		< 10		< 10		< 10	J	< 10	
Toluene	5		< 10		< 10		< 10		< 10	
Chlorobenzene	5		< 10		< 10		< 10		< 10	
Ethylbenzene	5		< 10		< 10		< 10		< 10	
Styrene	5		< 10		< 10		< 10		< 10	
Xylene (total)	5		< 10		< 10		< 10		< 10	
Total VOCs			0		0		**6.2**		**1**	

VOCs Volatile organic compounds.
ug/L Micrograms per liter.
J Estimated value.
R Non-detect unusable data based on calibration results.
NYSDEC New York State Department of Environmental Conservation.
(1) Standards Criteria and Guidance values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000).
* Additional sampling round.
Value exceeds associated Standard Criteria and Guidance value.

Table 7. Concentrations of Volatile Organic Compounds Detected in Shallow Wells, Last Quarter 2000 and First Quarter 2001 Groundwater Monitoring Rounds, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL: SAMPLE ID: DATE:	GM-21S GM-21S 9/25/00		GM-21S GM-21S 1/23/01		GM-23S GM-23S 10/2/00		GM-23S GM-23S 2/15/01	
Chloromethane	5		< 10	J	< 10		< 10	J	< 10	
Bromomethane	5		< 10		< 10		< 10		< 10	
Vinyl Choride	2		< 0.2	J	< 0.2		< 0.2	J	< 0.2	
Chloroethane	5		< 10	J	< 10		< 10	J	< 10	
Methylene chloride	5		< 10		< 10		< 10		< 10	
Acetone	50		**3**	**J**	< 10		< 10	J	< 10	J
Carbon disulfide	50		< 10		R		< 10		< 10	
1,1-Dichloroethene	5		< 10		< 10		< 10		< 10	
1,1-Dichloroethane	5		< 10		< 10		< 10		< 10	
1,2-Dichloroethene (total)	5		< 10		< 10		< 10		< 10	
Chloroform	7		< 10		< 10		< 10		< 10	
1,2-Dichloroethane	5		< 10		< 10		< 10		< 10	
2-Butanone	50		< 10	J	< 10		**0.8**	**J**	< 10	
1,1,1-Trichloroethane	5		< 10		< 10		< 10		< 10	
Carbon tetrachloride	5		< 10		< 10		< 10		< 10	
Bromodichloromethane	50		< 10		< 10		< 10		< 10	
1,2-Dichloropropane	5		< 10		< 10		< 10		< 10	
cis-1,3-Dichloropropene	5		< 10		< 10		< 10		< 10	
Trichloroethene	5		< 10		< 10		< 10		< 10	
Dibromochloromethane	5		< 10		< 10		< 10		< 10	
1,1,2-Trichloroethane	5		< 10		< 10		< 10		< 10	
Benzene	0.7		< 10		< 10		< 10		< 10	
trans-1,3-Dichloropropene	5		< 10		< 10		< 10		< 10	
Bromoform	50		< 10		< 10		< 10		< 10	
4-Methyl-2-pentanone	50		< 10	J	< 10		< 10	J	< 10	
2-Hexanone	50		< 10	J	< 10		< 10		< 10	
Tetrachloroethene	5		< 10		< 10		< 10	J	< 10	
1,1,2,2-Tetrachloroethane	5		< 10	J	< 10		< 10		< 10	
Toluene	5		< 10		< 10		< 10		< 10	
Chlorobenzene	5		< 10		< 10		< 10		< 10	
Ethylbenzene	5		< 10		< 10		< 10		< 10	
Styrene	5		< 10		< 10		< 10		< 10	
Xylene (total)	5		< 10		< 10		< 10		< 10	
Total VOCs			**3**		0		**0.8**		0	

VOCs	Volatile organic compounds.
ug/L	Micrograms per liter.
J	Estimated value.
R	Non-detect unusable data based on calibration results.
NYSDEC	New York State Department of Environmental Conservation.
(1)	Standards Criteria and Guidance values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000).
*	Additional sampling round.
	Value exceeds associated Standard Criteria and Guidance value.

Table 7. Concentrations of Volatile Organic Compounds Detected in Shallow Wells, Last Quarter 2000 and First Quarter 2001 Groundwater Monitoring Rounds, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL: SAMPLE ID: DATE:	HN-40S HN-40S 2/13/01	HN-42S HN-42S 2/9/01	MW-03R MW-3R 9/26/00	MW-03R MW-3R 1/26/01
Chloromethane	5		< 10	< 10	< 10 J	< 10
Bromomethane	5		< 10	< 10	< 10	< 10
Vinyl Choride	2		< 0.2	< 0.2	< 0.2 J	< 0.2
Chloroethane	5		< 10	< 10	< 10 J	< 10
Methylene chloride	5		< 10	< 10	< 10	< 10
Acetone	50		< 10 J	< 10	< 10 J	< 10
Carbon disulfide	50		< 10	< 10	< 10	< 10
1,1-Dichloroethene	5		< 10	< 10	< 10	< 10
1,1-Dichloroethane	5		< 10	< 10	< 10	< 10
1,2-Dichloroethene (total)	5		< 10	< 10	**0.9 J**	< 10
Chloroform	7		< 10	< 10	< 10	< 10
1,2-Dichloroethane	5		< 10	< 10	< 10	< 10
2-Butanone	50		< 10	< 10	< 10	< 10
1,1,1-Trichloroethane	5		< 10	< 10	< 10	< 10
Carbon tetrachloride	5		< 10	< 10	< 10	< 10
Bromodichloromethane	50		< 10	< 10	< 10	< 10
1,2-Dichloropropane	5		< 10	< 10	< 10	< 10
cis-1,3-Dichloropropene	5		< 10	< 10	< 10	< 10
Trichloroethene	5		< 10	< 10	**6 J**	**3 J**
Dibromochloromethane	5		< 10	< 10	< 10	< 10
1,1,2-Trichloroethane	5		< 10	< 10	< 10	< 10
Benzene	0.7		< 10	< 10	< 10	< 10
trans-1,3-Dichloropropene	5		< 10	< 10	< 10	< 10
Bromoform	50		< 10	< 10	< 10	< 10
4-Methyl-2-pentanone	50		< 10	< 10	< 10	< 10
2-Hexanone	50		< 10	< 10	< 10	< 10
Tetrachloroethene	5		< 10	< 10	**0.5 J**	< 10
1,1,2,2-Tetrachloroethane	5		< 10	< 10	< 10	< 10
Toluene	5		< 10	< 10	< 10	< 10
Chlorobenzene	5		< 10	< 10	< 10	< 10
Ethylbenzene	5		< 10	< 10	< 10	< 10
Styrene	5		< 10	< 10	< 10	< 10
Xylene (total)	5		< 10	< 10	< 10	< 10
Total VOCs			0	0	**7.4**	**3**

VOCs	Volatile organic compounds.
ug/L	Micrograms per liter.
J	Estimated value.
R	Non-detect unusable data based on calibration results.
NYSDEC	New York State Department of Environmental Conservation.
(1)	Standards Criteria and Guidance values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000).
*	Additional sampling round.
	Value exceeds associated Standard Criteria and Guidance value.

Table 8. Concentrations of Volatile Organic Compounds Detected in Intermediate Wells, Last Quarter 2000 and First Quarter 2001 Groundwater Monitoring Rounds, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	NYSDEC Standard: Criteria and Guidance Values[1]	WELL: SAMPLE ID: DATE:	GM-15I GM-15I 9/19/2000	GM-15I GM15I 1/24/2001	GM-16I GM-16I 9/19/2000	GM-16I GM-16I 2/2/2001
Chloromethane	5		< 10	< 10	< 10	< 10 J
Bromomethane	5		< 10	< 10	< 10	< 10
Vinyl Choride	2		< 0.3	< 0.2	< 0.3	< 0.2 J
Chloroethane	5		< 10 J	< 10	< 10 J	< 10 J
Methylene chloride	5		< 10	< 10	< 10	< 10
Acetone	50		< 10 J	< 10	< 10 J	< 10 J
Carbon disulfide	50		< 10	R	< 10	< 10
1,1-Dichloroethene	5		< 10	< 10	**0.9 J**	< 10
1,1-Dichloroethane	5		< 10	< 10	**0.4 J**	< 10
1,2-Dichloroethene (tot	5		< 10	< 10	**2 J**	**0.9 J**
Chloroform	7		**0.2 J**	< 10	< 10	< 10
1,2-Dichloroethane	5		< 10	< 10	< 10	< 10
2-Butanone	50		< 10 J	< 10	< 10 J	< 10
1,1,1-Trichloroethane	5		< 10	< 10	**0.9 J**	< 10
Carbon tetrachloride	5		< 10	< 10	< 10	< 10
Bromodichloromethane	50		< 10	< 10	< 10	< 10
1,2-Dichloropropane	5		< 10	< 10	< 10	< 10
cis-1,3-Dichloropropene	5		< 10	< 10	< 10	< 10
Trichloroethene	5		< 10	< 10	**19**	**25**
Dibromochloromethane	5		< 10	< 10	< 10	< 10
1,1,2-Trichloroethane	5		< 10	< 10	< 10	< 10
Benzene	0.7		< 10	< 10	**0.2 J**	< 10
trans-1,3-Dichloroprope	5		< 10	< 10	< 10	< 10
Bromoform	50		< 10	< 10	< 10	< 10
4-Methyl-2-pentanone	50		< 10 J	< 10	< 10 J	< 10
2-Hexanone	50		< 10 J	< 10	< 10 J	< 10
Tetrachloroethene	5		< 10	< 10	**4 J**	**2 J**
1,1,2,2-Tetrachloroetha	5		< 10	< 10	< 10	< 10
Toluene	5		< 10	< 10	< 10	< 10
Chlorobenzene	5		< 10	< 10	< 10	< 10
Ethylbenzene	5		< 10	< 10	< 10	< 10
Styrene	5		< 10	< 10	< 10	< 10
Xylene (total)	5		< 10	< 10	< 10	< 10
Total VOCs			**0.2**	0	**27.4**	**33.9**

VOCs Volatile organic compounds.
ug/L Micrograms per liter.
J Estimated value.
D Detected at secondary dilution.
R Non-detect unusable data based on calibration results.
** Replicate Sample.
NYSDEC New York State Department of Environmental Conservation.
(1) Standards Criteria and Guidance values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000b).
[ ] Value exceeds associated Standard Criteria and Guidance value.

Table 8. Concentrations of Volatile Organic Compounds Detected in Intermediate Wells, Last Quarter 2000 and First Quarter 2001 Groundwater Monitoring Rounds, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	NYSDEC Standard Criteria and Guidance Values[1]	WELL: / SAMPLE ID: / DATE:	GM-17I GM-17I 9/29/2000	GM-17I GM-17I 1/31/2001	GM-18I GM-18I 9/21/2000	GM-18I GM-18I 2/2/2001
Chloromethane	5		< 10 J	< 10	< 10	< 10 J
Bromomethane	5		< 10 J	< 10	< 10	< 10
Vinyl Choride	2		< 0.2 J	< 0.2	< 0.3	< 0.2 J
Chloroethane	5		< 10 J	< 10	< 10 J	< 10 J
Methylene chloride	5		< 10	< 10	< 10	< 10
Acetone	50		**2 J**	< 10	< 10 J	< 10 J
Carbon disulfide	50		< 10	< 10	< 10	< 10
1,1-Dichloroethene	5		< 10	< 10	< 10	< 10
1,1-Dichloroethane	5		< 10	< 10	< 10	< 10
1,2-Dichloroethene (tot	5		< 10	< 10	< 10	< 10
Chloroform	7		< 10	< 10	< 10	< 10
1,2-Dichloroethane	5		< 10	< 10	< 10	< 10
2-Butanone	50		< 10	< 10	< 10	< 10
1,1,1-Trichloroethane	5		< 10	< 10	< 10 J	< 10
Carbon tetrachloride	5		< 10	< 10	< 10	< 10
Bromodichloromethane	50		< 10	< 10	< 10	< 10
1,2-Dichloropropane	5		< 10	< 10	< 10	< 10
cis-1,3-Dichloropropene	5		< 10	< 10	< 10	< 10
Trichloroethene	5		< 10	< 10	**0.5 J**	< 10
Dibromochloromethane	5		< 10	< 10	< 10	< 10
1,1,2-Trichloroethane	5		< 10	< 10	< 10	< 10
Benzene	0.7		< 10	< 10	< 10	< 10
trans-1,3-Dichloroprope	5		< 10	< 10	< 10	< 10
Bromoform	50		< 10	< 10	< 10	< 10
4-Methyl-2-pentanone	50		< 10 J	< 10	< 10 J	< 10
2-Hexanone	50		< 10 J	< 10	< 10 J	< 10
Tetrachloroethene	5		< 10	< 10	< 10	< 10
1,1,2,2-Tetrachloroetha	5		< 10	< 10	< 10	< 10
Toluene	5		< 10	< 10	< 10	< 10
Chlorobenzene	5		< 10	< 10	< 10	< 10
Ethylbenzene	5		< 10	< 10	< 10	< 10
Styrene	5		< 10	< 10	< 10	< 10
Xylene (total)	5		< 10	< 10	< 10	< 10
Total VOCs			**2**	0	**0.5**	0

VOCs Volatile organic compounds.
ug/L Micrograms per liter.
J Estimated value.
D Detected at secondary dilution.
R Non-detect unusable data based on calibration results.
** Replicate Sample.
NYSDEC New York State Department of Environmental Conservation.
(1) Standards Criteria and Guidance values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000b).
Value exceeds associated Standard Criteria and Guidance value.

Table 8. Concentrations of Volatile Organic Compounds Detected in Intermediate Wells, Last Quarter 2000 and First Quarter 2001 Groundwater Monitoring Rounds, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	NYSDEC Standard Criteria and Guidance Values[1]	WELL: SAMPLE ID: DATE:	GM-20I GM-20I 9/18/2000	GM-20I GM20I 1/24/2001	GM-21I GM-21I 9/18/2000	GM-21I GM-21I 1/23/2001
Chloromethane	5		< 10	< 10	< 10	< 10
Bromomethane	5		< 10	< 10	< 10	< 10
Vinyl Choride	2		< 0.3	< 0.2	< 0.3	< 0.2
Chloroethane	5		< 10 J	< 10	< 10 J	< 10
Methylene chloride	5		< 10	< 10	< 10	< 10
Acetone	50		< 10 J	< 10	< 10 J	< 10
Carbon disulfide	50		< 10	R	< 10	R
1,1-Dichloroethene	5		< 10	< 10	< 10	< 10
1,1-Dichloroethane	5		< 10	< 10	< 10	< 10
1,2-Dichloroethene (tot	5		< 10	< 10	< 10	< 10
Chloroform	7		< 10	< 10	< 10	< 10
1,2-Dichloroethane	5		< 10	< 10	< 10	< 10
2-Butanone	50		< 10	< 10	< 10	< 10
1,1,1-Trichloroethane	5		< 10 J	< 10	< 10 J	< 10
Carbon tetrachloride	5		< 10	< 10	< 10	< 10
Bromodichloromethane	50		< 10	< 10	< 10	< 10
1,2-Dichloropropane	5		< 10	< 10	< 10	< 10
cis-1,3-Dichloropropene	5		< 10	< 10	< 10	< 10
Trichloroethene	5		**0.8 J**	< 10	< 10	< 10
Dibromochloromethane	5		< 10	< 10	< 10	< 10
1,1,2-Trichloroethane	5		< 10	< 10	< 10	< 10
Benzene	0.7		< 10	< 10	< 10	< 10
trans-1,3-Dichloroprope	5		< 10	< 10	< 10	< 10
Bromoform	50		< 10	< 10	< 10	< 10
4-Methyl-2-pentanone	50		< 10 J	< 10	< 10 J	< 10
2-Hexanone	50		< 10 J	< 10	< 10 J	< 10
Tetrachloroethene	5		< 10	< 10	< 10	< 10
1,1,2,2-Tetrachloroetha	5		< 10	< 10	< 10	< 10
Toluene	5		< 10	< 10	< 10	< 10
Chlorobenzene	5		< 10	< 10	< 10	< 10
Ethylbenzene	5		< 10	< 10	< 10	< 10
Styrene	5		< 10	< 10	< 10	< 10
Xylene (total)	5		< 10	< 10	< 10	< 10
Total VOCs			**0.8**	0	**0**	0

VOCs Volatile organic compounds.
ug/L Micrograms per liter.
J Estimated value.
D Detected at secondary dilution.
R Non-detect unusable data based on calibration results.
** Replicate Sample.
NYSDEC New York State Department of Environmental Conservation.
(1) Standards Criteria and Guidance values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000b).
[ ] Value exceeds associated Standard Criteria and Guidance value.

Table 8. Concentrations of Volatile Organic Compounds Detected in Intermediate Wells, Last Quarter 2000 and First Quarter 2001 Groundwater Monitoring Rounds, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	NYSDEC Standard: Criteria and Guidance Values[1]	WELL: SAMPLE ID: DATE:	GM-23I GM-23I 10/2/2000	GM-23I GM-23I 2/15/2001	GM-74I GM74I 10/5/2000	GM-74I GM-74I 2/5/2001
Chloromethane	5		< 10 J	< 10	< 10 J	< 10 J
Bromomethane	5		< 10	< 10	< 10	< 10
Vinyl Choride	2		< 0.2 J	< 0.2	< 0.2 J	< 0.2 J
Chloroethane	5		< 10 J	< 10	< 10 J	< 10 J
Methylene chloride	5		< 10	< 10	< 10	< 10
Acetone	50		< 10 J	< 10 J	< 10 J	< 10 J
Carbon disulfide	50		< 10	< 10	< 10	< 10
1,1-Dichloroethene	5		< 10	< 10	< 10	< 10
1,1-Dichloroethane	5		< 10	< 10	< 10	< 10
1,2-Dichloroethene (tota	5		**0.8 J**	**0.9 J**	< 10	< 10
Chloroform	7		< 10	< 10	< 10	< 10
1,2-Dichloroethane	5		< 10	< 10	< 10	< 10
2-Butanone	50		< 10 J	< 10	< 10 J	< 10
1,1,1-Trichloroethane	5		**0.6 J**	< 10	< 10	< 10
Carbon tetrachloride	5		< 10	< 10	< 10	< 10
Bromodichloromethane	50		< 10	< 10	< 10	< 10
1,2-Dichloropropane	5		< 10	< 10	< 10	< 10
cis-1,3-Dichloropropene	5		< 10	< 10	< 10	< 10
Trichloroethene	5		**7 J**	**6 J**	< 10	< 10
Dibromochloromethane	5		< 10	< 10	< 10	< 10
1,1,2-Trichloroethane	5		< 10	< 10	< 10	< 10
Benzene	0.7		< 10	< 10	< 10	< 10
trans-1,3-Dichloroprope	5		< 10	< 10	< 10	< 10
Bromoform	50		< 10	< 10	< 10	< 10
4-Methyl-2-pentanone	50		< 10 J	< 10	< 10 J	< 10
2-Hexanone	50		< 10 J	< 10	< 10 J	< 10
Tetrachloroethene	5		**3 J**	**3 J**	< 10 J	< 10
1,1,2,2-Tetrachloroetha	5		< 10	< 10	< 10	< 10
Toluene	5		< 10	< 10	< 10	< 10
Chlorobenzene	5		< 10	< 10	< 10	< 10
Ethylbenzene	5		< 10	< 10	< 10	< 10
Styrene	5		< 10	< 10	< 10	< 10
Xylene (total)	5		< 10	< 10	< 10	< 10
Total VOCs			**11.4**	**9.9**	**0**	**0**

VOCs Volatile organic compounds.
ug/L Micrograms per liter.
J Estimated value.
D Detected at secondary dilution.
R Non-detect unusable data based on calibration results.
** Replicate Sample.
NYSDEC New York State Department of Environmental Conservation.
(1) Standards Criteria and Guidance values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000b).
Value exceeds associated Standard Criteria and Guidance value.

Table 8. Concentrations of Volatile Organic Compounds Detected in Intermediate Wells, Last Quarter 2000 and First Quarter 2001 Groundwater Monitoring Rounds, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	NYSDEC Standard: Criteria and Guidance Values[1]	WELL: SAMPLE ID: DATE:	GM-79I GM-79I 2/14/2001	HN-24I HW-24I 9/27/2000	HN-24I HN-24I 2/1/2001	HN-29I HW-29I 9/27/2000
Chloromethane	5		< 10	< 10	< 10	< 10 J
Bromomethane	5		< 10	< 10	< 10	< 10
Vinyl Choride	2		< 10	< 0.2	< 0.2	< 0.2 J
Chloroethane	5		< 10	< 10	< 10	< 10 J
Methylene chloride	5		< 10	< 10	< 10	< 10
Acetone	50		< 10 J	< 10	< 10	< 10 J
Carbon disulfide	50		< 10	< 10	< 10	< 10
1,1-Dichloroethene	5		< 10	**14**	**14**	< 10
1,1-Dichloroethane	5		< 10	**11**	**9 J**	**0.8 J**
1,2-Dichloroethene (tot	5		< 10	**20**	**14**	< 10
Chloroform	7		< 10	**0.5** J	< 10	< 10
1,2-Dichloroethane	5		< 10	< 10	< 10	< 10
2-Butanone	50		< 10	< 10 J	< 10	< 10 J
1,1,1-Trichloroethane	5		< 10	**13**	**10**	**0.7 J**
Carbon tetrachloride	5		< 10	< 10	< 10	< 10
Bromodichloromethane	50		< 10	< 10	< 10	< 10
1,2-Dichloropropane	5		< 10	< 10	< 10	< 10
cis-1,3-Dichloropropene	5		< 10	< 10	< 10	< 10
Trichloroethene	5		**6 J**	**180**	**200**	**2 J**
Dibromochloromethane	5		< 10	< 10	< 10	< 10
1,1,2-Trichloroethane	5		< 10	< 10	< 10	< 10
Benzene	0.7		< 10	< 10	< 10	< 10
trans-1,3-Dichloroprope	5		< 10	< 10	< 10	< 10
Bromoform	50		< 10	< 10	< 10	< 10 J
4-Methyl-2-pentanone	50		< 10	< 10	< 10	< 10 J
2-Hexanone	50		< 10	< 10	< 10	< 10 J
Tetrachloroethene	5		< 10	**8 J**	**10**	< 10
1,1,2,2-Tetrachloroetha	5		< 10	< 10	< 10	< 10
Toluene	5		< 10	< 10	< 10	< 10
Chlorobenzene	5		< 10	< 10	< 10	< 10
Ethylbenzene	5		< 10	< 10	< 10	< 10
Styrene	5		< 10	< 10	< 10	< 10
Xylene (total)	5		< 10	< 10	< 10	< 10
Total VOCs			**6**	**246.5**	**280**	**3.5**

VOCs Volatile organic compounds.
ug/L Micrograms per liter.
J Estimated value.
D Detected at secondary dilution.
R Non-detect unusable data based on calibration results.
** Replicate Sample.
NYSDEC New York State Department of Environmental Conservation.
(1) Standards Criteria and Guidance values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000b).
[ ] Value exceeds associated Standard Criteria and Guidance value.

Table 8. Concentrations of Volatile Organic Compounds Detected in Intermediate Wells, Last Quarter 2000 and First Quarter 2001 Groundwater Monitoring Rounds, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	NYSDEC Standard: Criteria and Guidance Values[1]	WELL: SAMPLE ID: DATE:	HN-29I HN-29I 2/1/2001	HN-40I HN-40I 2/13/2001	HN-42I HN-42I 2/9/2001	MW-52S MW-52S 9/25/2000
Chloromethane	5		< 10	< 10	< 10	< 100 J
Bromomethane	5		< 10	< 10	< 10	< 100 J
Vinyl Choride	2		< 0.2	< 0.2	< 0.2	**1900 J**
Chloroethane	5		< 10	< 10	< 10	< 100 J
Methylene chloride	5		< 10	< 10	< 10 J	< 100
Acetone	50		< 10	< 10 J	< 10	**300 J**
Carbon disulfide	50		< 10	< 10	< 10	< 100
1,1-Dichloroethene	5		< 10	< 10	< 10	< 100
1,1-Dichloroethane	5		**1 J**	< 10	< 10	< 100
1,2-Dichloroethene (tota	5		< 10	< 10	< 10	**7 J**
Chloroform	7		< 10	< 10	< 10	< 100
1,2-Dichloroethane	5		< 10	< 10	< 10	< 100
2-Butanone	50		< 10	< 10	< 10	< 100
1,1,1-Trichloroethane	5		< 10	< 10	< 10	< 100
Carbon tetrachloride	5		< 10	< 10	< 10	< 100
Bromodichloromethane	50		< 10	< 10	< 10	< 100
1,2-Dichloropropane	5		< 10	< 10	< 10	< 100
cis-1,3-Dichloropropene	5		< 10	< 10	< 10	< 100
Trichloroethene	5		**2 J**	**2 J**	**1 J**	**6 J**
Dibromochloromethane	5		< 10	< 10	< 10	< 100
1,1,2-Trichloroethane	5		< 10	< 10	< 10	< 100
Benzene	0.7		< 10	< 10	< 10	< 100
trans-1,3-Dichloroprope	5		< 10	< 10	< 10	< 100
Bromoform	50		< 10	< 10	< 10	< 100
4-Methyl-2-pentanone	50		< 10	< 10	< 10	< 100
2-Hexanone	50		< 10	< 10	< 10	< 100 J
Tetrachloroethene	5		< 10	< 10	< 10	**12 J**
1,1,2,2-Tetrachloroetha	5		< 10	< 10	< 10	< 100
Toluene	5		< 10	**0.7 J**	**0.8 J**	< 100
Chlorobenzene	5		< 10	< 10	< 10	< 100
Ethylbenzene	5		< 10	< 10	< 10	< 100
Styrene	5		< 10	< 10	< 10	< 100
Xylene (total)	5		< 10	< 10	< 10	< 100
Total VOCs			**3**	**2.7**	**1.8**	**2,225**

VOCs Volatile organic compounds.
ug/L Micrograms per liter.
J Estimated value.
D Detected at secondary dilution.
R Non-detect unusable data based on calibration results.
** Replicate Sample.
NYSDEC New York State Department of Environmental Conservation.
(1) Standards Criteria and Guidance values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000b).
[ ] Value exceeds associated Standard Criteria and Guidance value.

Table 8. Concentrations of Volatile Organic Compounds Detected in Intermediate Wells, Last Quarter 2000 and First Quarter 2001 Groundwater Monitoring Rounds, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	NYSDEC Standard: Criteria and Guidance Values[1]	WELL: SAMPLE ID: DATE:	MW-52S 52S 2/12/2001	
Chloromethane	5		< 50	
Bromomethane	5		< 50	
Vinyl Choride	2		**470**	
Chloroethane	5		< 50	
Methylene chloride	5		< 50	
Acetone	50		< 50	J
Carbon disulfide	50		< 50	
1,1-Dichloroethene	5		< 50	
1,1-Dichloroethane	5		< 50	
1,2-Dichloroethene (tota	5		< 50	
Chloroform	7		< 50	
1,2-Dichloroethane	5		< 50	
2-Butanone	50		< 50	
1,1,1-Trichloroethane	5		< 50	
Carbon tetrachloride	5		< 50	
Bromodichloromethane	50		< 50	
1,2-Dichloropropane	5		< 50	
cis-1,3-Dichloropropene	5		< 50	
Trichloroethene	5		< 50	
Dibromochloromethane	5		< 50	
1,1,2-Trichloroethane	5		< 50	
Benzene	0.7		< 50	
trans-1,3-Dichloroprope	5		< 50	
Bromoform	50		< 50	
4-Methyl-2-pentanone	50		< 50	
2-Hexanone	50		< 50	
Tetrachloroethene	5		**6**	**J**
1,1,2,2-Tetrachloroetha	5		< 50	
Toluene	5		< 50	
Chlorobenzene	5		< 50	
Ethylbenzene	5		< 50	
Styrene	5		< 50	
Xylene (total)	5		< 50	
Total VOCs			**478**	

VOCs	Volatile organic compounds.
ug/L	Micrograms per liter.
J	Estimated value.
D	Detected at secondary dilution.
R	Non-detect unusable data based on calibration results.
**	Replicate Sample.
NYSDEC	New York State Department of Environmental Conservation.
(1)	Standards Criteria and Guidance values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000b).
[ ]	Value exceeds associated Standard Criteria and Guidance value.

Table 9. Concentrations of Volatile Organic Compounds Detected in Deep Wells, Last Quarter 2000 and First Quarter 2001 Groundwater Monitoring Rounds, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL: SAMPLE ID: DATE:	10627 N10627 10/4/2000	10627 N-10627 2/13/2001	GM-13D GM-13D 9/27/2000	GM-13D GM-13D 2/15/2001
Chloromethane	5		< 10 J	< 10	< 100 J	< 50
Bromomethane	5		< 10	< 10	< 100	< 50
Vinyl Choride	2		< 0.2 J	< 0.2	< 2 J	< 1
Chloroethane	5		< 10 J	< 10	< 100 J	< 50
Methylene chloride	5		< 10	< 10	< 100	< 50
Acetone	50		**9 J**	**10 J**	< 100 J	< 50 J
Carbon disulfide	50		< 10	< 10	< 100	< 50
1,1-Dichloroethene	5		< 10	< 10	**92 J**	**82**
1,1-Dichloroethane	5		< 10	< 10	**58 J**	**58**
1,2-Dichloroethene (tot	5		< 10	< 10	**230**	**190**
Chloroform	7		< 10	< 10	< 100	< 50
1,2-Dichloroethane	5		< 10	< 10	< 100	< 50
2-Butanone	50		< 10 J	< 10	< 100 J	< 50
1,1,1-Trichloroethane	5		< 10	< 10	**99 J**	**96**
Carbon tetrachloride	5		< 10	< 10	< 100	< 50
Bromodichloromethane	50		< 10	< 10	< 100	< 50
1,2-Dichloropropane	5		< 10	< 10	< 100	< 50
cis-1,3-Dichloropropene	5		< 10	< 10	< 100	< 50
Trichloroethene	5		**0.6 J**	**2 J**	**410**	**280**
Dibromochloromethane	5		< 10	< 10	< 100	< 50
1,1,2-Trichloroethane	5		< 10	< 10	< 100	< 50
Benzene	0.7		< 10	< 10	< 100	< 50
trans-1,3-Dichloroprope	5		< 10	< 10	< 100	< 50
Bromoform	50		< 10	< 10	< 100 J	< 50
4-Methyl-2-pentanone	50		< 10 J	< 10	< 100 J	< 50
2-Hexanone	50		< 10 J	< 10	< 100 J	< 50
Tetrachloroethene	5		< 10 J	< 10	**910**	**720**
1,1,2,2-Tetrachloroetha	5		< 10	< 10	< 100	< 50
Toluene	5		< 10	< 10	< 100	< 50
Chlorobenzene	5		< 10	< 10	< 100	< 50
Ethylbenzene	5		< 10	< 10	< 100	< 50
Styrene	5		< 10	< 10	< 100	< 50
Xylene (total)	5		< 10	< 10	< 100	< 50
Total VOCs			**9.6**	**12**	**1,799**	**1,446**

VOCs Volatile organic compounds.
ug/L Micrograms per liter.
J Estimated value.
R Non-detect unusable data based on calibration results.
** Replicate Sample.
NYSDEC New York State Department of Environmental Conservation.
(1) Standards Criteria and Guidance values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000).
[ ] Value exceeds associated Standard Criteria and Guidance value.

Table 9. Concentrations of Volatile Organic Compounds Detected in Deep Wells, Last Quarter 2000 and First Quarter 2001 Groundwater Monitoring Rounds, 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 9/28/2000	GM-15D GM-15D 1/30/2001	GM-17D GM-17D 9/29/2000	GM-17D GM-17D 1/31/2001
Chloromethane	5		< 10 J	< 10	< 10 J	< 10
Bromomethane	5		< 10	< 10	< 10 J	< 10
Vinyl Choride	2		< 0.2 J	< 0.2	< 0.2 J	< 0.2
Chloroethane	5		< 10 J	< 10	< 10 J	< 10
Methylene chloride	5		< 10	< 10	< 10	< 10
Acetone	50		< 10 J	< 10	< 10 J	< 10
Carbon disulfide	50		< 10	< 10	< 10	< 10
1,1-Dichloroethene	5		**2 J**	**2 J**	< 10	< 10
1,1-Dichloroethane	5		**4 J**	**6 J**	< 10	< 10
1,2-Dichloroethene (tot	5		**1 J**	**2 J**	< 10	< 10
Chloroform	7		**0.6 J**	< 10	< 10	< 10
1,2-Dichloroethane	5		**0.8 J**	< 10	< 10	< 10
2-Butanone	50		< 10 J	< 10	< 10	< 10
1,1,1-Trichloroethane	5		**2 J**	**2 J**	< 10	< 10
Carbon tetrachloride	5		< 10	< 10	< 10	< 10
Bromodichloromethane	50		< 10	< 10	< 10	< 10
1,2-Dichloropropane	5		< 10	< 10	< 10	< 10
cis-1,3-Dichloropropene	5		< 10	< 10	< 10	< 10
Trichloroethene	5		**9 J**	**13**	< 10	< 10
Dibromochloromethane	5		< 10	< 10	< 10	< 10
1,1,2-Trichloroethane	5		< 10	< 10	< 10	< 10
Benzene	0.7		< 10	< 10	< 10	< 10
trans-1,3-Dichloroprope	5		< 10	< 10	< 10	< 10
Bromoform	50		< 10 J	< 10	< 10	< 10
4-Methyl-2-pentanone	50		< 10 J	< 10	< 10 J	< 10
2-Hexanone	50		< 10 J	< 10	< 10 J	< 10
Tetrachloroethene	5		**5 J**	**6 J**	< 10	< 10
1,1,2,2-Tetrachloroetha	5		< 10	< 10	< 10	< 10
Toluene	5		< 10	< 10	< 10	< 10
Chlorobenzene	5		< 10	< 10	< 10	< 10
Ethylbenzene	5		< 10	< 10	< 10	< 10
Styrene	5		< 10	< 10	< 10	< 10
Xylene (total)	5		< 10	< 10	< 10	< 10
Total VOCs			**24.4**	**31**	0	0

VOCs Volatile organic compounds.
ug/L Micrograms per liter.
J Estimated value.
R Non-detect unusable data based on calibration results.
** Replicate Sample.
NYSDEC New York State Department of Environmental Conservation.
(1) Standards Criteria and Guidance values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000).
[ ] Value exceeds associated Standard Criteria and Guidance value.

Table 9. Concentrations of Volatile Organic Compounds Detected in Deep Wells, Last Quarter 2000 and First Quarter 2001 Groundwater Monitoring Rounds, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL: SAMPLE ID: DATE:	GM-18D GM-18D 2/14/2001		GM-20D GM-20D 9/18/2000		GM-20D GM20D 1/24/2001		GM-34D GM34D 10/3/2000	
Chloromethane	5		< 10		< 10		< 10		< 10	J
Bromomethane	5		< 10		< 10		< 10		< 10	
Vinyl Choride	2		< 0.2		< 0.3		< 0.2		< 0.2	J
Chloroethane	5		< 10		< 10	J	< 10		< 10	J
Methylene chloride	5		< 10		< 10		< 10		< 10	
Acetone	50		< 10	J	< 10	J	< 10		**4**	**J**
Carbon disulfide	50		< 10		< 10		R		**0.4**	**J**
1,1-Dichloroethene	5		< 10		< 10		< 10		**4**	**J**
1,1-Dichloroethane	5		< 10		< 10		< 10		**4**	**J**
1,2-Dichloroethene (tot	5		< 10		< 10		< 10		**4**	**J**
Chloroform	7		< 10		< 10		< 10		**0.7**	**J**
1,2-Dichloroethane	5		< 10		< 10		< 10		< 10	
2-Butanone	50		< 10		< 10		< 10		< 10	
1,1,1-Trichloroethane	5		< 10		< 10	J	< 10		**0.6**	**J**
Carbon tetrachloride	5		< 10		< 10		< 10		< 10	
Bromodichloromethane	50		< 10		< 10		< 10		< 10	
1,2-Dichloropropane	5		< 10		< 10		< 10		< 10	
cis-1,3-Dichloropropene	5		< 10		< 10		< 10		< 10	
Trichloroethene	5		**0.7**	**J**	< 10		< 10		**84**	
Dibromochloromethane	5		< 10		< 10		< 10		< 10	
1,1,2-Trichloroethane	5		< 10		< 10		< 10		< 10	
Benzene	0.7		< 10		< 10		< 10		< 10	
trans-1,3-Dichloroprope	5		< 10		< 10		< 10		< 10	
Bromoform	50		< 10		< 10		< 10		< 10	
4-Methyl-2-pentanone	50		< 10		< 10	J	< 10		< 10	J
2-Hexanone	50		< 10		< 10	J	< 10		< 10	
Tetrachloroethene	5		< 10		< 10		< 10		**3**	**J**
1,1,2,2-Tetrachloroetha	5		< 10		< 10		< 10		< 10	
Toluene	5		< 10		< 10		< 10		< 10	
Chlorobenzene	5		< 10		< 10		< 10		< 10	
Ethylbenzene	5		< 10		< 10		< 10		< 10	
Styrene	5		< 10		< 10		< 10		< 10	
Xylene (total)	5		< 10		< 10		< 10		**1**	**J**
Total VOCs			**0.7**		0		0		**105.7**	

VOCs Volatile organic compounds.
ug/L Micrograms per liter.
J Estimated value.
R Non-detect unusable data based on calibration results.
** Replicate Sample.
NYSDEC New York State Department of Environmental Conservation.
(1) Standards Criteria and Guidance values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000).
[ ] Value exceeds associated Standard Criteria and Guidance value.

Table 9. Concentrations of Volatile Organic Compounds Detected in Deep Wells, Last Quarter 2000 and First Quarter 2001 Groundwater Monitoring Rounds, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values(1)	WELL: SAMPLE ID: DATE:	GM-34D GM-34D 2/8/2001	GM-36D GM-36D 9/20/2000	GM-36D GM-36D 2/7/2001	GM-37D GM-37D 9/21/2000
Chloromethane	5		< 10	< 10	< 10	< 10
Bromomethane	5		< 10	< 10	< 10	< 10
Vinyl Choride	2		< 0.2	< 0.3	< 0.2	< 0.3
Chloroethane	5		< 10	< 10 J	< 10	< 10 J
Methylene chloride	5		< 10	< 10	< 10	< 10
Acetone	50		< 10 J	< 10 J	< 10 J	< 10 J
Carbon disulfide	50		< 10	< 10	< 10	< 10
1,1-Dichloroethene	5		**4 J**	< 10	< 10	**3 J**
1,1-Dichloroethane	5		**4 J**	< 10	< 10	**7 J**
1,2-Dichloroethene (tot	5		**4 J**	**0.5 J**	< 10	< 10
Chloroform	7		**0.6 J**	< 10	< 10	**0.9 J**
1,2-Dichloroethane	5		< 10	< 10	< 10	< 10
2-Butanone	50		< 10	< 10 J	< 10	< 10 J
1,1,1-Trichloroethane	5		< 10	< 10	< 10	**4 J**
Carbon tetrachloride	5		< 10	< 10	< 10	< 10
Bromodichloromethane	50		< 10	< 10	< 10	< 10
1,2-Dichloropropane	5		< 10	< 10	< 10	< 10
cis-1,3-Dichloropropene	5		< 10	< 10	< 10	< 10
Trichloroethene	5		**96**	**24**	**30**	**0.5 J**
Dibromochloromethane	5		< 10	< 10	< 10	< 10
1,1,2-Trichloroethane	5		< 10	< 10	< 10	< 10
Benzene	0.7		< 10	< 10	< 10	< 10
trans-1,3-Dichloroprope	5		< 10	< 10	< 10	< 10
Bromoform	50		< 10	< 10	< 10	< 10
4-Methyl-2-pentanone	50		< 10	< 10 J	< 10	< 10 J
2-Hexanone	50		< 10	< 10 J	< 10	< 10 J
Tetrachloroethene	5		**4 J**	**1 J**	**1 J**	**1 J**
1,1,2,2-Tetrachloroetha	5		< 10	< 10	< 10	< 10
Toluene	5		< 10	< 10	< 10	< 10
Chlorobenzene	5		< 10	< 10	< 10	< 10
Ethylbenzene	5		< 10	< 10	< 10	< 10
Styrene	5		< 10	< 10	< 10	< 10
Xylene (total)	5		**1 J**	< 10	< 10	< 10
Total VOCs			**113.6**	**25.5**	**31.8**	**16.4**

VOCs Volatile organic compounds.
ug/L Micrograms per liter.
J Estimated value.
R Non-detect unusable data based on calibration results.
** Replicate Sample.
NYSDEC New York State Department of Environmental Conservation.
(1) Standards Criteria and Guidance values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000).
[ ] Value exceeds associated Standard Criteria and Guidance value.

Table 9. Concentrations of Volatile Organic Compounds Detected in Deep Wells, Last Quarter 2000 and First Quarter 2001 Groundwater Monitoring Rounds, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL: / SAMPLE ID: / DATE:	GM-37D / GM-37D / 2/6/2001	GM-38D / GM-38D / 9/22/2000	GM-38D / GM-38D / 1/25/2001	GM-38D** / REP-1 / 1/25/2001
Chloromethane	5		< 10	< 50 J	< 50	< 50
Bromomethane	5		< 10	< 50	< 50	< 50
Vinyl Choride	2		< 0.2	< 1 J	< 1	< 1
Chloroethane	5		< 10	< 50 J	< 50	< 50
Methylene chloride	5		< 10	< 50	< 50	< 50
Acetone	50		**4 J**	< 50 J	< 50	< 50
Carbon disulfide	50		< 10	R	R	R
1,1-Dichloroethene	5		**3 J**	**4 J**	< 50	< 50
1,1-Dichloroethane	5		**8 J**	< 50	< 50	< 50
1,2-Dichloroethene (tot	5		< 10	**2 J**	< 50	< 50
Chloroform	7		**1 J**	< 50	< 50	< 50
1,2-Dichloroethane	5		< 10	< 50	< 50	< 50
2-Butanone	50		< 10	< 50	< 50	< 50
1,1,1-Trichloroethane	5		**4 J**	**4 J**	< 50	< 50
Carbon tetrachloride	5		< 10	< 50	< 50	< 50
Bromodichloromethane	50		< 10	< 50	< 50	< 50
1,2-Dichloropropane	5		< 10	< 50	< 50	< 50
cis-1,3-Dichloropropene	5		< 10	< 50	< 50	< 50
Trichloroethene	5		**0.5 J**	**720**	**590**	**560**
Dibromochloromethane	5		< 10	< 50	< 50	< 50
1,1,2-Trichloroethane	5		< 10	< 50	< 50	< 50
Benzene	0.7		< 10	< 50	< 50	< 50
trans-1,3-Dichloroprope	5		< 10	< 50	< 50	< 50
Bromoform	50		< 10	< 50	< 50	< 50
4-Methyl-2-pentanone	50		< 10	< 50	< 50	< 50
2-Hexanone	50		< 10	< 50	< 50	< 50
Tetrachloroethene	5		**1 J**	**2 J**	< 50	< 50
1,1,2,2-Tetrachloroetha	5		< 10	< 50	< 50	< 50
Toluene	5		< 10	R	< 50	< 50
Chlorobenzene	5		< 10	< 50	< 50	< 50
Ethylbenzene	5		< 10	R	< 50	< 50
Styrene	5		< 10	< 50	< 50	< 50
Xylene (total)	5		< 10	< 50	< 50	< 50
Total VOCs			**21.5**	**732**	**590**	**560**

VOCs Volatile organic compounds.
ug/L Micrograms per liter.
J Estimated value.
R Non-detect unusable data based on calibration results.
** Replicate Sample.
NYSDEC New York State Department of Environmental Conservation.
(1) Standards Criteria and Guidance values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000).
Value exceeds associated Standard Criteria and Guidance value.

Table 9. Concentrations of Volatile Organic Compounds Detected in Deep Wells, Last Quarter 2000 and First Quarter 2001 Groundwater Monitoring Rounds, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL: / SAMPLE ID: / DATE:	GM-74D GM-74D 10/6/2000	GM-74D GM-74D 2/5/2001	GM-79D GM-79D 2/14/2001	HN-29D HW-29D 9/27/2000
Chloromethane	5		< 10 J	< 10 J	< 10	< 10
Bromomethane	5		< 10	< 10	< 10	< 10
Vinyl Choride	2		< 0.2 J	< 0.2 J	< 0.2	< 0.2
Chloroethane	5		< 10 J	< 10 J	< 10	< 10
Methylene chloride	5		< 10	< 10	< 10	< 10
Acetone	50		< 10 J	< 10 J	< 10 J	< 10
Carbon disulfide	50		< 10	< 10	< 10	< 10
1,1-Dichloroethene	5		< 10	< 10	**1 J**	< 10
1,1-Dichloroethane	5		< 10	< 10	**0.9 J**	< 10
1,2-Dichloroethene (tot	5		**1 J**	**1 J**	**0.9 J**	< 10
Chloroform	7		< 10	< 10	< 10	< 10
1,2-Dichloroethane	5		< 10	< 10	< 10	< 10
2-Butanone	50		< 10 J	< 10	< 10	< 10 J
1,1,1-Trichloroethane	5		**0.4 J**	< 10	**1 J**	< 10
Carbon tetrachloride	5		< 10	< 10	< 10	< 10
Bromodichloromethane	50		< 10	< 10	< 10	< 10
1,2-Dichloropropane	5		< 10	< 10	< 10	< 10
cis-1,3-Dichloropropene	5		< 10	< 10	< 10	< 10
Trichloroethene	5		**64**	**81**	**48**	**1 J**
Dibromochloromethane	5		< 10	< 10	< 10	< 10
1,1,2-Trichloroethane	5		< 10	< 10	< 10	< 10
Benzene	0.7		< 10	< 10	< 10	< 10
trans-1,3-Dichloroprope	5		< 10	< 10	< 10	< 10
Bromoform	50		< 10	< 10	< 10	< 10
4-Methyl-2-pentanone	50		< 10 J	< 10	< 10	< 10
2-Hexanone	50		< 10 J	< 10	< 10	< 10
Tetrachloroethene	5		**2 J**	**3 J**	< 10	< 10
1,1,2,2-Tetrachloroetha	5		< 10	< 10	< 10	< 10
Toluene	5		< 10	< 10	< 10	< 10
Chlorobenzene	5		< 10	< 10	< 10	< 10
Ethylbenzene	5		< 10	< 10	< 10	< 10
Styrene	5		< 10	< 10	< 10	< 10
Xylene (total)	5		< 10	< 10	< 10	**1 J**
Total VOCs			**67.4**	**87**	**52.7**	**2**

VOCs Volatile organic compounds.
ug/L Micrograms per liter.
J Estimated value.
R Non-detect unusable data based on calibration results.
** Replicate Sample.
NYSDEC New York State Department of Environmental Conservation.
(1) Standards Criteria and Guidance values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000).
[ ] Value exceeds associated Standard Criteria and Guidance value.

Table 9. Concentrations of Volatile Organic Compounds Detected in Deep Wells, Last Quarter 2000 and First Quarter 2001 Groundwater Monitoring Rounds, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL: SAMPLE ID: DATE:	HN-29D HN-29D 2/1/2001	MW-52I MW-52I 9/25/2000	MW-52I 52I 2/12/2001	MW-52D MW-52D 9/26/2000
Chloromethane	5		< 10	< 200 J	< 200	< 10 J
Bromomethane	5		< 10	< 200 J	< 200	< 10
Vinyl Choride	2		< 0.2	**2000 J**	**1900**	< 0.2 J
Chloroethane	5		< 10	< 200 J	< 200	< 10 J
Methylene chloride	5		< 10	< 200	< 200	< 10
Acetone	50		< 10	< 200 J	< 200 J	< 10 J
Carbon disulfide	50		< 10	< 200	< 200	< 10
1,1-Dichloroethene	5		< 10	< 200	< 200	**0.6 J**
1,1-Dichloroethane	5		< 10	< 200	< 200	**2 J**
1,2-Dichloroethene (tot	5		< 10	**39 J**	**36 J**	**5 J**
Chloroform	7		< 10	< 200	< 200	< 10
1,2-Dichloroethane	5		< 10	< 200	< 200	< 10
2-Butanone	50		< 10	< 200	< 200	< 10
1,1,1-Trichloroethane	5		< 10	< 200	< 200	**0.9 J**
Carbon tetrachloride	5		< 10	< 200	< 200	< 10
Bromodichloromethane	50		< 10	< 200	< 200	< 10
1,2-Dichloropropane	5		< 10	< 200	< 200	< 10
cis-1,3-Dichloropropene	5		< 10	< 200	< 200	< 10
Trichloroethene	5		< 10	**40 J**	**45 J**	**38**
Dibromochloromethane	5		< 10	< 200	< 200	< 10
1,1,2-Trichloroethane	5		< 10	< 200	< 200	< 10
Benzene	0.7		< 10	< 200	< 200	< 10
trans-1,3-Dichloroprope	5		< 10	< 200	< 200	< 10
Bromoform	50		< 10	< 200	< 200	< 10
4-Methyl-2-pentanone	50		< 10	< 200 J	< 200	< 10
2-Hexanone	50		< 10	< 200 J	< 200	< 10
Tetrachloroethene	5		< 10	**34 J**	**42 J**	**13**
1,1,2,2-Tetrachloroetha	5		< 10	< 200	< 200	< 10
Toluene	5		< 10	< 200	< 200	< 10
Chlorobenzene	5		< 10	< 200	< 200	< 10
Ethylbenzene	5		< 10	< 200	< 200	< 10
Styrene	5		< 10	< 200	< 200	< 10
Xylene (total)	5		< 10	< 200	< 200	< 10
Total VOCs			0	**2,113**	**2,023**	**59.5**

VOCs Volatile organic compounds.
ug/L Micrograms per liter.
J Estimated value.
R Non-detect unusable data based on calibration results.
** Replicate Sample.
NYSDEC New York State Department of Environmental Conservation.
(1) Standards Criteria and Guidance values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000).
[ ] Value exceeds associated Standard Criteria and Guidance value.

Table 9. Concentrations of Volatile Organic Compounds Detected in Deep Wells, Last Quarter 2000 and First Quarter 2001 Groundwater Monitoring Rounds, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values(1)	WELL: SAMPLE ID: DATE:	MW-52D 52D 2/12/2001	
Chloromethane	5		< 10	
Bromomethane	5		< 10	
Vinyl Chonde	2		< 0.2	
Chloroethane	5		< 10	
Methylene chloride	5		< 10	
Acetone	50		< 10	
Carbon disulfide	50		< 10	
1,1-Dichloroethene	5		**0.9**	**J**
1,1-Dichloroethane	5		**2**	**J**
1,2-Dichloroethene (tot	5		**4**	**J**
Chloroform	7		< 10	
1,2-Dichloroethane	5		< 10	
2-Butanone	50		< 10	
1,1,1-Trichloroethane	5		< 10	
Carbon tetrachloride	5		< 10	
Bromodichloromethane	50		< 10	
1,2-Dichloropropane	5		< 10	
cis-1,3-Dichloropropene	5		< 10	
Trichloroethene	5		**30**	
Dibromochloromethane	5		< 10	
1,1,2-Trichloroethane	5		< 10	
Benzene	0.7		< 10	
trans-1,3-Dichloroprope	5		< 10	
Bromoform	50		< 10	
4-Methyl-2-pentanone	50		< 10	
2-Hexanone	50		< 10	
Tetrachloroethene	5		**15**	
1,1,2,2-Tetrachloroetha	5		< 10	
Toluene	5		**1**	**J**
Chlorobenzene	5		< 10	
Ethylbenzene	5		< 10	
Styrene	5		< 10	
Xylene (total)	5		< 10	
Total VOCs			**52.9**	

VOCs Volatile organic compounds.
ug/L Micrograms per liter.
J Estimated value.
R Non-detect unusable data based on calibration results.
** Replicate Sample.
NYSDEC New York State Department of Environmental Conservation.
(1) Standards Criteria and Guidance values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000).
[ ] Value exceeds associated Standard Criteria and Guidance value.

Table 10. Concentrations of Volatile Organic Compounds Detected in D2 Wells, Last Quarter 2000 and First Quarter 2001 Groundwater Monitoring Rounds, 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 10/2/00	GM-15D2 GM-15D2 1/30/01	GM-33D2 GM33D2 10/3/00	GM-33D2 GM-33D-2 2/15/01
Chloromethane	5		< 10 J	< 10	< 100 J	< 100
Bromomethane	5		< 10	< 10	< 100	< 100
Vinyl Choride	2		< 0.2 J	< 0.2	< 2 J	< 2
Chloroethane	5		< 10 J	< 10	< 100 J	< 100
Methylene chloride	5		< 10	< 10	< 100	< 100
Acetone	50		< 10 J	< 10	**16 J**	< 100 J
Carbon disulfide	50		< 10	< 10	< 100	< 100
1,1-Dichloroethene	5		**0.9 J**	< 10	< 100	< 100
1,1-Dichloroethane	5		< 10	< 10	< 100	< 100
1,2-Dichloroethene (total)	5		**0.6 J**	< 10	**5 J**	< 100
Chloroform	7		< 10	< 10	< 100	< 100
1,2-Dichloroethane	5		< 10	< 10	< 100	< 100
2-Butanone	50		< 10	< 10	< 100	< 100
1,1,1-Trichloroethane	5		**0.6 J**	< 10	< 100	< 100
Carbon tetrachloride	5		< 10	< 10	< 100	< 100
Bromodichloromethane	50		< 10	< 10	< 100	< 100
1,2-Dichloropropane	5		< 10	< 10	< 100	< 100
cis-1,3-Dichloropropene	5		< 10	< 10	< 100	< 100
Trichloroethene	5		**9 J**	**15**	**1,500**	**950**
Dibromochloromethane	5		< 10	< 10	< 100	< 100
1,1,2-Trichloroethane	5		< 10	< 10	< 100	< 100
Benzene	0.7		< 10	< 10	< 100	< 100
trans-1,3-Dichloropropene	5		< 10	< 10	< 100	< 100
Bromoform	50		< 10	< 10	< 100	< 100
4-Methyl-2-pentanone	50		< 10 J	< 10	< 100 J	< 100
2-Hexanone	50		< 10	< 10	< 100	< 100
Tetrachloroethene	5		**4 J**	**9 J**	**18 J**	**16 J**
1,1,2,2-Tetrachloroethane	5		< 10	< 10	< 100	< 100
Toluene	5		< 10	< 10	< 100	< 100
Chlorobenzene	5		< 10	< 10	< 100	< 100
Ethylbenzene	5		< 10	< 10	< 100	< 100
Styrene	5		< 10	< 10	< 100	< 100
Xylene (total)	5		< 10	< 10	< 100	< 100
Total VOCs			**16.1**	**24**	**1,539**	**966**

VOCs Volatile organic compounds.
ug/L Micrograms per liter.
J Estimated value.
D Detected at secondary dilution.
R Non-detect unusable data based on calibration results.
** Replicate Sample.
NYSDEC New York State Department of Environmental Conservation.
(1) Standards Criteria and Guidance values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000).
Value exceeds associated Standard Criteria and Guidance value.

Table 10. Concentrations of Volatile Organic Compounds Detected in D2 Wells, Last Quarter 2000 and First Quarter 2001 Groundwater Monitoring Rounds, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL: SAMPLE ID: DATE:	GM-33D2 REP-3 2/15/01	GM-34D2 GM34D2 10/3/00	GM-34D2 GM-34D-2 2/8/01	GM-35D2 GM-35D-2 9/20/00
Chloromethane	5		< 50	< 10 J	< 10	< 10
Bromomethane	5		< 50	< 10	< 10	< 10
Vinyl Choride	2		< 1	< 0.2 J	< 0.2	< 0.3
Chloroethane	5		< 50	< 10 J	< 10	< 10 J
Methylene chloride	5		< 50	< 10	< 10	< 10
Acetone	50		< 50 J	**5 J**	< 10	< 10 J
Carbon disulfide	50		< 50	< 10	< 10	< 10
1,1-Dichloroethene	5		< 50	**7 J**	**5 J**	**3 J**
1,1-Dichloroethane	5		< 50	**0.8 J**	< 10	**0.7 J**
1,2-Dichloroethene (total)	5		**4 J**	**2 J**	**2 J**	**2 J**
Chloroform	7		< 50	< 10	< 10	**0.6 J**
1,2-Dichloroethane	5		< 50	< 10	< 10	< 10
2-Butanone	50		< 50	< 10	< 10	< 10 J
1,1,1-Trichloroethane	5		< 50	**1 J**	**1 J**	**2 J**
Carbon tetrachloride	5		< 50	< 10	< 10	**2 J**
Bromodichloromethane	50		< 50	< 10	< 10	< 10
1,2-Dichloropropane	5		< 50	< 10	< 10	< 10
cis-1,3-Dichloropropene	5		< 50	< 10	< 10	< 10
Trichloroethene	5		**960**	**74**	**63**	**150**
Dibromochloromethane	5		< 50	< 10	< 10	< 10
1,1,2-Trichloroethane	5		< 50	< 10	< 10	< 10
Benzene	0.7		< 50	< 10	< 10	< 10
trans-1,3-Dichloropropene	5		< 50	< 10	< 10	< 10
Bromoform	50		< 50	< 10	< 10	< 10
4-Methyl-2-pentanone	50		< 50	< 10 J	< 10	< 10 J
2-Hexanone	50		< 50	< 10	< 10	< 10 J
Tetrachloroethene	5		**17 J**	**8 J**	**8 J**	**1 J**
1,1,2,2-Tetrachloroethane	5		< 50	< 10	< 10	< 10
Toluene	5		< 50	< 10	< 10	< 10
Chlorobenzene	5		< 50	< 10	< 10	< 10
Ethylbenzene	5		< 50	< 10	< 10	< 10
Styrene	5		< 50	< 10	< 10	< 10
Xylene (total)	5		< 50	**0.4 J**	< 10	< 10
Total VOCs			**981**	**98.2**	**79**	**161.3**

VOCs Volatile organic compounds.
ug/L Micrograms per liter.
J Estimated value.
D Detected at secondary dilution.
R Non-detect unusable data based on calibration results.
** Replicate Sample.
NYSDEC New York State Department of Environmental Conservation.
(1) Standards Criteria and Guidance values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000).
[ ] Value exceeds associated Standard Criteria and Guidance value.

Table 10. Concentrations of Volatile Organic Compounds Detected in D2 Wells, Last Quarter 2000 and First Quarter 2001 Groundwater Monitoring Rounds, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL: SAMPLE ID: DATE:	GM-35D2 GM-35D-2 2/19/01	GM-36D2 GM-36D-2 9/20/00	GM-36D2 GM-36D-2 2/7/01	GM-37D2 GM-37D-2 9/21/00
Chloromethane	5		< 10	< 10	< 10	< 10
Bromomethane	5		< 10	< 10	< 10	< 10
Vinyl Chloride	2		< 0.2	< 0.3	< 0.2	< 0.3
Chloroethane	5		< 10	< 10 J	< 10	< 10 J
Methylene chloride	5		< 10	< 10	< 10	< 10
Acetone	50		< 10 J	< 10 J	< 10 J	< 10 J
Carbon disulfide	50		< 10	< 10	< 10	< 10
1,1-Dichloroethene	5		**3 J**	< 10	< 10	**3 J**
1,1-Dichloroethane	5		**0.7 J**	< 10	< 10	**12**
1,2-Dichloroethene (total)	5		**2 J**	< 10	< 10	< 10
Chloroform	7		**0.7 J**	< 10	< 10	**0.7 J**
1,2-Dichloroethane	5		< 10	< 10	< 10	< 10
2-Butanone	50		< 10	< 10 J	< 10	< 10 J
1,1,1-Trichloroethane	5		**2 J**	< 10	< 10	**4 J**
Carbon tetrachloride	5		**2 J**	< 10	< 10	< 10
Bromodichloromethane	50		< 10	< 10	< 10	< 10
1,2-Dichloropropane	5		< 10	< 10	< 10	< 10
cis-1,3-Dichloropropene	5		< 10	< 10	< 10	< 10
Trichloroethene	5		**130**	< 10	**0.6 J**	**2 J**
Dibromochloromethane	5		< 10	< 10	< 10	< 10
1,1,2-Trichloroethane	5		< 10	< 10	< 10	< 10
Benzene	0.7		< 10	< 10	< 10	< 10
trans-1,3-Dichloropropene	5		< 10	< 10	< 10	< 10
Bromoform	50		< 10	< 10	< 10	< 10
4-Methyl-2-pentanone	50		< 10	< 10 J	< 10	< 10 J
2-Hexanone	50		< 10	< 10 J	< 10	< 10 J
Tetrachloroethene	5		**2 J**	< 10	< 10	**0.5 J**
1,1,2,2-Tetrachloroethane	5		< 10	< 10	< 10	< 10
Toluene	5		< 10	< 10	< 10	< 10
Chlorobenzene	5		< 10	< 10	< 10	< 10
Ethylbenzene	5		< 10	< 10	< 10	< 10
Styrene	5		< 10	< 10	< 10	< 10
Xylene (total)	5		< 10	< 10	< 10	< 10
Total VOCs			**157.4**	0	**0.6**	**22.2**

VOCs Volatile organic compounds.
ug/L Micrograms per liter.
J Estimated value.
D Detected at secondary dilution.
R Non-detect unusable data based on calibration results.
** Replicate Sample.
NYSDEC New York State Department of Environmental Conservation.
(1) Standards Criteria and Guidance values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000).
[ ] Value exceeds associated Standard Criteria and Guidance value.

Table 10. Concentrations of Volatile Organic Compounds Detected in D2 Wells, Last Quarter 2000 and First Quarter 2001 Groundwater Monitoring Rounds, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL: / SAMPLE ID: / DATE:	GM-37D2 / GM-37D2 / 2/6/01	GM-38D2 / GM-38D-2 / 9/22/00	GM-38D2 / GM-38D2 / 1/25/01	GM-70D2 / GM-70D2 / 10/11/00
Chloromethane	5		< 10	< 100 J	< 100	< 10
Bromomethane	5		< 10	< 100	< 100	< 10
Vinyl Choride	2		< 0.2	< 2 J	< 2	< 0.2
Chloroethane	5		< 10	< 100 J	< 100	< 10
Methylene chloride	5		< 10	< 100	< 100	< 10
Acetone	50		< 10	< 100 J	< 100	< 10
Carbon disulfide	50		< 10	R	R	< 10
1,1-Dichloroethene	5		**2 J**	R	< 100	< 10
1,1-Dichloroethane	5		**11**	< 100	< 100	< 10
1,2-Dichloroethene (total)	5		< 10	**10 J**	< 100	**2 J**
Chloroform	7		**0.8 J**	< 100	< 100	< 10
1,2-Dichloroethane	5		< 10	< 100	< 100	< 10
2-Butanone	50		< 10	**6 J**	< 100	< 10 J
1,1,1-Trichloroethane	5		**2 J**	< 100	< 100	**0.4 J**
Carbon tetrachloride	5		< 10	< 100	< 100	< 10
Bromodichloromethane	50		< 10	< 100	< 100	< 10
1,2-Dichloropropane	5		< 10	< 100	< 100	< 10
cis-1,3-Dichloropropene	5		< 10	< 100	< 100	< 10
Trichloroethene	5		**2 J**	**1,100**	**1000**	**140**
Dibromochloromethane	5		< 10	< 100	< 100	< 10
1,1,2-Trichloroethane	5		< 10	< 100	< 100	< 10
Benzene	0.7		< 10	< 100	< 100	< 10
trans-1,3-Dichloropropene	5		< 10	< 100	< 100	< 10
Bromoform	50		< 10	< 100	< 100	< 10
4-Methyl-2-pentanone	50		< 10	< 100	< 100	< 10
2-Hexanone	50		< 10	< 100	< 100	< 10
Tetrachloroethene	5		< 10	< 100	< 100	**9 J**
1,1,2,2-Tetrachloroethane	5		< 10	< 100	< 100	< 10
Toluene	5		< 10	R	< 100	< 10
Chlorobenzene	5		< 10	< 100	< 100	< 10
Ethylbenzene	5		< 10	R	< 100	< 10
Styrene	5		< 10	< 100	< 100	< 10
Xylene (total)	5		< 10	< 100	< 100	< 10
Total VOCs			**17.8**	**1,116**	**1,000**	**155.4**

VOCs Volatile organic compounds.
ug/L Micrograms per liter.
J Estimated value.
D Detected at secondary dilution.
R Non-detect unusable data based on calibration results.
** Replicate Sample.
NYSDEC New York State Department of Environmental Conservation.
(1) Standards Criteria and Guidance values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000).
[ ] Value exceeds associated Standard Criteria and Guidance value.

Table 10. Concentrations of Volatile Organic Compounds Detected in D2 Wells, Last Quarter 2000 and First Quarter 2001 Groundwater Monitoring Rounds, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL: SAMPLE ID: DATE:	GM-70D2 GM-70D-2 2/19/01	GM-71D2 GM-71D-2 9/22/00	GM-71D2 GM-71D-2 2/19/01	GM-73D2 GM73D2 10/4/00
Chloromethane	5		< 10	< 10 J	< 10	< 100 J
Bromomethane	5		< 10	< 10	< 10	< 100
Vinyl Choride	2		< 0.2	< 0.2 J	< 0.2	< 2 J
Chloroethane	5		< 10	< 10 J	< 10	< 100 J
Methylene chloride	5		< 10	< 10	< 10	< 100
Acetone	50		< 10 J	< 10 J	< 10 J	< 100
Carbon disulfide	50		< 10	R	< 10	< 100
1,1-Dichloroethene	5		< 10	R	< 10	< 100
1,1-Dichloroethane	5		< 10	< 10	< 10	**4 J**
1,2-Dichloroethene (total)	5		**1 J**	< 10	< 10	**6 J**
Chloroform	7		< 10	**0.8 J**	**0.9 J**	< 100
1,2-Dichloroethane	5		< 10	< 10	< 10	< 100
2-Butanone	50		< 10	< 10	< 10	< 100 J
1,1,1-Trichloroethane	5		< 10	**0.3 J**	< 10	**3 J**
Carbon tetrachloride	5		< 10	**2 J**	**2 J**	< 100
Bromodichloromethane	50		< 10	< 10	< 10	< 100
1,2-Dichloropropane	5		< 10	< 10	< 10	< 100
cis-1,3-Dichloropropene	5		< 10	< 10	< 10	< 100
Trichloroethene	5		**42**	**4 J**	**4 J**	**960 J**
Dibromochloromethane	5		< 10	< 10	< 10	< 100
1,1,2-Trichloroethane	5		< 10	< 10	< 10	< 100
Benzene	0.7		< 10	< 10	< 10	< 100
trans-1,3-Dichloropropene	5		< 10	< 10	< 10	< 100
Bromoform	50		< 10	< 10	< 10	< 100
4-Methyl-2-pentanone	50		< 10	< 10	< 10	< 100 J
2-Hexanone	50		< 10	< 10	< 10	< 100 J
Tetrachloroethene	5		**3 J**	< 10	< 10	< 100 J
1,1,2,2-Tetrachloroethane	5		< 10	< 10	< 10	< 100
Toluene	5		< 10	R	< 10	< 100
Chlorobenzene	5		< 10	< 10	< 10	< 100
Ethylbenzene	5		< 10	R	< 10	< 100
Styrene	5		< 10	< 10	< 10	< 100
Xylene (total)	5		< 10	< 10	< 10	< 100
Total VOCs			**46.4**	**7.1**	**6.9**	**973**

VOCs Volatile organic compounds.
ug/L Micrograms per liter.
J Estimated value.
D Detected at secondary dilution.
R Non-detect unusable data based on calibration results.
** Replicate Sample.
NYSDEC New York State Department of Environmental Conservation.
(1) Standards Criteria and Guidance values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000).
[ ] Value exceeds associated Standard Criteria and Guidance value.

Table 10. Concentrations of Volatile Organic Compounds Detected in D2 Wells, Last Quarter 2000 and First Quarter 2001 Groundwater Monitoring Rounds, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL: SAMPLE ID: DATE:	GM-73D2 GM-73D-2 2/8/01	GM-73D2** REP-1 2/8/01	GM-74D2 GM74D2 10/5/00	GM-74D2 GM-74D-2 2/8/01
Chloromethane	5		< 50	< 50	< 10 J	< 10
Bromomethane	5		< 50	< 50	< 10	< 10
Vinyl Choride	2		< 1	< 1	< 0.2 J	< 0.2
Chloroethane	5		< 50	< 50	< 10 J	< 10
Methylene chloride	5		< 50	< 50	< 10	< 10
Acetone	50		< 50	< 50	< 10 J	< 10 J
Carbon disulfide	50		< 50	< 50	< 10	< 10
1,1-Dichloroethene	5		< 50	< 50	< 10	< 10
1,1-Dichloroethane	5		**5 J**	< 50	< 10	< 10
1,2-Dichloroethene (total)	5		< 50	**3 J**	< 10	< 10
Chloroform	7		< 50	< 50	< 10	< 10
1,2-Dichloroethane	5		< 50	< 50	< 10	< 10
2-Butanone	50		< 50	< 50	< 10 J	< 10
1,1,1-Trichloroethane	5		< 50	< 50	< 10	< 10
Carbon tetrachloride	5		< 50	< 50	< 10	< 10
Bromodichloromethane	50		< 50	< 50	< 10	< 10
1,2-Dichloropropane	5		< 50	< 50	< 10	< 10
cis-1,3-Dichloropropene	5		< 50	< 50	< 10	< 10
Trichloroethene	5		**630**	**620**	**5 J**	**4 J**
Dibromochloromethane	5		< 50	< 50	< 10	< 10
1,1,2-Trichloroethane	5		< 50	< 50	< 10	< 10
Benzene	0.7		< 50	< 50	< 10	< 10
trans-1,3-Dichloropropene	5		< 50	< 50	< 10	< 10
Bromoform	50		< 50	< 50	< 10	< 10
4-Methyl-2-pentanone	50		< 50	< 50	< 10 J	< 10
2-Hexanone	50		< 50	< 50	< 10 J	< 10
Tetrachloroethene	5		< 50	< 50	**1 J**	**0.9 J**
1,1,2,2-Tetrachloroethane	5		< 50	< 50	< 10	< 10
Toluene	5		< 50	< 50	< 10	< 10
Chlorobenzene	5		< 50	< 50	< 10	< 10
Ethylbenzene	5		< 50	< 50	< 10	< 10
Styrene	5		< 50	< 50	< 10	< 10
Xylene (total)	5		< 50	< 50	< 10	< 10
Total VOCs			**635**	**623**	**6**	**4.9**

VOCs Volatile organic compounds.
ug/L Micrograms per liter.
J Estimated value.
D Detected at secondary dilution.
R Non-detect unusable data based on calibration results.
** Replicate Sample.
NYSDEC New York State Department of Environmental Conservation.
(1) Standards Criteria and Guidance values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000).
[ ] Value exceeds associated Standard Criteria and Guidance value.

Table 10. Concentrations of Volatile Organic Compounds Detected in D2 Wells, Last Quarter 2000 and First Quarter 2001 Groundwater Monitoring Rounds, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL: SAMPLE ID: DATE:	GP-1 GP-1 10/16/00	GP-1 GP-1 2/20/01	GP-3 GP-3 10/16/00	GP-3 GP-3 2/20/01
Chloromethane	5		< 50	R	< 100	R
Bromomethane	5		< 50	< 50 J	< 100	< 100 J
Vinyl Choride	2		< 1	R	**9**	R
Chloroethane	5		< 50	R	< 100	R
Methylene chloride	5		< 50	< 50	< 100	< 100
Acetone	50		< 58	< 50	< 100	< 100
Carbon disulfide	50		< 50	< 50	< 100	< 100
1,1-Dichloroethene	5		**7 J**	< 50	**12 J**	< 100
1,1-Dichloroethane	5		**2 J**	< 50	< 100	< 100
1,2-Dichloroethene (total)	5		**11 J**	< 50	**11 J**	< 100
Chloroform	7		< 50	< 50	< 100	< 100
1,2-Dichloroethane	5		< 50	< 50	< 100	< 100
2-Butanone	50		< 50	< 50	< 100	< 100
1,1,1-Trichloroethane	5		**3 J**	< 50	**4 J**	< 100
Carbon tetrachloride	5		< 50	< 50	< 100	< 100
Bromodichloromethane	50		< 50	< 50	< 100	< 100
1,2-Dichloropropane	5		< 50	< 50	< 100	< 100
cis-1,3-Dichloropropene	5		< 50	< 50	< 100	< 100
Trichloroethene	5		**600**	**430**	**1700**	**1100**
Dibromochloromethane	5		< 50	< 50	< 100	< 100
1,1,2-Trichloroethane	5		< 50	< 50	< 100	< 100
Benzene	0.7		< 50	< 50	< 100	< 100
trans-1,3-Dichloropropene	5		< 50	< 50	< 100	< 100
Bromoform	50		< 50	< 50	< 100	< 100
4-Methyl-2-pentanone	50		< 50	< 50	< 100	< 100
2-Hexanone	50		< 50	< 50	< 100	< 100
Tetrachloroethene	5		**58**	**43 J**	**80 J**	**45 J**
1,1,2,2-Tetrachloroethane	5		< 50	< 50	< 100	< 100
Toluene	5		< 50	< 50	< 100	< 100
Chlorobenzene	5		< 50	< 50	< 100	< 100
Ethylbenzene	5		< 50	< 50	< 100	< 100
Styrene	5		< 50	< 50	< 100	< 100
Xylene (total)	5		< 50	< 50	< 100	< 100
Total VOCs			**691**	**473**	**1,861**	**1,145**

VOCs Volatile organic compounds.
ug/L Micrograms per liter.
J Estimated value.
D Detected at secondary dilution.
R Non-detect unusable data based on calibration results.
** Replicate Sample.
NYSDEC New York State Department of Environmental Conservation.
(1) Standards Criteria and Guidance values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000).
[ ] Value exceeds associated Standard Criteria and Guidance value.

Table 10. Concentrations of Volatile Organic Compounds Detected in D2 Wells, Last Quarter 2000 and First Quarter 2001 Groundwater Monitoring Rounds, 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-1 10/16/00	ONCT-1 ONCT-1 2/20/01	ONCT-2 ONCT-2 10/16/00	ONCT-2 ONCT-2 2/20/01
Chloromethane	5		< 200	R	< 20	R
Bromomethane	5		< 200	< 100 J	< 20	< 10 J
Vinyl Choride	2		< 4	R	< 0.4	R
Chloroethane	5		< 200	R	< 20	R
Methylene chloride	5		< 200	< 100	< 20	< 10
Acetone	50		< 200	< 100	< 20	< 10
Carbon disulfide	50		< 200	< 100	< 20	< 10
1,1-Dichloroethene	5		< 200	< 100	**3 J**	**1 J**
1,1-Dichloroethane	5		< 200	< 100	**2 J**	< 10
1,2-Dichloroethene (total)	5		< 200	< 100	**2 J**	< 10
Chloroform	7		< 200	< 100	< 20	< 10
1,2-Dichloroethane	5		< 200	< 100	< 20	< 10
2-Butanone	50		< 200	< 100	< 20	< 10
1,1,1-Trichloroethane	5		< 200	< 100	**2 J**	< 10
Carbon tetrachloride	5		< 200	< 100	< 20	< 10
Bromodichloromethane	50		< 200	< 100	< 20	< 10
1,2-Dichloropropane	5		< 200	< 100	< 20	< 10
cis-1,3-Dichloropropene	5		< 200	< 100	< 20	< 10
Trichloroethene	5		**1,900**	**1400**	**200**	**180**
Dibromochloromethane	5		< 200	< 100	< 20	< 10
1,1,2-Trichloroethane	5		< 200	< 100	< 20	< 10
Benzene	0.7		< 200	< 100	< 20	< 10
trans-1,3-Dichloropropene	5		< 200	< 100	< 20	< 10
Bromoform	50		< 200	< 100	< 20	< 10
4-Methyl-2-pentanone	50		< 200	< 100	< 20	< 10
2-Hexanone	50		< 200	< 100	< 20	< 10
Tetrachloroethene	5		**13 J**	< 100	**11 J**	**8 J**
1,1,2,2-Tetrachloroethane	5		< 200	< 100	< 20	< 10
Toluene	5		< 200	< 100	< 20	< 10
Chlorobenzene	5		< 200	< 100	< 20	< 10
Ethylbenzene	5		< 200	< 100	< 20	< 10
Styrene	5		< 200	< 100	< 20	< 10
Xylene (total)	5		< 200	< 100	< 20	< 10
Total VOCs			**1,924**	**1,400**	**221**	**189**

VOCs Volatile organic compounds.
ug/L Micrograms per liter.
J Estimated value.
D Detected at secondary dilution.
R Non-detect unusable data based on calibration results.
** Replicate Sample.
NYSDEC New York State Department of Environmental Conservation.
(1) Standards Criteria and Guidance values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000).
[ ] Value exceeds associated Standard Criteria and Guidance value.

Table 10. Concentrations of Volatile Organic Compounds Detected in D2 Wells, Last Quarter 2000 and First Quarter 2001 Groundwater Monitoring Rounds, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL: SAMPLE ID: DATE:	ONCT-3 ONCT-3 10/16/00	ONCT-3 ONCT-3 2/20/01	ONCT INFLUENT INFLUENT 10/16/00	ONCT INFLUENT ONCT INFLUENT 2/20/01
Chloromethane	5		< 10	R	< 100	R
Bromomethane	5		< 10	< 10 J	< 100	< 50 J
Vinyl Choride	2		< 0.2	R	< 2	R
Chloroethane	5		< 10	R	< 100	R
Methylene chloride	5		< 10	< 10	< 100	< 50
Acetone	50		< 10	< 10	< 100	< 50
Carbon disulfide	50		< 10	< 10	< 100	< 50
1,1-Dichloroethene	5		**1 J**	< 10	< 100	< 50
1,1-Dichloroethane	5		**1 J**	< 10	< 100	< 50
1,2-Dichloroethene (total)	5		**1 J**	< 10	< 100	< 50
Chloroform	7		**0.8 J**	< 10	< 100	< 50
1,2-Dichloroethane	5		< 10	< 10	< 100	< 50
2-Butanone	50		< 10	< 10	< 100	< 50
1,1,1-Trichloroethane	5		**0.6 J**	< 10	< 100	< 50
Carbon tetrachloride	5		< 10	< 10	< 100	< 50
Bromodichloromethane	50		< 10	< 10	< 100	< 50
1,2-Dichloropropane	5		< 10	< 10	< 100	< 50
cis-1,3-Dichloropropene	5		< 10	< 10	< 100	< 50
Trichloroethene	5		**16**	**16**	**1100**	**610**
Dibromochloromethane	5		< 10	< 10	< 100	< 50
1,1,2-Trichloroethane	5		< 10	< 10	< 100	< 50
Benzene	0.7		< 10	< 10	< 100	< 50
trans-1,3-Dichloropropene	5		< 10	< 10	< 100	< 50
Bromoform	50		< 10	< 10	< 100	< 50
4-Methyl-2-pentanone	50		< 10	< 10	< 100	< 50
2-Hexanone	50		< 10	< 10	< 100	< 50
Tetrachloroethene	5		**13**	**10**	**16 J**	< 50
1,1,2,2-Tetrachloroethane	5		< 10	< 10	< 100	< 50
Toluene	5		< 10	< 10	< 100	< 50
Chlorobenzene	5		< 10	< 10	< 100	< 50
Ethylbenzene	5		< 10	< 10	< 100	< 50
Styrene	5		< 10	< 10	< 100	< 50
Xylene (total)	5		< 10	< 10	< 100	< 50
Total VOCs			**34.4**	**26**	**1,116**	**610**

VOCs Volatile organic compounds.
ug/L Micrograms per liter.
J Estimated value.
D Detected at secondary dilution.
R Non-detect unusable data based on calibration results.
** Replicate Sample.
NYSDEC New York State Department of Environmental Conservation.
(1) Standards Criteria and Guidance values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000).
[ ] Value exceeds associated Standard Criteria and Guidance value.

Table 10. Concentrations of Volatile Organic Compounds Detected in D2 Wells, Last Quarter 2000 and First Quarter 2001 Groundwater Monitoring Rounds, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL: SAMPLE ID: DATE:	ONCT INFLUENT REP-1 (ONCT) 2/20/01	ONCT EFFLUENT EFFLUENT 10/16/00	ONCT EFFLUENT ONCT EFFLUENT 2/20/01	GP-1/3 INFLUENT GP-1 INFLUENT 10/16/00
Chloromethane	5		R	< 10	R	< 50
Bromomethane	5		< 50 J	< 10	< 10 J	< 50
Vinyl Choride	2		R	< 0.2	R	< 1
Chloroethane	5		R	< 10	R	< 50
Methylene chloride	5		< 50	< 10	< 10	< 50
Acetone	50		< 50	< 10	< 10	< 55
Carbon disulfide	50		< 50	< 10	< 10	< 50
1,1-Dichloroethene	5		< 50	< 10	< 10	**8 J**
1,1-Dichloroethane	5		< 50	< 10	< 10	< 50
1,2-Dichloroethene (total)	5		< 50	< 10	< 10	**10 J**
Chloroform	7		< 50	< 10	< 10	< 50
1,2-Dichloroethane	5		< 50	< 10	< 10	< 50
2-Butanone	50		< 50	< 10	< 10	< 50
1,1,1-Trichloroethane	5		< 50	< 10	< 10	**3 J**
Carbon tetrachloride	5		< 50	< 10	< 10	< 50
Bromodichloromethane	50		< 50	< 10	< 10	< 50
1,2-Dichloropropane	5		< 50	< 10	< 10	< 50
cis-1,3-Dichloropropene	5		< 50	< 10	< 10	< 50
Trichloroethene	5		**600**	**1 J**	< 10	**800**
Dibromochloromethane	5		< 50	< 10	< 10	< 50
1,1,2-Trichloroethane	5		< 50	< 10	< 10	< 50
Benzene	0.7		< 50	< 10	< 10	< 50
trans-1,3-Dichloropropene	5		< 50	< 10	< 10	< 50
Bromoform	50		< 50	< 10	< 10	< 50
4-Methyl-2-pentanone	50		< 50	< 10	< 10	< 50
2-Hexanone	50		< 50	< 10	< 10	< 50
Tetrachloroethene	5		< 50	< 10	< 10	**56**
1,1,2,2-Tetrachloroethane	5		< 50	< 10	< 10	< 50
Toluene	5		< 50	< 10	< 10	< 50
Chlorobenzene	5		< 50	< 10	< 10	< 50
Ethylbenzene	5		< 50	< 10	< 10	< 50
Styrene	5		< 50	< 10	< 10	< 50
Xylene (total)	5		< 50	< 10	< 10	< 50
Total VOCs			**600**	**1**	0	**895**

VOCs Volatile organic compounds.
ug/L Micrograms per liter.
J Estimated value.
D Detected at secondary dilution.
R Non-detect unusable data based on calibration results.
** Replicate Sample.
NYSDEC New York State Department of Environmental Conservation.
(1) Standards Criteria and Guidance values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000).
[ ] Value exceeds associated Standard Criteria and Guidance value.

Table 10. Concentrations of Volatile Organic Compounds Detected in D2 Wells, Last Quarter 2000 and First Quarter 2001 Groundwater Monitoring Rounds, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL: / SAMPLE ID: / DATE:	GP-1/3 INFLUENT GP-1/3 INFLUENT 2/20/01	GP-1/3 EFFLUENT GP-1/3 EFFLUENT 10/16/00	GP-1/3 EFFLUENT GP-1/3 EFFLUENT 2/20/01
Chloromethane	5		R	< 10	R
Bromomethane	5		< 50 J	< 10	< 10 J
Vinyl Choride	2		R	< 0.2	R
Chloroethane	5		R	< 10	R
Methylene chloride	5		< 50	< 10	< 10
Acetone	50		< 50	< 10	< 10
Carbon disulfide	50		< 50	< 10	< 10
1,1-Dichloroethene	5		< 50	< 10	< 10
1,1-Dichloroethane	5		< 50	< 10	< 10
1,2-Dichloroethene (total)	5		< 50	< 10	< 10
Chloroform	7		< 50	< 10	< 10
1,2-Dichloroethane	5		< 50	< 10	< 10
2-Butanone	50		< 50	< 10	< 10
1,1,1-Trichloroethane	5		< 50	< 10	< 10
Carbon tetrachloride	5		< 50	< 10	< 10
Bromodichloromethane	50		< 50	< 10	< 10
1,2-Dichloropropane	5		< 50	< 10	< 10
cis-1,3-Dichloropropene	5		< 50	< 10	< 10
Trichloroethene	5		**690**	**4** J	< 10
Dibromochloromethane	5		< 50	< 10	< 10
1,1,2-Trichloroethane	5		< 50	< 10	< 10
Benzene	0.7		< 50	< 10	< 10
trans-1,3-Dichloropropene	5		< 50	< 10	< 10
Bromoform	50		< 50	< 10	< 10
4-Methyl-2-pentanone	50		< 50	< 10	< 10
2-Hexanone	50		< 50	< 10	< 10
Tetrachloroethene	5		**41 J**	< 10	< 10
1,1,2,2-Tetrachloroethane	5		< 50	< 10	< 10
Toluene	5		< 50	< 10	< 10
Chlorobenzene	5		< 50	< 10	< 10
Ethylbenzene	5		< 50	< 10	< 10
Styrene	5		< 50	< 10	< 10
Xylene (total)	5		< 50	< 10	< 10
Total VOCs			731	**4**	0

VOCs Volatile organic compounds.
ug/L Micrograms per liter.
J Estimated value.
D Detected at secondary dilution.
R Non-detect unusable data based on calibration results.
** Replicate Sample.
NYSDEC New York State Department of Environmental Conservation.
(1) Standards Criteria and Guidance values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000).
[ ] Value exceeds associated Standard Criteria and Guidance value.

Table 11. Concentrations of Tentatively Identified Compounds (TICs) Detected in Groundwater Samples, First Quarter 2001 Groundwater Monitoring Round, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	WELL: / SAMPLE ID: / DATE:	HN-40I HN-40I 2/13/01	MW-52D 52D 2/12/01	HN-42S HN-42S 2/9/01	GM-34D GM-34D 2/8/01	GM-15S GM-15S 1/30/01	10634 10634 1/23/01	GM-23S GM-23S 2/15/01	GM-23I GM-23I 2/15/01	GM-35D2 GM-35D-2 2/19/01
Unknown		--	--	--	--	--	10 J	--	--	--
Cyclotetrasiloxane, octameth		--	--	--	--	--	--	6 JN	7 JN	8 JN
Ethane, 1,2,-dichloro-1,1,2-t		--	--	--	10 JN	--	--	--	--	--
Ethane, 1,1,2,-trichloro-1,2,2		--	--	--	--	--	--	--	--	--
Propane, 2-methoxy-2-methyl-		5 JN	--	--	--	10 JN	--	56 JN	--	--
Unknown Siloxane		--	52 J	6 J	--	--	--	--	--	--

ug/L Micrograms per liter.
J Estimated value.
-- Not Detected.
N TICs are identified based on review of mass spectrometry results via a comprehensive library search of all organic compounds. However, calibrations were not run for there constituents, therefore, the results should be used for qualitative purposes only.

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Table 12. Volatile Organic Compounds Detected in Blank Samples, First Quarter 2001 Groundwater Monitoring Round, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	SITE: / SAMPLE ID: / DATE:	TRIP BLANK TB012301 1/23/01	TRIP BLANK TB012401 1/24/01	TRIP BLANK TB012501 1/25/01	TRIP BLANK TB012601 1/26/01
Chloromethane		< 10	< 10	< 10	< 10 J
Bromomethane		< 10	< 10	< 10	< 10
Vinyl Choride		< 0.2	< 0.2	< 0.2	< 0.2 J
Chloroethane		< 10	< 10	< 10	< 10 J
Methylene chloride		< 10	< 10	< 10	< 10
Acetone		< 10	< 10	< 10	< 10 J
Carbon disulfide		R	R	R	< 10
1,1-Dichloroethene		< 10	< 10	< 10	< 10
1,1-Dichloroethane		< 10	< 10	< 10	< 10
1,2-Dichloroethene (total)		< 10	< 10	< 10	< 10
Chloroform		< 10	< 10	< 10	< 10
1,2-Dichloroethane		< 10	< 10	< 10	< 10
2-Butanone		< 10	< 10	< 10	< 10
1,1,1-Trichloroethane		< 10	< 10	< 10	< 10
Carbon tetrachloride		< 10	< 10	< 10	< 10
Bromodichloromethane		< 10	< 10	< 10	< 10
1,2-Dichloropropane		< 10	< 10	< 10	< 10
cis-1,3-Dichloropropene		< 10	< 10	< 10	< 10
Trichloroethene		< 10	< 10	< 10	< 10
Dibromochloromethane		< 10	< 10	< 10	< 10
1,1,2-Trichloroethane		< 10	< 10	< 10	< 10
Benzene		< 10	< 10	< 10	< 10
trans-1,3-Dichloropropene		< 10	< 10	< 10	< 10
Bromoform		< 10	< 10	< 10	< 10
4-Methyl-2-pentanone		< 10	< 10	< 10	< 10
2-Hexanone		< 10	< 10	< 10	< 10
Tetrachloroethene		< 10	< 10	< 10	< 10
1,1,2,2-Tetrachloroethane		< 10	< 10	< 10	< 10
Toluene		< 10	< 10	< 10	< 10
Chlorobenzene		< 10	< 10	< 10	< 10
Ethylbenzene		< 10	< 10	< 10	< 10
Styrene		< 10	< 10	< 10	< 10
Xylene (total)		< 10	< 10	< 10	< 10
Vinyl Acetate		< 10	< 10	< 10	< 10
2-Chloroethylvinylether		< 10	< 10	< 10	< 10
Freon 113		< 10	< 10	< 10	< 10
Total VOCs		0	0	0	0

VOCs	Volatile organic compounds.
ug/L	Micrograms per liter.
J	Estimated value.
EQ	Equipment
--	Not analyzed.
R	Non-detect unusable data based on calibration results.

Table 12. Volatile Organic Compounds Detected in Blank Samples, First Quarter 2001 Groundwater Monitoring Round, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	SITE: / SAMPLE ID: / DATE:	TRIP BLANK TB013001 1/30/01	TRIP BLANK TB013101 1/31/01	TRIP BLANK TB020101 2/1/01	TRIP BLANK TB020201 2/2/01
Chloromethane		< 10	< 10	< 10	< 10
Bromomethane		< 10	< 10	< 10	< 10
Vinyl Choride		< 0.2	< 0.2	< 0.2	< 0.2
Chloroethane		< 10	< 10	< 10	< 10
Methylene chloride		< 10	< 10	< 10	< 10
Acetone		< 10	< 10	< 10	< 10
Carbon disulfide		< 10	< 10	< 10	< 10
1,1-Dichloroethene		< 10	< 10	< 10	< 10
1,1-Dichloroethane		< 10	< 10	< 10	< 10
1,2-Dichloroethene (total)		< 10	< 10	< 10	< 10
Chloroform		< 10	< 10	< 10	< 10
1,2-Dichloroethane		< 10	< 10	< 10	< 10
2-Butanone		< 10	< 10	< 10	< 10
1,1,1-Trichloroethane		< 10	< 10	< 10	< 10
Carbon tetrachloride		< 10	< 10	< 10	< 10
Bromodichloromethane		< 10	< 10	< 10	< 10
1,2-Dichloropropane		< 10	< 10	< 10	< 10
cis-1,3-Dichloropropene		< 10	< 10	< 10	< 10
Trichloroethene		< 10	< 10	< 10	< 10
Dibromochloromethane		< 10	< 10	< 10	< 10
1,1,2-Trichloroethane		< 10	< 10	< 10	< 10
Benzene		< 10	< 10	< 10	< 10
trans-1,3-Dichloropropene		< 10	< 10	< 10	< 10
Bromoform		< 10	< 10	< 10	< 10
4-Methyl-2-pentanone		< 10	< 10	< 10	< 10
2-Hexanone		< 10	< 10	< 10	< 10
Tetrachloroethene		< 10	< 10	< 10	< 10
1,1,2,2-Tetrachloroethane		< 10	< 10	< 10	< 10
Toluene		< 10	< 10	< 10	< 10
Chlorobenzene		< 10	< 10	< 10	< 10
Ethylbenzene		< 10	< 10	< 10	< 10
Styrene		< 10	< 10	< 10	< 10
Xylene (total)		< 10	< 10	< 10	< 10
Vinyl Acetate		< 10	< 10	< 10	< 10
2-Chloroethylvinylether		< 10	< 10	< 10	< 10
Freon 113		< 10	< 10	< 10	< 10
Total VOCs		0	0	0	0

VOCs	Volatile organic compounds.
ug/L	Micrograms per liter.
J	Estimated value.
EQ	Equipment
--	Not analyzed.
R	Non-detect unusable data based or calibration results.

Table 12. Volatile Organic Compounds Detected in Blank Samples, First Quarter 2001 Groundwater Monitoring Round, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	SITE: / SAMPLE ID: / DATE:	TRIP BLANK TB020501 2/5/01	TRIP BLANK TB020601 2/6/01	TRIP BLANK TB020701 2/7/01	TRIP BLANK TB020801 2/8/01
Chloromethane		< 10 J	< 10	< 10	< 10
Bromomethane		< 10	< 10	< 10	< 10
Vinyl Choride		< 0.2 J	< 0.2	< 0.2	< 0.2
Chloroethane		< 10 J	< 10	< 10	< 10
Methylene chloride		< 10	**0.9 J**	**1 J**	**2 J**
Acetone		< 10 J	< 10 J	< 10 J	< 10
Carbon disulfide		< 10	< 10	< 10	< 10
1,1-Dichloroethene		< 10	< 10	< 10	< 10
1,1-Dichloroethane		< 10	< 10	< 10	< 10
1,2-Dichloroethene (total)		< 10	< 10	< 10	< 10
Chloroform		< 10	< 10	< 10	< 10
1,2-Dichloroethane		< 10	< 10	< 10	< 10
2-Butanone		< 10	< 10	< 10	< 10
1,1,1-Trichloroethane		< 10	< 10	< 10	< 10
Carbon tetrachloride		< 10	< 10	< 10	< 10
Bromodichloromethane		< 10	< 10	< 10	< 10
1,2-Dichloropropane		< 10	< 10	< 10	< 10
cis-1,3-Dichloropropene		< 10	< 10	< 10	< 10
Trichloroethene		< 10	< 10	< 10	< 10
Dibromochloromethane		< 10	< 10	< 10	< 10
1,1,2-Trichloroethane		< 10	< 10	< 10	< 10
Benzene		< 10	< 10	< 10	< 10
trans-1,3-Dichloropropene		< 10	< 10	< 10	< 10
Bromoform		< 10	< 10	< 10	< 10
4-Methyl-2-pentanone		< 10	< 10	< 10	< 10
2-Hexanone		< 10	< 10	< 10	< 10
Tetrachloroethene		< 10	< 10	< 10	< 10
1,1,2,2-Tetrachloroethane		< 10	< 10	< 10	< 10
Toluene		< 10	< 10	< 10	< 10
Chlorobenzene		< 10	< 10	< 10	< 10
Ethylbenzene		< 10	< 10	< 10	< 10
Styrene		< 10	< 10	< 10	< 10
Xylene (total)		< 10	< 10	< 10	< 10
Vinyl Acetate		< 10	< 10	< 10	< 10
2-Chloroethylvinylether		< 10	< 10	< 10	< 10
Freon 113		< 10	< 10	< 10	< 10
Total VOCs		0	0.9	1	2

VOCs	Volatile organic compounds.
ug/L	Micrograms per liter.
J	Estimated value.
EQ	Equipment
--	Not analyzed.
R	Non-detect unusable data based or calibration results.

Table 12. Volatile Organic Compounds Detected in Blank Samples, First Quarter 2001 Groundwater Monitoring Round, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	SITE:	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK
	SAMPLE ID:	TB020901	TB021201	TB021301	TB021401
	DATE:	2/9/01	2/12/01	2/13/01	2/14/01
Chloromethane		< 10	< 10	< 10	< 10
Bromomethane		< 10	< 10	< 10	< 10
Vinyl Choride		< 0.2	< 0.2	< 0.2	< 0.2
Chloroethane		< 10	< 10	< 10	< 10
Methylene chloride		**3 J**	**1 J**	**11**	**12**
Acetone		< 10 J	< 10 J	< 10 J	< 10
Carbon disulfide		< 10	< 10	< 10	< 10
1,1-Dichloroethene		< 10	< 10	< 10	< 10
1,1-Dichloroethane		< 10	< 10	< 10	< 10
1,2-Dichloroethene (total)		< 10	< 10	< 10	< 10
Chloroform		< 10	< 10	< 10	< 10
1,2-Dichloroethane		< 10	< 10	< 10	< 10
2-Butanone		< 10	< 10	< 10	< 10
1,1,1-Trichloroethane		< 10	< 10	< 10	< 10
Carbon tetrachloride		< 10	< 10	< 10	< 10
Bromodichloromethane		< 10	< 10	< 10	< 10
1,2-Dichloropropane		< 10	< 10	< 10	< 10
cis-1,3-Dichloropropene		< 10	< 10	< 10	< 10
Trichloroethene		< 10	< 10	< 10	< 10
Dibromochloromethane		< 10	< 10	< 10	< 10
1,1,2-Trichloroethane		< 10	< 10	< 10	< 10
Benzene		< 10	< 10	< 10	< 10
trans-1,3-Dichloropropene		< 10	< 10	< 10	< 10
Bromoform		< 10	< 10	< 10	< 10
4-Methyl-2-pentanone		< 10	< 10	< 10	< 10
2-Hexanone		< 10	< 10	< 10	< 10
Tetrachloroethene		< 10	< 10	< 10	< 10
1,1,2,2-Tetrachloroethane		< 10	< 10	< 10	< 10
Toluene		< 10	< 10	< 10	< 10
Chlorobenzene		< 10	< 10	< 10	< 10
Ethylbenzene		< 10	< 10	< 10	< 10
Styrene		< 10	< 10	< 10	< 10
Xylene (total)		< 10	< 10	< 10	< 10
Vinyl Acetate		< 10	< 10	< 10	< 10
2-Chloroethylvinylether		< 10	< 10	< 10	< 10
Freon 113		< 10	< 10	< 10	< 10
Total VOCs		3	1	11	12

VOCs	Volatile organic compounds.
ug/L	Micrograms per liter.
J	Estimated value.
EQ	Equipment
–	Not analyzed.
R	Non-detect unusable data based or calibration results.

Table 12. Volatile Organic Compounds Detected in Blank Samples, First Quarter 2001 Groundwater Monitoring Round, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	SITE: / SAMPLE ID: / DATE:	TRIP BLANK TB021501 2/15/01	TRIP BLANK TB021901 2/19/01	TRIP BLANK TB022001 2/20/01	WATER EQ.BLANK FB012301 1/23/01
Chloromethane		< 10	< 10	R	< 10
Bromomethane		< 10	< 10	< 10 J	< 10
Vinyl Choride		< 0.2	< 0.2	R	< 0.2
Chloroethane		< 10	< 10	R	< 10
Methylene chloride		**2 J**	**4 J**	< 10	**5 J**
Acetone		< 10 J	< 10 J	< 10	< 10
Carbon disulfide		< 10	< 10	< 10	R
1,1-Dichloroethene		< 10	< 10	< 10	< 10
1,1-Dichloroethane		< 10	< 10	< 10	< 10
1,2-Dichloroethene (total)		< 10	< 10	< 10	< 10
Chloroform		< 10	< 10	< 10	< 10
1,2-Dichloroethane		< 10	< 10	< 10	< 10
2-Butanone		< 10	< 10	< 10	< 10
1,1,1-Trichloroethane		< 10	< 10	< 10	< 10
Carbon tetrachloride		< 10	< 10	< 10	< 10
Bromodichloromethane		< 10	< 10	< 10	< 10
1,2-Dichloropropane		< 10	< 10	< 10	< 10
cis-1,3-Dichloropropene		< 10	< 10	< 10	< 10
Trichloroethene		< 10	< 10	< 10	< 10
Dibromochloromethane		< 10	< 10	< 10	< 10
1,1,2-Trichloroethane		< 10	< 10	< 10	< 10
Benzene		< 10	< 10	< 10	< 10
trans-1,3-Dichloropropene		< 10	< 10	< 10	< 10
Bromoform		< 10	< 10	< 10	< 10
4-Methyl-2-pentanone		< 10	< 10	< 10	< 10
2-Hexanone		< 10	< 10	< 10	< 10
Tetrachloroethene		< 10	< 10	< 10	< 10
1,1,2,2-Tetrachloroethane		< 10	< 10	< 10	< 10
Toluene		< 10	< 10	< 10	< 10
Chlorobenzene		< 10	< 10	< 10	< 10
Ethylbenzene		< 10	< 10	< 10	< 10
Styrene		< 10	< 10	< 10	< 10
Xylene (total)		< 10	< 10	< 10	< 10
Vinyl Acetate		< 10	< 10	< 10	< 10
2-Chloroethylvinylether		< 10	< 10	< 10	< 10
Freon 113		< 10	< 10	< 10	< 10
Total VOCs		2	4	0	5

VOCs	Volatile organic compounds.
ug/L	Micrograms per liter.
J	Estimated value.
EQ	Equipment
--	Not analyzed.
R	Non-detect unusable data based or calibration results.

Table 12. Volatile Organic Compounds Detected in Blank Samples, First Quarter 2001 Groundwater Monitoring Round, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	SITE: / SAMPLE ID: / DATE:	WATER EQ.BLANK FB012601 1/26/01	WATER EQ.BLANK FB013001 1/30/01	WATER EQ.BLANK FB013101 1/31/01	WATER EQ.BLANK FB020101 2/1/01
Chloromethane		< 10	< 10	< 10	< 10
Bromomethane		< 10	< 10	< 10	< 10
Vinyl Choride		< 0.2	< 0.2	< 0.2	< 0.2
Chloroethane		< 10	< 10	< 10	< 10
Methylene chloride		< 10	< 10	< 10	< 10
Acetone		< 10	< 10	< 10	< 10
Carbon disulfide		< 10	< 10	< 10	< 10
1,1-Dichloroethene		< 10	< 10	< 10	< 10
1,1-Dichloroethane		< 10	< 10	< 10	< 10
1,2-Dichloroethene (total)		< 10	< 10	< 10	< 10
Chloroform		< 10	< 10	< 10	< 10
1,2-Dichloroethane		< 10	< 10	< 10	< 10
2-Butanone		< 10	< 10	< 10	< 10
1,1,1-Trichloroethane		< 10	< 10	< 10	< 10
Carbon tetrachloride		< 10	< 10	< 10	< 10
Bromodichloromethane		< 10	< 10	< 10	< 10
1,2-Dichloropropane		< 10	< 10	< 10	< 10
cis-1,3-Dichloropropene		< 10	< 10	< 10	< 10
Trichloroethene		< 10	< 10	< 10	< 10
Dibromochloromethane		< 10	< 10	< 10	< 10
1,1,2-Trichloroethane		< 10	< 10	< 10	< 10
Benzene		< 10	< 10	< 10	< 10
trans-1,3-Dichloropropene		< 10	< 10	< 10	< 10
Bromoform		< 10	< 10	< 10	< 10
4-Methyl-2-pentanone		< 10	< 10	< 10	< 10
2-Hexanone		< 10	< 10	< 10	< 10
Tetrachloroethene		< 10	< 10	< 10	< 10
1,1,2,2-Tetrachloroethane		< 10	< 10	< 10	< 10
Toluene		< 10	< 10	< 10	< 10
Chlorobenzene		< 10	< 10	< 10	< 10
Ethylbenzene		< 10	< 10	< 10	< 10
Styrene		< 10	< 10	< 10	< 10
Xylene (total)		< 10	< 10	< 10	< 10
Vinyl Acetate		< 10	< 10	< 10	< 10
2-Chloroethylvinylether		< 10	< 10	< 10	< 10
Freon 113		< 10	< 10	< 10	< 10
Total VOCs		0	0	0	0

VOCs	Volatile organic compounds.
ug/L	Micrograms per liter.
J	Estimated value.
EQ	Equipment
--	Not analyzed.
R	Non-detect unusable data based or calibration results.

Table 12. Volatile Organic Compounds Detected in Blank Samples, First Quarter 2001 Groundwater Monitoring Round, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	SITE: / SAMPLE ID: / DATE:	WATER EQ.BLANK FB020201 2/2/01		WATER EQ.BLANK FB020501 2/5/01		WATER EQ.BLANK FB020801 2/8/01		WATER EQ.BLANK FB020901 2/9/01	
Chloromethane		< 10	J	< 10	J	< 10		< 10	
Bromomethane		< 10		< 10		< 10		< 10	
Vinyl Chonde		< 0.2	J	< 0.2	J	< 0.2		< 0.2	
Chloroethane		< 10	J	< 10	J	< 10		< 10	
Methylene chloride		**6**	**JB**	**0.7**	**JB**	**2**	**J**	**3**	**J**
Acetone		< 10	J	< 10	J	< 10		**4**	**J**
Carbon disulfide		< 10		< 10		< 10		< 10	
1,1-Dichloroethene		< 10		< 10		< 10		< 10	
1,1-Dichloroethane		< 10		< 10		< 10		< 10	
1,2-Dichloroethene (total)		< 10		< 10		< 10		< 10	
Chloroform		< 10		< 10		< 10		< 10	
1,2-Dichloroethane		< 10		< 10		< 10		< 10	
2-Butanone		< 10		< 10		< 10		< 10	
1,1,1-Trichloroethane		< 10		< 10		< 10		< 10	
Carbon tetrachloride		< 10		< 10		< 10		< 10	
Bromodichloromethane		< 10		< 10		< 10		< 10	
1,2-Dichloropropane		< 10		< 10		< 10		< 10	
cis-1,3-Dichloropropene		< 10		< 10		< 10		< 10	
Trichloroethene		< 10		< 10		< 10		< 10	
Dibromochloromethane		< 10		< 10		< 10		< 10	
1,1,2-Trichloroethane		< 10		< 10		< 10		< 10	
Benzene		< 10		< 10		< 10		< 10	
trans-1,3-Dichloropropene		< 10		< 10		< 10		< 10	
Bromoform		< 10		< 10		< 10		< 10	
4-Methyl-2-pentanone		< 10		< 10		< 10		< 10	
2-Hexanone		< 10		< 10		< 10		< 10	
Tetrachloroethene		< 10		< 10		< 10		< 10	
1,1,2,2-Tetrachloroethane		< 10		< 10		< 10		< 10	
Toluene		< 10		**0.5**	**J**	< 10		< 10	
Chlorobenzene		< 10		< 10		< 10		< 10	
Ethylbenzene		< 10		< 10		< 10		< 10	
Styrene		< 10		< 10		< 10		< 10	
Xylene (total)		< 10		< 10		< 10		< 10	
Vinyl Acetate		< 10		< 10		< 10		< 10	
2-Chloroethylvinylether		< 10		< 10		< 10		< 10	
Freon 113		< 10		< 10		< 10		< 10	
Total VOCs		6		1.2		2		7	

VOCs	Volatile organic compounds.
ug/L	Micrograms per liter.
J	Estimated value.
EQ	Equipment
--	Not analyzed.
R	Non-detect unusable data based or calibration results.

Table 12. Volatile Organic Compounds Detected in Blank Samples, First Quarter 2001 Groundwater Monitoring Round, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	SITE: / SAMPLE ID: / DATE:	WATER EQ.BLANK FB021201 2/12/01	WATER EQ.BLANK FB021301 2/13/01	WATER EQ.BLANK FB021401 2/14/01	WATER EQ.BLANK FBB021501 2/15/01
Chloromethane		< 10	< 10	< 10	< 10
Bromomethane		< 10	< 10	< 10	< 10
Vinyl Choride		< 0.2	< 0.2	< 0.2	< 0.2
Chloroethane		< 10	< 10	< 10	< 10
Methylene chloride		**1 J**	**10**	**1 J**	**2 J**
Acetone		< 10 J	< 10 J	< 10 J	< 10 J
Carbon disulfide		< 10	< 10	< 10	< 10
1,1-Dichloroethene		< 10	< 10	< 10	< 10
1,1-Dichloroethane		< 10	< 10	< 10	< 10
1,2-Dichloroethene (total)		< 10	< 10	< 10	< 10
Chloroform		< 10	< 10	< 10	< 10
1,2-Dichloroethane		< 10	< 10	< 10	< 10
2-Butanone		< 10	< 10	< 10	< 10
1,1,1-Trichloroethane		< 10	< 10	< 10	< 10
Carbon tetrachloride		< 10	< 10	< 10	< 10
Bromodichloromethane		< 10	< 10	< 10	< 10
1,2-Dichloropropane		< 10	< 10	< 10	< 10
cis-1,3-Dichloropropene		< 10	< 10	< 10	< 10
Trichloroethene		< 10	< 10	< 10	< 10
Dibromochloromethane		< 10	< 10	< 10	< 10
1,1,2-Trichloroethane		< 10	< 10	< 10	< 10
Benzene		< 10	< 10	< 10	< 10
trans-1,3-Dichloropropene		< 10	< 10	< 10	< 10
Bromoform		< 10	< 10	< 10	< 10
4-Methyl-2-pentanone		< 10	< 10	< 10	< 10
2-Hexanone		< 10	< 10	< 10	< 10
Tetrachloroethene		< 10	< 10	< 10	< 10
1,1,2,2-Tetrachloroethane		< 10	< 10	< 10	< 10
Toluene		< 10	< 10	< 10	< 10
Chlorobenzene		< 10	< 10	< 10	< 10
Ethylbenzene		< 10	< 10	< 10	< 10
Styrene		< 10	< 10	< 10	< 10
Xylene (total)		< 10	< 10	< 10	< 10
Vinyl Acetate		< 10	< 10	< 10	< 10
2-Chloroethylvinylether		< 10	< 10	< 10	< 10
Freon 113		< 10	< 10	< 10	< 10
Total VOCs		1	10	1	2

VOCs	Volatile organic compounds.
ug/L	Micrograms per liter.
J	Estimated value.
EQ	Equipment
--	Not analyzed.
R	Non-detect unusable data based or calibration results.

ARCADIS

Table 13. Semi-Volatile Organic Compounds Detected in Groundwater Samples, Last Quarter 2000 and First Quarter 2001 Groundwater Monitoring Rounds, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	SITE: SAMPLE ID: DATE:	GM-14 GM-14 10/2/00	GM-14 GM-14 1/26/01	WATER EQ.BLANK FB012601 1/26/01	
Phenol		< 11	< 10	< 10	
Bis(2-chloroethyl)ether		< 11	< 10	< 10	
2-Chlorophenol		< 11	< 10	< 10	
1,3-Dichlorobenzene		< 11	< 10	< 10	
1,4-Dichlorobenzene		< 11	< 10	< 10	
1,2-Dichlorobenzene		< 11	< 10	< 10	
2-Methylphenol		< 11	< 10	< 10	
Propane, 2,2'-oxybis[1-chloro-		< 11	< 10	< 10	
4-Methylphenol		< 11	< 10	< 10	
N-Nitroso-di-n-propylamine		< 11	< 10	< 10	
Hexachloroethane		< 11	< 10	< 10	
Nitrobenzene		< 11	< 10	< 10	
Isophorone		< 11	< 10	< 10	
2-Nitrophenol		< 11	< 10	< 10	
2,4-Dimethylphenol		< 11	< 10	< 10	
Bis(2-chloroethoxy)methane		< 11	< 10	< 10	
2,4-Dichlorophenol		< 11	< 10	< 10	
1,2,4-Trichlorobenzene		< 11	< 10	< 10	
Naphthalene		< 11	< 10	< 10	
4-Chloroaniline		< 11	< 10	< 10	
Hexachlorobutadiene		< 11	< 10	< 10	
4-Chloro-3-methylphenol		< 11	< 10	< 10	
2-Methylnaphthalene		< 11	< 10	< 10	
Hexachlorocyclopentadiene		< 11	< 10	< 10	
2,4,6-Trichlorophenol		< 11	< 10	< 10	
2,4,5-Trichlorophenol		< 26	< 25	< 25	
2-Chloronaphthalene		< 11	< 10	< 10	
2-Nitroaniline		< 26	< 25	< 25	
Dimethylphthalate		< 11	< 10	< 10	
Acenaphthylene		< 11	< 10	< 10	
2,6-Dinitrotoluene		< 11	< 10	< 10	
3-Nitroaniline		< 26	< 25	< 25	
Acenaphthene		< 11	< 10	< 10	
2,4-Dinitrophenol		< 26	< 25	< 25	
4-Nitrophenol		< 26	< 25	< 25	
Dibenzofuran		< 11	< 10	< 10	
2,4-Dinitrotoluene		< 11	< 10	< 10	
Diethylphthalate		< 11	< 10	**0.7**	**JB**
CPPE4		< 11	< 10	< 10	
Fluorene		< 11	< 10	< 10	
4-Nitroaniline		< 26	< 25	< 25	
4,6-Dinitro-2-methylphenol		< 26	< 25	< 25	
N-Nitrosodiphenylamine (1)		< 11	< 10	< 10	
Hexachlorobenzene		< 11	< 10	< 10	
Pentachlorophenol		< 26	< 25	< 25	
Phenanthrene		< 11	< 10	< 10	
Anthracene		< 11	< 10	< 10	
Carbazole		< 11	< 10	< 10	

See next page for footnotes.

Table 13. Semi-Volatile Organic Compounds Detected in Groundwater Samples, Last Quarter 2000 and First Quarter 2001 Groundwater Monitoring Rounds, Northrop Grumman Corporation, Bethpage, New York.

	SITE:	GM-14		GM-14	WATER EQ.BLANK
CONSTITUENT:	SAMPLE ID:	GM-14		GM-14	FB012601
(Units in ug/L)	DATE:	10/2/00		1/26/01	1/26/01
Di-n-butylphthalate		0.1	J	< 10	< 10
Fluoranthene		< 11		< 10	< 10
Pyrene		< 11		< 10	< 10
Butylbenzylphthalate		< 11		< 10	< 10
3,3'-Dichlorobenzidine		< 11		< 10	< 10
Benzo(a)anthracene		< 11		< 10	< 10
Chrysene		< 11		< 10	< 10
Bis(2-ethylhexyl)phthalate (BEHP)		< 11		< 10	< 10
Di-n-octylphthalate		< 11		< 10	< 10
Benzo(b)fluoranthene		< 11		< 10	< 10
Benzo(k)fluoranthene		< 11		< 10	< 10
Benzo(a)pyrene		< 11		< 10	< 10
Indeno(1,2,3-cd)pyrene		< 11		< 10	< 10
Dibenz(a,h)anthracene		< 11		< 10	< 10
Benzo(g,h,i)perylene		< 11		< 10	< 10
4-bromophenyl-phenylether		< 11		< 10	< 10

ug/L	Micrograms per liter.
B	Detected in an assoicated blank.
J	Estimated value.

Table 14. Total Cadmium and Chromium Detected in Groundwater Samples, Last Quarter 2000 and First Quarter 2001 Groundwater Monitoring Rounds, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	NYSDEC SCGs [1]	SITE: SAMPLE ID: DATE:	10631 N10631 9/26/2000	10631 MW-10631 1/26/2001	GM-16SR GM-16SR 9/26/2000	GM-16SR GM-16SR 2/2/2001	MW-03R MW-3R 9/26/2000	MW-03R MW-3R 1/26/2001
Cadmium	5		< 0.5	1 B	< 0.5	< 1.0	**22.9 J**	**32.4**
Chromium	50		< 1	**11.7**	< 2.1	< 1.0	**76.5 J**	**67.6**

NYSDEC New York State Department of Environmental Conservation.
(1) Standards, Criteria, and Guidance Values, (SCGs) based on documents referenced in the Groundwater Feasibility Study (ARCADIS Geraghty & Miller, 2000).
ug/L Micrograms per liter.
B Detected between the IDL and CRDL.
IDL Instrument detection limit.
CRDL Contract required detection limit.
J Estimated value.
[ ] Value exceeds associated SCG value.
EQ. Equipment

Table 14. Total Cadmium and Chromium Detected in Groundwater Samples, Last Quarter 2000 and First Quarter 2001 Groundwater Monitoring Rounds, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT: (Units in ug/L)	NYSDEC SCGs [1]	SITE: SAMPLE ID: DATE:	EQ.BLANK FB012601 1/26/2001	EQ.BLANK FB020201 2/2/2001
Cadmium	5		<1.0	<1.0
Chromium	50		<2.0	<1.0

NYSDEC New York State Department of Environmental Conservation.
(1) Standards, Criteria, and Guidance Values, (SCGs) based on documents referenced in the Groundwater Feasibility Study (ARCADIS Geraghty & Miller, 2000).
ug/L Micrograms per liter.
B Detected between the IDL and CRDL.
IDL Instrument detection limit.
CRDL Contract required detection limit.
J Estimated value.
[ ] Value exceeds associated SCG value.
EQ. Equipment

NWIRP SITE

RUCO POLYMER SITE

PLANT 12 AREA

PLANT 5 BASINS

IRM TREATMENT SYSTEMS

NORTHROP GRUMMAN SITE

PLANT 1 FUEL DEPOT AREA

SOUTH BASINS

CADMIUM/CHROMIUM MONITORING AREA

BWD SUPPLY WELLS (PLANT 6)

BWD SUPPLY WELLS (PLANT 4)

BWD SUPPLY WELL (PLANT 5)

FARMERS AVENUE

(PLAINVIEW ROAD)

BROADWAY

GRUMMAN ROAD

CENTRAL AVENUE

LONG ISLAND RAILROAD

BLOOMINGDALE ROAD

NORTH WANTAGH AVE.

HICKSVILLE ROAD

STEWART AVENUE

SEAFORD - OYSTER BAY EXPRESSWAY

HEMPSTEAD TURNPIKE

U.S. NAVY SITE

PLANT 3

PLANT 2

PLANT 5

PLANT 1

PLANT 10

PLANT 12

PLANT 111

PLANT 35

PLANT 15

PLANT 14

PLANT 17

PLANT 23

BOCES

GP-10

GP-11

GP-1

MW-52D
MW-52I
MW-52S

HN-24I
HN-24D

FW-03

HN-42I
HN-42S

HN-39I
HN-39D

GM-23D
GM-23S
GM-23I

GM-22I
GM-22D
GM-22S

GM-13D

HN-40I
HN-40S

GM-16SR
GM-16I

10597

GM-17D
GM-17SR
GM-17I

GP-7

GM-14

GM-19S
GM-19I

GM-15D
GM-15D2
GM-15S
GM-15I

GM-18D
GM-18S
GM-18I

ONCT-1

GM-33D2

10631

ONCT-2

ONCT-3

GM-73D2

MW-38I

GM-74D
GM-74I
GM-74D2

GM-21D
GM-21I
GM-21S

10600

GM-78S
GM-78I

GM-20D

GM-20I

10633

9921

GM-79D
GM-79S
GM-79I

GM-37D
GM-37D2

10624
10627
GM-75D2

10634

GM-71D2
GM-71S

GM-70D2

GM-35D2

N-10621
GM-36D
GM-36D2

6915

6916

3876

6941

GM-38D2
GM-38D

GM-34D
GM-34D2

8004

EXPLANATION

- INDUSTRIAL SUPPLY WELL
- IRM WELL
- EXISTING WELL/CLUSTER
- PROPOSED WELL/CLUSTER
- PROPERTY BOUNDARY OF THE RUCO POLYMER SITE
- PROPERTY BOUNDARY OF THE FORMER GRUMMAN AEROSPACE SITE
- PROPERTY BOUNDARY OF NWIRP SITE

NWIRP — NAVAL WEAPONS INDUSTRIAL RESERVE PLANT

IRM — INTERIM REMEDIAL MEASURE

BWD — BETHPAGE WATER DISTRICT

0' 1000' 2000'

SCALE: 1" = 1000'

G:\APROJECT\GRUMMAN\CAD\GRUMMAN\IRM_LOCATION.DWG 1=1000

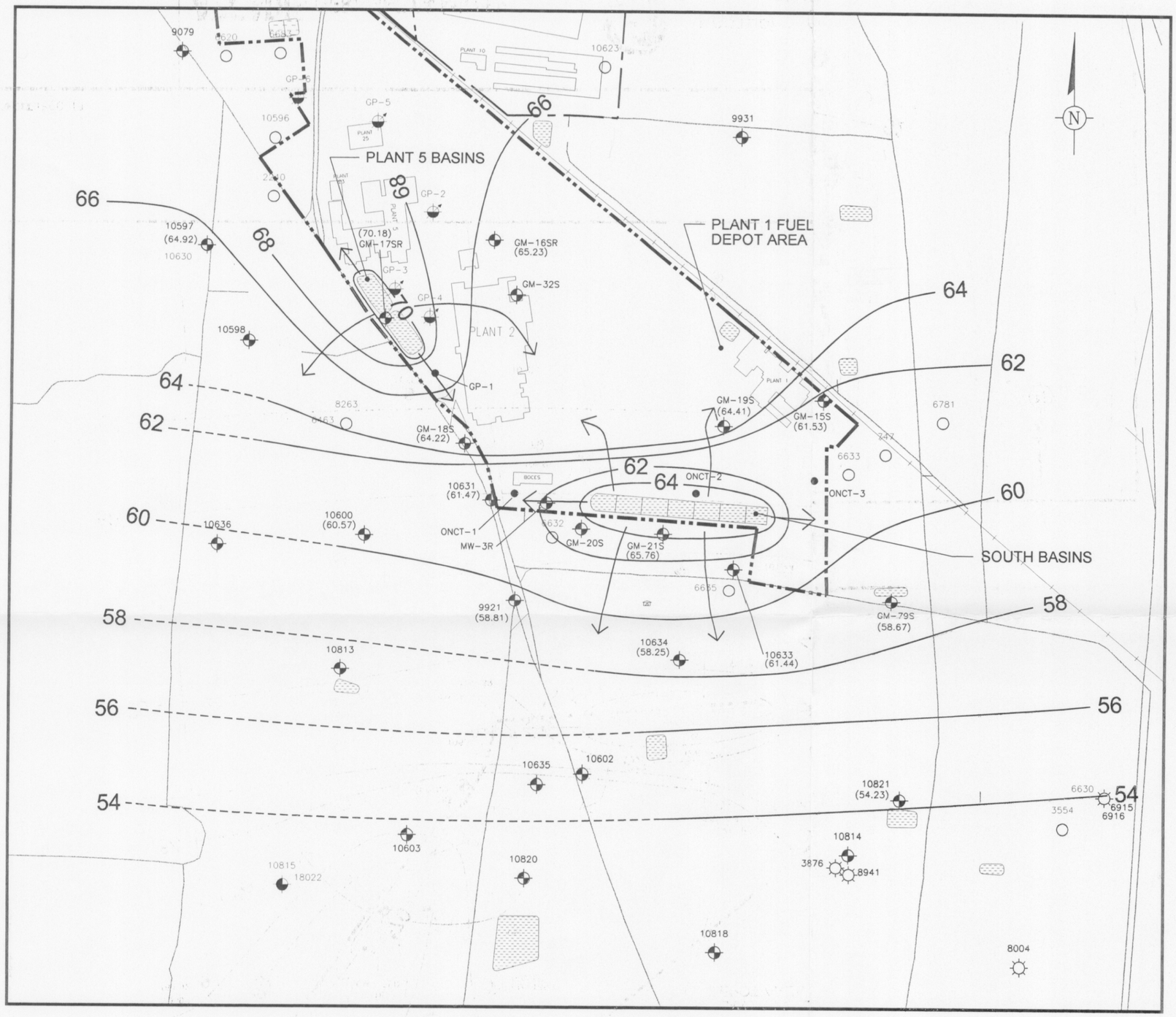
ARCADIS GERAGHTY & MILLER

NORTHROP GRUMMAN CORPORATION

BETHPAGE, NEW YORK

SITE PLAN AND IRM AND WELL LOCATIONS

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
A.G.	2/27/01	CSG	
		LEAD DESIGN PROF.	CHECKED
			D.S.
		PROJECT NUMBER	DRAWING NUMBER
		NY008.0210	1



0 800 FT

EXPLANATION

- PROPERTY BOUNDARY OF FORMER GRUMMAN AEROSPACE CORPORATION
- PROPERTY BOUNDARY OF THE U.S. NAVY SITE
- RECHARGE BASIN
- GM-19S (64.41) — 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)
- 9667 — LOCATION AND DESIGNATION OF ADDITIONAL WELL
- GP-16 — LOCATION AND DESIGNATION OF GRUMMAN INDUSTRIAL SUPPLY WELL (SHOWN FOR REFERENCE ONLY)
- ONCT-1 — LOCATION AND DESIGNATION OF ON-SITE IRM EXTRACTION WELL (SHOWN FOR REFERENCE ONLY)
- HORIZONTAL COMPONENT OF GROUNDWATER FLOW
- LINE OF EQUAL WATER-LEVEL ELEVATION IN FEET RELATIVE TO MEAN SEA LEVEL (DASHED WHERE APPROXIMATE)
- IRM — INTERIM REMEDIAL MEASURE

NOTES:

1. WELL INVENTORY REVISED BETWEEN AUGUST 4 AND AUGUST 23, 1995; WELL DATA OBTAINED FROM UNITED STATES GEOLOGICAL SURVEY, NASSAU COUNTY DEPARTMENT OF PUBLIC WORKS, NASSAU COUNTY DEPARTMENT OF HEALTH, AND THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION.
2. IRM WELLS ONCT-1, ONCT-2, ONCT-3, AND GP-1 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.

G:\APROJECT\NORTHOPGRUMMAN\CAD\SHALLOW-20-01.DWG

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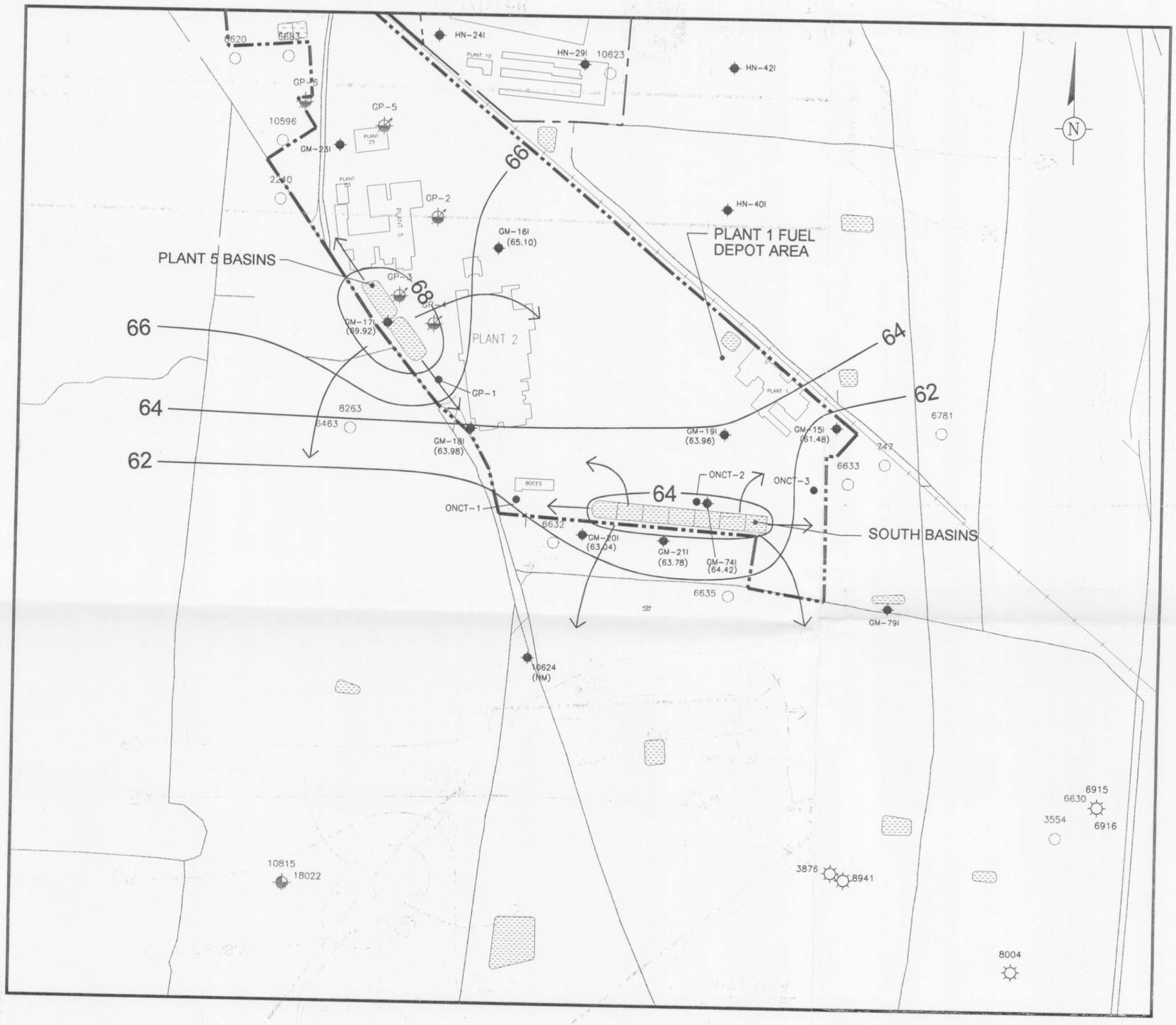
Tel: 516/249-7600 Fax: 516/249-7610

NORTHROP GRUMMAN CORPORATION
BETHPAGE, NEW YORK

WATER-TABLE CONFIGURATION AND GROUNDWATER FLOW DIRECTIONS IN THE SHALLOW ZONE
FEBRUARY 20, 2001

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
AG	11/6/01	CSG	MW
		LEAD DESIGN PROF.	CHECKED
			DES
		PROJECT NUMBER	DRAWING NUMBER
		NY001321.001	2



EXPLANATION

- PROPERTY BOUNDARY OF FORMER GRUMMAN AEROSPACE CORPORATION
- PROPERTY BOUNDARY OF THE U.S. NAVY SITE
- RECHARGE BASIN
- GM-15I (61.48) — 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)
- 9667 — LOCATION AND DESIGNATION OF ADDITIONAL WELL
- GP-16 — LOCATION AND DESIGNATION OF GRUMMAN INDUSTRIAL SUPPLY WELL (SHOWN FOR REFERENCE ONLY)
- ONCT-1 — LOCATION AND DESIGNATION OF ON-SITE IRM EXTRACTION WELL (SHOWN FOR REFERENCE ONLY)
- HORIZONTAL COMPONENT OF GROUNDWATER FLOW
- LINE OF EQUAL WATER-LEVEL ELEVATION IN FEET RELATIVE TO MEAN SEA LEVEL (DASHED WHERE APPROXIMATE)

IRM — INTERIM REMEDIAL MEASURE

NM — NOT MEASURED

NOTES:

1. WELL INVENTORY REVISED BETWEEN AUGUST 4 AND AUGUST 23, 1995; WELL DATA OBTAINED FROM UNITED STATES GEOLOGICAL SURVEY, NASSAU COUNTY DEPARTMENT OF PUBLIC WORKS, NASSAU COUNTY DEPARTMENT OF HEALTH, AND THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION.
2. IRM WELLS ONCT-1, ONCT-2, ONCT-3, AND GP-1 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.

ARCADIS GERAGHTY & MILLER

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Melville, New York 11747
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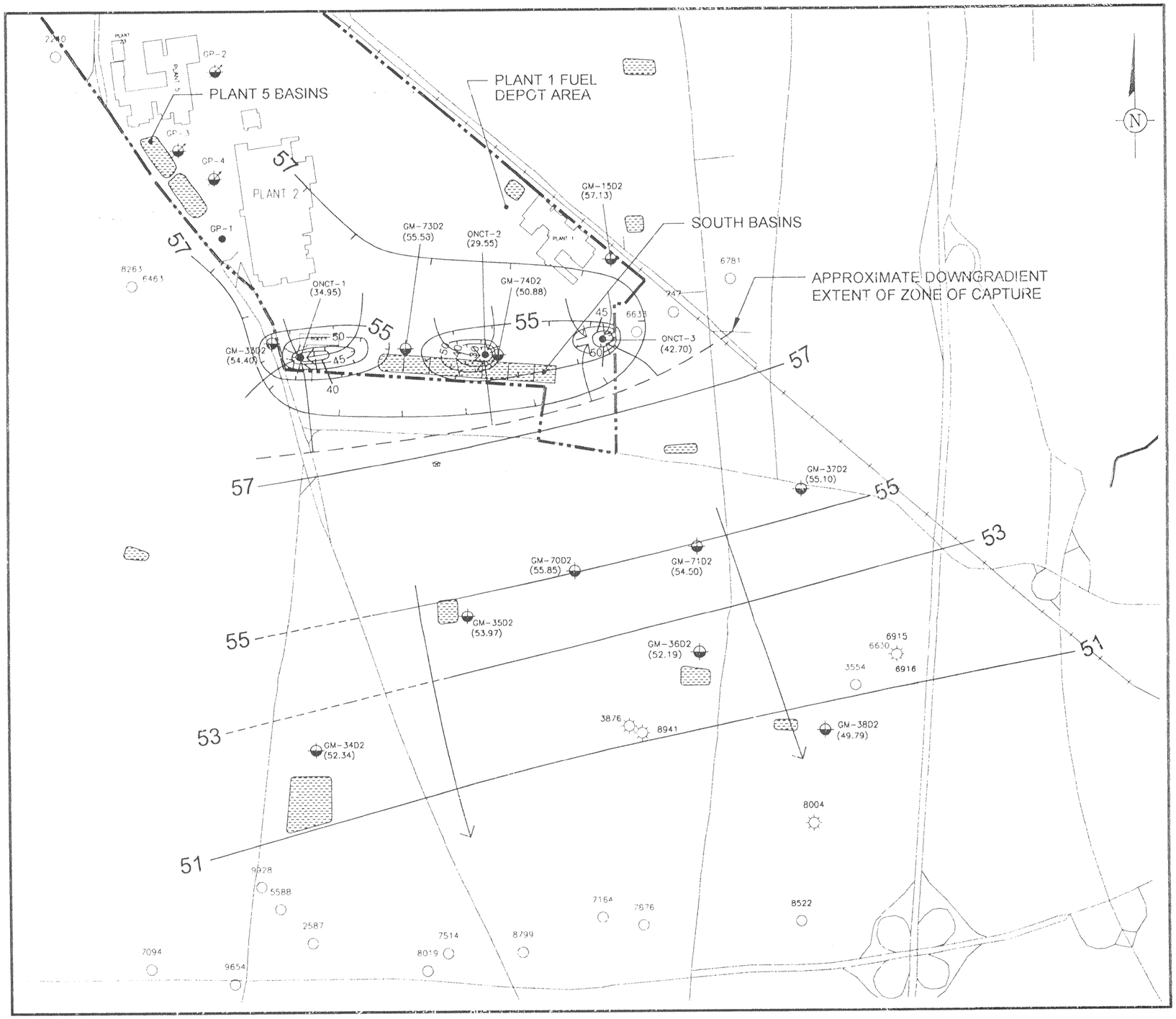
NORTHROP GRUMMAN CORPORATION
BETHPAGE, NEW YORK

POTENTIOMETRIC SURFACE CONFIGURATION AND GROUNDWATER FLOW DIRECTIONS IN THE INTERMEDIATE ZONE
FEBRUARY 20, 2001

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
AG	11/6/01	CSG	MW
		LEAD DESIGN PROF.	CHECKED
			DES
		PROJECT NUMBER	DRAWING NUMBER
		NY001321.01	3



EXPLANATION

- PROPERTY BOUNDARY OF FORMER GRUMMAN AEROSPACE CORPORATION
- RECHARGE BASIN
- GM-36D2 (52.34) — LOCATION AND DESIGNATION OF D2 (VERY DEEP) MONITORING WELL AND WATER-LEVEL ELEVATION IN FEET RELATIVE TO MEAN SEA LEVEL.
- 3876 — LOCATION AND DESIGNATION OF BETHPAGE WATER DISTRICT PUBLIC SUPPLY WELL
- 9667 — LOCATION AND DESIGNATION OF ADDITIONAL WELL
- GP-16 — LOCATION AND DESIGNATION OF GRUMMAN PRODUCTION WELL
- ONCT-3 (42.70) — LOCATION AND DESIGNATION OF ON-SITE IRM EXTRACTION WELL AND WATER-LEVEL ELEVATION IN FEET RELATIVE TO MEAN SEA LEVEL
- HORIZONTAL COMPONENT OF GROUNDWATER FLOW
- IRM — INTERIM REMEDIAL MEASURE
- LINE OF EQUAL WATER-LEVEL ELEVATION IN FEET RELATIVE TO MEAN SEA LEVEL (FT. MSL.) (DASHED WHERE APPROXIMATE)
- LINE OF EQUAL WATER LEVEL ELEVATION DENOTING A DECREASE IN POTENTIOMETRIC SURFACE ELEVATION IN FT. MSL.

NOTES:

1. WELL INVENTORY REVISED BETWEEN AUGUST 4 AND AUGUST 23, 1995; WELL DATA OBTAINED FROM UNITED STATES GEOLOGICAL SURVEY, NASSAU COUNTY DEPARTMENT OF PUBLIC WORKS, NASSAU COUNTY DEPARTMENT OF HEALTH, AND THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION.
2. IRM WELLS ONCT-1, ONCT-2, AND ONCT-3 ARE SCREENED IN THE D2 ZONE AND WERE PUMPING AT 1,098 GPM, 1125 GPM, AND 607 GPM, RESPECTIVELY AT THE TIME OF MEASUREMENT. A WATER LEVEL AND PUMPING RATE COULD NOT BE OBTAINED FROM IRM WELL GP-1, WHICH IS ALSO 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.

0 800 FT

ARCADIS G&M
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NORTHROP GRUMMAN CORPORATION
BETHPAGE, NEW YORK

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
AG	11/6/01	CGS	MW
		LEAD DESIGN PROF.	CHECKED
			DES
		PROJECT NUMBER	DRAWING NUMBER
		NY001321.01	4

POTENTIOMETRIC SURFACE CONFIGURATION AND GROUNDWATER FLOW DIRECTIONS IN THE D2 ZONE
FEBRUARY 20, 2001

G:\APROJECT\NORTHROPGRUMMAN\CAD\D2-02-01.DWG

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Appendix A

Water-Level Measurement Logs

ARCADIS GERAGHTY & MILLER NY001321. 00001. 00002

Water Level/Pumping Test Record

Page 1 of ____

Project NY0000080210.00002 Well ____ Site ____

Screen Setting ____ Measuring Point Description ____ Height Above Ground Surface ____

Static Water Level ____ Measured With ____ Date/Time 2-20-01

Drawdown ☐ Start of Test ____ Pumping Well ____

Recovery ☐ End of Test ____

Distance From Well Measured To Pumping Well® ____ Discharge Rate ____ * Not entered into field meter (MPE) Orifice ____

Date & Time	Well Or t (mins)	Held (ft)	Wet (ft)	Depth to Water (ft)	s (ft)	Dew. 1) Corr. (ft)	Art. 2) s' (ft)		Q (gpm)	Mano-meter (in)	Remarks 3)
2/20/01	74I			43.00							
	74D			47.24							
	74D2			56.48							
	ONCT-2			80.45							1125
	73D2			49.06							
	ONCT-1			69.15							1098*
	18D			48.29							
OK	18I			45.05							
	17SR			45.61							
	17S			45.38							
	17I			45.91							
	17D			52.11							
	ONCT-3			66.00							60T GPM.
	15I			47.65							
	15S			47.82							
	15D2			52.46							
	15D			50.01							
	19S			46.13							
	19I			46.45							
	16SR			50.54							
	16I			50.71							
	13D			49.67							
	10600			41.84							
	9921			35.12							
	10627			35.46							
	Om-35D2			42.31							

* ESTIMATED FROM STRIP CHARTS AND TOTAL PUMPAGE IQ01

1) Dewatering Correction 2) Equivalent Artesian Drawdown 3) pH, Spec. Cond., Temp., Weather, Sand, Turbidity, etc.

ARCADIS GERAGHTY & MILLER

Water Level/Pumping Test Record

Page ____ of ____

Project 94001321.0001.00002 Well ____ Site ____

Screen Setting ____ Measuring Point Description ____ Height Above Ground Surface ____

Static Water Level ____ Measured With ____ Date/Time 2-20-01

Drawdown ☐ Start of Test ____ Pumping Well ____

Recovery ☐ End of Test ____

Distance From Well Measured To Pumping Well® ____ Discharge Rate ____ Orifice ____

Date & Time	Well Or t (mins)	Held (ft)	Wet (ft)	Depth to Water (ft)	s (ft)	Dew. 1) Corr. (ft)	Art. 2) s' (ft)		Q (gpm)	Mano-meter (in)	Remarks 3)
	10634			42.95							
	10631			42.00							
	330-2			52.45							
	18S			43.38							
	340-2			17.83							
	340			17.15							
	20I			40.84							
	20D			42.44							
	21S			40.05							
	2H			4.94							
	10633			42.36							
	710-2			43.95							
	700-2			43.73							
	1082			37.05							
	360			37.50							
	360-2			35.41							
	330			40.10							
	330-2			41.77							
	370			41.55							
	370-2			42.07							
*	79I			43.04							
*	79D			44.20							
	79S			42.58							
	10597			44.93							

1) Dewatering Correction 2) Equivalent Artesian Drawdown 3) pH, Spec. Cond., Temp., Weather, Sand, Turbidity, etc.

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Appendix B

Groundwater Sampling Logs

ARCADIS GERAGHTY & MILLER

Water Sampling Log

Project: N. Grumman | Project No. 1Y000008.0210.00002 | Page 1 of ____

Site Location: Bethpage, NY | Date 1/2

Site/Well No. 125 | Replicate No. ____ | Code No. ____

Weather: Clear 35° | Sampling Time: Begin 2^40 | End 3^15

Evacuation Data

Measuring Point	
MP Elevation (ft)	
Land Surface Elevation (ft)	
Sounded Well Depth (ft bmp)	65.75
Depth to Water (ft bmp)	43.83
Water-Level Elevation (ft)	
Water Column in Well (ft)	21.92
Casing Diameter/Type	2" (.16)
Gallons in Well	3.5
Gallons Pumped/Bailed Prior to Sampling	10.5
Sample Pump Intake Setting (ft bmp)	
Purge Time	begin 2^50 end 3^10
Pumping Rate (gpm)	Q = 1 gpm
Evacuation Method	T = 1 mn 10 = 9 mn

Field Parameters

	I	10	20	30
Color				Colorless
Odor				None
Appearance				CLEAR
pH (s.u.)	6.62	6.42	6.33	6.27
Conductivity (mS/cm)				
(µmhos/cm)	75	85	95	95
Turbidity (NTU)				
Temperature (°C)	12.6	13.5	14.1 ~~12.4~~	14.2
Dissolved Oxygen (mg/L)				
~~Salinity (%)~~ Time	2^53	2^57	3^01	3^05
Sampling Method				

Remarks: ____

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: GW/SH

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 GERAGHTY & MILLER

Water Sampling Log

Project: N. Grumman | Project No. N4000008.0210.00002 | Page 1 of

Site Location: Bethpage NY | Date: 1/23/01

Site/Well No.: 10634 | Replicate No. | Code No.

Weather: Clear 35° | Sampling Time: Begin 1140 End 2130

Evacuation Data

Measuring Point	
MP Elevation (ft)	
Land Surface Elevation (ft)	
Sounded Well Depth (ft bmp)	67.80
Depth to Water (ft bmp)	43.02
Water-Level Elevation (ft)	
Water Column in Well (ft)	24.78
Casing Diameter/Type	2" (.16)
Gallons in Well	3.96
Gallons Pumped/Bailed Prior to Sampling	12 -
Sample Pump Intake Setting (ft bmp)	
Purge Time	begin 1758 end 2118
Pumping Rate (gpm)	Q = 1 gpm
Evacuation Method	T = 12 min 1V = 4 min

Field Parameters

Field Parameters	I	1V	2V	3V
Color		Colorless		
Odor		None		
Appearance		Clear		
pH (s.u.)	7.16	6.88	6.69	6.55
Conductivity (mS/cm)				
(µmhos/cm)	100	95	95	95
Turbidity (NTU)				
Temperature (°C)	8.5	9.4	7.3	9.4
Dissolved Oxygen (mg/L)				
Salinity (%)				
Sampling Method	2^00	2^04	2^08	2^12

Remarks

Constituents Sampled	Container Description	Number	Preservative
SEE COC			

Sampling Personnel: GW/SH

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 GERAGHTY & MILLER

Water Sampling Log

Project: N. Grumman | Project No. NY000008.0270.00002 | Page 1 of ____

Site Location: Bethpage, NY | Date: 1/23/01

Site/Well No.: GM 21S | Replicate No. ____ | Code No. ____

Weather: Cloudy 30° | Sampling Time: Begin 1220 | End 1400

Evacuation Data

Measuring Point	____
MP Elevation (ft)	____
Land Surface Elevation (ft)	____
Sounded Well Depth (ft bmp)	67.0
Depth to Water (ft bmp)	39.0
Water-Level Elevation (ft)	____
Water Column in Well (ft)	28.0
Casing Diameter/Type	2" (.16)
Gallons in Well	4.48
Gallons Pumped/Bailed Prior to Sampling	13.41
Sample Pump Intake Setting (ft bmp)	____
Purge Time	begin 1234 end 1250
Pumping Rate (gpm)	Q = 1 gpm
Evacuation Method	T = 14 min IV = 5 min

Field Parameters

Field Parameters	I	1V	2V	3V
Color		Colorless		
Odor		None		
Appearance		Clear		
pH (s.u.)	8.44	8.11	7.88	7.76
Conductivity (mS/cm)				
(µmhos/cm)	60	60	60	60
Turbidity (NTU)				
Temperature (°C)	8.6	8.5	8.5	8.6
Dissolved Oxygen (mg/L)				
Time	1235	1240	1245	1250
~~Salinity (%)~~				

Sampling Method: ____

Remarks: ____

Constituents Sampled	Container Description	Number	Preservative
SOE COC			

Sampling Personnel: GW/SH

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 GERAGHTY & MILLER

Water Sampling Log

Project: N-GRUMMAN | Project No.: NY000000210002 | Page: 1 of ____

Site Location: Bethpage NY | Date: 1-23-00

Site/Well No.: GM 21I J | Replicate No.: ____ | Code No.: ____

Weather: Cloudy 30° | Sampling Time: Begin 10^45 End 12^35

Evacuation Data

Measuring Point	
MP Elevation (ft)	
Land Surface Elevation (ft)	
Sounded Well Depth (ft bmp)	140.00
Depth to Water (ft bmp)	129.00
Water-Level Elevation (ft)	
Water Column in Well (ft)	11.00
Casing Diameter/Type	4" (0.65)
Gallons in Well	7.15
Gallons Pumped/Bailed Prior to Sampling	22
~~Sample Pump Intake~~ Packer Press Setting (ft bmp)	90 PSI
Purge Time	begin 11^00 end 12^30
Pumping Rate (gpm)	
Evacuation Method	

Field Parameters

	I	1J	2J	3J
Color		clear	ISS	
Odor		None		
Appearance		Clear		
pH (s.u.)	9.33	9.36	9.25	9.17
Conductivity (mS/cm)				
(µmhos/cm)	100	80	80	80
Turbidity (NTU)				
Temperature (°C)	9.8	10.3	10.4	10.7
Dissolved Oxygen (mg/L)				

Salinity (%): ____

Sampling Method: ____

Remarks: 5 gal Pail 1111/hr DTW 41.31

Constituents Sampled		Container Description	Number	Preservative
SEE COC				

Sampling Personnel: GW/SH

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 GERAGHTY & MILLER

Water Sampling Log

Project: NY N. Gumman — Project No. NY000308.0210.00002 — Page 1 of ____

Site Location: Bethpage NY — Date: 1/24/01

Site/Well No.: GM 15I — Replicate No. ____ — Code No. ____

Weather: Clear 38° — Sampling Time: Begin 2^00 — End 3^53

Evacuation Data		Field Parameters	I	1U	2U	3U
Measuring Point		Color		Colorless		
MP Elevation (ft)		Odor		None		
Land Surface Elevation (ft)		Appearance		Clear		
Sounded Well Depth (ft bmp)	105.00	pH (s.u.)	7.75	5.74	5.42	5.33
Depth to ~~Water~~ Packer (ft bmp)	94.00	Conductivity (mS/cm)				
Water-Level Elevation (ft)		(µmhos/cm)	170	140	140	145
Water Column in Well (ft)	11.00	Turbidity (NTU)				
Casing Diameter/Type	4" (.65)	Temperature (°C)	12.6	12.3	13.1	13.3
Gallons in Well	7.15	Dissolved Oxygen (mg/L)				
Gallons Pumped/Bailed Prior to Sampling	22	Salinity (%)				
Packer Pressure ~~Sample Pump Intake~~ Setting (ft bmp)	80 PSI	Sampling Method	Dedicated Bladder			
Purge Time	begin 2^19 end 3^45	Remarks	DTW 96.65			
Pumping Rate (gpm)			5 gal 11 1/2			
Evacuation Method						

Constituents Sampled	Container Description	Number	Preservative
SEE COC			

Sampling Personnel: SH / FK

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 GERAGHTY & MILLER

Water Sampling Log

Project: Northrop/Grumman | Project No. NT[illegible].0210.0002 | Page 1 of ____

Site Location: Bethpage NY | Date: 1/24/01

Site/Well No.: GM-20I | Replicate No.: ____ | Code No.: ____

Weather: Clear 35° | Sampling Time: Begin 11:30 | End 1:30

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	
Land Surface Elevation (ft)	
Sounded Well Depth (ft bmp)	105.00
Depth to ~~Water~~ Packer (ft bmp)	94.00
Water-Level Elevation (ft)	~~11.00~~
Water Column in Well (ft)	~~[illegible]~~ 11.00
Casing Diameter/Type	4" PVC
Gallons in Well	7.15
Gallons Pumped/Bailed Prior to Sampling	22
~~Sample Pump Intake~~ Packer Setting (ft bmp)	70 PSI
Purge Time	begin 11:35 end 1:15
Pumping Rate (gpm)	
Evacuation Method	

Field Parameters

Field Parameters	I	1V	2V	3V
Color				Yellow Tint
Odor				None
Appearance				Cloudy
pH (s.u.)	10.95	10.74	10.61	10.55
Conductivity (mS/cm)	210	145	135	135
(µmhos/cm)				
Turbidity (NTU)				
Temperature (°C)	12.0	11.9	11.5	11.5
Dissolved Oxygen (mg/L)				
Salinity (%)				
Sampling Method				

Remarks: DTW 42.40'

5 GALLONS - 1111 1/2

Constituents Sampled	Container Description	Number	Preservative
SEE COC			

Sampling Personnel: SH / FR

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 GERAGHTY & MILLER

Water Sampling Log

Project: Northrop Grumman | Project No. [illegible] | Page 1 of

Site Location: Bethpage NY | Date 1/24/01

Site/Well No. GM-20D | Replicate No. | Code No.

Weather Clear 30° | Sampling Time: Begin 9:30 End 11:25

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	226'
Depth to Water (ft bmp)	[redacted] *42.25 (215')**
Water-Level Elevation (ft)	[redacted]
Water Column in Well (ft)	
Casing Diameter/Type	
Gallons in Well	
~~Gallons Pumped/Bailed~~ Prior to Sampling	22
~~Sample Pump Intake~~ Setting (ft bmp)	105 P.S.I.
Purge Time	begin 9:42 end 11:20
Pumping Rate (gpm)	
Evacuation Method	

Field Parameters

	I	IV	2V	3V
Color				Colorless
Odor				None
Appearance				Clear
pH (s.u.)	6.12	6.23	6.03	6.02
Conductivity (mS/cm)				
(µmhos/cm)	53	55	55	55
Turbidity (NTU)				
Temperature (°C)	12.3	11.6	11.1	10.6
Dissolved Oxygen (mg/L)				
Salinity (%)				

Sampling Method: Dedicated bladder pump

Remarks:
* Pre-purge water depth in well prior set below
** Depth of packer

Constituents Sampled	Container Description	Number	Preservative
SEE COC	5 x 1 Liter Poly	11111/2	

Sampling Personnel: SH/FR

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 GERAGHTY & MILLER

Water Sampling Log

Project: N. Grumman | Project No. NY000002 0210.0002 | Page 1 of

Site Location: Bethpage, NY | Date 1/25/01

Site/Well No. GM-38D | Replicate No. Rep-1 | Code No.

Weather Snowing 25° | Sampling Time: Begin 9:55 | End 11:45

Evacuation Data		Field Parameters	I	IV	20	30
Measuring Point	TOC	Color			Colorless	
MP Elevation (ft)	—	Odor			None	
Land Surface Elevation (ft)	—	Appearance			Clear	
Sounded Well Depth (ft bmp)	340.00	pH (s.u.)	6.25	5.59	5.37	5.32
Depth to ~~Water~~ Packer (ft bmp)	317.00	Conductivity (mS/cm)				
Water-Level Elevation (ft)		(µmhos/cm)	60	70	65	70
Water Column in Well (ft)	23.0	Turbidity (NTU)				
Casing Diameter/Type	4 (65)	Temperature (°C)	9.6	10.9	10.9	11.0
Gallons in Well	14.95	Dissolved Oxygen (mg/L)				
Gallons Pumped/Bailed Prior to Sampling	45.00	Salinity (%)				
Sample Pump Intake Setting (ft bmp)	145 PSI	Sampling Method	Dedicated Bladder			
Purge Time	begin 10:10 end 11:35	Remarks	DTW 40.52			
Pumping Rate (gpm)			5 Gal Pails HHT IIII			
Evacuation Method						

Constituents Sampled	Container Description	Number	Preservative
SEE COC			

Sampling Personnel: SH / FR

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 GERAGHTY & MILLER

Water Sampling Log

Project: N. Grumman | Project No. NY000008.0210.00002 | Page 1 of ____

Site Location: Bethpage, NY | Date: 1/25/01

Site/Well No.: CM-3802 | Replicate No.: MS MSD | Code No. ____

Weather: Cloudy 30° | Sampling Time: Begin 11:55 | End ____

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	495.00
Depth to Water (ft bmp)	472.00 (Bladder)
Water-Level Elevation (ft)	—
Water Column in Well (ft)	23.00
Casing Diameter/Type	4" (.65)
Gallons in Well	14.95
Gallons Pumped/Bailed Prior to Sampling	45.00
Sample Pump Intake Setting (ft bmp)	220
Purge Time	begin 12:05 end ____
Pumping Rate (gpm)	____
Evacuation Method	____

Field Parameters

Field Parameters	I	10	20	30
Color				Colorless
Odor				None
Appearance				Clear
pH (s.u.)	4.95	5.07	4.98	5.02
Conductivity (mS/cm)				
(µmhos/cm)	55	50	55	55
Turbidity (NTU)				
Temperature (°C)	12.2	11.4	11.9	12.1
Dissolved Oxygen (mg/L)				
Salinity (%)				
Sampling Method	Dedicated	Bladder		

Remarks: DTW 42.55

5 gal Pails ++++ ||||

Constituents Sampled	Container Description	Number	Preservative
SEE COC			

Sampling Personnel: SH/FR

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

+ MS MSD

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 GERAGHTY & MILLER

Water Sampling Log

Project: N. Gumman | Project No. NY000008.0210.0007 | Page 1 of

Site Location: Bethpage, NY | Date: 1/26/01

Site/Well No.: 10631 | Replicate No. | Code No.

Weather: Clear 30° | Sampling Time: Begin 12^45 | End 1^20

Evacuation Data

Measuring Point	
MP Elevation (ft)	
Land Surface Elevation (ft)	
Sounded Well Depth (ft bmp)	67.80
Depth to Water (ft bmp)	40.77
Water-Level Elevation (ft)	
Water Column in Well (ft)	27.03
Casing Diameter/Type	2" (.16)
Gallons in Well	4.4
Gallons Pumped/Bailed Prior to Sampling	13
Sample Pump Intake Setting (ft bmp)	
Purge Time	begin 12^50 end 1^10
Pumping Rate (gpm)	Q = 1 gpm
Evacuation Method	T=13 | 10 = 9 min 30 = 5 min

Field Parameters

Field Parameters	I	10	20	30	40
Color				Black Tint	
Odor				Moderate	
Appearance				Clear	
pH (s.u.)	7.42	7.35	7.00	6.89	6.87
Conductivity (mS/cm)					
(µmhos/cm)	950	700	200	145	130
Turbidity (NTU)	>200	>200	>200	32.4	18.48
Temperature (°C)	11.9	11.7	12.9	12.1	12.3
Dissolved Oxygen (mg/L)					
Salinity (%)					
~~Sampling Method~~ Time	12^50	12^54	12^58	1^03	1^07

Remarks: Non Dedicated Sub. Pump

Constituents Sampled	Container Description	Number	Preservative
5V			

Sampling Personnel: GW/SH

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 GERAGHTY & MILLER

Water Sampling Log

Project: N. Grumman | Project No. 114000008.0210.00002 | Page 1 of

Site Location: Bethpage NY | Date: 1/26/01

Site/Well No.: GM-14 | Replicate No. | Code No.

Weather: Clear 30° | Sampling Time: Begin 2:15 | End 3:15

Evacuation Data	
Measuring Point	
MP Elevation (ft)	
Land Surface Elevation (ft)	
Sounded Well Depth (ft bmp)	55.30'
Depth to Water (ft bmp)	45.95
Water-Level Elevation (ft)	
Water Column in Well (ft)	9.35
Casing Diameter/Type	4" (65)
Gallons in Well	6.07
Gallons Pumped/Bailed Prior to Sampling	18.2
Sample Pump Intake Setting (ft bmp)	
Purge Time	begin 2:46 end 3:00
Pumping Rate (gpm)	Q = 1 gpm
Evacuation Method	T = 18 V = 6 min

Field Parameters	I	10	20	30
Color				COLORLESS
Odor				NONE
Appearance				CLEAR
pH (s.u.)	6.61	6.03	5.85	5.86
Conductivity (mS/cm)				
(µmhos/cm)	120	120	125	125
Turbidity (NTU)				
Temperature (°C)	13.3	12.9	13.5	13.7
Dissolved Oxygen (mg/L)				
Salinity (%)	2.40	2.40	2.52	2.52

Sampling Method:

Remarks:

Constituents Sampled	Container Description	Number	Preservative
SPECOC			

Sampling Personnel: GW/SW

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 GERAGHTY & MILLER

Water Sampling Log

Project: NORTHROP GRUMMAN | Project No.: NY000008210.0002 | Page: 1 of ____

Site Location: BETHPAGE NY | Date: 1-26-01

Site/Well No.: MW-3R | Replicate No.: ____ | Code No.: ____

Weather: SUNNY 28° | Sampling Time: Begin 11:00 | End 12:00

Evacuation Data

Measuring Point	
MP Elevation (ft)	
Land Surface Elevation (ft)	
Sounded Well Depth (ft bmp)	55.00
Depth to Water (ft bmp)	39.11
Water-Level Elevation (ft)	
Water Column in Well (ft)	15.89
Casing Diameter/Type	2(0.16)
Gallons in Well	2.5
Gallons Pumped/Bailed Prior to Sampling	7.6
Sample Pump Intake Setting (ft bmp)	
Purge Time	begin 11:24 end 11:50
Pumping Rate (gpm)	Q = 1 GPM
Evacuation Method	T = 8 MIN 1U = 3 MIN

Field Parameters

	I	1U	2U	3U	4U	5U
Color				COLORLESS		
Odor				NONE		
Appearance				CLEAR		
pH (s.u.)	6.82	6.10	6.07	6.36	6.25	6.17
Conductivity (µmhos/cm)	75	75	75	75	75	70
Turbidity (NTU)	>200	>200	>200	139	75	61
Temperature (°C)	9.7	12.4	11.9	11.5	11.5	11.2
Dissolved Oxygen (mg/L)						
Salinity (%)	11.25	11.28	11:31	11:34	11:37	11:40

Sampling Method: NEW 2" REDI-FLO PUMP

Remarks: ____

Constituents Sampled	Container Description	Number	Preservative
6U / 7U / 8U			
pH 6.12 / 6.09 / 6.02			
TURB 48 / 39 / 3.5			
TEMP 11.2 / 11.7 / 12.3			
TIME 11.43 / 11.46 / 11:49			

Sampling Personnel: GW. / SH

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 GERAGHTY & MILLER

Water Sampling Log

Project: N. Grumman | Project No. 4[illegible].0210.0009 | Page 1 of ____

Site Location: Bethpage, NY | Date: 1/30/01

Site/Well No.: GM-155 | Replicate No. ____ | Code No. ____

Weather: Rainy, Windy, 38° | Sampling Time: Begin 1[10] End 2[00]

Evacuation Data

Measuring Point: ____

MP Elevation (ft): ____

Land Surface Elevation (ft): ____

Sounded Well Depth (ft bmp): 80

Depth to Water (ft bmp): 47.85

Water-Level Elevation (ft): ____

Water Column in Well (ft): 32.15

Casing Diameter/Type: 4" (.65)

Gallons in Well: 21

Gallons Pumped/Bailed Prior to Sampling: 63

Sample Pump Intake Setting (ft bmp): ____

Purge Time: begin 1[17] end 1[38]

Pumping Rate (gpm): Q = 3 gpm

Evacuation Method: T = 21 min 1V = 7 min

Field Parameters	I	1V	2V	3V
Color			Colorless	
Odor			None	
Appearance			Clear	
pH (s.u.)	5.05	5.05	5.06	5.05
Conductivity (mS/cm)				
(µmhos/cm)	105	80	85	85
Turbidity (NTU)				
Temperature (°C)	15	14.0	14.7	14.6
Dissolved Oxygen (mg/L)				
Time / ~~Salinity (%)~~	1[17]	1[24]	1[31]	1[38]

Sampling Method: Non Dedicated - Sub. Pump

Remarks: ____

Constituents Sampled	Container Description	Number	Preservative
SEE COC			

Sampling Personnel: GW/SH

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
t	feet	msl	mean sea-level	s.u.	Standard units
pm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
g/L	Miligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS GERAGHTY & MILLER
Low-Flow Groundwater Sampling Log

Project Number: NY000008.0210 Task: 00002 Well ID: GM-15D
Date: 1/30/01 Sampled By: GW/SH
Sampling Time: 1145- Recorded By: SH
Weather: Raining, Windy 38° Coded Replicate No.:

WELL IMFORMATION

Casing Material: PVC Purge Method: Low Flow/Bladder Pump
Casing Diameter: 4" Purge Rate: 500 mL/min
Total Depth: 342 Total Volume Purged: 7.5 gals
Depth to Water: 49.85 Pump Intake Depth: 337'
Water Column: Pump on: 155 Off:
Gallons/Foot: Parameters Sampled:
Gallons in Well:

FIELD PARAMETER MEASUREMENTS

Time	Rate (ml./min)	Gallons Purged	Turbidity (NTUs)	REDOX (mV)	pH (SI Units)	Conductivity (µmhos/cm)	Temp (°C)	Depth to Water	Diss. Oxygen	Comments
205	500			220	6.01	95	12.4	49.85	4.4	
210	↓			230	5.44	95	12.4	—	1.8	
215				240	5.59	95	12.9	49.87	1.2	
220				245	5.29	95	12.3	—	1.2	
225				250	5.13	95	12.4	49.87	1.2	
230				195	5.15	95	12.3	—	1.2	
235				180	5.10	95	12.3	49.85	1.4	
240				185	5.08	95	12.3	—	1.5	
245				190	5.01	95	12.3	49.88	1.5	
250				195	4.96	95	12.1	—	1.6	
255				195	4.99	95	12.5	49.85	1.5	
300				195	4.95	95	12.6	—	1.5	
305	↓			195	4.98	95	12.5	49.86	1.5	
		7.5 gal								

Well Secure: ✓ Purge Water Disposal: Nassau County Sewer
Color: Colorless Turbidity(qualitative): Clear
Odor: None Other (OVA, HNU,etc.):

ARCADIS GERAGHTY & MILLER
Low-Flow Groundwater Sampling Log

Project Number: NY000008.0210 Task: 00002 Well ID: GM-15D2
Date: 1/30/01 Sampled By: GW/SH
Sampling Time: 1130 - 115 Recorded By: GW/SH
Weather: Raining, 28° Coded Replicate No.:

WELL IMFORMATION

Casing Material: PVC Purge Method: Low Flow / Bladder Pump
Casing Diameter: 4" Purge Rate: 450 ml/min
Total Depth: 556 Total Volume Purged: 6.75 gal
Depth to Water: 52.12 Pump Intake Depth: 546'
Water Column: Pump on: 1155 Off: 105
Gallons/Foot: Parameters Sampled:
Gallons in Well:

FIELD PARAMETER MEASUREMENTS

Time	Rate (ml/min)	Gallons Purged	Turbidity (NTUs)	REDOX (mV)	pH (SI Units)	Conductivity (µmhos/cm)	Temp (°C)	Depth to Water	Diss. Oxygen	Comments
1155	450			45	7.20	70	12.3	52.12	6.2	
1200	↓			120	6.64	55	12.9	—	3.6	
1205				140	6.70	55	13.2	52.22	3.8	
1210				165	6.38	50	12.9	—	3.8	
1215				185	6.09	50	13.5	52.15	3.9	
1220				195	5.80	50	13.8	—	4.4	
1225				205	5.31	50	14.0	52.18	4.5	
1230				215	5.26	50	14.2	—	4.5	
1235				—	—	—	—	—	—	
1240				190	5.45	50	14.4	52.20	5.1	
1245				170	5.56	50	14.5	—	5.0	
1250				165	5.56	50	14.7	52.22	5.1	
1255				170	5.49	50	14.7	—	5.2	
100				180	5.41	50	14.8	52.20	5.3	
		6.75BAL								

Well Secure: ✓ Purge Water Disposal: Nassau County Sewer
Color: Colorless Turbidity(qualitative): Clear
Odor: Odorless Other (OVA, HNU,etc.):

ARCADIS GERAGHTY & MILLER

Water Sampling Log

Project: NORTHROP-GRUMMAN | Project No. N1000008021.0000007 | Page 1 of ____

Site Location: BETHPAGE NY | Date: 1-31-01

Site/Well No.: GM-MW5R | Replicate No.: ____ | Code No.: ____

Weather: OVERCAST 40° | Sampling Time: Begin 1:00 End 2:00

Evacuation Data		Field Parameters	I	IV	2V	3V
Measuring Point		Color				Colorless
MP Elevation (ft)		Odor				None
Land Surface Elevation (ft)		Appearance				Clear
Sounded Well Depth (ft bmp)	70.0	pH (s.u.)	5.40	5.56	5.60	5.55
Depth to Water (ft bmp)	47.46	Conductivity (mS/cm)	80	80	85	85
Water-Level Elevation (ft)		(µmhos/cm)				
Water Column in Well (ft)	22.54	Turbidity (NTU)				
Casing Diameter/Type	4" (0.65)	Temperature (°C)	12.1	12.3	12.5	12.3
Gallons in Well	14.65	Dissolved Oxygen (mg/L)				
Gallons Pumped/Bailed Prior to Sampling	43.5	Salinity (%)				
Sample Pump Intake Setting (ft bmp)		Sampling Method	Peristaltic pump			
Purge Time	begin 1:16 end 1:38	Remarks				
Pumping Rate (gpm)	2 GPM					
Evacuation Method	Q=2 T=22 V=7					

Constituents Sampled	Container Description	Number	Preservative
SVOCs			

Sampling Personnel: GW/FR

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 GERAGHTY & MILLER
Low-Flow Groundwater Sampling Log

Project Number: NY000080210 Task: 0000 Well ID: GM-17I
Date: 1-31-01 Sampled By: GW fR
Sampling Time: 3:00 Recorded By: GW fR
Weather: _____ Coded Replicate No.: _____

WELL IMFORMATION

Casing Material: _____ Purge Method: ~~500 mL/min~~ Low flow
Casing Diameter: _____ Purge Rate: 500 mL/min
Total Depth: 120 Total Volume Purged: _____
Depth to Water: 47.49 Pump Intake Depth: 115
Water Column: _____ Pump on: _____ Off: _____
Gallons/Foot: _____ Parameters Sampled: _____
Gallons in Well: _____

FIELD PARAMETER MEASUREMENTS

Time	Rate (mL/min)	Gallons Purged	Turbidity (NTUs)	REDOX (mV)	pH (SI Units)	Conductivity (µmhos/cm)	Temp (°C)	Depth to Water	Diss. Oxygen	Comments
2:10	500 mL/m			220	5.91	85	12.5	47.49	10.1	
2:15				225	6.01	85	12.8		9.7	
2:20				220	6.07	85	13.2		10.0	
2:25				210	6.12	85	13.8		10.2	
2:30				205	6.13	90	14.2		10.2	
2:35				200	6.14	90	14.3		10.2	
2:40				195	6.15	90	14.4		10.2	
2:45				195	6.15	90	14.3	47.53	10.3	
2:50				195	6.16	90	14.4		10.3	
2:55				195	6.16	90	14.4		10.3	
3:00		76L		195	6.15	90	14.4	47.51	10.3	

Well Secure: ✓ Purge Water Disposal: Nassau City Sewer
Color: COLORLESS Turbidity(qualitative): CLEAR
Odor: NONE Other (OVA, HNU,etc.): _____

ARCADIS GERAGHTY & MILLER
Low-Flow Groundwater Sampling Log

Project Number: N4000008.0210 Task: 00002 Well ID: GM-17D
Date: 1/31/01 Sampled By: GW / FR
Sampling Time: _____ Recorded By: FR
Weather: Overcast 45° Coded Replicate No.: _____

WELL IMFORMATION

Casing Material: PVC Purge Method: Low Flow / bladder pump
Casing Diameter: 4" Purge Rate: 500 ml/min
Total Depth: 298' Total Volume Purged: _____
Depth to Water: 52.23 Pump Intake Depth: 288
Water Column: 246.23' Pump on: 12:00 Off: _____
Gallons/Foot: _____ Parameters Sampled: _____
Gallons in Well: _____

FIELD PARAMETER MEASUREMENTS

Time	Rate (ml./min)	Gallons Purged	Turbidity (NTUs)	REDOX (mV)	pH (SI Units)	Conductivity (µmhos/cm)	Temp (°C)	Depth to Water	Diss. Oxygen	Comments
12:05	500ml/m			190	6.47	65	12.7	52.23	6.6	
12:10				200	5.81	65	11.9		4.6	
12:15				210	5.46	65	12.3		4.2	
12:20				215	5.36	70	12.4	52.23	5.8	
12:25				210	5.40	75	12.4		7.0	
12:30				215	5.36	75	12.2		7.0	
12:35				215	5.35	75	12.1		6.9	
12:40				220	5.33	75	12.2	52.23	7.0	
12:45				220	5.31	75	12.3		7.2	
12:50				225	5.33	75	12.3		7.1	
12:55				225	5.29	75	12.2		7.1	
1:00				225	5.30	75	12.0	52.23	7.1	
1:05				225	5.30	75	12.3		7.2	
		86A								

Well Secure: ✓ Purge Water Disposal: Nassau Cty. Sewer
Color: COLORLESS Turbidity(qualitative): CLEAR
Odor: NONE Other (OVA, HNU,etc.): _____

ARCADIS GERAGHTY & MILLER

Water Sampling Log

Project NY000008210 Grumman | Task/Project No. 0002 | Page 1 of ____

Site Location Bethpage NY | Date 2/11/01

Site/Well No. FW-09 | Replicate No. ____ | Code No. ____

Weather Overcast 35° | Sampling Time: Begin 3:00 End 3:20

Evacuation Data	
Measuring Point	
MP Elevation (ft)	
Land Surface Elevation (ft)	
Sounded Well Depth (ft bmp)	64'
Depth to Water (ft bmp)	59.72'
Water-Level Elevation (ft)	
Water Column in Well (ft)	
Casing Diameter/Type	2" PVC
Gallons in Well	0.8
Gallons Pumped/Bailed Prior to Sampling	2.5
Sample Pump Intake Setting (ft bmp)	
Purge Time	begin 3:10 end 3:14
Pumping Rate (gpm)	0.75 GPM T=3 1/2
Evacuation Method	

Field Parameters	I	1V	2V	3V
Color				brown tint
Odor				slight
Appearance				turbid
pH (s.u.)	9.36	8.90	8.76	8.61
Conductivity (mS/cm)	140	150	150	160
(µmhos/cm)				
Turbidity (NTU)				
Temperature (°C)	11.8	13.2	13.8	14.0
Dissolved Oxygen (mg/L)				
Salinity (%)				
Sampling Method	Rel. Flo			
Remarks				

Constituents Sampled	Container Description	Number	Preservative

Sampling Personnel GW, FR

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 GERAGHTY & MILLER
Low-Flow Groundwater Sampling Log

Project Number: NY000B.0210 Task: 00002 Well ID: HN-24I
Date: 2/1/01 Sampled By: GW/FR
Sampling Time: _____ Recorded By: FR
Weather: _____ Coded Replicate No.: _____

WELL IMFORMATION

Casing Material: 4" Purge Method: Low flow - Peri. Flo
Casing Diameter: PVC Purge Rate: 450 ml/min
Total Depth: 158 Total Volume Purged: _____
Depth to Water: 59.80 Pump Intake Depth: _____
Water Column: _____ Pump on: 3:45 Off: _____
Gallons/Foot: _____ Parameters Sampled: _____
Gallons in Well: _____

FIELD PARAMETER MEASUREMENTS

Time	Rate (mL/min)	Gallons Purged	Turbidity (NTUs)	REDOX (mV)	pH (SI Units)	Conductivity (µmhos/cm)	Temp (°C)	Depth to Water	Diss. Oxygen	Comments
3:40	450ml/m			140	7.73	205	11.8	59.80	4.5	
3:45				145	7.64	200	12.5		3.9	
3:50				160	7.14	195	12.2		3.9	
3:55				165	7.09	195	12.3		3.9	
4:00				175	6.83	185	13.1		3.5	
4:05				185	6.66	185	13.7	59.95	3.5	
4:10				180	6.59	185	13.7		3.4	
4:15				190	6.30	165	13.9		3.1	
4:20				190	6.29	165	14.0		3.1	
4:25				190	6.19	165	14.1		3.0	
4:30				185	6.19	165	14.1	59.95	3.0	
		6GAL								

Well Secure: _____ Purge Water Disposal: _____
Color: COLORLESS Turbidity(qualitative): CLEAR
Odor: NONE Other (OVA, HNU,etc.): _____

ARCADIS GERAGHTY & MILLER
Low-Flow Groundwater Sampling Log

Project Number: NY000080210 Task: 00002 Well ID: HN-29I
Date: 2/1/01 Sampled By: GW/FR
Sampling Time: _____ Recorded By: _____
Weather: Sunny 40° Coded Replicate No.: _____

WELL IMFORMATION

Casing Material: PVC Purge Method: Low Flow
Casing Diameter: 4" Purge Rate: 400 ml/min
Total Depth: 130 Total Volume Purged: 8 GAL
Depth to Water: 52.52 Pump Intake Depth: 125'
Water Column: _____ Pump on: _____ Off: _____
Gallons/Foot: _____ Parameters Sampled: _____
Gallons in Well: _____

FIELD PARAMETER MEASUREMENTS

Time	Rate (ml/min)	Gallons Purged	Turbidity (NTUs)	REDOX (mV)	pH (SI Units)	Conductivity (µmhos/cm)	Temp (°C)	Depth to Water	Diss. Oxygen	Comments
1:05	400 ml/m			5	11.19	235	11.1	52.52	7.8	
1:10				-15	11.25	250	11.2		6.9	
1:15				-20	11.27	255	11.8		6.8	
1:20				-25	11.26	260	11.9		6.9	
1:25				-25	11.26	275	12.3		7.1	
1:30				-25	11.25	280	12.4		7.2	
1:35				-25	11.23	290	12.7		7.2	
1:40				-25	11.23	290	12.6		7.1	
1:45				-25	11.20	285	12.9		7.1	
1:50				-25	11.18	285	13.0		7.1	
1:55				-25	11.16	280	13.1	52.72	7.1	COMMENCED SAM
2:00				-25	11.13	260	12.3	52.35	7.0	
2:05				-20	11.11	260	12.4	52.35	7.0	
		8 GAL								

Well Secure: _____ Purge Water Disposal: _____
Color: COLORLESS Turbidity(qualitative): CLEAR
Odor: NONE Other (OVA, HNU,etc.): _____

ARCADIS GERAGHTY & MILLER
Low-Flow Groundwater Sampling Log

Project Number: NY000902010 Task: 00002 Well ID: HN-29D
Date: 2/1/01 Sampled By: GW / FR
Sampling Time: Recorded By:
Weather: Overcast 40° Coded Replicate No.:

WELL IMFORMATION

Casing Material: PVC Purge Method: Low Flow Bladder pump
Casing Diameter: 4" Purge Rate: 450 ml/min
Total Depth: 220 Total Volume Purged: 7 GAL
Depth to Water: 50.96' Pump Intake Depth: 215
Water Column: Pump on: Off:
Gallons/Foot: Parameters Sampled:
Gallons in Well:

FIELD PARAMETER MEASUREMENTS

Time	Rate (ml./min)	Gallons Purged	Turbidity (NTUs)	REDOX (mV)	pH (SI Units)	Conductivity (µmhos/cm)	Temp (°C)	Depth to Water	Diss. Oxygen *	Comments
11:45	450 ml/min			170	7.42	85	9.3	50.95	12.0	
11:50				165	7.36	85	11.2		8.7	
11:55				125	8.09	70	10.1		10.5	
12:00				25	10.72	105	12.1		10.8	
12:05				25	10.76	105	11.3		10.8	
12:10				25	10.77	105	12.2		10.8	
12:15				15	10.80	115	12.1		10.8	
12:20				10	10.80	110	12.1		10.8	
12:25				5	10.81	105	12.1		10.5	
12:30				5	10.82	110	12.1	50.96	10.6	
12:35				-0	10.81	115	12.4		10.5	
12:40				-0	10.81	115	12.5		10.5	
12:45				-0	10.80	115	12.4	50.96	10.4	
	7 GAL									

Well Secure: Purge Water Disposal:
Color: COLORLESS Turbidity(qualitative): CLEAR
Odor: NONE Other (OVA, HNU,etc.):

* Possible Air bubble on D.O. probe

ARCADIS GERAGHTY & MILLER

Water Sampling Log

Project: Norstar-Glenmark | Project No. M00000802100007 | Page 1 of ____

Site Location: Bethpage NY | Date: 2-02-04

Site/Well No.: GM-18I | Replicate No. ____ | Code No. ____

Weather: Cloudy, 35° | Sampling Time: Begin 11:30 | End 1:00

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	
Land Surface Elevation (ft)	
Sounded Well Depth (ft bmp)	105.00
Depth to Water (ft bmp)	94.00
Water-Level Elevation (ft)	
Water Column in Well (ft)	11.0
Casing Diameter/Type	4 (0.65)
Gallons in Well	7.15
~~Gallons Pumped~~ Carlows Purged Prior to Sampling	22
~~Sample Pump Intake~~ Packer Pressure Setting (ft bmp)	
Purge Time	begin 11:53 end 1:00
Pumping Rate (gpm)	
Evacuation Method	

Field Parameters

Field Parameters	I	1J	2J	3J
Color				Colorless
Odor				None
Appearance				Clear
pH (s.u.)	7.56	6.98	6.51	6.59
Conductivity (mS/cm)				
(µmhos/cm)	65	65	65	65
Turbidity (NTU)				
Temperature (°C)	10.5	11.2	12.5	11.5

Dissolved Oxygen (mg/L): ____

Salinity (%): ____

~~Sampling Method~~: Dedicated Bladder Pump

Remarks: 5 gal Pails 1111 1/2

DTW @ 95.55

Constituents Sampled	Container Description	Number	Preservative
SEE COC			

Sampling Personnel: GW/SH

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 GERAGHTY & MILLER

Water Sampling Log

Project: IX Gumman | Project No. IV4000008.0210.00002 | Page 1 of 2

Site Location: Bethpage NY | Date: 2/2/01

Site/Well No.: 16SR | Replicate No. | Code No.

Weather: Cloudy 35° | Sampling Time: Begin 2:30 | End 4:00

Evacuation Data	
Measuring Point	TOC
MP Elevation (ft)	
Land Surface Elevation (ft)	
Sounded Well Depth (ft bmp)	70.00
Depth to Water (ft bmp)	50.50
Water-Level Elevation (ft)	
Water Column in Well (ft)	19.50
Casing Diameter/Type	4" (.65)
Gallons in Well	12.1
Gallons Pumped/Bailed Prior to Sampling	38
Sample Pump Intake Setting (ft bmp)	
Purge Time	begin 3:25 end 3:45
Pumping Rate (gpm)	Q = 2 gpm
Evacuation Method	T = 20 min 1V = 6 min 3V = 8 min

Field Parameters	1	1V	2V	3V
Color				colorless
Odor				None
Appearance				clear
pH (s.u.)	5.31	5.42	5.41	5.53
Conductivity (mS/cm)				
(µmhos/cm)	85	75	75	75
Turbidity (NTU)				3.26
Temperature (°C)	12.9	12.2	12.7	13.0
Dissolved Oxygen (mg/L)				
~~Salinity (%)~~ TMC	3.26	3.32	3.38	3.46
Sampling Method				
Remarks				

Constituents Sampled	Container Description	Number	Preservative
SEE COC			

Sampling Personnel: GW/SIT

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 GERAGHTY & MILLER

Water Sampling Log

Project: Northrop-Grumman — Project No. [illegible] — Page 1 of ____

Site Location: Bethpage — Date: 2-07-01

Site/Well No.: GM-16I — Replicate No. ____ — Code No. ____

Weather: Cloudy 35° — Sampling Time: Begin 2:00 — End 3:40

Evacuation Data		Field Parameters	I	1J	2J	3J
Measuring Point	TOC	Color				Colorless
MP Elevation (ft)		Odor				None
Land Surface Elevation (ft)		Appearance				Slightly Cloudy
Sounded Well Depth (ft bmp)	145.00	pH (s.u.)	7.08	7.37	6.40	6.46
Depth to Water (ft bmp)	134.00	Conductivity (mS/cm)				
Water-Level Elevation (ft)		(µmhos/cm)	190	200	205	195
Water Column in Well (ft)	11.00	Turbidity (NTU)				
Casing Diameter/Type	4 (0.65)	Temperature (°C)	12.3	12.4	12.0	12.4
Gallons in Well	7.15	Dissolved Oxygen (mg/L)		14.0		
Gallons Pumped/Bailed Prior to Sampling	22	Salinity (%)				
~~Sample Pump Intake~~ Power Pressure Setting (ft bmp)	90	Sampling Method	Dedicated Bladder Pump			
Purge Time	begin 2:30 end 3:40	Remarks	DTW SOG4			
Pumping Rate (gpm)			5 6A Pairs 1111			
Evacuation Method						

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: GW SH

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 GERAGHTY & MILLER
Low-Flow Groundwater Sampling Log

Project Number: NY000008.0210 Task: 00002 Well ID: GM - 74I
Date: 2/5/01 Sampled By: GW/SH
Sampling Time: 1020 - 1110 Recorded By: SH
Weather: Raining/Snowing 30° Coded Replicate No.:

WELL IMFORMATION

Casing Material: PVC Purge Method: Low Flow / ~~Sub~~ Bladder Pump - Sub pump not working (SH)
Casing Diameter: 4" Purge Rate: 500 ML/MIN
Total Depth: 114 Total Volume Purged: 9 gal
Depth to Water: 42.21 Pump Intake Depth: 100'
Water Column: 71.79 Pump on: 1140 Off: 1255
Gallons/Foot: 4"(.65) Parameters Sampled:
Gallons in Well: 47

FIELD PARAMETER MEASUREMENTS

Time	Rate (ml./min)	Gallons Purged	Turbidity (NTUs)	REDOX (mV)	pH (SI Units)	Conductivity (µmhos/cm)	Temp (°C)	Depth to Water	Diss. Oxygen	Comments
1150	500			100	6.86	55	5.4	42.21	11.8	
1155	↓			140	6.62	50	5.6	—	9.8	
1200				165	6.44	50	5.9	—	8.4	
1205				170	6.32	50	5.9	42.22	9.0	
1210	↓			185	6.25	50	5.6	—	9.0	
1215				185	6.15	50	5.5	—	9.0	
1220				190	6.12	50	5.5	44.25	8.8	
1225				195	6.14	50	5.8	—	8.6	
1230				195	6.08	50	6.2	—	8.8	
1235				195	6.10	50	6.3	44.25	8.7	
1240				200	6.09	50	6.2	—	8.8	
1245				200	6.06	50	6.1	—	8.7	
1250				200	6.08	50	6.2	44.27	8.7	
		9 BAL								

Well Secure: Yes Purge Water Disposal: NC Sewer
Color: Colorless Turbidity(qualitative): Clear
Odor: None Other (OVA, HNU,etc.):

ARCADIS GERAGHTY & MILLER
Low-Flow Groundwater Sampling Log

Project Number: NY000008.0210 Task: 00002 Well ID: GM-74D
Date: 2/5/01 Sampled By: GW/SH
Sampling Time: 1315 Recorded By: SH
Weather: Snowing 30° Coded Replicate No.:

WELL IMFORMATION

Casing Material: PVC Purge Method: Low Flow / Bladder Pump
Casing Diameter: 4" Purge Rate: 500 mL/min
Total Depth: 305 Total Volume Purged:
Depth to Water: 47.99 Pump Intake Depth: 300'
Water Column: Pump on: 1325 Off:
Gallons/Foot: Parameters Sampled:
Gallons in Well:

FIELD PARAMETER MEASUREMENTS

Time	Rate (ml./min)	Gallons Purged	Turbidity (NTUs)	REDOX (mV)	pH (SI Units)	Conductivity (µmhos/cm)	Temp (°C)	Depth to Water	Diss. Oxygen	Comments
1330	500			220	5.55	45	4.8	47.99	5.2	
1335	↓			240	5.28	45	6.2	—	2.8	
1340				255	4.80	30	7.1	—	1.3	
1345				220	5.08	40	7.2	47.97	3.0	
1350				190	5.17	45	7.2	—	6.4	
1355				195	5.08	45	7.6	—	7.2	
2000				200	5.01	45	7.6	47.98	5.7	
2005				205	4.96	45	7.7	—	4.6	
2010				210	4.96	45	7.7	—	5.3	
2015				215	4.92	45	7.6	47.96	6.4	
2020				215	4.93	45	7.8	—	5.3	
2025				220	4.96	45	7.8	—	6.2	
2030				220	4.96	45	7.9	47.97	6.9	
		86 RL								

Well Secure:
Color: COLORLESS
Odor: NONE
Purge Water Disposal:
Turbidity(qualitative): CLEAR
Other (OVA, HNU,etc.):

ARCADIS GERAGHTY & MILLER

Water Sampling Log

Project: N. Grumman | Project No. 114 00008.0210.00002 | Page 1 of ____

Site Location: Bethpage, NY | Date: 2/6/01

Site/Well No.: GM-32D | Replicate No. ____ | Code No. ____

Weather: Clear 40° | Sampling Time: Begin 1125 | End ____

Evacuation Data		Field Parameters	I	1U	2U	3U
Measuring Point		Color			Colorless	
MP Elevation (ft)		Odor			None	
Land Surface Elevation (ft)		Appearance			Clear	
Sounded Well Depth (ft bmp)	262	pH (s.u.)	5.20	5.25	5.26	5.22
Depth to ~~Water (ft bmp)~~ Packer	240	Conductivity (mS/cm)				
Water-Level Elevation (ft)		(µmhos/cm)	120	125	125	125
Water Column in Well (ft)	22	Turbidity (NTU)				
Casing Diameter/Type	4" (.65)	Temperature (°C)	130	12.8	12.7	13.1
Gallons in Well	14.30	Dissolved Oxygen (mg/L)				
Gallons Pumped/Bailed Prior to Sampling	45.00	Salinity (%)				
Packer Pressure ~~Sample Pump Intake Setting (ft bmp)~~	110 PSI	Sampling Method				
Purge Time	begin 1130 end ____	Remarks	5 gal pails ++++ 1111 (9)			
Pumping Rate (gpm)						
Evacuation Method						

Constituents Sampled	Container Description	Number	Preservative
SEE COC			

Sampling Personnel: SH / ER

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 GERAGHTY & MILLER

Water Sampling Log

Project: N. Grumman | Project No. NY000008 0210.0003 | Page 1 of

Site Location: Bethpage, NY | Date: 2/6/01

Site/Well No.: GM-37D2 | Replicate No. | Code No.

Weather: Clear 38° | Sampling Time: Begin 10^00 | End 1^30

Evacuation Data		Field Parameters	I	1V	2V	3V
Measuring Point	TOC	Color			Colorless	
MP Elevation (ft)		Odor			None	
Land Surface Elevation (ft)		Appearance			Clear	
Sounded Well Depth (ft bmp)	390.00	pH (s.u.)	5.08	4.78	4.78	5.28
Depth to ~~Water~~ Packer (ft bmp)	367.00	Conductivity (mS/cm)				
Water-Level Elevation (ft)		(µmhos/cm)	130	130	125	130
Water Column in Well (ft)	23.00	Turbidity (NTU)				
Casing Diameter/Type	4" (.65)	Temperature (°C)	9.2	9.8	11.2	11.8
Gallons in Well	14.95	Dissolved Oxygen (mg/L)				
Gallons Pumped/Bailed Prior to Sampling	45	Salinity (%)				
~~Sample Pump Intake Setting (ft bmp)~~ Packer Pressure	180 PSI	Sampling Method	Dedicated Bladder			
Purge Time	begin 10^20 end 1^20	Remarks	DTW 42.24			
Pumping Rate (gpm)			5 gal Pails			
Evacuation Method						

Constituents Sampled	Container Description	Number	Preservative
SEE COC			

Sampling Personnel: SH / FR

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 GERAGHTY & MILLER

Water Sampling Log

Project: NIAGARA GLUMMAN | Project No.: NY000000210.00002 | Page: 1 of ____

Site Location: BETHPAGE NY | Date: 2-07-01

Site/Well No.: GM-36D | Replicate No.: ____ | Code No.: ____

Weather: CLEAR 40 | Sampling Time: Begin 3:10 End 5:15

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	
Land Surface Elevation (ft)	
Sounded Well Depth (ft bmp)	214.00
Depth to Water (ft bmp)	202.00
Water-Level Elevation (ft)	—
Water Column in Well (ft)	12.00
Casing Diameter/Type	4 (0.65)
Gallons in Well	~~20~~ 7.80
Gallons Pumped/Bailed Prior to Sampling	24
~~Packer / Pump Intake~~ Sample Pump Intake Setting (ft bmp)	110 PSI
Purge Time	begin 3:20 end 4:50
Pumping Rate (gpm)	
Evacuation Method	DEDICATED BLADDER

Field Parameters

Field Parameters	I	10	20	30
Color				COLORLESS
Odor				NONE
Appearance				CLEAR
pH (s.u.)	6.85	6.59	6.38	6.28
Conductivity (~~mS/cm~~) (µmhos/cm)	65	60	60	60
Turbidity (NTU)				
Temperature (°C)	12.1	10.9	11.2	12.0
Dissolved Oxygen (mg/L)				
Salinity (%)				
Sampling Method				
Remarks	DTW 37.65			
	5 GAL PAILS IN			

Constituents Sampled	Container Description	Number	Preservative
SEE COC			

Sampling Personnel: GW

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 GERAGHTY & MILLER

Water Sampling Log

Project: NORTHROP GRUMMAN | Project No. NY000080210.0002 | Page 1 of ____

Site Location: BETHPAGE NY | Date: 2-07-01

Site/Well No.: GM 36D-2 | Replicate No. ____ | Code No. ____

Weather: CLEAR 45° | Sampling Time: Begin 1:30:00 | End 3:10

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	
Land Surface Elevation (ft)	
Sounded Well Depth (ft bmp)	540.00
Depth to Water (ft bmp)	518.00
Water-Level Elevation (ft)	—
Water Column in Well (ft)	22.00
Casing Diameter/Type	4. (0.65)
Gallons in Well	14.30
Gallons Pumped/Bailed Prior to Sampling	43.00
Sample Pump Intake Setting (ft bmp)	235
Purge Time	begin 1:30 end 3:05
Pumping Rate (gpm)	
Evacuation Method	DEDICATED BLADDER

Field Parameters

Field Parameters	1	1J	2J	3J
Color				COLORLESS
Odor				NONE
Appearance				CLEAR
pH (s.u.)	8.62	11.14	9.68	8.91
Conductivity ~~(mS/cm)~~ (µmhos/cm)	55	225	80	65
Turbidity (NTU)				
Temperature (°C)	12.6	9.9	10.3	10.3
Dissolved Oxygen (mg/L)				
Salinity (%)				
Sampling Method				

Remarks: DTW 39.95

5 GAL PAILS ||||

Constituents Sampled	Container Description	Number	Preservative
SEE COC			

Sampling Personnel: G.W

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 GERAGHTY & MILLER
Low-Flow Groundwater Sampling Log

Project Number: NY000008210 Task: 000002 Well ID: CM-740-2
Date: 2-08-01 Sampled By: GW
Sampling Time: _____ Recorded By: GW
Weather: _____ Coded Replicate No.: _____

WELL IMFORMATION

Casing Material: _____ Purge Method: Low flow
Casing Diameter: _____ Purge Rate: ~250ml/min
Total Depth: 562 Total Volume Purged: 4 GAL
Depth to Water: 54.72 Pump Intake Depth: 552
Water Column: _____ Pump on: _____ Off: _____
Gallons/Foot: _____ Parameters Sampled: _____
Gallons in Well: _____

FIELD PARAMETER MEASUREMENTS

Time	Rate (ml./min)	Gallons Purged	Turbidity (NTUs)	REDOX (mV)	pH (SI Units)	Conductivity (µmhos/cm)	Temp (°C)	Depth to Water	Diss. Oxygen	Comments
9:55	500ml/			200	5.95	35	6.7	54.72	9.5	
9:00				210	5.84	30	8.0		8.0	
9:05				215	5.65	30	8.4	54.68	7.8	
9:10				220	5.49	25	7.6		6.2	
9:15				225	5.41	25	7.6		6.8	
9:20				225	5.34	25	8.8	54.71	7.0	
9:25				225	5.31	25	8.8		6.8	
9:30				210	5.28	20	8.9		6.2	
9:35				195	5.24	20	8.9	54.69	7.5	
9:40				195	5.25	20	9.0		8.0	
9:45				190	5.26	20	9.1		8.0	
9:50				190	5.28	20	9.0	54.70	8.0	
9:55		8 GAL		195	5.25	20	9.1		8.1	

Well Secure: _____ Purge Water Disposal: ⊗
Color: COLORLESS Turbidity(qualitative): CLEAR
Odor: NONE Other (OVA, HNU,etc.): _____

ARCADIS GERAGHTY & MILLER
Low-Flow Groundwater Sampling Log

Project Number: NY000788210 Task: 0000002 Well ID: GM-34D
Date: 2-07-00 Sampled By: GW
Sampling Time: _____ Recorded By: GW
Weather: _____ Coded Replicate No.: _____

WELL IMFORMATION

Casing Material: _____ Purge Method: Low flow
Casing Diameter: _____ Purge Rate: _____
Total Depth: 324 Total Volume Purged: ~
Depth to Water: 17.11 Pump Intake Depth: ~ 314
Water Column: _____ Pump on: _____ Off: _____
Gallons/Foot: _____ Parameters Sampled: _____
Gallons in Well: _____

FIELD PARAMETER MEASUREMENTS

Time	Rate (ml./min)	Gallons Purged	Turbidity (NTUs)	REDOX (mV)	pH (SI Units)	Conductivity (µmhos/cm)	Temp (°C)	Depth to Water	Diss. Oxygen	Comments
3:30	~500mL/m			>-80	7.47	110	8.5	17.11	2.0	
3:35				>-80	8.12	115	10.6		1.6	
3:30				>-80	8.61	45	11.6		2.4	
3:35				>-80	9.26	110	11.7		3.8	
3:40				>-80	9.08	125	11.7		4.2	
3:45				>-80	9.06	125	11.7	17.25	4.3	
3:50				>-80	8.90	130	11.7		4.3	
3:55				>-80	7.65	125	11.8		4.10	
4:00				-60	7.21	125	11.3		4.4	
4:05				-45	7.05	125	11.4		4.0	
4:10				-35	6.93	125	11.5	17.10	3.9	
4:15				-25	6.79	120	11.5		3.7	
4:20				-15	6.66	120	11.6		4.0	
4:25				-5	6.57	120	11.4		3.8	
4:30				-0	6.53	120	11.3		3.8	
4:35				5	6.46	120	11.5	17.20	4.0	
		86L								

Well Secure: _____ Purge Water Disposal: _____
Color: COLORLESS Turbidity(qualitative): CLEAR
Odor: ~~NO~~ SLIGHT Other (OVA, HNU,etc.): _____

ARCADIS GERAGHTY & MILLER
Low-Flow Groundwater Sampling Log

Project Number: NY000008020 Task: 0802 Well ID: GM-340-2
Date: 2-08-09 Sampled By: GW ft
Sampling Time: _____ Recorded By: Gw ft
Weather: _____ Coded Replicate No.: _____

WELL IMFORMATION

Casing Material: _____ Purge Method: Low flow
Casing Diameter: _____ Purge Rate: _____
Total Depth: 525' Total Volume Purged: 86gn
Depth to Water: 18.57 Pump Intake Depth: 515'
Water Column: _____ Pump on: _____ Off: _____
Gallons/Foot: _____ Parameters Sampled: _____
Gallons in Well: _____

FIELD PARAMETER MEASUREMENTS

Time	Rate (ml./min)	Gallons Purged	Turbidity (NTUs)	REDOX (mV)	pH (SI Units)	Conductivity (µmhos/cm)	Temp (°C)	Depth to Water	Diss. Oxygen	Comments
1:45				115	6.74	40	8.10	18.57	3.5	
1:50				75	6.93	40	10.06		.8	
1:55				30	7.42	45	11.3		2.9	
2:00				20	7.70	45	11.5		2.2	
2:05				15	8.12	45	11.6	18.56	3.2	
2:10				20	8.35	45	11.8		3.2	
2:15				25	8.20	45	11.8		3.7	
2:20				-60	7.14	55	11.4		3.1	
2:25				0	6.51	65	11.9		4.3	
2:30				35	6.09	70	11.7		5.0	
2:35				70	5.93	65	11.9		5.6	
2:40				75	5.95	65	12.0		5.7	
2:45		86gn		85	5.89	60	12.1	18.57	6.0	

Well Secure: _____ Purge Water Disposal: _____
Color: BLACK FOAM Turbidity(qualitative): CLEAR
Odor: STRONG Other (OVA, HNU,etc.): _____

ARCADIS GERAGHTY & MILLER
Low-Flow Groundwater Sampling Log

Project Number: WY000080210 Task: 00002 Well ID: GM-TBD-2
Date: 2-08-01 Sampled By: GW
Sampling Time: _____ Recorded By: GW
Weather: _____ Coded Replicate No.: REP-2

WELL IMFORMATION

Casing Material: _____ Purge Method: Low flow
Casing Diameter: _____ Purge Rate: ~500ml/min
Total Depth: _____ Total Volume Purged: _____
Depth to Water: 49.39 Pump Intake Depth: ~~550~~ 542'
Water Column: _____ Pump on: _____ Off: _____
Gallons/Foot: _____ Parameters Sampled: _____
Gallons in Well: _____

FIELD PARAMETER MEASUREMENTS

Time	Rate (ml./min)	Gallons Purged	Turbidity (NTUs)	REDOX (mV)	pH (SI Units)	Conductivity (µmhos/cm)	Temp (°C)	Depth to Water	Diss. Oxygen	Comments
10:45	500ml/m			190	5.95	75	6.8	49.39	11.8	
10:50				190	6.05	75	8.3		11.4	
10:55				190	6.02	75	8.4		11.2	
11:00				195	5.95	75	7.5	48.92	9.8	
11:05				200	5.71	75	8.6		9.5	
11:10				205	5.65	75	8.5		9.3	
11:15				200	5.55	70	8.6	48.92	8.6	
11:20				190	5.50	70	8.8		8.5	
11:25				180	5.47	65	8.9		8.2	
11:30				105	5.91	75	9.2	48.90	8.4	
11:35				90	5.87	75	9.5		8.0	
11:40				90	5.84	75	9.6		8.4	
11:45				95	5.83	75	9.5	47.85	8.4	
11:50	~~11:50~~			105	5.81	75	9.5		8.5	
		7 Gal								

Well Secure: _____
Color: BROWN TO YELLOW
Odor: NONE

Purge Water Disposal: TO
Turbidity(qualitative): TURBID
Other (OVA, HNU,etc.): _____

ARCADIS GERAGHTY & MILLER

Water Sampling Log

Project: NORTHROP GRUMMAN Project No. NY000006071.0002 Page 1 of ____

Site Location: BETHPAGE NY Date: 2-09-01

Site/Well No.: HW-42S Replicate No. ____ Code No. ____

Weather: Cloudy 40° Sampling Time: Begin 2^00 End 3^00

Evacuation Data		Field Parameters	I	1U	2U	3U
Measuring Point		Color			Colorless	
MP Elevation (ft)		Odor			None	
Land Surface Elevation (ft)		Appearance			Clear	
Sounded Well Depth (ft bmp)	60.00	pH (s.u.)	7.53	6.58	6.39	6.07
Depth to Water (ft bmp)	54.80	Conductivity (mS/cm)				
Water-Level Elevation (ft)		(µmhos/cm)	140	140	140	135
Water Column in Well (ft)	5.20	Turbidity (NTU)				
Casing Diameter/Type	4 (0.65)	Temperature (°C)	13.6	14.6	14.5	14.8
Gallons in Well	3.33	Dissolved Oxygen (mg/L)				
Gallons Pumped/Bailed Prior to Sampling	10.00	Salinity (%)				
Sample Pump Intake Setting (ft bmp)		Sampling Method				
Purge Time	begin 2^39 end 2^55	Remarks	2^40	2^43	2^46	2^50
Pumping Rate (gpm)	Q = 1 gpm					
Evacuation Method	T = 10 min 1U = 3min 3U = 4min					

Constituents Sampled	Container Description	Number	Preservative
SEE COC			

Sampling Personnel: GW/SH

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 GERAGHTY & MILLER
Low-Flow Groundwater Sampling Log

Project Number: NY000008.0210 Task: 0000 2 Well ID: [redacted] HN-42I (SH)
Date: 2/9/01 Sampled By: GW/SH
Sampling Time: 1305 Recorded By: SH
Weather: Cloudy 40° Coded Replicate No.:

WELL IMFORMATION

Casing Material: PVC Purge Method: Low Flow / Sub Pump
Casing Diameter: 4" Purge Rate: 500 ML/MIN
Total Depth: 110 Total Volume Purged:
Depth to Water: 54.13 Pump Intake Depth:
Water Column: Pump on: 320 Off:
Gallons/Foot: Parameters Sampled:
Gallons in Well:

FIELD PARAMETER MEASUREMENTS

Time	Rate (ml./min)	Gallons Purged	Turbidity (NTUs)	REDOX (mV)	pH (SI Units)	Conductivity (µmhos/cm)	Temp (°C)	Depth to Water	Diss. Oxygen	Comments
320	500			-75	11.87	9.50	13.3	54.13	7.3	
325	↓			≥-80	11.90	9.50	13.6	—	7.5	
330				≥-80	11.89	900	13.9	—	7.3	
335				≥-80	11.79	800	14.8	54.32	7.2	
340				≥-80	11.74	750	14.8	—	7.0	
345	↓			≥-80	11.71	7.50	14.7	—	6.9	
350				≥-80	11.68	6.50	14.6	54.33	6.9	
355				≥-80	11.61	600	14.8	—	6.9	
400				-80	11.57	550	14.9	—	6.9	
405				-75	11.56	5.50	14.9	54.30	6.9	
410				-75	11.55	500	14.8	—	6.9	
415				-75	11.53	500	14.7	—	6.9	
420				-70	11.51	500	14.7		6.9	
		6 GAL								

Well Secure:
Color: COLORLESS
Odor: NONE
Purge Water Disposal: NC Sewer
Turbidity(qualitative): CLEAR
Other (OVA, HNU,etc.):

ARCADIS GERAGHTY & MILLER
Low-Flow Groundwater Sampling Log

Project Number: NY000082210 Task: 0002 Well ID: 52S
Date: 2-12-01 Sampled By: GWSH
Sampling Time: _____ Recorded By: GWSH
Weather: CLEAR 40° Coded Replicate No.: _____

WELL IMFORMATION

Casing Material: PVC Purge Method: Low Flow
Casing Diameter: 2" Purge Rate: 500ml/min
Total Depth: 140 Total Volume Purged: _____
Depth to Water: 58.54 Pump Intake Depth: 135
Water Column: _____ Pump on: 1500 Off: _____
Gallons/Foot: _____ Parameters Sampled: _____
Gallons in Well: _____

FIELD PARAMETER MEASUREMENTS

Time	Rate (ml./min)	Gallons Purged	Turbidity (NTUs)	REDOX (mV)	pH (SI Units)	Conductivity (µmhos/cm)	Temp (°C)	Depth to Water	Diss. Oxygen	Comments
1:50	500ml/m			175	7.07	50	9.7	58.54	7.5	
1:55				165	7.12	45	11.0		9.0	
2:00				120	7.12	55	12.4		9.5	
2:05				80	7.09	60	12.8	58.65	9.6	
2:10				55	7.04	60	12.7		8.4	
2:15				50	7.03	65	12.5		6.9	
2:20				70	6.96	70	12.3		9.5	
2:25				—	—	—	—		—	
2:30				90	6.93	65	11.9		10.5	
2:35				90	6.64	70	11.5	58.80	10.5	
2:40				95	6.89	70	11.5		10.5	
2:45				95	6.90	70	11.4		10.6	
2:50				100	6.92	70	11.3		11.0	
2:55				100	6.88	70	11.0	58.62	11.0	
		5GAL								

Well Secure: _____ Purge Water Disposal: _____
Color: COLOR 435 Turbidity(qualitative): CLEAR
Odor: — Other (OVA, HNU,etc.): _____

ARCADIS GERAGHTY & MILLER
Low-Flow Groundwater Sampling Log

Project Number: NY000008.0210 Task: 00002 Well ID: 52I
Date: 2/12/01 Sampled By: GW/SH
Sampling Time: 1320 Recorded By: SH
Weather: Clear 35°F Coded Replicate No.:

WELL IMFORMATION

Casing Material: PVC Purge Method: Low Flow / Bladder
Casing Diameter: 2" Purge Rate: ~500 ml/min
Total Depth: 235 Total Volume Purged:
Depth to Water: 58.55 Pump Intake Depth: 227
Water Column: Pump on: 1330 Off:
Gallons/Foot: Parameters Sampled:
Gallons in Well:

FIELD PARAMETER MEASUREMENTS

Time	Rate (ml./min)	Gallons Purged	Turbidity (NTUs)	REDOX (mV)	pH (SI Units)	Conductivity (µmhos/cm)	Temp (°C)	Depth to Water	Diss. Oxygen	Comments
1330	~500ml/min			60	7.03	90	8.9	58.55	5.8	
1335				25	6.82	95	9.9		3.3	
1340				95	6.09	85	12.3		3.6	
1345				145	5.69	80	12.5		3.2	
1350				170	5.69	80	12.6	58.55	7.1	
1355				175	5.69	85	12.7		7.2	
1400				185	5.67	85	12.5		7.5	
1405				190	5.66	85	12.6		7.6	
1410				195	5.66	85	12.5	58.55	7.7	
1415				195	5.62	85	12.3		7.8	
1420				195	5.62	85	12.2		8.2	
1425				200	5.65	85	12.4		7.8	
1430				195	5.64	85	12.4	58.56	7.8	
		6 GAL								

Well Secure: Purge Water Disposal:
Color: COLORLESS Turbidity(qualitative): CLEAR
Odor: NONE Other (OVA, HNU,etc.):

ARCADIS GERAGHTY & MILLER
Low-Flow Groundwater Sampling Log

Project Number: N4000080210 Task: 00002 Well ID: ~~MW~~-52D
Date: 2-12-01 Sampled By: GW FR
Sampling Time: _____ Recorded By: GW FR
Weather: CLEAR 35 Coded Replicate No.: _____

WELL IMFORMATION

Casing Material: _____ Purge Method: LOW flow
Casing Diameter: _____ Purge Rate: 500 ml/min
Total Depth: 376 Total Volume Purged: _____
Depth to Water: 60.38 Pump Intake Depth: 379
Water Column: _____ Pump on: _____ Off: _____
Gallons/Foot: _____ Parameters Sampled: _____
Gallons in Well: _____

FIELD PARAMETER MEASUREMENTS

Time	Rate (ml./min)	Gallons Purged	Turbidity (NTUs)	REDOX (mV)	pH (SI Units)	Conductivity (µmhos/cm)	Temp (°C)	Depth to Water	Diss. Oxygen	Comments
11:55	~500ml/m			65	7.92	135	7.8	60.38	5.3	
12:00				125	7.34	155	11.9		1.5	
12:05				130	7.18	150	12.5		3.0	
12:10				135	7.01	150	12.4	60.38	5.8	
12:15				170	6.47	160	12.4		7.2	
12:20				185	6.18	165	12.6		7.5	
12:25				195	5.92	165	12.6		7.8	
12:30			205	205	5.87	165	12.6		8.3	
12:35				210	5.81	165	12.6		8.2	
12:40				215	5.77	165	12.6	60.39	7.9	
12:45				220	5.76	165	12.7		8.0	
12:50				220	5.77	160	12.5		8.9	
12:55				225	5.77	160	12.6	60.39	8.5	
		6.6gl								

Well Secure: _____ Purge Water Disposal: _____
Color: COLORLESS Turbidity(qualitative): CLEAR
Odor: NONE Other (OVA, HNU,etc.): _____

ARCADIS GERAGHTY & MILLER

Water Sampling Log

Project: NORTHROP-GRUMMAN | Project No. NY000080210 0002 | Page 1 of ____

Site Location: BETHPAGE NY | Date: 2-13-01

Site/Well No.: MW 40S | Replicate No. ____ | Code No. ____

Weather: CLEAR 40° | Sampling Time: Begin 2:45 | End 3:30

Evacuation Data		Field Parameters	I	1J	2J	3J
Measuring Point	____	Color				COLORLESS
MP Elevation (ft)	____	Odor				NONE
Land Surface Elevation (ft)	____	Appearance				CLEAR
Sounded Well Depth (ft bmp)	58.00	pH (s.u.)	7.35	6.85	5.99	5.73
Depth to Water (ft bmp)	52.68	Conductivity (mS/cm)				
Water-Level Elevation (ft)	____	(µmhos/cm)	85	85	85	85
Water Column in Well (ft)	5.32	Turbidity (NTU)				
Casing Diameter/Type	4" (0.66)	Temperature (°C)	16°	15.3	16.1	16.3
Gallons in Well	3.45	Dissolved Oxygen (mg/L)	____			
Gallons Pumped/Bailed Prior to Sampling	10.37	Salinity (%)	____			
Sample Pump Intake Setting (ft bmp)	____	Sampling Method	____			
Purge Time	begin 3:12 end 3:23	Remarks	____			
Pumping Rate (gpm)	1 GPM 1U-3 MW					
Evacuation Method	2" Redi-Flo2					

I = 3:12
1U: 3:15
2U 3:18
3U = 3:22

Constituents Sampled	Container Description	Number	Preservative
SEE COC			

Sampling Personnel: GW FR

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 GERAGHTY & MILLER
Low-Flow Groundwater Sampling Log

Project Number: NY000080210 Task: 00002 Well ID: HW-40S
Date: 2-13-01 Sampled By: GW FR
Sampling Time: _____ Recorded By: GW FR
Weather: CLEAR 40° Coded Replicate No.: _____

WELL IMFORMATION

Casing Material: _____ Purge Method: LOW FLOW
Casing Diameter: _____ Purge Rate: 500 ml/min.
Total Depth: 118 Total Volume Purged: 5 GAL
Depth to Water: _____ Pump Intake Depth: 113
Water Column: _____ Pump on: _____ Off: _____
Gallons/Foot: _____ Parameters Sampled: _____
Gallons in Well: _____

FIELD PARAMETER MEASUREMENTS

Time	Rate (ml./min)	Gallons Purged	Turbidity (NTUs)	REDOX (mV)	pH (SI Units)	Conductivity (µmhos/cm)	Temp (°C)	Depth to Water	Diss. Oxygen	Comments
3:45	500 ml/m			127	6.98	155	13.4	52.12	7.7	
3:50				110	6.95	165	14.2		6.8	
3:55				110	6.95	170	14.2		6.8	
4:00				110	6.95	170	14.6		6.6	
4:05				110	6.90	170	14.5	52.35	6.5	
4:10				110	6.87	170	14.5		6.4	
4:15				110	6.82	165	14.3		6.4	
4:20				110	6.80	165	14.2		6.4	
4:25				115	6.77	165	14.0	52.32	5.9	
4:30				115	6.76	160	13.6		5.9	
4:35				115	6.73	155	13.3		5.8	
4:40				120	6.71	155	13.1		5.7	
4:45		5 GAL		120	6.70	155	13.2	52.32	5.8	

Well Secure: _____ Purge Water Disposal: _____
Color: COLORLESS Turbidity(qualitative): CLEAR
Odor: NONE Other (OVA, HNU,etc.): _____

ARCADIS GERAGHTY & MILLER
Low-Flow Groundwater Sampling Log

Project Number: NY000008071.0 Task: 0002 Well ID: N-1062T
Date: 2-13-01 Sampled By: GW
Sampling Time: _____ Recorded By: GW
Weather: _____ Coded Replicate No.: _____

WELL IMFORMATION

Casing Material: STEEL Purge Method: LOW FLOW
Casing Diameter: 4" Purge Rate: _____
Total Depth: _____ Total Volume Purged: _____
Depth to Water: 35.22 Pump Intake Depth: 290'
Water Column: _____ Pump on: _____ Off: _____
Gallons/Foot: _____ Parameters Sampled: _____
Gallons in Well: _____

FIELD PARAMETER MEASUREMENTS

Time	Rate (ml./min)	Gallons Purged	Turbidity (NTUs)	REDOX (mV)	pH (SI Units)	Conductivity (µmhos/cm)	Temp (°C)	Depth to Water	Diss. Oxygen	Comments
12:15	~500ml/min			15	7.41	15	12.8	35.22	—	
12:20				-45	7.52	15	13.8		5.0	
12:25				-80	7.80	15	13.7		3.3	
12:30				-80	8.08	15	13.4		2.5	
12:35				-65	8.14	15	13.4	36.72	1.7	
12:40				-50	8.10	15	13.4			
12:45				—	—		—	—	—	
12:50				-35	8.00	15	13.5	36.69	1.2	
12:55				-35	8.07	15	13.3		1.3	
1:00				-40	8.05	20	13.5		1.2	
1:05				-45	8.08	20	13.5		1.2	
1:10		CHANGE		-50	8.13	20	13.5	36.72	1.0	
1:15				-40	8.15	20	13.4		1.0	
		6GAL								

Well Secure: _____ Purge Water Disposal: _____
Color: COLORLESS Turbidity(qualitative): CLEAR
Odor: SLIGHT Other (OVA, HNU,etc.): _____

ARCADIS GERAGHTY & MILLER
Low-Flow Groundwater Sampling Log

Project Number: 1N4000008.0210 Task: 00002 Well ID: GM-79I
Date: 2/14/01 Sampled By: GW/SH
Sampling Time: 100 Recorded By: GW/SH
Weather: Cloudy 30° Coded Replicate No.:

WELL IMFORMATION

Casing Material: PVC Purge Method: Low Flow / Sub. Pump
Casing Diameter: 4" Purge Rate: 400 ML/Min
Total Depth: 180 Total Volume Purged:
Depth to Water: 43.09 Pump Intake Depth: 175
Water Column: Pump on: 105 Off:
Gallons/Foot: Parameters Sampled:
Gallons in Well:

FIELD PARAMETER MEASUREMENTS

Time	Rate (ml./min)	Gallons Purged	Turbidity (NTUs)	REDOX (mV)	pH (SI Units)	Conductivity (µmhos/cm)	Temp (°C)	Depth to Water	Diss. Oxygen	Comments
105				135	6.47	130	13.8	43.09	2.1	
110				135	6.46	125	13.8		2.5	
115				140	6.45	120	13.4		2.5	
120				145	6.43	120	12.7		2.2	
125				150	6.33	160	12.7	43.16	1.9	
130				150	6.32	160	12.9		1.7	
135				150	6.30	155	13.2		1.7	
140				155	6.21	150	13.9		1.4	
145				160	6.16	150	14.3	43.29	1.4	
150				160	6.13	145	14.3		1.4	
155				165	6.10	140	14.5		1.3	
200				170	6.06	140	14.7		1.2	
205				175	6.04	135	14.7	43.25	1.1	

Well Secure: Yes
Color: Brown TINT
Odor: None

Purge Water Disposal:
Turbidity(qualitative): High > 200
Other (OVA, HNU,etc.):

ARCADIS GERAGHTY & MILLER
Low-Flow Groundwater Sampling Log

6M -

Project Number: NY000008.0210 Task: 6000 2 Well ID: 79D
Date: 2/14/01 Sampled By: GW/SH
Sampling Time: _____ Recorded By: GW/SH
Weather: Cloudy 35° Coded Replicate No.: _____

WELL IMFORMATION

Casing Material: PVC Purge Method: Low Flow / Bladder
Casing Diameter: 4" Purge Rate: 500 ML/MIN
Total Depth: 290 Total Volume Purged: 7.5 Gals
Depth to Water: _____ Pump Intake Depth: 285
Water Column: _____ Pump on: 1155 Off: _____
Gallons/Foot: _____ Parameters Sampled: _____
Gallons in Well: _____

FIELD PARAMETER MEASUREMENTS

Time	Rate (ml./min)	Gallons Purged	Turbidity (NTUs)	REDOX (mV)	pH (SI Units)	Conductivity (µmhos/cm)	Temp (°C)	Depth to Water	Diss. Oxygen	Comments
1155	500			165	6.35	100	11.9	44.02	4.6	
1200	↓			180	6.29	160	13.5		2.3	
1205				185	6.20	100	14.2		1.1	
1210				175	6.17	95	13.9		2.3	
1215				165	6.17	90	13.6	44.22	2.9	
1220				155	6.15	90	13.6		2.7	
1225				155	6.11	90	13.8		2.5	
1230				150	6.11	90	13.7		2.8	
1235				150	6.14	90	13.7	44.20	2.7	
1240				150	6.11	90	13.6		2.8	
1245				150	6.12	90	13.7		3.0	
1250				145	6.08	90	13.6		3.5	
1255		7.5GA		150	6.09	90	13.6	44.19	3.5	

Well Secure: Yes Purge Water Disposal: NC Sewer
Color: Brown Tint Turbidity(qualitative): High >200
Odor: None Other (OVA, HNU,etc.): _____

ARCADIS GERAGHTY & MILLER
Low-Flow Groundwater Sampling Log

Project Number: NY000008.0210 Task: 0002 Well ID: GM-18D
Date: 2/14/01 Sampled By: GW/SH
Sampling Time: 3:15 Recorded By: GW/SH
Weather: Cloudy 30° Coded Replicate No.:

WELL IMFORMATION

Casing Material: PVC Purge Method: Low Flow / Bladder Pump
Casing Diameter: 4" Purge Rate: 500 ml/min
Total Depth: 300 Total Volume Purged: 7.5 gal
Depth to Water: 48.30 Pump Intake Depth: 295
Water Column: Pump on: 340 Off:
Gallons/Foot: Parameters Sampled:
Gallons in Well:

FIELD PARAMETER MEASUREMENTS

Time	Rate (ml/min)	Gallons Purged	Turbidity (NTUs)	REDOX (mV)	pH (SI Units)	Conductivity (µmhos/cm)	Temp (°C)	Depth to Water	Diss. Oxygen	Comments
345	500			145	7.75	105	10.0	48.30	6.5	
350	↓			135	7.44	100	11.7		6.7	
355				140	7.30	95	11.8		8.3	
400				155	6.91	70	12.3		8.6	
405				175	6.43	65	12.3	48.30	9.8	
410	↓			185	6.24	60	12.2		10.7	
415				195	6.22	55	12.2		11.2	
420				195	6.27	55	12.3		11.4	
425				195	6.27	55	12.5	48.33	11.5	
430				195	6.23	55	12.7		11.4	
435				195	6.24	55	12.6		11.5	
440				195	6.24	50	12.6		11.4	
445		7.5 GAL		195	6.25	55	12.6	48.32	11.3	

Well Secure: Yes Purge Water Disposal: NC Sewer
Color: COLORLESS Turbidity(qualitative): CLEAR
Odor: NONE Other (OVA, HNU,etc.):

ARCADIS GERAGHTY & MILLER
Low-Flow Groundwater Sampling Log

Project Number: NY000008.0210 Task: 00002 Well ID: GM 13D
Date: 2/15/01 Sampled By: GW/SH
Sampling Time: 1200 Recorded By: GW/SH
Weather: Cloudy 30° Coded Replicate No.: MS/MSD

WELL IMFORMATION

Casing Material: PVC Purge Method: Dedicated Bladder Pump
Casing Diameter: 4" Purge Rate: 500 ML/MIN
Total Depth: 210.00 Total Volume Purged: 8 Gals
Depth to Water: 49.81 ~~Pump Intake Depth~~: Depth to Packer 199'
Water Column: Pump on: 215 Off:
Gallons/Foot: Parameters Sampled:
Gallons in Well:

FIELD PARAMETER MEASUREMENTS

Time	Rate (ml./min)	Gallons Purged	Turbidity (NTUs)	REDOX (mV)	pH (SI Units)	Conductivity (µmhos/cm)	Temp (°C)	Depth to Water	Diss. Oxygen	Comments
215				195	6.60	160	12.2	49.81	1.6	
220				195	6.64	160	12.1		1.4	
225				195	6.61	160	12.2		1.5	
230				—	—	—	—	—	—	
235				210	6.05	160	11.9	49.76	1.9	
240				215	5.38	160	13.4		.5	
245				215	5.92	160	13.2		.4	
250				215	5.94	160	13.2		.4	
255				215	5.67	160	13.3	49.74	.5	
300				215	5.40	160	13.3		.5	
305				215	5.41	160	13.2		.5	
310				220	5.40	160	13.4		.5	
315				220	5.39	160	13.5	49.75	.5	

Well Secure: Yes Purge Water Disposal: NC Sewer
Color: Colorless Turbidity(qualitative):
Odor: Mild Other (OVA, HNU,etc.):

ARCADIS GERAGHTY & MILLER

Water Sampling Log

Project NORTHROP GRUMMAN Project No. NJ000080210.0002 Page 1 of ____

Site Location BETHPAGE NY Date 2-15-01

Site/Well No. GM-73S Replicate No. ____ Code No. ____

Weather ____ Sampling Time: Begin 11:00 End ~~12:00~~ 12:20

Evacuation Data	
Measuring Point	
MP Elevation (ft)	
Land Surface Elevation (ft)	
Sounded Well Depth (ft bmp)	55.65
Depth to Water (ft bmp)	53.52
Water-Level Elevation (ft)	
Water Column in Well (ft)	2.13
Casing Diameter/Type	4 (0.65)
Gallons in Well	1.38
Gallons Pumped/Bailed Prior to Sampling	4.15
Sample Pump Intake Setting (ft bmp)	
Purge Time	begin 1:30 end 12:45
Pumping Rate (gpm)	
Evacuation Method	DISPOSABLE BAILER

Field Parameters	I	1J	2J	3J
Color				COLORLESS
Odor				NONE
Appearance				~~CLEAR~~ SLIGHTLY CLOUDY
pH (s.u.)	6.36	6.17	6.03	5.89
Conductivity (mS/cm)				
(µmhos/cm)	150	160	160	160
Turbidity (NTU)				
Temperature (°C)	12.9	13.7	12.9	12.8
Dissolved Oxygen (mg/L)				
Salinity (%)				

Sampling Method DISPOSABLE BAILER

Remarks ____

Constituents Sampled	Container Description	Number	Preservative
SEE COC			

Sampling Personnel G.W. S.H.

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 GERAGHTY & MILLER

Water Sampling Log

Project: N. Gramman | Project No. N4000008.0210.00002 | Page 1 of

Site Location: Bethpage NY | Date: 2/15/01

Site/Well No.: GM 23I | Replicate No. | Code No.

Weather: Cloudy 35° | Sampling Time: Begin 11⁰⁰ End 1:00

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	
Land Surface Elevation (ft)	
Sounded Well Depth (ft bmp)	120
Depth to ~~Water~~ Packer (ft bmp)	109
Water-Level Elevation (ft)	
Water Column in Well (ft)	11
Casing Diameter/Type	4" (.65)
Gallons in Well	7.15
Gallons Pumped/Bailed Prior to Sampling	22
~~Sample Pump Intake~~ Packer Pressure Setting (ft bmp)	70 PSI
Purge Time	begin 11:30 end 12:45
Pumping Rate (gpm)	
Evacuation Method	Dedicated Bladder

Field Parameters

	I	1V	2V	3V
Color				COLORLESS
Odor				NONE
Appearance				CLEAR
pH (s.u.)	7.69	7.40	5.99	6.23
Conductivity (mS/cm)				
(µmhos/cm)	115	110	105	110
Turbidity (NTU)				
Temperature (°C)	10.3	12.3	12.6	13.0
Dissolved Oxygen (mg/L)				
Salinity (%)				
Sampling Method				

Remarks: D+W 53.17

5 GAL PAILS ||||

Constituents Sampled	Container Description	Number	Preservative
SEE COC			

Sampling Personnel: GW/SH

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 GERAGHTY & MILLER
Low-Flow Groundwater Sampling Log

Project Number: NY000008.0210.00007 Task: 00002 Well ID: GM-33DZ
Date: 2/15/01 Sampled By: GW/SH
Sampling Time: 3 55 – 5 15 Recorded By: GW/SH
Weather: Cloudy 30° Coded Replicate No.: REP 3

WELL IMFORMATION

Casing Material: PVC Purge Method: Low Flow/ Dedicated Bladder
Casing Diameter: 4" Purge Rate: 500 mL/min
Total Depth: Total Volume Purged:
Depth to Water: 52.35 Pump Intake Depth:
Water Column: Pump on: 400 Off:
Gallons/Foot: Parameters Sampled:
Gallons in Well:

FIELD PARAMETER MEASUREMENTS

Time	Rate (mL/min)	Gallons Purged	Turbidity (NTUs)	REDOX (mV)	pH (SI Units)	Conductivity (µmhos/cm)	Temp (°C)	Depth to Water	Diss. Oxygen	Comments
400	500mL/m			220	6.13	60	13.5	52.35	5.7	
405				220	5.98	65	14.4		5.8	
410				230	5.83	65	14.3		5.1	
415				230	5.84	65	14.3		5.4	
420				230	5.82	65	14.9	52.35	5.5	
425				230	5.81	65	15.0		5.8	
430				230	5.81	65	15.0		6.1	
435				230	5.46	65	15.1		6.5	
440				235	5.20	70	15.2	52.39	6.6	
445				235	5.24	70	15.3		6.6	
450				230	5.30	70	15.2		6.6	
455				230	5.35	70	15.2		6.4	
500				230	5.38	70	15.2	52.40	6.4	
		8GAL								

Well Secure: Yes Purge Water Disposal: NC Sewer
Color: COLORLESS Turbidity(qualitative): CLEAR
Odor: SLIGHT Other (OVA, HNU,etc.):

ARCADIS GERAGHTY & MILLER

Water Sampling Log

Project: NORTHROP-LOCUMA Project No. MY000028.0002 Page 1 of ____

Site Location: BINGHAMTON NY Date: 2-19-01

Site/Well No.: CM-35-D2 Replicate No. ____ Code No. ____

Weather: CLEAR 20° Sampling Time: Begin 10:00 End 12:15

Evacuation Data

Measuring Point	
MP Elevation (ft)	
Land Surface Elevation (ft)	
Sounded Well Depth (ft bmp)	530.00
Depth to Water (ft bmp)	507.00
Water-Level Elevation (ft)	
Water Column in Well (ft)	23.00
Casing Diameter/Type	4 (0.65)
Gallons in Well	1495
Gallons Pumped/Bailed Prior to Sampling	4500
~~Sample Pump Intake~~ Setting (ft bmp)	225 PSI
Purge Time	begin 10:40 end 12:05
Pumping Rate (gpm)	
Evacuation Method	

Field Parameters

	I	1V	2V	3J
Color				COLORLESS
Odor				NONE
Appearance				CLEAR
pH (s.u.)	7.74	6.90	5.97	6.02
Conductivity (~~mS/cm~~)				
(µmhos/cm)	65	50	70	65
Turbidity (NTU)				
Temperature (°C)	9.8	13.3	13.0	13.0
Dissolved Oxygen (mg/L)				
Salinity (%)				

Sampling Method: DEDICATED BLADDER PUMP

Remarks: OTW-4172

5 GAL PAILS IN ||||

Constituents Sampled	Container Description	Number	Preservative
SEE COC			

Sampling Personnel: E. WILLIAMS

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 GERAGHTY & MILLER

Water Sampling Log

Project: NORTHROP-GRUMMAN Project No. W9000080210.0000 Page 1 of ____

Site Location: BETHPAGE NY Date: 7-19-01

Site/Well No.: GM-700-2 Replicate No. ____ Code No. ____

Weather: ____ Sampling Time: Begin 3:00 End 4:40

Evacuation Data	
Measuring Point	
MP Elevation (ft)	
Land Surface Elevation (ft)	
Sounded Well Depth (ft bmp)	330.00
Depth to Water (ft bmp)	309.00
Water-Level Elevation (ft)	
Water Column in Well (ft)	22.00
Casing Diameter/Type	4 (0.65)
Gallons in Well	14.30
Gallons Pumped/Bailed Prior to Sampling	~~43.00~~
Sample Pump Intake Setting (ft bmp)	150 PSI
Purge Time	begin 3:05 end 4:30
Pumping Rate (gpm)	
Evacuation Method	

Field Parameters	5	10	20	35	
Color					COLORLESS
Odor					NONE
Appearance					CLEAR
pH (s.u.)	7.94	6.46	6.33	6.30	
Conductivity (µmhos/cm)	75	75	75	70	
Turbidity (NTU)					
Temperature (°C)	15	15.4	15.4	14.8	
Dissolved Oxygen (mg/L)					
Salinity (%)					

Sampling Method: ____

Remarks: DTW 43.61

5 GAL PAILS

Constituents Sampled	Container Description	Number	Preservative
SEE COC			

Sampling Personnel: G. WOLDORF

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 GERAGHTY & MILLER

Water Sampling Log

Project NORTHROP-GRUMMAN Project No. NY000080210.0002 Page 1 of ____

Site Location BETHPAGE NY Date 2-19-01

Site/Well No. GM-7102 Replicate No. ____ Code No. ____

Weather CLEAR 35° Sampling Time: Begin 12:45 End 2:30

Evacuation Data

Measuring Point	
MP Elevation (ft)	
Land Surface Elevation (ft)	
Sounded Well Depth (ft bmp)	464.00
Depth to Water (ft bmp)	~~443.86~~ 442.00
Water-Level Elevation (ft)	
Water Column in Well (ft)	22.0
Casing Diameter/Type	4 (0.65)
Gallons in Well	14.30
Gallons Pumped/Bailed Prior to Sampling	43.0
~~Sample Pump~~ Packer Pressure Intake Setting (ft bmp)	230 PSI
Purge Time	begin 12:50 end ~~1230~~ 2:05
Pumping Rate (gpm)	
Evacuation Method	

Field Parameters

	I	1J	2J	3J
Color				COLORLESS
Odor				NONE
Appearance				CLEAR
pH (s.u.)	8.12	7.67	6.10	6.12
Conductivity ~~(mS/cm)~~ (µmhos/cm)	60	65	65	65
Turbidity (NTU)				
Temperature (°C)	16.6	11.5	12.5	12.4
Dissolved Oxygen (mg/L)				
Salinity (%)				
Sampling Method				
Remarks	DTW 43.89			
	56 AL PAILS IN. IIII			

Constituents Sampled	Container Description	Number	Preservative
SEE COC			

Sampling Personnel G. WILLIAMS

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: Grumman | Project No.: NY000321.0001.00002 | Page: 1 of ____

Site Location: Bethpage NY | Date: 2/20/01

Site/Well No.: GP 1/3 Effluent | Replicate No.: ____ | Code No.: ____

Weather: ____ | Sampling Time: Begin ____ End ____

Evacuation Data

Measuring Point	
MP Elevation (ft)	
Land Surface Elevation (ft)	
Sounded Well Depth (ft bmp)	
Depth to Water (ft bmp)	
Water-Level Elevation (ft)	
Water Column in Well (ft)	
Casing Diameter/Type	
Gallons in Well	
Gallons Pumped/Bailed Prior to Sampling	
Sample Pump Intake Setting (ft bmp)	
Purge Time	begin ____ end ____
Pumping Rate (gpm)	
Evacuation Method	

Field Parameters

Color	
Odor	
Appearance	
pH (s.u.)	
Conductivity (mS/cm)	
(µmhos/cm)	
Turbidity (NTU)	
Temperature (°C)	
Dissolved Oxygen (mg/L)	
Salinity (%)	
Sampling Method	GRAB
Remarks	

Constituents Sampled	Container Description	Number	Preservative
VOCs			

Sampling Personnel: CW - FR

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 GERAGHTY & MILLER

Water Sampling Log

Project: Northrop Grumman | Project No.: NY001321.0001.00002 | Page: 1 of ____

Site Location: Bethpage NY | Date: 2/20/01

Site/Well No.: GP 1/3 Inf-ent | Replicate No.: * 2X | Code No.: ____

Weather: ____ | Sampling Time: Begin ____ End ____

Evacuation Data

Measuring Point	
MP Elevation (ft)	
Land Surface Elevation (ft)	
Sounded Well Depth (ft bmp)	
Depth to Water (ft bmp)	
Water-Level Elevation (ft)	
Water Column in Well (ft)	
Casing Diameter/Type	
Gallons in Well	
Gallons Pumped/Bailed Prior to Sampling	
Sample Pump Intake Setting (ft bmp)	
Purge Time	begin ____ end ____
Pumping Rate (gpm)	
Evacuation Method	

Field Parameters

Color	
Odor	
Appearance	
pH (s.u.)	
Conductivity (mS/cm)	
(µmhos/cm)	
Turbidity (NTU)	
Temperature (°C)	
Dissolved Oxygen (mg/L)	
Salinity (%)	
Sampling Method	Grab
Remarks	* 3 sets of samples collected Noted for lab to use as MS/MSD

Constituents Sampled	Container Description	Number	Preservative
VOC's			

Sampling Personnel: GW-FR

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 GERAGHTY & MILLER

Water Sampling Log

Project: Northrop Grumman — Project No.: N7003321.0001.00002 — Page 1 of ____

Site Location: Bethpage NY — Date: 2/20/01

Site/Well No.: QWET - Effluent — Replicate No.: ____ — Code No.: ____

Weather: ____ — Sampling Time: Begin ____ End ____

Evacuation Data		Field Parameters	
Measuring Point		Color	
MP Elevation (ft)		Odor	
Land Surface Elevation (ft)		Appearance	
Sounded Well Depth (ft bmp)		pH (s.u.)	
Depth to Water (ft bmp)		Conductivity (mS/cm)	
Water-Level Elevation (ft)		(µmhos/cm)	
Water Column in Well (ft)		Turbidity (NTU)	
Casing Diameter/Type		Temperature (°C)	
Gallons in Well		Dissolved Oxygen (mg/L)	
Gallons Pumped/Bailed Prior to Sampling		Salinity (%)	
Sample Pump Intake Setting (ft bmp)		Sampling Method	Grab
Purge Time	begin ____ end ____	Remarks	
Pumping Rate (gpm)			
Evacuation Method			

Constituents Sampled	Container Description	Number	Preservative
VOC's			

Sampling Personnel: GW FR

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 GERAGHTY & MILLER

Water Sampling Log

Project: Northrop - Grumman | Project No.: NY001821.0001.0002 | Page: 1 of ____

Site Location: Bethpage NY | Date: 2/20/01

Site/Well No.: ONCT - Influent | Replicate No.: * 1 | Code No.: ____

Weather: ____ | Sampling Time: Begin ____ End ____

Evacuation Data

Measuring Point	
MP Elevation (ft)	
Land Surface Elevation (ft)	
Sounded Well Depth (ft bmp)	
Depth to Water (ft bmp)	
Water-Level Elevation (ft)	
Water Column in Well (ft)	
Casing Diameter/Type	
Gallons in Well	
Gallons Pumped/Bailed Prior to Sampling	
Sample Pump Intake Setting (ft bmp)	
Purge Time	begin ____ end ____
Pumping Rate (gpm)	
Evacuation Method	

Field Parameters

Color	
Odor	
Appearance	
pH (s.u.)	
Conductivity (mS/cm)	
(µmhos/cm)	
Turbidity (NTU)	
Temperature (°C)	
Dissolved Oxygen (mg/L)	
Salinity (%)	
Sampling Method	Grab
Remarks	* Sample Replicated and Labeled as Rep-1

Constituents Sampled	Container Description	Number	Preservative
VOCs			

Sampling Personnel: GW PC

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 GERAGHTY & MILLER

Water Sampling Log

Project: Northrop Grumman — Project No. NY001321.0001.00002 — Page 1 of ____

Site Location: Bethpage NY — Date: 2/20/01

Site/Well No.: GP-3 — Replicate No. ____ — Code No. ____

Weather: ____ — Sampling Time: Begin ____ End ____

Evacuation Data		Field Parameters	
Measuring Point		Color	
MP Elevation (ft)		Odor	
Land Surface Elevation (ft)		Appearance	
Sounded Well Depth (ft bmp)		pH (s.u.)	
Depth to Water (ft bmp)		Conductivity (mS/cm)	
		(µmhos/cm)	
Water-Level Elevation (ft)		Turbidity (NTU)	
Water Column in Well (ft)		Temperature (°C)	
Casing Diameter/Type		Dissolved Oxygen (mg/L)	
Gallons in Well		Salinity (%)	
Gallons Pumped/Bailed Prior to Sampling		Sampling Method	GRAB
Sample Pump Intake Setting (ft bmp)		Remarks	
Purge Time	begin ____ end ____		
Pumping Rate (gpm)			
Evacuation Method			

Constituents Sampled	Container Description	Number	Preservative
VOC's			

Sampling Personnel: GW - FR

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 GERAGHTY & MILLER

Water Sampling Log

Project: Northrop Grumman — Project No.: 60021821.0001.00002 — Page: 1 of ____

Site Location: Bethpage NY — Date: 2/20/01

Site/Well No.: CP-1 — Replicate No.: ____ — Code No.: ____

Weather: ____ — Sampling Time: Begin ____ End ____

Evacuation Data

Measuring Point	
MP Elevation (ft)	
Land Surface Elevation (ft)	
Sounded Well Depth (ft bmp)	
Depth to Water (ft bmp)	
Water-Level Elevation (ft)	
Water Column in Well (ft)	
Casing Diameter/Type	
Gallons in Well	
Gallons Pumped/Bailed Prior to Sampling	
Sample Pump Intake Setting (ft bmp)	
Purge Time	begin ____ end ____
Pumping Rate (gpm)	
Evacuation Method	

Field Parameters

Color	
Odor	
Appearance	
pH (s.u.)	
Conductivity (mS/cm)	
(µmhos/cm)	
Turbidity (NTU)	
Temperature (°C)	
Dissolved Oxygen (mg/L)	
Salinity (%)	
Sampling Method	Grab
Remarks	

Constituents Sampled	Container Description	Number	Preservative
VOCs			

Sampling Personnel: GW - FR

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 GERAGHTY & MILLER

Water Sampling Log

Project: Northrop-Grumman | Project No.: N400132.0001.00002 | Page: 1 of ____

Site Location: Bethpage NY | Date: 2/20/01

Site/Well No.: ONCT-3 | Replicate No.: ____ | Code No.: ____

Weather: ____ | Sampling Time: Begin ____ End ____

Evacuation Data

Measuring Point: ____

MP Elevation (ft): ____

Land Surface Elevation (ft): ____

Sounded Well Depth (ft bmp): ____

Depth to Water (ft bmp): ____

Water-Level Elevation (ft): ____

Water Column in Well (ft): ____

Casing Diameter/Type: ____

Gallons in Well: ____

Gallons Pumped/Bailed Prior to Sampling: ____

Sample Pump Intake Setting (ft bmp): ____

Purge Time: begin ____ end ____

Pumping Rate (gpm): ____

Evacuation Method: ____

Field Parameters

Color: ____

Odor: ____

Appearance: ____

pH (s.u.): ____

Conductivity (mS/cm): ____

(µmhos/cm): ____

Turbidity (NTU): ____

Temperature (°C): ____

Dissolved Oxygen (mg/L): ____

Salinity (%): ____

Sampling Method: Grab

Remarks: ____

Constituents Sampled	Container Description	Number	Preservative
VOCs			

Sampling Personnel: GN FR

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 GERAGHTY & MILLER

Water Sampling Log

Project: Northrop Grumman Project No.: NY001321.0001.00002 Page: 1 of ____

Site Location: Bethpage NY Date: 2/20/01

Site/Well No.: ONCT-2 Replicate No.: ____ Code No.: ____

Weather: ____ Sampling Time: Begin ____ End ____

Evacuation Data

Measuring Point	
MP Elevation (ft)	
Land Surface Elevation (ft)	
Sounded Well Depth (ft bmp)	
Depth to Water (ft bmp)	
Water-Level Elevation (ft)	
Water Column in Well (ft)	
Casing Diameter/Type	
Gallons in Well	
Gallons Pumped/Bailed Prior to Sampling	
Sample Pump Intake Setting (ft bmp)	
Purge Time	begin ____ end ____
Pumping Rate (gpm)	
Evacuation Method	

Field Parameters

Color	
Odor	
Appearance	
pH (s.u.)	
Conductivity (mS/cm)	
(µmhos/cm)	
Turbidity (NTU)	
Temperature (°C)	
Dissolved Oxygen (mg/L)	
Salinity (%)	
Sampling Method	GRAB
Remarks	

Constituents Sampled	Container Description	Number	Preservative
VOC's			

Sampling Personnel: GW - FR

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 GERAGHTY & MILLER

Water Sampling Log

Project: Northrop - Grumman Project No.: N4001321.0001.00002 Page 1 of ____

Site Location: Bethpage NY Date: 2/20/01

Site/Well No.: ONGT-1 Replicate No.: ____ Code No.: ____

Weather: ____ Sampling Time: Begin ____ End ____

Evacuation Data

Measuring Point: ____

MP Elevation (ft): ____

Land Surface Elevation (ft): ____

Sounded Well Depth (ft bmp): ____

Depth to Water (ft bmp): ____

Water-Level Elevation (ft): ____

Water Column in Well (ft): ____

Casing Diameter/Type: ____

Gallons in Well: ____

Gallons Pumped/Bailed Prior to Sampling: ____

Sample Pump Intake Setting (ft bmp): ____

Purge Time: begin ____ end ____

Pumping Rate (gpm): ____

Evacuation Method: ____

Field Parameters

Color: ____

Odor: ____

Appearance: ____

pH (s.u.): ____

Conductivity (mS/cm): ____

(µmhos/cm): ____

Turbidity (NTU): ____

Temperature (°C): ____

Dissolved Oxygen (mg/L): ____

Salinity (%): ____

Sampling Method: GRAB

Remarks: ____

Constituents Sampled	Container Description	Number	Preservative
VOC's			

Sampling Personnel: GW - FR

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	mililiter	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

Appendix C

Chains Of Custody

ARCADIS GERAGHTY & MILLER

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

CHAIN-OF-CUSTODY RECORD

Page ____ of ____

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: 40 ML VOC						Remarks	Total
GM 20D	L	1/24/01		2							2
GM 20I				2							2
GM 15I				2							2
TB 1/24/01				2							2

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

Total No. of Bottles/ Containers: 8

Relinquished by: [illegible]	Organization: [illegible]	Date 1/24/01	Time 4:35	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: Ship to David Stern

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

ARCADIS GERAGHTY & MILLER

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

CHAIN-OF-CUSTODY RECORD

Page _____ of _____

Project Number/Name NY000008.0210.0000 2

Project Location Bethpage, NY

Laboratory Severn Trent Labs

Project Manager Carlo San Giovanni

Sampler(s)/Affiliation SH/FK

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 4 OZ AMBER VOC						Remarks	Total
GM-38D	L	1/25/01		2							2
GM-38D2	↓	↓		6	*						6
REP-1				2							2
TB 1/25/01	↓	↓		2							2

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

Total No. of Bottles/ Containers 12

Relinquished by: Shawn Hanley	Organization: Arcadis Geraghty & Miller	Date 1/25/01	Time 1500	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 David Stern

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

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

SPECIFY SPECIFY

AG 05-0597

ARCADIS GERAGHTY & MILLER

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

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Project Number/Name Northrop-Grumman Bethpage Water District

Project Location Bethpage NY

Laboratory H2M Lab

Project Manager David Stern

Sampler(s)/Affiliation S. Healy / F. Rossi

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: VOC's/8260 40 ml Vial						Remarks	Total
GM-38D	L	11/25/01		2							2
GM-38D2	L	"		2							2

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

Total No. of Bottles/ Containers: 4

Relinquished by: [illegible] Kossi	Organization: AGM	Date 11/25/01	Time 4:00 pm	Seal Intact?	
Received by: [illegible]	Organization: H2M Labs	Date 11/25/01	Time 1600	Yes No (N/A)	
Relinquished by: _____	Organization: _____	Date / /	Time _____	Seal Intact?	
Received by: _____	Organization: _____	Date / /	Time _____	Yes No N/A	

Special Instructions/Remarks:

Any Questions call Dan Stern (631) 391-5284

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

AG 05-0597

ARCADIS GERAGHTY & MILLER

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

CHAIN-OF-CUSTODY RECORD

Page ____ of ____

Project Number/Name M[illegible]0210.0002

Project Location Buffalo, NY

Laboratory Severn Trent Labs

Project Manager Carla San Giovanni

Sampler(s)/Affiliation CW/SH

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40 ML VIAL VOC	500 ML PLASTIC METALS AND					Remarks	Total
MW-3R	L	1/26/01		2	1						3
MW-10631	"	"		2	1						3
TB 1/26/01	"			2							2
EB 1/26/01	"			2	1						3
	↓	↓									

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

Total No. of Bottles/ Containers: 11

					Seal Intact?
Relinquished by: Shawn Healy	Organization: Arcadis Geraghty & Miller	Date 1/26/01	Time 17[illegible]		
Received by: _____	Organization: _____	Date ___/___/___	Time _____		Yes No N/A
Relinquished by: _____	Organization: _____	Date ___/___/___	Time _____		Seal Intact?
Received by: _____	Organization: _____	Date ___/___/___	Time _____		Yes No N/A

Special Instructions/Remarks: Report to David Stern

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

AG 05-0597

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

Project Number/Name N1000087.0210.00002

Project Location Bethpage NY

Laboratory Severn Trent Labs

Project Manager Carla Sanzone

Sampler(s)/Affiliation GW/SH

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 1 Liter UNP SVOC Method 8270	40 ml VIAL UNP VOC Method 601					Remarks	Total
GM-14	L	1/26/01		2	2						4
FB 1/26/01	↓	↓		2							2

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

Total No. of Bottles/ Containers: 6

Relinquished by: _____	Organization: Arcadis G&M	Date 1/26/01	Time 1700	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 05-0597

ARCADIS GERAGHTY & MILLER

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

CHAIN-OF-CUSTODY RECORD

Page ____ of ____

Project Number/Name NY000053.0210.00002

Project Location Bethpage NY

Laboratory Several different Labs

Project Manager Carlo San Giovem.

Sampler(s)/Affiliation GU/SH

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40 ML VIAL VOC (UNP)						Remarks	Total
GM-15S	W	1/30/01		2							2
GM-15D				2							2
GM-15D2				2							2
FB 1/30/01				2							2
FB 1/30/-1				2							2

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

Total No. of Bottles/ Containers: 10

Relinquished by: Shawn Healy	Organization: Arcadis Geraghty & Miller	Date 1/30/01	Time 1700	Seal Intact?	
Received by: _____	Organization: _____	Date / /	Time _____	Yes	No N/A
Relinquished by: _____	Organization: _____	Date / /	Time _____	Seal Intact?	
Received by: _____	Organization: _____	Date / /	Time _____	Yes	No N/A

Special Instructions/Remarks: Report to David Stern

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

AG 05-0597

ARCADIS GERAGHTY & MILLER

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

CHAIN-OF-CUSTODY RECORD

Page ____ of ____

Project Number/Name M4000080210.0007

Project Location Bethpage NY

Laboratory Severn Trent Services

Project Manager Carlo Cardamone

Sampler(s)/Affiliation G.W. & K

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40ml VOA (VOPs)						Remarks	Total
Gm-17SR	L	1-31-01		2							2
Gm-17I				2							2
Gm-17D				2							2
EB 1-31-01				2							2
TB-1-31-01				2							2

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

Total No. of Bottles/Containers 10

Relinquished by: [signature]	Organization: ARCADIS G+M	Date 1/31/01	Time 2:30	Seal Intact? Yes No N/A
Received by: _____	Organization: _____	Date __/__/__	Time _____	
Relinquished by: _____	Organization: _____	Date __/__/__	Time _____	Seal Intact? Yes No N/A
Received by: _____	Organization: _____	Date __/__/__	Time _____	

Special Instructions/Remarks: _____

4 PACK TO DAVE SIEKU

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

AG 05-0597

ARCADIS GERAGHTY & MILLER

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

CHAIN-OF-CUSTODY RECORD

Page ____ of ____

Project Number/Name NYCOOOO802100000?

Project Location BETHPAGE NY

Laboratory SEVERN-TRENT SHELTON

Project Manager CARLO SAN GIOVANNI

Sampler(s)/Affiliation G.W. F.R.

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40ml VOA Vials						Remarks	Total
HW-29D	L	2-01-01		2							2
HW-29E				2							2
HW-03				2							2
HW-24I				2							2
FB 2-1-01				2							2
TB 2-1-01				2							2

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

Total No. of Bottles/ Containers 12

Relinquished by: L. HW	Organization: ARCADIS G&M	Date 2/01/01	Time 5:30	Seal Intact? Yes No N/A
Received by: _____	Organization: _____	Date / /	Time _____	
Relinquished by: _____	Organization: _____	Date / /	Time _____	Seal Intact? Yes No N/A
Received by: _____	Organization: _____	Date / /	Time _____	

Special Instructions/Remarks: REPORT TO DAVE STERN

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

AG 05-0597

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

Project Number/Name N1000083.0210.00002

Project Location Bethpage, NY

Laboratory Severn Trent Labs

Project Manager Carlo Scarfuoni

Sampler(s)/Affiliation GW/SH

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	40 ML VIAL USE (UNP)	500 ML Plastic (HCL or HNO3)	ANALYSIS / METHOD / SIZE					Remarks	Total
GM-18I	L	2/2/01		2								2
GM-16I				2								2
GM-16SR				2	1							3
FB 2/2/01				2	1							3
TB 2/2/01				2								2

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

Total No. of Bottles/ Containers 12

Relinquished by: [signature]	Organization: Arcadis Geraghty & Miller	Date 2/2/01	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 David Stern

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

SPECIFY SPECIFY

AG 05-0597

ARCADIS GERAGHTY & MILLER

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

CHAIN-OF-CUSTODY RECORD

Page _____ of _____

Project Number/Name NY000008.0210.0002

Project Location Bethpage NY

Laboratory Severn Trent Labs

Project Manager Carlo San Giovanni

Sampler(s)/Affiliation GW/SH

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	40 ML VIAL VOC (UNP)						Remarks	Total
				ANALYSIS / METHOD / SIZE							
GM-74I	L	2/5/01		2							2
GM-74D				2							2
FB 2/5/01				2							2
TB 2/5/01				2							2

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

Total No. of Bottles/Containers 8

Relinquished by: Shawn Haley	Organization: Arcadis Geraghty + Miller	Date 2/5/01	Time 1600	Seal Intact?	
Received by: _____	Organization: _____	Date / /	Time _____	Yes No N/A	
Relinquished by: _____	Organization: _____	Date / /	Time _____	Seal Intact?	
Received by: _____	Organization: _____	Date / /	Time _____	Yes No N/A	

Special Instructions/Remarks: Report to David Stern

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

AG 05-0597

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

Project Number/Name NV000008.0210.00002

Project Location Bethpage NY

Laboratory Severn Trent Labs

Project Manager Carla Sea Grimm

Sampler(s)/Affiliation SH

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40 ML VOA VIAL (HCl)						Remarks	Total
GM-37D	L	2/6/01		2							2
GM-37D2	L	2/6/01		2							2
TB 2/6/01	L	2/6/01		2							2

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

Total No. of Bottles/ Containers 6

Relinquished by: Steven Hurley	Organization: Arcadis Geraghty + Miller	Date 2/6/01	Time 1700	Seal Intact?	
Received by: _____	Organization: _____	Date / /	Time _____	Yes	No N/A
Relinquished by: _____	Organization: _____	Date / /	Time _____	Seal Intact?	
Received by: _____	Organization: _____	Date / /	Time _____	Yes	No N/A

Special Instructions/Remarks: Report to David Stern

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

AG 05-0597

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

Project Number/Name Bethpage Water District / N. Grumman
Project Location Bethpage NY
Laboratory H2M Labs
Project Manager Dave Stern
Sampler(s)/Affiliation SH/FR

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40 mL VOAs Voc						Remarks	Total
GM-37D	L	2/6/01		2							2
GM-37D2	L	2/6/01		2							2

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

Total No. of Bottles/ Containers 4

Relinquished by: [illegible] AGM	Organization: AGM	Date 2/6/01	Time 4:15	Seal Intact? Yes No N/A
Received by: _____	Organization: [illegible]	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 05-0597

ARCADIS GERAGHTY & MILLER

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

CHAIN-OF-CUSTODY RECORD

Page ____ of ____

Project Number/Name NORTHROP GRUMMAN/BETHPAGE H20

Project Location BETHPAGE

Laboratory H2M

Project Manager _____

Sampler(s)/Affiliation G. WILLIAMS (AGM)

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40ML VOA (AGM)						Remarks	Total
GM-360	L	2/7/01		2							2
GM-360-2	L	2/7/01		2							2

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

Total No. of Bottles/ Containers 4

Relinquished by: H W	Organization: ARCADIS GTM	Date 2/07/01	Time 6:30	Seal Intact? Yes No N/A
Received by: _____	Organization: _____	Date / /	Time	
Relinquished by: _____	Organization: _____	Date / /	Time	Seal Intact? Yes No N/A
Received by: _____	Organization: _____	Date / /	Time	

Special Instructions/Remarks: _____

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

AG 05-0597

ARCADIS GERAGHTY & MILLER

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

CHAIN-OF-CUSTODY RECORD

Page ____ of ____

Project Number/Name NY000000210.0002

Project Location BETHPAGE NY.

Laboratory SEVERN-TRENT SHEETON

Project Manager CARLO CALOGRANNE

Sampler(s)/Affiliation G. WILLIAMS

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40ml VOA 8260 (UNPI)						Remarks	Total
GM-360	W	2-07-01		2							2
GM-360-2	W	2-07-01		2							2
TB-2-07-01	W	2-07-01		2							2

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

Total No. of Bottles/ Containers: 6

Relinquished by: S. HW	Organization: ARCADIS Geraghty & Miller	Date 2/07/01	Time 6:30	Seal Intact?	
Received by: _____	Organization: _____	Date / /	Time _____	Yes	No N/A
Relinquished by: _____	Organization: _____	Date / /	Time _____	Seal Intact?	
Received by: _____	Organization: _____	Date / /	Time _____	Yes	No N/A

Special Instructions/Remarks: REPORT TO DAVE STARR

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

AG 05-0597

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

Project Number/Name NY0000802/0.0002

Project Location BETHPAGE NY

Laboratory SEVERN TRENT SERVICES

Project Manager MARIO SALVODANELLI

Sampler(s)/Affiliation G. [illegible] FR

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40ml VOA (NO)						Remarks	Total
GM-730-2	L	2.08.01		2							2
GM-740-2				2							2
GM-340-2				2							2
GM-340				6*							6
REP-1				2							2
FB 2-08 01				2							2
TB 2-08.01	✓	✓		2							2

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

Total No. of Bottles/ Containers 18

Relinquished by: [signature]	Organization: ARCADIS GTM	Date 2/08/01	Time 6:00	Seal Intact? Yes No N/A
Received by: _____	Organization: _____	Date / /	Time _____	
Relinquished by: _____	Organization: _____	Date / /	Time _____	Seal Intact? Yes No N/A
Received by: _____	Organization: _____	Date / /	Time _____	

Special Instructions/Remarks: _____

Ship to Data Stream

* Please use TB3 Sample for MS/MSD QA/QC Sample

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

AG 05-0597

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

Project Number/Name: NY000008.0210.0000 2

Project Location: Bethpage NY

Laboratory: Severn Trent Labs

Project Manager: David Stern

Sampler(s)/Affiliation: GW/SH

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: HOME VIAL VOC (4NP)						Remarks	Total
HN-425	L	2/9/01		2							2
HN-42I	↓	↓		2							2
FB 2/9/01				2							2
TB 2/9/01	↓	↓		2							2

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

Total No. of Bottles/Containers: 8

					Seal Intact?
Relinquished by: Shawn Healey	Organization: Arcadis Geraghty + Miller	Date 2/9/01	Time 1700		
Received by: _____	Organization: _____	Date / /	Time _____		Yes No N/A
Relinquished by: _____	Organization: _____	Date / /	Time _____		Seal Intact?
Received by: _____	Organization: _____	Date / /	Time _____		Yes No N/A

Special Instructions/Remarks: Report to David Stern

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

AG 05-0597

ARCADIS GERAGHTY & MILLER

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

CHAIN-OF-CUSTODY RECORD

Page _____ of _____

Project Number/Name NY000T.0210.00002

Project Location [illegible] NY

Laboratory [illegible]

Project Manager David Stern

Sampler(s)/Affiliation CW/BH

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: VOC (VOA)						Remarks	Total
S2 S	L	2/12/01		2							2
S2 I				2							2
S2 D				2							2
TB 2/12/01				2							2
FB 2/12/01				2							2

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

Total No. of Bottles/ Containers 10

Relinquished by: [signature]	Organization: Arcadis Geraghty & Miller	Date 2-12-01	Time 1730	Seal Intact? Yes No N/A
Received by: _____	Organization: _____	Date / /	Time _____	
Relinquished by: _____	Organization: _____	Date / /	Time _____	Seal Intact? Yes No N/A
Received by: _____	Organization: _____	Date / /	Time _____	

Special Instructions/Remarks: Report to David Stern

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

AG 05-0597

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

Project Number/Name NY000080210.0002

Project Location GLENVILLE NY

Laboratory SEVERN-TRENT STL

Project Manager CHRIS SANDGROUND

Sampler(s)/Affiliation G. WHITNEY
T. KOSCIT

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 1,4-DIOXANE (8270)						Remarks	Total
N-10677	L	2-13-01		2							2
MW-40S				2							2
MW-40I				2							2
FB 2-13-01				2							2
TB 2-13-01				2							2

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

Total No. of Bottles/ Containers 10

					Seal Intact?
Relinquished by: [signature]	Organization: ARCADIS GERAGHTY & MILLER	Date 2/13/01	Time 6:30		
Received by: _____	Organization: _____	Date / /	Time _____		Yes No N/A
Relinquished by: _____	Organization: _____	Date / /	Time _____		Seal Intact?
Received by: _____	Organization: _____	Date / /	Time _____		Yes No N/A

Special Instructions/Remarks: REPORT TO ONE SYSTEM

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

AG 05-0597

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

Project Number/Name NY000008.0210.0002

Project Location Bethpage, NY

Laboratory Severn Trent Labs

Project Manager David Stern

Sampler(s)/Affiliation GW/SH

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	40 ML VIAL VOC (NP)	ANALYSIS / METHOD / SIZE					Remarks	Total
GM-79I	L	2/14/01		2							2
GM-79D				2							2
GM-18D				2							2
FB 2/14/01				2							2
TB 2/14/01				2							2

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

Total No. of Bottles/ Containers 10

Relinquished by: Shawn Healey	Organization: Arcadis Geraghty & Miller	Date 2/14/01	Time 1730	Seal Intact?	
Received by: _____	Organization: _____	Date __/__/__	Time _____	Yes	No N/A
Relinquished by: _____	Organization: _____	Date __/__/__	Time _____	Seal Intact?	
Received by: _____	Organization: _____	Date __/__/__	Time _____	Yes	No N/A

Special Instructions/Remarks: Report to David Stern

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

AG 05-0597

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

Project Number/Name NYC000080210.00002

Project Location BETHPAGE N.Y.

Laboratory SEVERN-TRENT SHELTON

Project Manager CAROLD SAW EDWARDS

Sampler(s)/Affiliation G.W., S.H.

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 4(mi USEPA WDC (EMP)						Remarks	Total
6M-23S	L	2-15-01		2							2
6M-23I				2							2
6M-13D				6*							6
6M-33D-2				2							2
FBB-2-15-01				2							2
TB 2-15-01				1							1
REP-3				2							2

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

Total No. of Bottles/ Containers: 17

				Seal Intact?
Relinquished by: [signature]	Organization: ARCADIS 6TM	Date 2/15/01	Time _____	
Received by: _____	Organization: _____	Date / /	Time _____	Yes No N/A
Relinquished by: _____	Organization: _____	Date / /	Time _____	Seal Intact?
Received by: _____	Organization: _____	Date / /	Time _____	Yes No N/A

Special Instructions/Remarks:

* PLEASE USE THIS SAMPLE FOR AN MS/MSD QA/QC SAMPLE

REPORT TO DAVE STERN

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

AG 05-0597

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

Project Number/Name N10000080210.0002

Project Location BETHPAGE NY

Laboratory SEVERN TRENT SHELTON

Project Manager CARLO SAN GIOVANNI

Sampler(s)/Affiliation G. WILLIAMS

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40ml VOA (WS)						Remarks	Total
GM-35D-2	L	2-19-01		2							2
GM-70D-2	↓	↓		2							2
GM-71D-2	↓	↓		2							2
TB 2-19-01	↓	↓		1							1

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

Total No. of Bottles/ Containers: 7

					Seal Intact?
Relinquished by: L. HW	Organization: ARCADIS (Geraghty & Miller)	Date 2/19/01	Time 5:15		
Received by: _____	Organization: _____	Date / /	Time _____		Yes No N/A
Relinquished by: _____	Organization: _____	Date / /	Time _____		Seal Intact?
Received by: _____	Organization: _____	Date / /	Time _____		Yes No N/A

Special Instructions/Remarks: REPORT TO DALE STERN

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

AG 05-0597

ARCADIS GERAGHTY & MILLER

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

CHAIN-OF-CUSTODY RECORD

Page ____ of ____

Project Number/Name [illegible] BETHPAGE NY

Project Location BETHPAGE NY

Laboratory H2M

Project Manager —

Sampler(s)/Affiliation G. Williams ARCADIS

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40ml VOA (ABC) VOC						Remarks	Total
GM-35D-2	L	2-19-06		2							2
GM-71D-2	L	"		2							2
GM-70D-2	L	"		2							2

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

Total No. of Bottles/ Containers 6

					Seal Intact?
Relinquished by: [signature]	Organization: ARCADIS GERAGHTY & MILLER	Date 2/19/06	Time 5:30		
Received by: [signature]	Organization: H2M Labs Inc	Date 2/20/06	Time 1730		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 05-0597

ARCADIS GERAGHTY & MILLER

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

CHAIN-OF-CUSTODY RECORD

Page _____ of _____

Project Number/Name NY001321.0001.00002

Project Location Northrop Grumman Bethpage NY

Laboratory STL - Pensacola FL

Project Manager David Stern

Sampler(s)/Affiliation G. Williams / L. Rossman

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: VOCs / TO-14 / 1 Liter Bag						Remarks	Total
QNCT - Effluent	A	2/20/01		2							
QNCT - Influent	↓	↓		2							
GP 1/3 Influent				2							
GP 1/3 Effluent				1							

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

Total No. of Bottles/ Containers

					Seal Intact?
Relinquished by: Frank Ross	Organization: Arcadis G&M	Date 2/20/01	Time _____		
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:

Any Questions Please Call David Stern at (631) 391-5284

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

AG 05-0597

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

Project Number/Name NY001321.0001.00002

Project Location BETHPAGE NY

Laboratory SEVERN TRENT SAVANNAH

Project Manager CARLO SANGIOVANNI

Sampler(s)/Affiliation G.W. & HR

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 4 VOAs USEPA (DWP) LVOC						Remarks	Total
CNCT -1	L	2.20.01		2							2
CNCT -2				2							2
CNCT -3				2							2
GP-1				2							2
GP-3				2							2
CNCT INFLUENT				2							2
CNCT EFFLUENT				2							2
GP-1/3 INFLUENT				6*							6
GP-1/3 EFFLUENT				2							2
GP-1				2							2
TB 2.20.01				2							2

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

Total No. of Bottles/ Containers 26

Relinquished by: [signature]	Organization: ARCADIS G+M	Date 2/20/01	Time 3:00	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	
Relinquished by:	Organization:	Date / /	Time	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	

Special Instructions/Remarks: REPORT TO CNCT STORM USE AS MS/MSD/QA/QC SAMPLE

THIS GROUP OF SAMPLES IS from NORTHROP GRUMMAN BUT ON A DIFFERENT SDG from CONVENTIONAL SAMPLES

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

SPECIFY SPECIFY

AG 05-0597

ARCADIS

Appendix D

Data Validation Memoranda

MEMO

ARCADIS G & M, Inc.
88 Duryea Road
Melville
New York 11747
Tel 631 249-7600
Fax 631 249-7610

ENVIRONMENTAL

To:
David Stern

Copies:

From:
Donna M. Brown and Francis K. Rossi

Date:
17 April 2001

Subject:
Data Validation of Volatile Organic Compound Groundwater Samples Collected for the First Quarter 2001 Monitoring Program, Northrop Grumman, Bethpage, New York (Project No. NY001321.0001.00004).

DATA VALIDATION

Fifty three (53) samples, three (3) field replicates, fourteen (14) field blanks, and eighteen (18) trip blanks were collected from January 23 through February 19, 2001 in the vicinity of the Northrop Grumman site, Bethpage, New York. The samples were sent to Severn Trent Laboratories (STL) in Shelton, Connecticut for the analysis of volatile organic compounds (VOCs) following purge and trap GC/MS using New York State Department of Environmental Conservation (NYSDEC) 10/95 Method NYDEC 95-1. Sample GM-14 VOCs were analyzed by USEPA Method 624

Validation of the data was performed following the quality assurance/quality control (QA/QC) criteria set forth in the method, and the document "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" dated October 1999. Sample identification, collection dates, and laboratory-received dates are listed in Table 1. The quality of the data was acceptable with the appropriate qualifications described in this memorandum. Metals and semi-VOCs data were discussed in a separate memo.

The laboratory provided five data packages. The analytical data was provided by the laboratory in the sample delivery groups (SDG 7001-0084A, 7001-0226A, 7001-0226B, 7001-0226C, and 7001-0226D). The data validation results for these SDGs are discussed separately below.

SDG 7001-0084A

HOLDING TIMES

NYSDEC 95-1: The samples were analyzed within New York holding time requirements.

Method 624: The sample was analyzed within hold time requirements.

GC/MS INSTRUMENT PERFORMANCE CHECK

NYSDEC 95-1: All GC/MS instrument tunes were within criteria.

Method 624: All GC/MS instrument tunes were within criteria.

INITIAL CALIBRATION

NYSDEC 95-1: One initial calibration was performed. The compounds relative response factors (RRFs) were found to be greater than 0.05, and percent relative standard deviations (%RSDs) were less than or equal to 30 percent.

Method 624: One initial calibration was performed. The compounds relative response factors (RRFs) were found to be greater than 0.05, and percent relative standard deviations (%RSDs) were less than or equal to 30 percent.

CONTINUING CALIBRATION

NYSDEC 95-1: Two continuing calibrations were performed. All compounds had RRFs greater than 0.05 and percent differences (%D) less than 25%.

Method 624: A continuing calibration was performed and the RRFs and %D were within QC limits, except for 2-hexanone, which had a %D above QC limits. 2-Hexanone was qualified as estimated (UJ) in GM-14.

BLANKS

NYSDEC 95-1: Two method blanks (VBLKOA and VBLKOB) were analyzed with this SDG. Methylene chloride, 2-butanone, and one tentatively identified compound (TIC), a butylated hydroxytoluene with a retention time (RT) of 23.62, were detected in VBLKOB.

Three trip blanks and one field blank were collected along with this sample set. Methylene chloride was detected in the field blank (FB012301). A TIC, a butylated hydroxytoluene with a RT=24.73 was detected in one trip blank (TB012301).

Based on the method blank results, methylene chloride was qualified as non-detect (U), in GM-38D and GM-38D2.

Method 624: A method blank (VBLKND) was analyzed with this SDG. A TIC was detected in the method blank. No TICS were detected in the sample, therefore, qualification of the data was not necessary.

SYSTEM MONITORING COMPOUNDS (SURROGATE SPIKES)

NYSDEC 95-1: All surrogate spike recoveries were within control limits for all samples and blanks.

Method 624: All surrogate spike recoveries were within control limits for all samples and blanks. The values were rounded off on the Form II. The quantitation report surrogate spikes were all within limits.

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

NYSDEC 95-1: One matrix spike/matrix spike duplicate/matrix spike blank (MS/MSD/MSB) was analyzed with this sample set. Sample GM-38D2 was used for the MS/MSD/MSB. Spike percent recoveries (%R) and relative percent differences (RPD's) were within control limits. Qualification of data based on the MS/MSD/MSB results was not necessary.

Method 624: Not applicable.

LABORATORY CONTROL SAMPLES

NYSDEC 95-1: Laboratory control sample percent recovery criteria were not meet for the following compounds: carbon disulfide was below limit, acetone, 2-butanone, and 2-hexanone were above limits. Based on laboratory control sample results, acetone, 2-butanone, and 2-hexanone were qualified as estimated (J) if detected. Carbon disulfide results were qualified as unusable (R) if not detected, and estimated (J) if detected.

Method 624 2-Hexanone was above limits in the laboratory control sample. Based on laboratory control samples results 2-hexanone was qualified as estimated (J), if detected.

INTERNAL STANDARDS

NYSDEC 95-1: All internal standard area counts and retention times were within control limits for all samples and blanks.

Method 624 All internal standard area counts and retention times were within control limits for all samples and blanks.

TARGET COMPOUND IDENTIFICATION

NYSDEC 95-1: Target compounds detected in the samples were reported correctly. Sample GM-38D was duplicated and labeled REP-1. The results were acceptable.

Method 624: No target compounds were detected in the sample.

COMPOUND QUANTITATION AND REPORTED CONTRACT REQUIRED QUANTITATION LIMITS (CRQLs)

NYSDEC 95-1: All compound detection limits were met.

Method 624: All compound detection limits were met.

TENTATIVELY IDENTIFIED COMPOUNDS (TICs)

NYSDEC 95-1: Tentatively identified compounds were reported correctly.

Method 624: No TICs were detected in the sample.

SYSTEM PERFORMANCE

NYSDEC 95-1: The performance of the instruments during analysis is considered acceptable.

Method 624: The performance of the instruments during analysis is considered acceptable.

OVERALL ASSESSMENT OF DATA

NYSDEC 95-1: The quality of the data presented in this SDG package is acceptable with the appropriate qualifications described in the above section.

Method 624: The quality of the data presented in this SDG package is acceptable with the appropriate qualifications described in the above section.

SDG 7001-0226A

HOLDING TIMES

The samples were analyzed within New York holding time requirements.

GC/MS INSTRUMENT PERFORMANCE CHECK

The GC/MS instrument tunes were within criteria.

INITIAL CALIBRATION

Two initial calibrations were performed. All compounds RRFs were found to be >0.05 and %RSD were found to be < 30%.

CONTINUING CALIBRATION

Three continuing calibrations were performed. All compounds had RRFs greater than 0.05 and %Ds less than 25%.

BLANKS

Three method blanks (VBLKOD, VBLKOL, and VBLKOM) were analyzed with this SDG. Methylene chloride was detected in all three method blanks. In addition, 2-butanone and toluene were detected in method blank VBLKOM. A TIC, butylated hydroxytoluene with a R.T. of 24.76 was detected in the three method blanks.

Four trip blanks and four field blanks were analyzed with this SDG. No target compounds were detected in the field and trip blanks. A TIC, an unknown with a R.T. of 25.28 was detected in TB013001.

Based on the method, field and trip blank results, it was not necessary to qualify any sample results.

SYSTEM MONITORING COMPOUNDS (SURROGATE SPIKES)

All surrogate spike recoveries were within control limits for all samples and blanks.

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

A MS/MSD/MSB was analyzed with this sample set. Sample HN-29D was used for the MS/MSD/MSB. Spike %Rs and RPDs were within control limits. Qualification of data based on the MS/MSD/MSB results was not necessary.

LABORATORY CONTROL SAMPLES

Laboratory control sample percent recovery criteria were not met for the following compounds: Cis-1,3-dichloropropene, acetone, 2-butanone, 2-hexanone, 1,1,2,2 tetrachlorethene and ethylbenzene were above limits. Based on the LCS results, the compounds listed above were qualified as estimated (J) if detected in the samples. Results were not qualified if not detected.

INTERNAL STANDARDS

All internal standard area counts and retention times were within control limits for all samples and blanks.

TARGET COMPOUND IDENTIFICATION

Target compounds detected in the samples were reported correctly.

COMPOUND QUANTITATION AND REPORTED CONTRACT REQUIRED QUANTITATION LIMITS (CRQLs)

All compound detection limits were met.

TENTATIVELY IDENTIFIED COMPOUNDS (TICs)

Tentatively identified compounds were reported correctly.

SYSTEM PERFORMANCE

The performance of the instruments during analysis is considered acceptable.

OVERALL ASSESSMENT OF DATA

The quality of the data presented in this SDG package is acceptable with the appropriate qualifications described in the above section.

SDG 7001-0226B

HOLDING TIMES

The samples were analyzed within New York holding time requirements.

GC/MS INSTRUMENT PERFORMANCE CHECK

All GC/MS instrument tunes were within criteria.

INITIAL CALIBRATION

Two initial calibrations were performed for this sample set. All relative response factors (RRF's) were found to be greater than 0.05, and percent relative standard deviations (%RSD) were found to be less than 30% for all compounds except for the following:

Calibration Date: 11/6/00

Compound	% RSD
Acetone	43.8

Associated samples: GM-37D, TB020601, GM-36D, TB020701, GM-36D2, GM-34D, GM-74D2, GM-37D2, GM-34D2, GM-73D2, and REP-1.

Acetone results were qualified as estimated (J) if detected in the associated samples.

CONTINUING CALIBRATION

Three continuing calibrations were performed with this SDG. All compounds had relative response factors (RRFs) greater than 0.05 and percent differences (%D) less than 25%, except for the following:

Calibration Date: 2/13/01

Compound	% D
Acetone	-29.3

Associated sample: GM-37D, TB020601, GM-36D, GM-36D2, TB020701, GM-34D, and GM-74D2.

Calibration Date: 2/6/01

Compound	% D
Acetone	-25.8
Vinyl chloride	25.8
Chloroethane	25.2
Chloromethane	26.3

Associated sample: TB020201, FB020201, GM-16SR, GM-16I, GM-18I, TB020501, FB020501, GM-74D, and GM-74I.

The above compound results were qualified as estimated (J) if detected and estimated (UJ) if not detected in the associated samples.

BLANKS

Three method blanks (VBLKMQ, VBLKMR, and VBLKON) were analyzed with this SDG. Methylene chloride and one TIC was detected in VBLKON. Acetone was detected in method blank VBLKMR.

Four trip blanks and two field blanks were analyzed with this SDG. Additionally one trip blank and one field blank were analyzed with SDG 70001-0226C, but were associated with samples analyzed in this SDG (7001-0226B). Methylene chloride was detected in FB020201, FB020501, TB020601, TB020701, FB020801 (SDG226C) and TB020801 (SDG226C). Toluene was detected in FB020501 and a TIC in TB020201, FB0208a (SDG226C) and TB020801 (SDG226C).

Based on the method, trip, and/or field blank results the following compounds were qualified as non-detect (U).

Compound	Sample ID's
Methylene chloride	GM-37D, GM-36D, GM-73D2, REP-1
Acetone	GM-34D2, REP-1

A TIC, unknown siloxane was qualified as not usable (R) in REP-1 based on blank results.

SYSTEM MONITORING COMPOUNDS (SURROGATE SPIKES)

All surrogate spike recoveries were within control limits for all samples and blanks.

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Sample GM-34D was used for the MS/MSD/MSB. Spike %Rs and RPDs were within control limits for the MS/MSD, except for the MS/MSD percent recoveries for trichloroethene. No results were qualified based on the MS/MSD/MSB.

LABORATORY CONTROL SAMPLES

Laboratory control sample percent recovery criteria were met for all compounds.

INTERNAL STANDARDS

All internal standard area counts and retention times were within control limits for all samples and blanks.

TARGET COMPOUND IDENTIFICATION

Target compounds detected in the samples were reported correctly.

COMPOUND QUANTITATION AND REPORTED CONTRACT REQUIRED QUANTITATION LIMITS (CRQLs)

All compound detection limits were met.

TENTATIVELY IDENTIFIED COMPOUNDS (TICs)

Tentatively identified compounds were reported correctly.

SYSTEM PERFORMANCE

The performance of the instruments during analysis is considered acceptable.

OVERALL ASSESSMENT OF DATA

Sample GM-73D-2 was replicated and labeled REP-1. The replicate data was considered acceptable and qualification of the data was not necessary.

The quality of the data presented in this SDG package is acceptable with the appropriate qualifications described in the above section.

SDG 7001-0226C

HOLDING TIMES

The samples were analyzed within New York holding time requirements.

GC/MS INSTRUMENT PERFORMANCE CHECK

The GC/MS instrument tunes were within criteria.

INITIAL CALIBRATION

One initial calibration was performed for this sample set. The RRF's were found to be greater than 0.05, and %RSD were found to be less than 30% for the following compounds:

Calibration Date: 11/6/00

Compound	% RSD
Acetone	43.8

Associated samples: All samples

Acetone results were qualified as estimated (J) if detected in the associated samples.

CONTINUING CALIBRATION

Three continuing calibrations were performed. The compounds had RRFs greater than 0.05 and %Ds less than 25%, except for the following:

Calibration Date: 02/15/01

Compound	RRF
Acetone	-27.1

Associated samples: HN-42I, FB020901, TB020901, 52D, 52I, 52S, TB021201, FB021201, N-10627, FB021301, TB021301, and TB021401.

Calibration Date: 02/16/01

Compound	% D
Acetone	-37.1

Associated samples: HN-40S, HN-40I, FB021401, GM-18D, and GM-79D

Acetone results were qualified as estimated (J) if detected and estimated (UJ) if not detected in the associated samples.

BLANKS

Three method blanks (VBLKMR, VBLKMT, and VBLKMU) were analyzed with this SDG. Acetone was detected in VBLKMR.

Five trip blanks and five field blanks were analyzed with this SDG. Methylene chloride was detected in all of the trip and field blanks. Acetone was detected in FB020901. A TIC was detected in FB020801, TB020801, and FB021201.

Based on the blank results the following compounds were qualified as non-detect (U).

Compound	Sample ID's
Methylene chloride	HN-42S, 52S, 52I, 52D, N-10627

SYSTEM MONITORING COMPOUNDS (SURROGATE SPIKES)

All surrogate spike recoveries were within control limits for all samples and blanks.

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

A batch specific sample was used for the MS/MSD/MSB. Spike percent recoveries (%R) and relative percent differences (RPD's) were within control limits for the MS/MSD, except for the percent recovery for trichloroethene. Qualification of the data was not necessary based on MS/MSD results.

LABORATORY CONTROL SAMPLES

Laboratory control sample percent recovery criteria were within quality control limits.

INTERNAL STANDARDS

All internal standard area counts and retention times were within control limits for all samples and blanks.

TARGET COMPOUND IDENTIFICATION

Target compounds detected in the samples were reported correctly.

COMPOUND QUANTITATION AND REPORTED CONTRACT REQUIRED QUANTITATION LIMITS (CRQLs)

All compound detection limits were met.

TENTATIVELY IDENTIFIED COMPOUNDS (TICs)

Tentatively identified compounds were reported correctly.

SYSTEM PERFORMANCE

The performance of the instruments during analysis is considered acceptable.

OVERALL ASSESSMENT OF DATA

The quality of the data presented in this SDG package is acceptable with the appropriate qualifications described in the above section.

HOLDING TIMES

The samples were analyzed within New York holding time requirements.

GC/MS INSTRUMENT PERFORMANCE CHECK

The GC/MS instrument tunes were within criteria.

INITIAL CALIBRATION

One initial calibration was performed for this sample set. The RRF's were found to be greater than 0.05, and %RSD were found to be less than 30% except for the following compound:

Calibration Date: 11/06/00

Compound	% RSD
Acetone	43.8

Associated samples: All samples

Acetone results were qualified as estimated (J) if detected in the associated samples.

CONTINUING CALIBRATION

Two continuing calibrations were performed with this SDG. All compounds had RRFs greater than 0.05 and percent differences (%D) less than 25%, except for the following:

Calibration Date: 2/16/01

Compound	% D
Acetone	-37.1

Associated samples: GM-79I

Calibration Date: 2/22/01

Compound	% D
Acetone	-57.4

Associated samples: GM-23S, GM-23I, FB021501, TB021501, GM-35D2, GM-70D2, GM-71D2, TB021901, GM-13D, REP-3, and GM-33D2.

Acetone results were qualified as estimated (J) if detected, and estimated (UJ) if not detected in the associated samples.

BLANKS

Two method blanks (VBLKMU and VBLKMY) were analyzed with this SDG. No target compounds were detected in the method blanks.

Three trip blanks and two field blanks were associated with this SDG. Methylene chloride was detected in all the trip and field blanks.

Based on the method, trip and field blank results the following compounds were qualified as non-detect (U).

Compound	Sample ID's
Methylene chloride	GM-79I and GM-71D2

SYSTEM MONITORING COMPOUNDS (SURROGATE SPIKES)

All surrogate spike recoveries were within control limits for all samples and blanks.

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Sample GM-13D was used for the MS/MSD/MSB. Spike %R and RPD's were within control limits. Qualification of the data was not necessary based on MS/MSD results.

LABORATORY CONTROL SAMPLES

One laboratory control sample was run with this SDG. All laboratory control sample results were within control limits.

INTERNAL STANDARDS

All internal standard area counts and retention times were within control limits for all samples and blanks.

TARGET COMPOUND IDENTIFICATION

Target compounds detected in the samples were reported correctly.

COMPOUND QUANTITATION AND REPORTED CONTRACT REQUIRED QUANTITATION LIMITS (CRQLs)

All compound detection limits were met.

TENTATIVELY IDENTIFIED COMPOUNDS (TICs)

Tentatively identified compounds were reported correctly.

SYSTEM PERFORMANCE

The performance of the instruments during analysis is considered acceptable.

OVERALL ASSESSMENT OF DATA

One field replicate was collected with this sample set. Sample GM-33D2 was replicated and labeled REP-3. The replicate data was considered acceptable and qualification of the data was not necessary.

The quality of the data presented in this SDG package is acceptable with the appropriate qualifications described in the above section.

Table 1. Sample Identification, Collection Dates, and Laboratory Received Dates for Samples Analyzed Under STL Sample Delivery Group Numbers 7001-0084A, 7001-0226A, 7001-0226B, 7001-0226C, and 7001-0226D.

ARCADIS Geraghty and Miller, Inc. ID	Laboratory ID	Date Collected	Date Received
SDG 7001-0084A			
GM-21S	010084A-01	01/23/01	01/24/01
GM-21I	010084A-02	01/23/01	01/24/01
10634	010084A-03	01/23/01	01/24/01
GM-18S	010084A-04	01/23/01	01/24/01
FB012301	010084A-05	01/23/01	01/24/01
TB012301	010084A-06	01/23/01	01/24/01
GM20D	010084A-07	01/24/01	01/25/01
GM20I	010084A-08	01/24/01	01/25/01
GM15I	010084A-09	01/24/01	01/25/01
TB012401	010084A-10	01/24/01	01/25/01
GM-38D	010084A-11	01/25/01	01/26/01
GM-38D2	010084A-12	01/25/01	01/26/01
REP-1	010084A-13	01/25/01	01/26/01
TB012501	010084A-14	01/25/01	01/26/01
GM-14	010084A-15	01/26/01	01/27/01
FB012601	010084A-16	01/26/01	01/27/01
MW-3R	010226A -01	01/26/01	01/27/01
MW-1063-1	010226A -02	01/26/01	01/27/01
TB012601	010226A-03	01/26/01	01/27/01
FB012601	010226A-04	01/26/01	01/27/01

Table 1. Sample Identification, Collection Dates, and Laboratory Received Dates for Samples Analyzed Under STL Sample Delivery Group Numbers 7001-0084A, 7001-0226A, 7001-0226B, 7001-0226C, and 7001-0226D.

ARCADIS Geraghty and Miller, Inc. ID	Laboratory ID	Date Collected	Date Received
SDG 7001-0226A			
MW-3R	010226A-01	01/26/01	01/27/01
MW-10631	010226A-02	01/26/01	01/27/01
TB012601	010226A-03	01/26/01	01/27/01
FB012601	010226A-04	01/26/01	01/27/01
GM-15S	010226A-05	01/30/01	01/31/01
GM-15D	010226A-06	01/30/01	01/31/01
GM-15D2	010226A -07	01/30/01	01/31/01
FB013001	010226A-08	01/30/01	01/31/01
TB013001	010226A-09	01/30/01	01/31/01
GM-17SR	010226A-10	01/31/01	02/01/01
GM-17I	010226A-11	01/31/01	02/01/01
GM-17D	010226A-12	01/31/01	02/01/01
FB013101	010226A-13	01/31/01	02/01/01
TB013101	010226A-14	01/31/01	02/01/01
HN-29D	010226A-15	02/01/01	02/02/01
HN-29I	010226A-16	02/01/01	02/02/01
FW-03	010226A-17	02/01/01	02/02/01
HN-24I	010226A-18	02/01/01	02/02/01
FB020101	010225A-19	02/01/01	02/02/01
TB020101	010226A-20	02/01/01	02/02/01

Table 1. Sample Identification, Collection Dates, and Laboratory Received Dates for Samples Analyzed Under STL Sample Delivery Group Numbers 7001-0084A, 7001-0226A, 7001-0226B, 7001-0226C, and 7001-0226D.

ARCADIS Geraghty and Miller, Inc. ID	Laboratory ID	Date Collected	Date Received
SDG 7001-0226B			
GM-18I	010226B-01	02/02/01	02/03/00
GM-16I	010226B-02	02/02/01	02/03/00
GM-16SR	010226B-03	02/02/01	02/03/00
FB020201	010226B-04	02/02/01	02/03/00
TB020201	010226B-05	02/02/01	02/03/00
GM-74I	010226B-06	02/05/01	02/06/01
GM-74D	010226B-07	02/05/01	02/06/01
FB020501	010226B-08	02/05/01	02/06/01
TB020501	010226B-09	02/05/01	02/06/01
GM-37D	010226B-10	02/06/01	02/07/01
GM-37D2	010226B-11	-2/06/01	02/07/01
TB020601	010226B-12	-2/06/01	02/07/01
GM-36D	010226B-13	-2/07/01	02/08/01
GM-36D-2	010226B-14	02/07/01	02/08/01
TB020701	010226B-15	02/07/01	02/08/01
GM-73D-2	010226B-16	02/08/01	02/09/01
GM-74D-2	010226B-17	02/08/01	02/09/01
GM-34D-2	010226B-18	02/08/01	02/09/01
GM-34D	010226B-19	02/08/01	02/09/01
REP-1	010226B-20	02/08/01	02/09/01

Table 1. Sample Identification, Collection Dates, and Laboratory Received Dates for Samples Analyzed Under STL Sample Delivery Group Numbers 7001-0084A, 7001-0226A, 7001-0226B, 7001-0226C, and 7001-0226D.

ARCADIS Geraghty and Miller, Inc. ID	Laboratory ID	Date Collected	Date Received
SDG 7001-0226C			
FB020801	010226C -01	02/08/01	02/09/01
TB020801	010226C-02	02/08/01	02/09/01
HN-42S	010226C-03	02/09/01	02/10/01
HN-42I	010226C -04	02/09/01	02/10/01
FB020901	010226C-05	02/09/01	02/10/01
TB020901	010226C-06	02/09/01	02/10/01
52S	010226C-07	02/12/01	02/13/01
52I	010226C-08	02/12/01	02/13/01
52D	010226C-09	02/12/01	02/13/01
TB021201	010226C-10	02/12/01	02/13/01
FB021201	010226C-11	-2/12/01	02/13/01
N-10627	010226C-12	-2/13/01	02/14/01
HN-40S	010226C-13	-2/13/01	2/14/01
HN-40I	010226C-14	-2/13/01	02/14/01
FB021301	010226C-15	02/13/01	02/14/01
TB021301	010226C-16	02/13/01	02/14/01
GM-79D	010226C-17	02/14/01	02/15/01
GM-18D	010226C-18	02/14/01	02/15/01
FB021401	010226C-19	02/14/01	02/15/01
TB021401	010226C-20	02/14/01	02/15/01

Table 1. Sample Identification, Collection Dates, and Laboratory Received Dates for Samples Analyzed Under STL Sample Delivery Group Numbers 7001-0084A, 7001-0226A, 7001-0226B, 7001-0226C, and 7001-0226D.

ARCADIS Geraghty and Miller, Inc. ID	Laboratory ID	Date Collected	Date Received
SDG 7001-0226D			
GM-79I	010226D-01	02/14/01	02/15/01
GM-23S	010226D-02	02/15/01	02/16/01
GM-23I	010226D-03	02/15/01	02/16/01
GM-13D	010226D-04	02/15/01	02/16/01
GM-33D-2	010226D-05	02/15/01	02/16/01
FBB021501	010226D-06	02/15/01	02/16/01
TB021501	010226D-07	02/15/01	02/16/01
REP-3	010226D-08	02/15/01	02/16/01
GM-35D-2	010226D-09	02/19/01	02/20/01
GM-70D-2	010226D-10	02/19/01	02/20/01
GM-71D-2	010226D-11	02/19/01	02/20/01
TB021901	010226D-12	02/19/01	02/20/01

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MEMO

To:
David Stern

Copies:

ENVRIONMENTAL

From:
Donna M Brown and Danielle Petkus

Date:
17 April 2001

Subject:
Data Review of Volatile Organic Compound HW Groundwater Samples, Northrop Grumman, Bethpage, New York (Project No. NY 00001321.00001.00004).

Nine groundwater samples, one field replicate, and one trip blank were collected on February 20, 2001 in the vicinity of the Northrop Grumman site, Bethpage, New York. The samples were sent to Severn Trent Laboratories (STL) in Shelton, Connecticut for the analysis of volatile organic compounds (VOCs) following purge and trap GC/MS using New York State Department of Environmental Conservation (NYSDEC) 10/95 Protocols.

A review of the data was performed following the quality assurance/quality control (QA/QC) criteria set forth in the method, and the document "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" dated October 1999. The quality of the data was acceptable with the appropriate qualifications described in this memorandum.

One data package was provided by the laboratory. The analytical data for samples were provided by the laboratory in sample delivery group (SDG) 7001-0405A. The data review results for this SDG is discussed below.

I. HOLDING TIMES

All samples were analyzed within holding time requirements.

II. GC/MS INSTRUMENT PERFORMANCE CHECK

All GC/MS instrument tunes were within criteria.

III. INITIAL CALIBRATION

One initial calibration was performed on February 21, 2001. All compound relative response factors (RRFs) found to be >0.05. The following compound relative standard deviations (%RSDs) were found to be > 30%:

Calibration date: 02/21/01

Compound	%RSD
Bromomethane	35.8

Associated samples: All.

Based on the initial calibration data, bromomethane sample data was qualified as estimated (J) if detected.

IV. CONTINUING CALIBRATION

Two continuing calibrations were performed on February 22 and 23, 2001. The compounds had RRFs 0.05 and percent differences (%Ds) <25% except bromomethane. Bromomethane was qualified as estimated (UJ) if not detected and estimated (J) if detected in the samples.

V. BLANKS

Two method blanks (VBLKTD and VBLKTE) were analyzed with this SDG. No target compounds were detected. One tentatively identified compound (TIC) was detected in VBLKTD and determined to be butylayed hydroxytoluene. One trip blank (TB022001) was collected along with this sample set. No target compounds or TICs were detected in TB022001.

VI. SYSTEM MONITORING COMPOUNDS (SURROGATE SPIKES)

All surrogate spike recoveries were within control limits for all samples and blanks.

VII. MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Sample GP-1/3 influent was used for the matrix spike/matrix spike duplicate (MS/MSD) analyses and matrix spike blank (MSB). Spike recoveries and relative percent difference (RPD) values were within control limits for the MS/MSD and MSB except the recovery for trichloroethene in the MS/MSD. Based on MS/MSD results, qualification of the data was not necessary.

VIII. MATRIX SPIKES/MATRIX SPIKE DUPLICATES

A QCS spike summary was also provided with this SDG. Chloromethane, vinyl chloride, chloroethane, and acetone were not within QC limits. Acetone was qualified as estimated (J) if detected and chloromethane, vinyl chloride, and chloroethane were qualified as estimated (J) if detected and not usable (R) if not detected in the samples.

IX. INTERNAL STANDARDS

All internal standard area counts and retention times were within control limits for all samples and blanks.

X. TARGET COMPOUND IDENTIFICATION

Target compounds detected in the samples were reported .

XI. COMPOUND QUANTITATION AND REPORTED CONTRACT REQUIRED XII. QUANTITATION LIMITS (CRQLs)

All compound detection limits were met.

XIII. TENTATIVELY IDENTIFIED COMPOUNDS (TICs)

No TICs were detected in the samples or trip blank.

XIV. OVERALL ASSESSMENT OF DATA

One field replicate was collected with this sample set. Sample ONCT I influent was replicated and labeled REP-1. The duplicate results were acceptable.

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MEMO

To:
David Stern

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ENVIRONMENTAL

From:
Donna M. Brown

Date:
22 February 2001

Subject:
Data Validation of Cadmium, Chromium, and Semi-Volatile Organic Compounds for Groundwater Samples Collected from the Second Quarter 2000, Off-Site Monitoring Program, Northrop Grumman, Bethpage, New York (Project No. NY1321.1 Task 0004).

Three groundwater samples and two field blanks were collected on January 26 and February 2, 2001 in the vicinity of the Northrop Grumman site, Bethpage, New York. The samples were sent to Severn Trent Laboratories (STL) in Shelton, Connecticut for the analysis of cadmium and chromium using SW846 methods ICAP 3010A/6010B.

A groundwater sample and field blank were collected on January 26, 2001 in the vicinity of the Northrop Grumman site, Bethpage, New York. The samples were sent to Severn Trent Laboratories (STL) in Shelton, Connecticut for the analysis of semi-volatile organic compounds (SVOCs) following GC/MS using New York State Department of Environmental Conservation (NYSDEC) 10/95 Method NYDEC 95-1 with guidance from the USEPA CLP OLM3.2.

Samples analyzed for cadmium, chromium, and SVOCs, are included in sample delivery groups (SDGs) 7001-0226A, 7001-0226B, and 7001-0084A. The VOC results in were fully validated and are discussed in a separate memorandum. The metal and SVOC results were reviewed for the following:

- Chain-of-custody form,
- holding times,
- method and field blanks and
- spike sample recovery.

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The data were complete and acceptable.

Cadmium and Chromium

No metals were detected in the blanks. Based on the review of items listed above qualification of chromium and cadmium results was not necessary

SVOCs

Diethylphthalate was detected in the method and field blanks. Four tentatively identified compounds (TICs) were detected in the method blank. No target compounds or TICs were detected in the samples. Based on the review of items listed above qualification of SVOC results was not necessary