Third Quarter 2004 Groundwater Monitoring Report

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

ARCADIS
Infrastructure, buildings, environment, communications

ARCADIS

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1. Introduction

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

Overall, this report describes the operational and effectiveness monitoring of the on-site portion of the OU2 groundwater remedy for the period from July 13, 2004 through October 1, 2004, which is referred to in this report as the Third Quarter 2004 report period. The Annual Report will include evaluation of long-term data trends. The complete description of the monitoring program and rationale/basis for evaluation of data can be found in the 2002 Annual Report (ARCADIS G&M, Inc. 2003a). The contents of the reports as well as the findings and conclusions will continue to be re-evaluated in future reports as additional data become available.

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

2. Monitoring Program

The results obtained from monitoring activities conducted for this report are provided in Tables 1 through 13 and are described and discussed in the following report sections: Remedial System Operational Monitoring (Section 3), Groundwater Flow (Section 4), and Groundwater Quality (Section 5).

Except as described on Tables 1 through 13 and in Sections 3, 4, and 5 of this report, the procedures, methodologies, and monitoring network utilized for the subject period are consistent with procedures and methodologies used previously (as described in ARCADIS G&M, Inc. 2003a) and the NYSDEC-approved OU2 Groundwater Monitoring Plan (ARCADIS Geraghty & Miller, Inc. 2001).

The locations of the NGC site, the OU2 groundwater remedy, the neighboring properties (i.e., the Naval Weapons Industrial Reserve Plant [NWIRP] and Occidental

Chemical Corporation [OCC]/RUCO Polymer Corporation sites), and existing wells utilized in the monitoring programs are shown on Figure 1. This report also includes the following appendices: Appendix A (water-level measurement logs); Appendix B (groundwater sampling logs); and Appendix C (chain-of-custody records).

3. Remedial System Operational Monitoring

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

Also summarized in this report section are troubleshooting and maintenance activities performed during the Third Quarter 2004 by ARCADIS and NGC on Remedial Well ONCT-1 as well as other maintenance activities performed.

3.1 Water Quality, Treatment Efficiencies, and Mass Removal

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

TVOC concentrations from the remedial wells ranged from 89 micrograms per liter (µg/L) (ONCT-3) to 2,227 µg/L (GP-3); a total of approximately 2,137 pounds of VOCs were removed from the aquifer by the remedial wells; and the efficiencies of the ONCT and GP-1 treatment systems have remained above 99.9 percent.

3.2 Remedial System Pumpage and Discharge

Table 1 summarizes the pumpage of the remedial wells (with comparison to design criteria) for the Third Quarter 2004. The remedial wells collectively pumped approximately 442 million gallons (MG) of groundwater (including Well GP-3). Remedial Well GP-3 does not currently have a design pumping rate. The design pumping rate is currently being determined and will be documented in a subsequent report. Remedial Wells GP-1, ONCT-1, ONCT-2, and ONCT-3 pumped approximately 389 MG of groundwater, which is equivalent to 100 percent of the

design remedial well pumpage volume of 384 MG. Based on weekly measurements collected by ARCADIS, the South Recharge Basins collectively received the treated effluent discharge from the ONCT remedial system (approximately 2,355 gallons per minute [gpm]), incidental stormwater runoff, along with approximately 704 gpm from the GP-1 remedial system, for a total discharge of approximately 3,059 gpm. NGC directed approximately 400 gpm of treated effluent from the GP-1 remedial system to the adjacent Calpine facility for consumptive use this round (Wolfert, 2004). The West Recharge Basins received an average of approximately 423 gpm from the GP-1 remedial system (i.e. the balance of the treated effluent from the GP-1 remedial system).

3.3 Remedial Wells Specific Capacities

Table 2 summarizes the water-level measurement data, corresponding instantaneous pumping rates, and the calculated drawdowns and specific capacities for the OU2 remedial wells for the Third Quarter 2004. Based on the data presented herein, the specific capacities of all the remedial wells exceeded the minimum values needed to maintain the design pumping rates.

3.4 Troubleshooting/Maintenance Activities

Well ONCT-1 was shut down from June 28 to July 16, 2004, to remove and inspect the vertical turbine pump and assess the condition of the well. Additional details of this activity are provided in the Second Quarter 2004 Groundwater Monitoring Report. NGC installed a temporary pump which operated starting July 17, 2004 for approximately five weeks at an average rate of 570 gpm. NGC also simultaneously increased the pumping rate of Well ONCT-2 from 600 gpm (design rate) to an average rate of 1,050 gpm. Well ONCT-1 was shut down from September 1 to September 5, 2004 to remove the temporary pump and install the new vertical turbine pump. From September 5, 2004 through and beyond the close of the Third Quarter 2004, NGC overpumped Wells ONCT-1 and ONCT-2 at average rates of 1,440 and 925 gpm, respectively. These contingency pumping rates were put into operation to recover the difference between the design volume and the actual volume removed from Well ONCT-1 during the period of under-pumping.

Well ONCT-1 was shutdown for approximately 240 hours during the Third Quarter 2004 as a result of the aforementioned maintenance activities. Although the actual total pumpage from Well ONCT-1 was less than the design total pumpage (Well ONCT-1 pumped only 72 percent of the designed volume), Well ONCT-2 was over-

pumped to 165 percent of its design volume during the same time period as a best effort to maintain the remedial capture zone during the maintenance period.

NGC performed routine scraping of the northern of the West Recharge Basins in the Third Quarter 2004 to improve its recharging capacity. During this period, water was diverted equally between the South Recharge Basins.

Other shorter term periods of well/system downtime during the Third Quarter 2004 included the following:

- Installation of temporary boilers at the ONCT and GP-1 treatment systems (approximately 16 hours for each system).
- Short-term repairs and temporary power outages (totaling approximately 80 hours for the ONCT System and 8 hours for the GP-1 System).

4. Groundwater Flow

This report section describes the results of hydraulic monitoring performed during the Third Quarter 2004 (i.e., measured on October 26, 2004). The evaluation of the hydraulic data was performed using methods described in previous quarterly reports.

4.1 Shallow and Intermediate Zones

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

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

groundwater flow in the shallow and intermediate zones during normal operation of the on-site portion of the OU2 groundwater remedy.

NGC shut down the northern West Recharge Basin during the Third Quarter 2004 and diverted the water equally between the South Recharge Basins. The hydraulic data indicate that the extent of the mounding was not significantly affected as a result of the basin maintenance activity (Figure 2).

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

4.2 Deep and D2 Zones

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

Figure 4 depicts the potentiometric surface elevation in the D2 zone that illustrates the cumulative capture zone formed by the combined pumpage of the OU2 remedial wells during the Third Quarter 2004. The capture zone extends across the entire NGC site southern boundary and approximately 700 ft south of the NGC site in a downgradient direction.

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

4.3 Summary

Based on the data presented above, the combination of shallow recharge at the South Recharge Basins coupled with pumpage of the OU2 remedial wells in the D2 zone forms a hydraulic barrier to groundwater flow that continues to be effective in

achieving the OU2 remedial goal of preventing the off-site migration of VOC-impacted groundwater.

5. Groundwater Quality

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

5.1 Volatile Organic Compounds

The evaluation of VOC concentrations is presented here in consideration of the following factors: (1) proximity to the hydraulic barrier formed by the on-site portion of the OU2 groundwater remedy (i.e., upgradient, along the NGC site southern boundary, and downgradient of the hydraulic barrier), (2) hydrogeologic zone (i.e., shallow, intermediate, deep, and D2 zones), and (3) NYSDEC Standards, Criteria, and Guidance Values. A discussion of the expected effect on groundwater quality from operating the on-site portion of the OU2 groundwater remedy is provided in the 2002 Annual Report (ARCADIS G&M, Inc. 2003a).

A summary of total VOCs detected in the select wells at the NGC site southern perimeter and a comparison to SCGs is provided in Table 5.

5.1.1 Shallow and Intermediate Zones

The Third Quarter 2004 groundwater quality analytical results for shallow and intermediate monitoring wells are provided in Tables 6 and 7, respectively. In general, the water quality data from the shallow and intermediate wells sampled this quarter continue to support the interpretation of hydraulic data from the current and previous quarters and confirm that the operation of the on-site portion of the OU2 groundwater remedy has formed an effective hydraulic barrier that prevents the off-site migration of VOC-impacted groundwater in the shallow and intermediate zones.

Five of the six shallow wells that are located at or immediately downgradient of the NGC site southern boundary exhibited no or trace VOC detections and no SCG

exceedences. Well GM-18S exhibited one SCG exceedence this round (Tables 5 and 6).

All of the seven similarly located intermediate wells exhibited no or trace VOC detections and no exceedences of SCGs (Tables 5 and 7).

5.1.2 Deep Zone

In general, the water quality data from the deep wells sampled during the Third Quarter 2004 continue to support the interpretation of the hydraulic data from the current and previous quarters and confirm that the operation of the on-site portion of the OU2 groundwater remedy has formed an effective hydraulic barrier that prevents the off-site migration of VOC-impacted groundwater in the deep zone.

Deep wells (GM-15D, GM-39D_A, GM-39D_B, GM-73D, and GM-74D) located along or upgradient of the line of remedial wells near the NGC site southern boundary (Table 8 and Figure 1), exhibited SCG exceedences. Based on evaluation of the hydraulic data that is depicted on Figure 4, these monitoring wells are within the capture zone of the remedial wells and, therefore, groundwater in this area is hydraulically contained and, over time, will be extracted and treated by the on-site portion of the OU2 groundwater remedy.

The four deep wells (GM-17D, GM-18D, GM-20D and GM-21D) located at or immediately downgradient of the NGC site southern boundary (Tables 5 and 8) exhibited no or trace VOC detections and no SCG exceedences.

The remaining deep wells (N10627, GM-13D, GM-34D, GM-36D, GM-37D, GM-38D, GM-79D and HN-29D) located either upgradient or further downgradient of the hydraulic barrier exhibited TVOC concentrations ranging from 1 ug/L to 1143 ug/L (Table 8). These data are consistent with the expected concentrations in the portion of the groundwater VOC plume in the deep zone that is not actively remediated.

5.1.3 Deep2 Zone

Groundwater monitoring data from the D2 zone are summarized in Table 9. In general, water quality data from the D2 wells sampled during the Third Quarter 2004 continue to support the interpretation of hydraulic data from the current and previous quarters and confirm that the operation of the on-site portion of the OU2 groundwater remedy has formed an effective hydraulic barrier that prevents the off-site migration of VOC-impacted groundwater in the D2 zone.

Total VOC concentrations along the line of remedial wells near the NGC site southern boundary at and approximately 700 ft east of Well ONCT-1 (i.e., as indicated by Well GM-73D2) were higher than elsewhere near the NGC site southern boundary (Table 9). Monitoring Well GM-33D2 (at the NGC site southwestern boundary) and wells located east of Well GM-73D2 (Wells ONCT-2, GM-74D2, ONCT-3 and GM-15D2) exhibited one or more exceedences of SCGs (Table 9), but total VOC concentrations in these areas, by comparison to Wells ONCT-1 and GM-73D2, are substantially lower and ranged from 18 ug/L (Well GM-74D2) to 152 ug/L (Well ONCT-2). However, based on hydraulic data depicted on Figure 4, on-site wells near the NGC site southern boundary are within the capture zone of the remedial wells (screened in the D2 zone) and therefore groundwater in this area is hydraulically contained and, over time, will be extracted and treated by the on-site portion of the OU2 groundwater remedy.

Seven of the eight off-site D2 wells exhibited SCG exceedences with total VOC concentrations ranging from non-detect (Well GM-36D2) to 1,213 ug/L (Well GM-38D2). These data are consistent with the expected concentrations in the off-site portion of the groundwater plume in the D2 zone.

5.2 Outpost Monitoring

The complete description of the procedures to collect groundwater samples from the outpost wells and evaluate and document the results is provided in the PWSCP (ARCADIS G&M, Inc., 2003b). The results of the Third Quarter 2004 outpost well monitoring round are provided in Table 10. VOCs were not detected in Outpost Wells OW1-2, OW2-2, OW3-1, OW3-2, OW4-1, and OW4-2 this round. Outpost Wells OW1-1, OW1-3, and OW2-1 had detections of site-related VOCs, with one SCG exceedence detected in Well OW1-1. Benzene (not site-related) was also detected in Well OW2-1, exceeding the SCG.

5.3 Vinyl Chloride Monomer

Vinyl chloride monomer (VCM) concentrations in groundwater samples collected during the Third Quarter 2004 are provided in Tables 6 through 9. VCM continues to be present in Well GP-3 (58 ug/L this round) but was not detected in the other remedial wells, or other monitoring wells sampled this round. Additional groundwater monitoring of the extent of the VCM subplume and evaluation of remedial options for VCM is being performed by Oxy.

5.4 Cadmium and Chromium

The results of the quarterly monitoring of wells analyzed for cadmium and chromium (Cd/Cr) are provided in Table 11. The data indicate that Cr exceeded the SCG in 5 of the 14 wells sampled this round, with no off-site SCG exceedences. Wells MW-3R and N-10631 (total results only) exhibited the only Cd SCG exceedences (Figure 1 and Table 11). Comparison of the total/dissolved results indicates that Cd/Cr are present in groundwater predominantly in the dissolved phase.

5.5 Tentatively Identified Compounds

The results of the laboratory qualitative assessment of Tentatively Identified Compound (TIC) concentrations in the samples collected during the Third Quarter 2004 are provided in Table 12. A review of these data reveal that two TICs were identified: trimethylsilanol in Wells GM-79I and GM-79D, and HCFC 123a in Well GM-34D. An unknown compound was detected in Well GM-79I. Because TIC data is qualitative in nature, ARCADIS will monitor the known TICs; if trends develop to indicate that it is frequently present, we will petition the NYSDEC to add it to the list of constituents monitored.

5.6 QA/QC Samples and Data Validation

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

ARCADIS performed validation of all groundwater quality data collected (including TICs) by following the contract laboratory program national functional guidelines for organic and inorganic data review (USEPA 1999). The quality of the data is considered acceptable with the qualifications indicated on Tables 6 through 13.

6. Summary and Conclusions

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

1. Well GP-3 has been formally incorporated into the on-site portion of the OU2 groundwater remedy, in accordance with the NYSDEC letter of July 13, 2004.

2. The remedial system pumpage data show that the OU2 remedial wells pumped approximately 100 percent of the design volume of groundwater. Recharge basins received a collective total of 401 MG of treated water this quarter.

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

4. Approximately 2,137 lbs of VOCs were removed from the aquifer and treated by the on-site portion of the OU2 groundwater remedy.

5. The treatment efficiencies of both groundwater remedial systems remain above 99.9 percent.

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

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

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

9. With one exception this round, Cd/Cr SCG exceedences are limited to on-site areas.

7. Recommendation

ARCADIS makes no recommendation for modification of the groundwater monitoring program at this time.

8. References

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U.S. Environmental Protection Agency (USEPA). 1999. Contract Laboratory Program National Functional Guidelines for Organic Data Review. October 1999.

Wolfert, Michael. 2004. Notes by Michael F. Wolfert of ARCADIS, during meeting between ARCADIS, Northrop Grumman Corporation, Holzmacher, McLendon, and Merrill, Town of Oyster Bay, Nassau County Legislature E. Mangano, Long Island Power Authority, Hicksville Water District, Cashin Associates, Bethpage Fire District, and Calpine. July 28, 2004.

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

Identification	Design Pumping/ Recharge Rate [a] (gpm)	Current Actual Average Pumping/Recharge Rate [b] (gpm)	Design Total Pumpage/Recharge (MG)	Current Actual Total Pumpage/Recharge (MG)	Current Percent of Design Pumpage/ Recharge	Current TCE Concentration (ug/L)	Current TVOC Concentration [c] ug/L	Current Estimated VOC Mass Removed [d] (lbs)
Remedial Wells			**Groundwater Removed from Aquifer**					
GP-1	1,075	1,058	123.8	120.7	97%	400	544	547
GP-3 [f]	--	465	--	53.0	--	2100[e]	2,226.8	983
ONCT-1	1,000	873	115.2	82.5	72%	570	598	411
ONCT-2	600	1,038	69.1	112.4	163%	140	152	142
ONCT-3	700	681	80.6	73.0	91%	64	89	54
Rounded Totals:	**3,375**	**4,115**	**389**	**442**	**100%[g]**	--	--	**2,137**
Recharge Basins [a]			**Treated Water Recharged to Aquifer**					
West Recharge Basins	0	423	0	48.7	--	--	--	--
South Recharge Basins	2,231	3,059	257.0	352.4	137%	--	--	--
Rounded Totals:	**2,231**	**3,482**	**257**	**401.1**	**156%**	--	--	--
			Treated Water Sent to Calpine					
	400	400	46.1	45.6	--	--	--	--
Treatment Efficiencies								
GP-1 System Air Stripping Efficiency [n] :		**>99.9%**						
ONCT System Air Stripping Efficiency [n] :		**>99.9%**						

see footnotes on last page

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

(a) - Remedial well pumping rates based on computer modeling (ARCADIS Geraghty & Miller, Inc. 2000). Acceptable minimum recharge rates based on computer modeling (ARCADIS G&M, Inc. 2004b). Total recharge includes remedial well pumpage (minus pipe loss) and incidental runoff from precipitation. Current average recharge rates have been determined using the entire 80-day span of time as opposed to current average pumping rates, which account for varying amounts of downtime, as indicated below.

(b) - Actual Average Pumping Rates were calculated based on Actual Total Pumpage and hours of operation from July 13, 2004 to October 1, 2004 (80 days).

- OU2 wells were operational during the Third Quarter 2004, at the following percentages: GP-1 (99%), GP-3 (99%); ONCT-1 (81%), ONCT-2 (94%), and ONCT-3 (93%). The Actual Average Pumping Rates are for when the wells are pumping.

(c) - The TVOC concentration for each well was calculated based on Third Quarter 2004 groundwater monitoring data (Table 9).

(d) - TVOC mass removed during the Third Quarter 2004 was based on the TVOC data given above and the following formula:

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

(e) TCE concentration in Well GP-3 exceeded the instrument calibration range and is therefore considered an estimated value.

(f) The NYSDEC formally included Well GP-3 in the network of OU2 remedial wells on July 13, 2004.

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

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

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

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

--	Not Available or Not Applicable	lb/g	pounds per gram
TVOC	Total Volatile Organic Compounds	lbs	pounds
g/ug	grams per microgram	MG	Million Gallons
gpm	gallons per minute	ug/L	micrograms per liter
L/gal	Liters per gallon	OU2	Operable Unit 2
		Q	Pumping Rate

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

	Baseline		Third Quarter 2004					
Well Identification	Static Depth to Water[1] (ft bmp)	Specific Capacity (gpm/ft)	Date of Pumping and Water-Level Measurements	Pumping Depth to Water (ft bmp)	Static Depth to Water (ft bmp)	Drawdown (ft)	Instantaneous Pumping Rate (gpm)	Specific Capacity (gpm/ft)
ONCT-1	44.12	44.03	10/26/2004	63.8	44.12	19.68	1,026	52.1
ONCT-2	50.15	38.09	10/26/2004	64.85	50.15	14.70	570	38.8
ONCT-3	49.13	40.12	10/26/2004	66.05	49.13	16.92	722	42.7
GP-1	55.75	28.57	10/26/2004	91	55.75	35.25	1,070	30.4
GP-3 [2]	56.05	8.50	10/28/2004	110	56.05	53.95	440	8.2

(1) Static depth to water measurements have previously been adjusted using Well GM-4D, located approximately 5 miles to the east of the Northrop Grumman site. Upon review of this adjustment, it has been determined that a more accurate representation of the regional water-table fluctuations can be made using a well closer to the site; this well has yet to be determined, but will be used to adjust the measurements in future reports.

(2) Well GP-3 adjusted static depth to water based on measurements made during the First Quarter of 2004 (ARCADIS G&M, Inc. 2005). Baseline specific capacity calculated using pumping depth to water and rate measurements collected during August 2004.

OU2	Operable Unit 2
gpm	gallons per minute
ft bmp	feet below measuring point
ft	feet
gpm/ft	gallons per minute per foot of drawdown

Table 3. Water-Level Measurement Data, October 26, 2004, Northrop Grumman Corporation, Bethpage, New York.

Well Identification	Measuring Point Elevation (ft msl)	Depth to Water (ft bmp)	Water-Level Elevation (ft msl)
Shallow Wells			
FW-03	124.30	58.09	66.21
N-9921	94.23	33.88	60.35
N-10597	109.85	44.20	65.65
N-10600	102.41	41.00	61.41
N-10631	103.47	40.12	63.35
N-10633	103.80	38.35	65.45
N-10634	101.20	40.30	60.90
N-10821	91.58	35.58	56.00
GM-15S	109.44	45.55	63.89
GM-16SR	115.86	50.14	65.72
GM-17SR	115.79	50.71	65.08
GM-18S [4]	107.60	--	--
GM-19S	109.86	42.81	67.05
GM-21S	105.81	33.87	71.94
GM-78S	104.94	42.85	62.09
GM-79S (N-10628)	100.88	40.19	60.69
HN-40S	116.35	49.48	66.87
HN-42S	120.32	53.09	67.23
MW-3R	101.45	36.55	64.90
Intermediate Wells			
N-10624	93.61	33.36	60.25
GM-15I	109.25	45.38	63.87
GM-16I	115.81	50.27	65.54
GM-17I	115.83	50.82	65.01
GM-18I	109.03	44.73	64.30
GM-19I	109.86	43.39	66.47
GM-20I	103.88	37.82	66.06
GM-21I	105.72	36.90	68.82
GM-74I	107.42	37.86	69.56
GM-78I	105.06	43.15	61.91
GM-79I	100.88	41.27	59.61
HN-24I	125.80	58.01	67.79
HN-29I	116.42	48.81	67.61
HN-40I	115.91	50.32	65.59
HN-42I	119.61	52.40	67.21

See notes on last page

Table 3. Water-Level Measurement Data, October 26, 2004, Northrop Grumman Corporation, Bethpage, New York.

Well Identification	Measuring Point Elevation (ft msl)	Depth to Water (ft bmp)	Water-Level Elevation (ft msl)
Deep Wells			
N-10627	93.70	33.83	59.87
GM-13D	113.97	48.25	65.72
GM-15D	109.84	48.26	61.58
GM-17D	115.68	52.32	63.36
GM-18D	108.88	47.31	61.57
GM-20D	103.92	39.52	64.40
GM-21D	105.66	43.88	61.78
GM-34D [4]	71.19	--	--
GM-36D	91.63	36.40	55.23
GM-37D	97.26	40.57	56.69
GM-38D	91.75	39.64	52.11
$GM\text{-}39D_A$	102.23	40.62	61.61
$GM\text{-}39D_B$ [3]	102.08	43.47	58.61
GM-73D	104.87	45.52	59.35
GM-74D	107.43	45.95	61.48
GM-79D	101.25	42.75	58.50
HN-29D	115.11	49.16	65.95
Deep2 Wells			
GM-15D2	109.78	51.15	58.63
GM-33D2	106.85	51.15	55.70
GM-34D2 [4]	71.19	--	--
GM-35D2	96.28	41.11	55.17
GM-36D2	91.60	38.77	52.83
GM-37D2	97.17	41.25	55.92
GM-38D2	91.56	42.19	49.37
GM-70D2	99.58	42.19	57.39
GM-71D2	98.45	42.99	55.46
GM-73D2	104.62	47.57	57.05
GM-74D2	107.36	52.68	54.68
GM-75D2	93.63	36.92	56.71
GP-1 [1]	116.78	91	25.78
ONCT-1 [2]	104.10	63.80	40.30
ONCT-2	110.00	64.85	45.15
ONCT-3	108.70	66.05	42.65

See notes on last page

Table 3. Water-Level Measurement Data, October 26, 2004, Northrop Grumman Corporation, Bethpage, New York.

Well Identification	Measuring Point Elevation (ft msl)	Depth to Water (ft bmp)	Water-Level Elevation (ft msl)
Outpost Wells			
BPOW1-1	73.65	30.21	43.44
BPOW1-2	73.54	30.88	42.66
BPOW1-3	73.37	30.82	42.55
BPOW2-1	60.06	20.95	39.11
BPOW2-2	59.96	21.12	38.84
BPOW3-1	63.19	27.05	36.14
BPOW3-2	63.72	28.53	35.19
BPOW4-1	67.34	28.89	38.45
BPOW4-2	67.18	28.53	38.65

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

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

(3) Well GM-39D_B set in basal portion of the deep zone.

(4) Well GM-18S was not accessible due to construction activities in the area; Wells GM-34D and GM-34D2 were not measured due to site access coordination problems.

ft msl feet relative to mean sea level

ft bmp feet below measuring point

-- Not Measured

Table 4. Comparison of October 26, 2004 Vertical Hydraulic Gradients to Model Predicted Gradients, Northrop Grumman Corporation, Bethpage, New York.

Well Pair ID	Well Screen Midpoint Elevation (ft msl)	Water-Level Elevation (ft msl)	Vertical Gradient [2] (ft/ft) * 10^3	Model-Predicted, OU2 Steady-State Vertical Gradient (ft/ft) * 10^3	Increase Compared to Model-Predicted, Steady-State Vertical Gradient
Shallow-Intermediate Wells					
GM-15S	34.53	63.89			
GM-15I	9.29	63.87	0.79	4.20	-3.41
GM-16SR	66.77	65.72			
GM-16I	-24.19	65.54	1.98	1.11	0.87
GM-17SR	50.79	65.08			
GM-17I	5.83	65.01	1.56	4.50	-2.94
GM-21S	40.81	71.94			
GM-21I	-29.28	68.82	44.51	18.44	26.07
GM-78S	39.94	62.09			
GM-78I	5.56	61.91	5.24	8.73	-3.49
GM-79S	35.88	60.69			
GM-79I	-73.91	59.61	9.84	0.91	8.93
Intermediate-Deep Wells					
GM-15I	9.29	63.87			
GM-15D	-227.34	61.58	9.68	6.52	3.16
GM-17I	5.83	65.01			
GM-17D	-172.32	63.36	9.26	7.86	1.40
GM-18I	9.03	64.30			
GM-18D	-186.12	61.57	13.99	7.74	6.25
GM-20I	3.88	66.06			
GM-20D	-117.08	64.40	13.72	18.22	-4.50
GM-21I	-29.28	68.82			
GM-21D	-177.34	61.78	47.55	43.97	3.58
GM-74I	8.42	69.56			
GM-74D	-192.57	61.48	40.20	20.17	20.03
GM-79I	-73.91	59.61			
GM-79D	-183.75	58.50	10.11	15.48	-5.37

See notes on last page

Table 4. Comparison of October 26, 2004 Vertical Hydraulic Gradients to Model Predicted Gradients, Northrop Grumman Corporation, Bethpage, New York.

Well Pair ID	Well Screen Midpoint Elevation (ft msl)	Water-Level Elevation (ft msl)	Vertical Gradient [2] (ft/ft) * 10^3	Model-Predicted, OU2 Steady-State Vertical Gradient (ft/ft) * 10^3	Increase Compared to Model-Predicted, Steady-State Vertical Gradient
Deep-Deep 2 Wells					
GM-15D	-227.34	61.58			
GM-15D2	-436.41	58.63	14.11	14.19	-0.08
GM-18D	-186.12	61.57			
GM-33D2	-403.15	55.70	27.05	12.30	14.75
GM-36D	-117.37	55.23			
GM-36D2	-443.40	52.83	7.36	2.75	4.61
GM-37D	-154.74	56.69			
GM-37D2	-282.83	55.92	6.01	3.88	2.13
GM-38D	-238.25	52.11			
GM-38D2	-393.44	49.37	17.66	6.08	11.58
GM-39D_A [1]	-169.77	61.61			
GM-39D_B [1]	-312.92	58.61	20.96	13.46	7.50
GM-73D	-301.13	59.35			
GM-73D2	-437.38	57.05	16.88	18.78	-1.90
GM-74D	-192.57	61.48			
GM-74D2	-444.64	54.68	26.98	28.26	-1.28
N-10627	-198.80	59.87			
GM-75D2	-421.37	56.71	14.20	2.25	11.95

Notes:

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

ft msl feet relative to mean sea level

[2] Vertical hydraulic gradients are calculated as follows:

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

$_1$ - Shallower well of pairing

$_2$ - Deeper well of pairing

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

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

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

Shallow Zone							
Well Identification:	N-10631	GM-17SR	GM-18S	GM-21S	GM-78S	MW-3R	
Third Quarter TVOC Concentration (ug/L):	0.9	ND	12	1	0.7	4.0	
No. of Third Quarter VOC SCG Exceedences:	None	None	1	None	None	None	
Third Quarter Total Cd Concentration (ug/L):	5.8	<10	2.4	NS	<10	42.2	
No. of Third Quarter Total Cd SCG Exceedences:	1	None	None	--	None	1	
Third Quarter Total Cr Concentration (ug/L):	25.9	1.4	2.8	NS	<10	74.6	
No. of Third Quarter Total Cr SCG Exceedences:	None	None	None	--	None	1	
Intermediate Zone							
Well Identification:	GM-17I	GM-18I	GM-20I	GM-2II	GM-74I	GM-78I	GM-79I
Third Quarter TVOC Concentration (ug/L):	ND	4.6	ND	ND	ND	0.6	ND
No. Third Quarter VOC SCG Exceedences:	None	None	None	None	None	None	None
Third Quarter Total Cd Concentration (ug/L):	NS	NS	NS	NS	NS	<10	NS
No. of Third Quarter Total Cd SCG Exceedences:	--	--	--	--	--	None	--
Third Quarter Total Cr Concentration (ug/L):	NS	NS	NS	NS	NS	2.7	NS
No. of Third Quarter Total Cr SCG Exceedences:	--	--	--	--	--	None	--
Deep Zone							
Well Identification:	GM-17D	GM-18D	GM-20D	GM-21D			
Third Quarter TVOC Concentration (ug/L):	0.7	0.6	ND	1			
No. Third Quarter VOC SCG Exceedences:	None	None	None	None			

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

(2) Standards, Criteria, and Guidance (SCG) values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000) that are based on the NYSDEC TOGSs (NYSDEC 1998); most stringent value listed.

VOC Volatile Organic Compound
NS Not Sampled
ND Not Detected
-- Not Applicable
Cd Cadmium
Cr Chromium
TVOC Total Volatile Organic Compound

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

CONSTITUENT (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL:	10631	10634	FW-03	GM-15S	GM-16SR
		SAMPLE ID:	N-10631	N10634	FW-03	GM-15S	GM-16SR
		DATE:	11/16/2004	11/01/2004	10/06/2004	10/04/2004	10/01/2004
Chloromethane	5		<5	<5	<5	<5	<5
Bromomethane	5		<5	<5	<5	<5	<5
Vinyl Chloride	2		<2	<2	<2	<2	<2
Chloroethane	5		<5	<5	<5	<5	<5
Methylene chloride	5		<5	<5	<5	<5	<5
Acetone	50		<10	<10	<10	<10	<10
Carbon disulfide	50		<5	<5	<5	<5	<5
1,1-Dichloroethene	5		<5	<5	<5	<5	<5
1,1-Dichloroethane	5		<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	5		<5	<5	**4 J**	<5	<5
trans-1,2-Dichloroethene	5		<5	<5	<5	<5	<5
Chloroform	7		<5	<5	<5	<5	<5
1,2-Dichloroethane	5		<5	<5	<5	<5	<5
2-Butanone	50		<10	<10	<10	<10	<10
1,1,1-Trichloroethane	5		<5	<5	**2 J**	<5	<5
Carbon tetrachloride	5		<5	<5	<5	<5	<5
Bromodichloromethane	50		<5	<5	<5	<5	<5
1,2-Dichloropropane	5		<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	5		<5	<5	<5	<5	<5
Trichloroethene	5		**0.9 J**	<5	**4 J**	**2 J**	<5
Dibromochloromethane	5		<5	<5	<5	<5	<5
1,1,2-Trichloroethane	5		<5	<5	<5	<5	<5
Benzene	0.7		<0.7	<0.7	<0.7	<0.7	<0.7
trans-1,3-Dichloropropene	5		<5	<5	<5	<5	<5
Bromoform	50		<5	<5	<5	<5	<5
4-Methyl-2-pentanone	50		<10	<10	<10	<10	<10
2-Hexanone	50		<10	<10	<10	<10	<10
Tetrachloroethene	5		<5	<5	**35**	<5	<5
1,1,2,2-Tetrachloroethane	5		<5	<5	<5	<5	<5
Toluene	5		<5	<5	<5	<5	<5
Chlorobenzene	5		<5	<5	<5	<5	<5
Ethylbenzene	5		<5	<5	<5	<5	<5
Styrene	5		<5	<5	<5	<5	<5
Xylene (total)	5		<5	<5	<5	<5	<5
Vinyl Acetate	NE		<5	<5	<5	<5	<5
Freon-113 *	5		<5	<5	<5	<5	<5
Total VOCs			**0.9**	**0**	**45**	**2**	**0**

(1) Standards, Criteria, and Guidance (SCG) values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000) that are based on the NYSDEC TOGS (NYSDEC 1998); most stringent value listed.

VOCs Volatile organic compounds

ug/L Micrograms per liter

J Estimated value

NYSDEC New York State Department of Environmental Conservation

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

[ ] Value exceeds associated SCG value.

NE No SCG established

TOGS Technical and Operational Guidance Series memorandum.

Bold value indicates a detection.

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

CONSTITUENT (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL:	GM-17SR	GM-18S	GM-21S	GM-32S	GM-78S
		SAMPLE ID:	GM-17SR	GM-18S	GM-21S	GM-32S	78 S
		DATE:	09/30/2004	11/16/2004	10/05/2004	10/11/2004	09/30/2004
Chloromethane	5		<5	<5	<5	<5	<5
Bromomethane	5		<5	<5	<5	<5	<5
Vinyl Chloride	2		<2	<2	<2	<2	<2
Chloroethane	5		<5	<5	<5	<5	<5
Methylene chloride	5		<5	<5	<5	<5	<5
Acetone	50		<10	<10	<10	<10	<10
Carbon disulfide	50		<5	<5	<5	<5	<5
1,1-Dichloroethene	5		<5	<5	<5	<5	<5
1,1-Dichloroethane	5		<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	5		<5	**3 J**	<5	**1 J**	<5
trans-1,2-Dichloroethene	5		<5	<5	<5	<5	<5
Chloroform	7		<5	**3 J**	<5	<5	<5
1,2-Dichloroethane	5		<5	<5	<5	<5	<5
2-Butanone	50		<10	<10	<10	<10	<10
1,1,1-Trichloroethane	5		<5	<5	<5	<5	<5
Carbon tetrachloride	5		<5	<5	<5	<5	<5
Bromodichloromethane	50		<5	<5	<5	<5	<5
1,2-Dichloropropane	5		<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	5		<5	<5	<5	<5	<5
Trichloroethene	5		<5	**6**	<5	**21**	**0.7 J**
Dibromochloromethane	5		<5	<5	<5	<5	<5
1,1,2-Trichloroethane	5		<5	<5	<5	<5	<5
Benzene	0.7		<0.7	<0.7	<0.7	<0.7	<0.7
trans-1,3-Dichloropropene	5		<5	<5	<5	<5	<5
Bromoform	50		<5	<5	<5	<5	<5
4-Methyl-2-pentanone	50		<10	<10	<10	<10	<10
2-Hexanone	50		<10	<10	<10	<10	<10
Tetrachloroethene	5		<5	<5	**1 J**	<5	<5
1,1,2,2-Tetrachloroethane	5		<5	<5	<5	<5	<5
Toluene	5		<5	<5	<5	<5	<5
Chlorobenzene	5		<5	<5	<5	<5	<5
Ethylbenzene	5		<5	<5	<5	<5	<5
Styrene	5		<5	<5	<5	<5	<5
Xylene (total)	5		<5	<5	<5	<5	<5
Vinyl Acetate	NE		<5	<5	<5	<5	<5
Freon-113 *	5		<5	<5	<5	<5	<5
Total VOCs			**0**	**12**	**1**	**22**	**0.7**

(1) Standards, Criteria, and Guidance (SCG) values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000) that are based on the NYSDEC TOGS (NYSDEC 1998); most stringent value listed.

VOCs Volatile organic compounds

ug/L Micrograms per liter

J Estimated value

NYSDEC New York State Department of Environmental Conservation

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

Value exceeds associated SCG value.

NE No SCG established

TOGS Technical and Operational Guidance Series memorandum.

Bold value indicates a detection.

Table 6. Concentrations of Volatile Organic Compounds Detected in Shallow Wells, Third Quarter 2004, 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 / 09/28/2004	HN-42S / HW-42S / 09/28/2004	MW-03R / MW-3R / 09/30/2004
Chloromethane	5		<5	<5	<5
Bromomethane	5		<5	<5	<5
Vinyl Chloride	2		<2	<2	<2
Chloroethane	5		<5	<5	<5
Methylene chloride	5		<5	<5	<5
Acetone	50		<10	<10	<10
Carbon disulfide	50		<5	<5	<5
1,1-Dichloroethene	5		<5	<5	<5
1,1-Dichloroethane	5		<5	<5	<5
cis-1,2-Dichloroethene	5		<5	<5	<5
trans-1,2-Dichloroethene	5		<5	<5	<5
Chloroform	7		<5	<5	<5
1,2-Dichloroethane	5		<5	<5	<5
2-Butanone	50		<10	<10	<10
1,1,1-Trichloroethane	5		<5	<5	<5
Carbon tetrachloride	5		<5	<5	<5
Bromodichloromethane	50		<5	<5	<5
1,2-Dichloropropane	5		<5	<5	<5
cis-1,3-Dichloropropene	5		<5	<5	<5
Trichloroethene	5		<5	<5	**4 J**
Dibromochloromethane	5		<5	<5	<5
1,1,2-Trichloroethane	5		<5	<5	<5
Benzene	0.7		<0.7	<0.7	<0.7
trans-1,3-Dichloropropene	5		<5	<5	<5
Bromoform	50		<5	<5	<5
4-Methyl-2-pentanone	50		<10	<10	<10
2-Hexanone	50		<10	<10	<10
Tetrachloroethene	5		<5	<5	<5
1,1,2,2-Tetrachloroethane	5		<5	<5	<5
Toluene	5		<5	<5	<5
Chlorobenzene	5		<5	<5	<5
Ethylbenzene	5		<5	<5	<5
Styrene	5		<5	<5	<5
Xylene (total)	5		<5	<5	<5
Vinyl Acetate	NE		<5	<5	<5
Freon-113 *	5		<5	<5	<5
Total VOCs			**0**	**0**	**4**

(1) Standards, Criteria, and Guidance (SCG) values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000) that are based on the NYSDEC TOGS (NYSDEC 1998); most stringent value listed.

VOCs Volatile organic compounds

ug/L Micrograms per liter

J Estimated value

NYSDEC New York State Department of Environmental Conservation

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

[ ] Value exceeds associated SCG value.

NE No SCG established

TOGS Technical and Operational Guidance Series memorandum.

Bold value indicates a detection.

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

CONSTITUENT (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL:	10624	GM-15I	GM-16I	GM-17I	GM-18I
		SAMPLE ID:	N-10624	GM-15I	GM-16I	GM 17I	GM18I
		DATE:	11/15/2004	10/05/2004	10/01/2004	10/29/2004	11/08/2004
Chloromethane	5		<5	<5	<5	<5	<5
Bromomethane	5		<5	<5	<5	<5	<5
Vinyl Chloride	2		<2	<2	<2	<2	<2
Chloroethane	5		<5	<5	<5	<5	<5
Methylene chloride	5		<5	<5	<5	<5	<5
Acetone	50		<10	<10	<10	<10	<10
Carbon disulfide	50		<5	<5	<5	<5	<5
1,1-Dichloroethene	5		<5	<5	**2 J**	<5	<5
1,1-Dichloroethane	5		<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	5		<5	**0.5 J**	**5**	<5	<5
trans-1,2-Dichloroethene	5		<5	<5	<5	<5	<5
Chloroform	7		<5	<5	<5	<5	**0.6 J**
1,2-Dichloroethane	5		<5	<5	<5	<5	<5
2-Butanone	50		<10	<10	<10	<10	<10
1,1,1-Trichloroethane	5		<5	<5	<5	<5	<5
Carbon tetrachloride	5		<5	<5	<5	<5	<5
Bromodichloromethane	50		<5	<5	<5	<5	<5
1,2-Dichloropropane	5		<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	5		<5	<5	<5	<5	<5
Trichloroethene	5		<5	**4 J**	**31**	<5	**3 J**
Dibromochloromethane	5		<5	<5	<5	<5	<5
1,1,2-Trichloroethane	5		<5	<5	<5	<5	<5
Benzene	0.7		<0.7	<0.7	<0.7	<0.7	<0.7
trans-1,3-Dichloropropene	5		<5	<5	<5	<5	<5
Bromoform	50		<5	<5	<5	<5	<5
4-Methyl-2-pentanone	50		<10	<10	<10	<10	<10
2-Hexanone	50		<10	<10	<10	<10	<10
Tetrachloroethene	5		<5	<5	**9**	<5	**1 J**
1,1,2,2-Tetrachloroethane	5		<5	<5	<5	<5	<5
Toluene	5		<5	<5	<5	<5	<5
Chlorobenzene	5		<5	<5	<5	<5	<5
Ethylbenzene	5		<5	<5	<5	<5	<5
Styrene	5		<5	<5	<5	<5	<5
Xylene (total)	5		<5	<5	<5	<5	<5
Vinyl Acetate	NE		<5	<5	<5	<5	<5
Freon-113 *	5		<5	<5	<5	<5	<5
Total VOCs			**0**	**4.5**	**47**	**0**	**4.6**

(1) Standards, Criteria, and Guidance (SCG) values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000) that are based on the NYSDEC TOGS (NYSDEC 1998); most stringent value listed.

NYSDEC New York State Department of Environmental Conservation

VOCs Volatile organic compounds

ug/L Micrograms per liter

J Estimated value

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

[ ] Value exceeds associated SCG value.

NE No SCG established

TOGS Technical and Operational Guidance Series memorandum.

Bold value indicates a detection.

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

CONSTITUENT (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL: / SAMPLE ID: / DATE:	GM-20I GM-20I 10/07/2004	GM-21I GM-21I 10/05/2004	GM-74I GM 74I 11/01/2004	GM-78I 78 I 09/30/2004	GM-79I GM-79I 10/08/2004
Chloromethane	5		<5	<5	<5	<5	<5
Bromomethane	5		<5	<5	<5	<5	<5
Vinyl Chloride	2		<2	<2	<2	<2	<2
Chloroethane	5		<5	<5	<5	<5	<5
Methylene chloride	5		<5	<5	<5	<5	<5
Acetone	50		<10	<10	<10	<10	<10
Carbon disulfide	50		<5	<5	<5	<5	<5
1,1-Dichloroethene	5		<5	<5	<5	<5	<5
1,1-Dichloroethane	5		<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	5		<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	5		<5	<5	<5	<5	<5
Chloroform	7		<5	<5	<5	<5	<5
1,2-Dichloroethane	5		<5	<5	<5	<5	<5
2-Butanone	50		<10	<10	<10	<10	<10
1,1,1-Trichloroethane	5		<5	<5	<5	<5	<5
Carbon tetrachloride	5		<5	<5	<5	<5	<5
Bromodichloromethane	50		<5	<5	<5	<5	<5
1,2-Dichloropropane	5		<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	5		<5	<5	<5	<5	<5
Trichloroethene	5		<5	<5	<5	**0.6 J**	<5
Dibromochloromethane	5		<5	<5	<5	<5	<5
1,1,2-Trichloroethane	5		<5	<5	<5	<5	<5
Benzene	0.7		<0.7	<0.7	<0.7	<0.7	<0.7
trans-1,3-Dichloropropene	5		<5	<5	<5	<5	<5
Bromoform	50		<5	<5	<5	<5	<5
4-Methyl-2-pentanone	50		<10	<10	<10	<10	<10
2-Hexanone	50		<10	<10	<10	<10	<10
Tetrachloroethene	5		<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	5		<5	<5	<5	<5	<5
Toluene	5		<5	<5	<5	<5	<5
Chlorobenzene	5		<5	<5	<5	<5	<5
Ethylbenzene	5		<5	<5	<5	<5	<5
Styrene	5		<5	<5	<5	<5	<5
Xylene (total)	5		<5	<5	<5	<5	<5
Vinyl Acetate	NE		<5	<5	<5	<5	<5
Freon-113 *	5		<5	<5	<5	<5	<5
Total VOCs			**0**	**0**	**0**	**0.6**	**0**

(1) Standards, Criteria, and Guidance (SCG) values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000) that are based on the NYSDEC TOGS (NYSDEC 1998); most stringent value listed.

NYSDEC New York State Department of Environmental Conservation

VOCs Volatile organic compounds

ug/L Micrograms per liter

J Estimated value

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

[ ] Value exceeds associated SCG value.

NE No SCG established

TOGS Technical and Operational Guidance Series memorandum.

Bold value indicates a detection.

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

CONSTITUENT (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL:	HN-24I	HN-29I	HN-40I	HN-42I
		SAMPLE ID:	HN-24I	HN-29I	HN-40I	HW-42I
		DATE:	10/06/2004	10/06/2004	09/28/2004	09/28/2004
Chloromethane	5		<5	<5	<5	<5
Bromomethane	5		<5	<5	<5	<5
Vinyl Chloride	2		<2	<2	<2	<2
Chloroethane	5		<5	<5	<5	<5
Methylene chloride	5		<5	<5	<5	<5
Acetone	50		<10	<10	<10	<10
Carbon disulfide	50		<5	<5	<5	<5
1,1-Dichloroethene	5		**2 J**	<5	**0.6 J**	<5
1,1-Dichloroethane	5		<5	<5	<5	<5
cis-1,2-Dichloroethene	5		<5	<5	**0.6 J**	<5
trans-1,2-Dichloroethene	5		<5	<5	<5	<5
Chloroform	7		<5	<5	<5	<5
1,2-Dichloroethane	5		<5	<5	<5	<5
2-Butanone	50		<10	<10	<10	<10
1,1,1-Trichloroethane	5		<5	<5	**2 J**	<5
Carbon tetrachloride	5		<5	<5	<5	<5
Bromodichloromethane	50		<5	<5	<5	<5
1,2-Dichloropropane	5		<5	<5	<5	<5
cis-1,3-Dichloropropene	5		<5	<5	<5	<5
Trichloroethene	5		**36**	**0.6 J**	**20**	<5
Dibromochloromethane	5		<5	<5	<5	<5
1,1,2-Trichloroethane	5		<5	<5	<5	<5
Benzene	0.7		<0.7	<0.7	<0.7	<0.7
trans-1,3-Dichloropropene	5		<5	<5	<5	<5
Bromoform	50		<5	<5	<5	<5
4-Methyl-2-pentanone	50		<10	<10	<10	<10
2-Hexanone	50		<10	<10	<10	<10
Tetrachloroethene	5		**2 J**	**0.9 J**	**7**	<5
1,1,2,2-Tetrachloroethane	5		<5	<5	<5	<5
Toluene	5		<5	<5	<5	<5
Chlorobenzene	5		<5	<5	<5	<5
Ethylbenzene	5		<5	<5	<5	<5
Styrene	5		<5	<5	<5	<5
Xylene (total)	5		<5	<5	<5	<5
Vinyl Acetate	NE		<5	<5	<5	<5
Freon-113 *	5		**19**	<5	<5	<5
Total VOCs			**59**	**1.5**	**30.2**	**0**

[1] Standards, Criteria, and Guidance (SCG) values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000) that are based on the NYSDEC TOGS (NYSDEC 1998); most stringent value listed.

NYSDEC New York State Department of Environmental Conservation

VOCs Volatile organic compounds

ug/L Micrograms per liter

J Estimated value

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

[ ] Value exceeds associated SCG value.

NE No SCG established

TOGS Technical and Operational Guidance Series memorandum.

Bold value indicates a detection.

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

CONSTITUENT (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL:	10627	GM-13D	GM-13D	GM-15D	GM-17D
		SAMPLE ID:	N-10627	GM-13D	REP100504	GM-15D	GM 17D
		DATE:	11/15/2004	10/05/2004	10/05/2004	10/04/2004	10/29/2004
Chloromethane	5		<5	<50	<50	<5	<5
Bromomethane	5		<5	<50	<50	<5	<5
Vinyl Chloride	2		<2	<20	<20	<2	<2
Chloroethane	5		<5	<50	<50	<5	<5
Methylene chloride	5		<5	<50	<50	<5	<5
Acetone	50		<10	<100	<100	<10	<10
Carbon disulfide	50		<5	<50	<50	<5	<5
1,1-Dichloroethene	5		<5	**81**	**83**	**3 J**	<5
1,1-Dichloroethane	5		<5	**37 J**	**38 J**	**5 J**	<5
cis-1,2-Dichloroethene	5		<5	**140**	**150**	<5	<5
trans-1,2-Dichloroethene	5		<5	<50	<50	<5	<5
Chloroform	7		<5	<50	<50	<5	<5
1,2-Dichloroethane	5		<5	<50	<50	<5	<5
2-Butanone	50		<10	<100	<100	<10	<10
1,1,1-Trichloroethane	5		<5	**59**	**60**	**2 J**	<5
Carbon tetrachloride	5		<5	<50	<50	<5	<5
Bromodichloromethane	50		<5	<50	<50	<5	<5
1,2-Dichloropropane	5		<5	<50	<50	<5	<5
cis-1,3-Dichloropropene	5		<5	<50	<50	<5	<5
Trichloroethene	5		**1 J**	**190**	**190**	**5**	<5
Dibromochloromethane	5		<5	<50	<50	<5	<5
1,1,2-Trichloroethane	5		<5	<50	<50	<5	<5
Benzene	0.7		<0.7	<7	<7	<0.7	<0.7
trans-1,3-Dichloropropene	5		<5	<50	<50	<5	<5
Bromoform	50		<5	<50	<50	<5	<5
4-Methyl-2-pentanone	50		<10	<100	<100	<10	<10
2-Hexanone	50		<10	<100	<100	<10	<10
Tetrachloroethene	5		<5	**620**	**630**	**5**	<5
1,1,2,2-Tetrachloroethane	5		<5	<50	<50	<5	<5
Toluene	5		<5	<50	<50	<5	<5
Chlorobenzene	5		<5	<50	<50	<5	<5
Ethylbenzene	5		<5	<50	<50	<5	<5
Styrene	5		<5	<50	<50	<5	<5
Xylene (total)	5		<5	<50	<50	<5	<5
Vinyl Acetate	NE		<5	<50	<50	<5	<5
Freon-113 *	5		<5	**16 J**	**15 J**	<5	**0.7 J**
Total VOCs			**1**	**1,143**	**1,166**	**20**	**0.7**

(1) Standards, Criteria, and Guidance (SCG) values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000) that are based on the NYSDEC TOGSs (NYSDEC 1998); most stringent value listed.
(2) Wells GM-39D$_A$ and GM-39D$_B$ are screened in the upper and basal portions of the deep zone, respectively.
NYSDEC New York State Department of Environmental Conservation
VOCs Volatile organic compounds
ug/L Micrograms per liter
J Estimated value
D Constituent identified at a secondary dilution.
* Freon 113 also known as 1,1,1-Trichloro-2,2,2-trifluoroethane.
Value exceeds associated SCG value.
NE No SCG established
TOGS Technical and Operational Guidance Series memorandum.
Bold value indicates a detection.

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

CONSTITUENT (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL:	GM-18D	GM-20D	GM-21D	GM-34D	GM-36D
		SAMPLE ID:	GM 18D	GM-20D	GM-21D	GM-34D	GM-36D
		DATE:	10/29/2004	10/08/2004	10/05/2004	10/08/2004	11/22/2004
Chloromethane	5		<5	<5	<5	<5	<5
Bromomethane	5		<5	<5	<5	<5	<5
Vinyl Chloride	2		<2	<2	<2	<2	<2
Chloroethane	5		<5	<5	<5	<5	<5
Methylene chloride	5		<5	<5	<5	<5	<5
Acetone	50		<10	<10	<10	<10	<10
Carbon disulfide	50		<5	<5	<5	<5	<5
1,1-Dichloroethene	5		<5	<5	<5	**5**	<5
1,1-Dichloroethane	5		<5	<5	<5	**2 J**	<5
cis-1,2-Dichloroethene	5		<5	<5	<5	**8**	<5
trans-1,2-Dichloroethene	5		<5	<5	<5	<5	<5
Chloroform	7		<5	<5	<5	**0.6 J**	<5
1,2-Dichloroethane	5		<5	<5	<5	<5	<5
2-Butanone	50		<10	<10	<10	<10	<10
1,1,1-Trichloroethane	5		<5	<5	<5	<5	<5
Carbon tetrachloride	5		<5	<5	<5	<5	<5
Bromodichloromethane	50		<5	<5	<5	<5	<5
1,2-Dichloropropane	5		<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	5		<5	<5	<5	<5	<5
Trichloroethene	5		<5	<5	**1 J**	**370D**	**13**
Dibromochloromethane	5		<5	<5	<5	<5	<5
1,1,2-Trichloroethane	5		<5	<5	<5	<5	<5
Benzene	0.7		<0.7	<0.7	<0.7	<0.7	<0.7
trans-1,3-Dichloropropene	5		<5	<5	<5	<5	<5
Bromoform	50		<5	<5	<5	<5	<5
4-Methyl-2-pentanone	50		<10	<10	<10	<10	<10
2-Hexanone	50		<10	<10	<10	<10	<10
Tetrachloroethene	5		**0.6 J**	<5	<5	**10**	**0.8 J**
1,1,2,2-Tetrachloroethane	5		<5	<5	<5	<5	<5
Toluene	5		<5	<5	<5	<5	<5
Chlorobenzene	5		<5	<5	<5	<5	<5
Ethylbenzene	5		<5	<5	<5	<5	<5
Styrene	5		<5	<5	<5	<5	<5
Xylene (total)	5		<5	<5	<5	<5	<5
Vinyl Acetate	NE		<5	<5	<5	<5	<5
Freon-113 *	5		<5	<5	<5	**33**	<5
Total VOCs			**0.6**	**0**	**1**	**428.6**	**13.8**

(1) Standards, Criteria, and Guidance (SCG) values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000) that are based on the NYSDEC TOGSs (NYSDEC 1998); most stringent value listed.

(2) Wells GM-39D$_A$ and GM-39D$_B$ are screened in the upper and basal portions of the deep zone, respectively.

NYSDEC New York State Department of Environmental Conservation

VOCs Volatile organic compounds

ug/L Micrograms per liter

J Estimated value

D Constituent identified at a secondary dilution.

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

[ ] Value exceeds associated SCG value.

NE No SCG established

TOGS Technical and Operational Guidance Series memorandum.

Bold value indicates a detection.

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

CONSTITUENT (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL:	GM-37D	GM-38D	GM-39D$_A$[2]	GM-39D$_B$[2]	GM-73D
		SAMPLE ID:	GM-37D	GM-38D	GM-39D	GM-39D-2	GM73D
		DATE:	11/17/2004	11/19/2004	10/07/2004	10/07/2004	11/08/2004
Chloromethane	5		<5	<5	<5	<5	<5
Bromomethane	5		<5	<5	<5	<5	<5
Vinyl Chloride	2		<2	<2	<2	<2	<2
Chloroethane	5		<5	<5	<5	<5	<5
Methylene chloride	5		<5	<5	<5	<5	<5
Acetone	50		<10	<10	<10	<10	<10
Carbon disulfide	50		<5	<5	<5	<5	<5
1,1-Dichloroethene	5		**0.9 J**	**7**	<5	<5	<5
1,1-Dichloroethane	5		**1 J**	**3 J**	<5	<5	<5
cis-1,2-Dichloroethene	5		<5	**2 J**	<5	<5	<5
trans-1,2-Dichloroethene	5		<5	<5	<5	<5	<5
Chloroform	7		**0.6 J**	**0.7 J**	<5	<5	<5
1,2-Dichloroethane	5		<5	<5	<5	<5	<5
2-Butanone	50		<10	<10	<10	<10	<10
1,1,1-Trichloroethane	5		<5	**4 J**	<5	<5	<5
Carbon tetrachloride	5		<5	**0.7 J**	<5	<5	<5
Bromodichloromethane	50		<5	<5	<5	<5	<5
1,2-Dichloropropane	5		<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	5		<5	<5	<5	<5	<5
Trichloroethene	5		<5	**730D**	**13**	**35**	**86**
Dibromochloromethane	5		<5	<5	<5	<5	<5
1,1,2-Trichloroethane	5		<5	<5	<5	<5	<5
Benzene	0.7		<0.7	<0.7	<0.7	<0.7	<0.7
trans-1,3-Dichloropropene	5		<5	<5	<5	<5	<5
Bromoform	50		<5	<5	<5	<5	<5
4-Methyl-2-pentanone	50		<10	<10	<10	<10	<10
2-Hexanone	50		<10	<10	<10	<10	<10
Tetrachloroethene	5		**0.7 J**	**1 J**	<5	<5	**0.7 J**
1,1,2,2-Tetrachloroethane	5		<5	<5	<5	<5	<5
Toluene	5		<5	<5	<5	<5	<5
Chlorobenzene	5		<5	<5	<5	<5	<5
Ethylbenzene	5		<5	<5	<5	<5	<5
Styrene	5		<5	<5	<5	<5	<5
Xylene (total)	5		<5	<5	<5	<5	<5
Vinyl Acetate	NE		<5	<5	<5	<5	<5
Freon-113 *	5		<5	**2 J**	<5	<5	<5
Total VOCs			**3.2**	**750.4**	**13**	**35**	**86.7**

(1) Standards, Criteria, and Guidance (SCG) values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000) that are based on the NYSDEC TOGSs (NYSDEC 1998); most stringent value listed.

(2) Wells GM-39D$_A$ and GM-39D$_B$ are screened in the upper and basal portions of the deep zone, respectively.

NYSDEC New York State Department of Environmental Conservation

VOCs Volatile organic compounds

ug/L Micrograms per liter

J Estimated value

D Constituent identified at a secondary dilution.

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

[ ] Value exceeds associated SCG value.

NE No SCG established

TOGS Technical and Operational Guidance Series memorandum.

Bold value indicates a detection.

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

CONSTITUENT (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL:	GM-73D	GM-74D	GM-79D	HN-29D
		SAMPLE ID:	REP110804	GM 74D	GM-79D	HN-29D
		DATE:	11/08/2004	11/01/2004	10/08/2004	10/06/2004
Chloromethane	5		<5	<5	<5	<5
Bromomethane	5		<5	<5	<5	<5
Vinyl Chloride	2		<2	<2	<2	<2
Chloroethane	5		<5	<5	<5	<5
Methylene chloride	5		<5	<5	<5	<5
Acetone	50		<10	<10	<10	<10
Carbon disulfide	50		<5	<5	<5	<5
1,1-Dichloroethene	5		<5	<5	<5	<5
1,1-Dichloroethane	5		<5	<5	<5	<5
cis-1,2-Dichloroethene	5		<5	<5	<5	<5
trans-1,2-Dichloroethene	5		<5	<5	<5	<5
Chloroform	7		<5	<5	<5	<5
1,2-Dichloroethane	5		<5	<5	<5	<5
2-Butanone	50		<10	<10	<10	<10
1,1,1-Trichloroethane	5		<5	<5	<5	<5
Carbon tetrachloride	5		<5	<5	<5	<5
Bromodichloromethane	50		<5	<5	<5	<5
1,2-Dichloropropane	5		<5	<5	<5	<5
cis-1,3-Dichloropropene	5		<5	<5	<5	<5
Trichloroethene	5		**88**	**3 J**	**31**	**0.8 J**
Dibromochloromethane	5		<5	<5	<5	<5
1,1,2-Trichloroethane	5		<5	<5	<5	<5
Benzene	0.7		<0.7	<0.7	<0.7	<0.7
trans-1,3-Dichloropropene	5		<5	<5	<5	<5
Bromoform	50		<5	<5	<5	<5
4-Methyl-2-pentanone	50		<10	<10	<10	<10
2-Hexanone	50		<10	<10	<10	<10
Tetrachloroethene	5		**0.5 J**	**0.6 J**	**0.6 J**	<5
1,1,2,2-Tetrachloroethane	5		<5	<5	<5	<5
Toluene	5		<5	<5	<5	<5
Chlorobenzene	5		<5	<5	<5	<5
Ethylbenzene	5		<5	<5	<5	<5
Styrene	5		<5	<5	<5	<5
Xylene (total)	5		<5	<5	<5	<5
Vinyl Acetate	NE		<5	<5	<5	<5
Freon-113 *	5		<5	<5	<5	<5
Total VOCs			**88.5**	**3.6**	**31.6**	**0.8**

(1) Standards, Criteria, and Guidance (SCG) values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000) that are based on the NYSDEC TOGSs (NYSDEC 1998); most stringent value listed.

(2) Wells GM-39D$_A$ and GM-39D$_B$ are screened in the upper and basal portions of the deep zone, respectively.

NYSDEC New York State Department of Environmental Conservation

VOCs Volatile organic compounds

ug/L Micrograms per liter

J Estimated value

D Constituent identified at a secondary dilution.

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

Value exceeds associated SCG value.

NE No SCG established

TOGS Technical and Operational Guidance Series memorandum.

Bold value indicates a detection.

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

CONSTITUENT (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL:	GM-15D2	GM-33D2	GM-34D2	GM-35D2	GM-36D2
		SAMPLE ID:	GM-15D-2	GM-33D2	GM-34D2	GM-35D2	GM-36D2
		DATE:	10/04/2004	11/16/2004	10/08/2004	11/16/2004	11/22/2004
Chloromethane	5		<5	<5	<5	<5	<5
Bromomethane	5		<5	<5	<5	<5	<5
Vinyl Chloride	2		<2	<2	<2	<2	<2
Chloroethane	5		<5	<5	<5	<5	<5
Methylene chloride	5		<5	<5	<5	<5	<5
Acetone	50		<10	<10	<10	<10	<10
Carbon disulfide	50		<5	<5	<5	<5	<5
1,1-Dichloroethene	5		**0.9 J**	<5	**7**	**1 J**	<5
1,1-Dichloroethane	5		<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	5		<5	**0.6 J**	**9**	**4 J**	<5
trans-1,2-Dichloroethene	5		<5	<5	<5	<5	<5
Chloroform	7		<5	<5	<5	<5	<5
1,2-Dichloroethane	5		<5	<5	<5	<5	<5
2-Butanone	50		<10	<10	<10	<10	<10
1,1,1-Trichloroethane	5		<5	<5	<5	<5	<5
Carbon tetrachloride	5		<5	<5	<5	<5	<5
Bromodichloromethane	50		<5	<5	<5	<5	<5
1,2-Dichloropropane	5		<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	5		<5	<5	<5	<5	<5
Trichloroethene	5		**11**	**55**	**190D**	**300D**	<5
Dibromochloromethane	5		<5	<5	<5	<5	<5
1,1,2-Trichloroethane	5		<5	<5	<5	<5	<5
Benzene	0.7		<0.7	<0.7	<0.7	<0.7	<0.7
trans-1,3-Dichloropropene	5		<5	<5	<5	<5	<5
Bromoform	50		<5	<5	<5	<5	<5
4-Methyl-2-pentanone	50		<10	<10	<10	<10	<10
2-Hexanone	50		<10	<10	<10	<10	<10
Tetrachloroethene	5		**17**	**7**	**10**	**7**	<5
1,1,2,2-Tetrachloroethane	5		<5	<5	<5	<5	<5
Toluene	5		<5	<5	<5	<5	<5
Chlorobenzene	5		<5	<5	<5	<5	<5
Ethylbenzene	5		<5	<5	<5	<5	<5
Styrene	5		<5	<5	<5	<5	<5
Xylene (total)	5		<5	<5	<5	<5	<5
Vinyl Acetate	NE		<5	<5	<5	<5	<5
Freon-113 *	5		**2 J**	**4 J**	**13**	**8**	<5
Total VOCs			**30.9**	**66.6**	**229**	**320**	**0**

(1) Standards, Criteria, and Guidance (SCG) values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000) that are based on the NYSDEC TOGSs (NYSDEC 1998); most stringent value listed.

(2) Trichloroethene concentration in Well GP-3 exceeded the instrument calibration range and is therefore considered an estimated value.

NYSDEC New York State Department of Environmental Conservation

VOCs Volatile organic compounds

ug/L Micrograms per liter

J Estimated value

D Constituent identified at a secondary dilution.

E Exceeded calibration range.

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

REP Replicate sample

Value exceeds associated SCG value.

NE No SCG established

TOGS Technical and Operational Guidance Series memorandum.

Bold value indicates a detection.

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

CONSTITUENT (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL: / SAMPLE ID: / DATE:	GM-37D2 GM-37D2 11/17/2004	GM-38D2 GM-38D2 11/19/2004	GM-70D2 GM-70D2 11/22/2004	GM-70D2 REP112204 11/22/2004	GM-71D2 GM-71D-2 11/24/2004
Chloromethane	5		<5	<5	<5	<5	<5
Bromomethane	5		<5	<5	<5	<5	<5
Vinyl Chloride	2		<2	<2	<2	<2	<2
Chloroethane	5		<5	<5	<5	<5	<5
Methylene chloride	5		<5	<5	<5	<5	<5
Acetone	50		<10	<10	<10	<10	<10
Carbon disulfide	50		<5	<5	<5	<5	<5
1,1-Dichloroethene	5		**3 J**	**2 J**	<5	<5	**2 J**
1,1-Dichloroethane	5		7	<5	<5	<5	6
cis-1,2-Dichloroethene	5		<5	7	**1 J**	**1 J**	<5
trans-1,2-Dichloroethene	5		<5	<5	<5	<5	<5
Chloroform	7		<5	**0.9 J**	<5	<5	**1 J**
1,2-Dichloroethane	5		<5	<5	<5	<5	<5
2-Butanone	50		<10	<10	<10	<10	<10
1,1,1-Trichloroethane	5		**3 J**	<5	<5	<5	**1 J**
Carbon tetrachloride	5		<5	<5	<5	<5	**0.8 J**
Bromodichloromethane	50		<5	<5	<5	<5	<5
1,2-Dichloropropane	5		<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	5		<5	<5	<5	<5	<5
Trichloroethene	5		**2 J**	**1200D**	**110**	**110**	**4 J**
Dibromochloromethane	5		<5	<5	<5	<5	<5
1,1,2-Trichloroethane	5		<5	**1 J**	<5	<5	<5
Benzene	0.7		<0.7	<0.7	<0.7	<0.7	<0.7
trans-1,3-Dichloropropene	5		<5	<5	<5	<5	<5
Bromoform	50		<5	<5	<5	<5	<5
4-Methyl-2-pentanone	50		<10	<10	<10	<10	<10
2-Hexanone	50		<10	<10	<10	<10	<10
Tetrachloroethene	5		<5	<5	**9**	**9**	<5
1,1,2,2-Tetrachloroethane	5		<5	<5	<5	<5	<5
Toluene	5		<5	<5	<5	<5	<5
Chlorobenzene	5		<5	<5	<5	<5	<5
Ethylbenzene	5		<5	<5	<5	<5	<5
Styrene	5		<5	<5	<5	<5	<5
Xylene (total)	5		<5	<5	<5	<5	<5
Vinyl Acetate	NE		<5	<5	<5	<5	<5
Freon-113 *	5		<5	**2 J**	**3 J**	**3 J**	<5
Total VOCs			**15**	**1,213**	**123**	**123**	**14.8**

(1) Standards, Criteria, and Guidance (SCG) values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000) that are based on the NYSDEC TOGSs (NYSDEC 1998); most stringent value listed.

(2) Trichloroethene concentration in Well GP-3 exceeded the instrument calibration range and is therefore considered an estimated value.

NYSDEC New York State Department of Environmental Conservation
VOCs Volatile organic compounds
ug/L Micrograms per liter
J Estimated value
D Constituent identified at a secondary dilution.
E Exceeded calibration range.
* Freon 113 also known as 1,1,1-Trichloro-2,2,2-trifluoroethane.
REP Replicate sample
[ ] Value exceeds associated SCG value.
NE No SCG established
TOGS Technical and Operational Guidance Series memorandum.
Bold value indicates a detection.

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

CONSTITUENT (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL: / SAMPLE ID: / DATE:	GM-73D2 GM73D2 11/08/2004	GM-74D2 GM 74D2 11/01/2004	GM-75D2 GM-75D2 11/15/2004	GM-75D2 REP111504 11/15/2004	GP-1 GP 1/3 WELL 1 10/28/2004
Chloromethane	5		<5	<5	<5	<5	<5
Bromomethane	5		<5	<5	<5	<5	<5
Vinyl Chloride	2		<2	<2	<2	<2	<2
Chloroethane	5		<5	<5	<5	<5	<5
Methylene chloride	5		<5	<5	<5	<5	<5
Acetone	50		<10	<10	<10	<10	<10
Carbon disulfide	50		<5	<5	<5	<5	<5
1,1-Dichloroethene	5		**0.7 J**	**0.5 J**	**10**	**10**	**6**
1,1-Dichloroethane	5		<5	<5	<5	**1 J**	<5
cis-1,2-Dichloroethene	5		**0.7 J**	<5	**1 J**	**1 J**	**9**
trans-1,2-Dichloroethene	5		<5	<5	<5	<5	<5
Chloroform	7		<5	<5	<5	<5	<5
1,2-Dichloroethane	5		<5	<5	<5	<5	<5
2-Butanone	50		<10	<10	<10	<10	<10
1,1,1-Trichloroethane	5		<5	<5	**3 J**	<5	<5
Carbon tetrachloride	5		<5	<5	<5	<5	<5
Bromodichloromethane	50		<5	<5	<5	<5	<5
1,2-Dichloropropane	5		<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	5		<5	<5	<5	<5	<5
Trichloroethene	5		**360D**	**9**	**550D**	**560D**	**400D**
Dibromochloromethane	5		<5	<5	<5	<5	<5
1,1,2-Trichloroethane	5		<5	<5	<5	<5	<5
Benzene	0.7		<0.7	<0.7	<0.7	<0.7	<0.7
trans-1,3-Dichloropropene	5		<5	<5	<5	<5	<5
Bromoform	50		<5	<5	<5	<5	<5
4-Methyl-2-pentanone	50		<10	<10	<10	<10	<10
2-Hexanone	50		<10	<10	<10	<10	<10
Tetrachloroethene	5		**2 J**	**8**	**7**	**6**	**120**
1,1,2,2-Tetrachloroethane	5		<5	<5	<5	<5	<5
Toluene	5		<5	<5	<5	<5	<5
Chlorobenzene	5		<5	<5	<5	<5	<5
Ethylbenzene	5		<5	<5	<5	<5	<5
Styrene	5		<5	<5	<5	<5	<5
Xylene (total)	5		<5	<5	<5	<5	<5
Vinyl Acetate	NE		<5	<5	<5	<5	<5
Freon-113 *	5		<5	**0.5 J**	**3 J**	**3 J**	**9**
Total VOCs			**363.4**	**18**	**574**	**581**	**544**

(1) Standards, Criteria, and Guidance (SCG) values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000) that are based on the NYSDEC TOGSs (NYSDEC 1998); most stringent value listed.

(2) Trichloroethene concentration in Well GP-3 exceeded the instrument calibration range and is therefore considered an estimated value.

NYSDEC New York State Department of Environmental Conservation

VOCs Volatile organic compounds

ug/L Micrograms per liter

J Estimated value

D Constituent identified at a secondary dilution.

E Exceeded calibration range.

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

REP Replicate sample

Value exceeds associated SCG value.

NE No SCG established

TOGS Technical and Operational Guidance Series memorandum.

Bold value indicates a detection.

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

CONSTITUENT (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL: / SAMPLE ID: / DATE:	GP-3 GP 1/3 WELL 3 10/28/2004	ONCT-1 ONCT 1 WELL 17 10/28/2004	ONCT-2 ONCT 2 WELL 18 10/28/2004	ONCT-3 ONCT 3 WELL 19 10/28/2004
Chloromethane	5		<5	<5	<5	<5
Bromomethane	5		<5	<5	<5	<5
Vinyl Chloride	2		**58**	<2	<2	<2
Chloroethane	5		**2 J**	<5	<5	<5
Methylene chloride	5		<5	<5	<5	<5
Acetone	50		<10	<10	<10	<10
Carbon disulfide	50		<5	<5	<5	<5
1,1-Dichloroethene	5		**10**	**3 J**	**3 J**	**1 J**
1,1-Dichloroethane	5		**3 J**	<5	<5	<5
cis-1,2-Dichloroethene	5		**9**	**3 J**	**1 J**	**15**
trans-1,2-Dichloroethene	5		<5	<5	<5	<5
Chloroform	7		<5	<5	<5	**1 J**
1,2-Dichloroethane	5		<5	<5	<5	<5
2-Butanone	50		<10	<10	<10	<10
1,1,1-Trichloroethane	5		**3 J**	<5	<5	<5
Carbon tetrachloride	5		<5	<5	<5	<5
Bromodichloromethane	50		<5	<5	<5	<5
1,2-Dichloropropane	5		<5	<5	<5	<5
cis-1,3-Dichloropropene	5		<5	<5	<5	<5
Trichloroethene	5		**2100 JE [2]**	**570D**	**140**	**64**
Dibromochloromethane	5		<5	<5	<5	<5
1,1,2-Trichloroethane	5		**0.8 J**	<5	<5	<5
Benzene	0.7		<0.7	<0.7	<0.7	<0.7
trans-1,3-Dichloropropene	5		<5	<5	<5	<5
Bromoform	50		<5	<5	<5	<5
4-Methyl-2-pentanone	50		<10	<10	<10	<10
2-Hexanone	50		<10	<10	<10	<10
Tetrachloroethene	5		**29**	**13**	**8**	**8**
1,1,2,2-Tetrachloroethane	5		<5	<5	<5	<5
Toluene	5		<5	<5	<5	<5
Chlorobenzene	5		<5	<5	<5	<5
Ethylbenzene	5		<5	<5	<5	<5
Styrene	5		<5	<5	<5	<5
Xylene (total)	5		<5	<5	<5	<5
Vinyl Acetate	NE		<5	<5	<5	<5
Freon-113 *	5		**12**	**9**	<5	<5
Total VOCs			**2,227**	**598**	**152**	**89**

(1) Standards, Criteria, and Guidance (SCG) values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000) that are based on the NYSDEC TOGSs (NYSDEC 1998); most stringent value listed.

(2) Trichloroethene concentration in Well GP-3 exceeded the instrument calibration range and is therefore considered an estimated value.

NYSDEC New York State Department of Environmental Conservation
VOCs Volatile organic compounds
ug/L Micrograms per liter
J Estimated value
D Constituent identified at a secondary dilution.
E Exceeded calibration range.
* Freon 113 also known as 1,1,1-Trichloro-2,2,2-trifluoroethane.
REP Replicate sample
Value exceeds associated SCG value.
NE No SCG established
TOGS Technical and Operational Guidance Series memorandum.
Bold value indicates a detection.

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

CONSTITUENT (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[1]	WELL: SAMPLE ID: DATE:	EFFL GP 1/3 TOWER EF 10/28/2004	EFFL ONCT TOWER EFF 10/28/2004
Chloromethane	5		<5	<5
Bromomethane	5		<5	<5
Vinyl Chloride	2		<2	<2
Chloroethane	5		<5	<5
Methylene chloride	5		<5	<5
Acetone	50		<10	<10
Carbon disulfide	50		<5	<5
1,1-Dichloroethene	5		<5	<5
1,1-Dichloroethane	5		<5	<5
cis-1,2-Dichloroethene	5		<5	<5
trans-1,2-Dichloroethene	5		<5	<5
Chloroform	7		<5	<5
1,2-Dichloroethane	5		<5	<5
2-Butanone	50		<10	<10
1,1,1-Trichloroethane	5		<5	<5
Carbon tetrachloride	5		<5	<5
Bromodichloromethane	50		<5	<5
1,2-Dichloropropane	5		<5	<5
cis-1,3-Dichloropropene	5		<5	<5
Trichloroethene	5		<5	<5
Dibromochloromethane	5		<5	<5
1,1,2-Trichloroethane	5		<5	<5
Benzene	0.7		<0.7	<0.7
trans-1,3-Dichloropropene	5		<5	<5
Bromoform	50		<5	<5
4-Methyl-2-pentanone	50		<10	<10
2-Hexanone	50		<10	<10
Tetrachloroethene	5		<5	<5
1,1,2,2-Tetrachloroethane	5		<5	<5
Toluene	5		<5	<5
Chlorobenzene	5		<5	<5
Ethylbenzene	5		<5	<5
Styrene	5		<5	<5
Xylene (total)	5		<5	<5
Vinyl Acetate	NE		<5	<5
Freon-113 *	5		<5	<5
Total VOCs			**0**	**0**

(1) Standards, Criteria, and Guidance (SCG) values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000) that are based on the NYSDEC TOGSs (NYSDEC 1998); most stringent value listed.

(2) Trichloroethene concentration in Well GP-3 exceeded the instrument calibration range and is therefore considered an estimated value.

NYSDEC New York State Department of Environmental Conservation
VOCs Volatile organic compounds
ug/L Micrograms per liter
J Estimated value
D Constituent identified at a secondary dilution.
E Exceeded calibration range.
* Freon 113 also known as 1,1,1-Trichloro-2,2,2-trifluoroethane.
REP Replicate sample
Value exceeds associated SCG value.
NE No SCG established
TOGS Technical and Operational Guidance Series memorandum.
Bold value indicates a detection.

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

CONSTITUENT (Units in ug/L)	NYSDEC Standards Criteria and Guidance Values[2]	WELL: / SAMPLE ID: / DATE:	OW 1-1 BPOW 1-1 11/11/2004	OW 1-2 BPOW 1-2 11/11/2004	OW 1-3 BPOW 1-3 11/11/2004	OW 2-1[3] BPOW 2-1 11/9/2004	OW 2-2 BPOW 2-2 11/9/2004	OW 3-1 BPOW 3-1 11/12/2004	OW 3-2 BPOW 3-2 11/12/2004	OW 4-1 BPOW 4-1 11/11/2004	OW 4-2 BPOW 4-2 11/10/2004
Chlorobenzene	5		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethene	5		**4.8**	<0.50	**1.6**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethane	5		**2.4**	<0.50	**0.89**	**0.95**	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-Dichloroethene	5		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethene	5		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroform	7		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	5		<0.50	<0.50	<0.50	**1.1**	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1-Trichloroethane	5		**8.5**	<0.50	**3.9**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon tetrachloride	5		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethene	5		**3.3**	<0.50	**0.64**	**1.4**	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	5		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	5		<0.50	<0.50	<0.50	**0.5**	<0.50	<0.50	<0.50	<0.50	<0.50
Freon-113 *	5		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	5		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Total Site-Related VOCs:			**19**	0	**7.03**	**3.95**	0	0	0	0	0

Footnotes:

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

(2) Standards, Criteria, and Guidance (SCG) values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000) that are based on the NYSDEC TOGSs (NYSDEC 1998); most stringent value listed.

(3) Benzene was detected in Outpost Well OW 2-1 on 11/9/04 at a concentration of 38 ug/L, which exceeds the SCG criterion of 0.7 ug/L.

General Notes:

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

Definitions:

OU2	Operable Unit 2
VOCs	Volatile organic compounds
ug/L	Micrograms per liter
NYSDEC	New York State Department of Environmental Conservation
*	Freon 113 also known as 1,1,1-Trichloro-2,2,2-trifluoroethane.
	Value exceeds associated SCG value.
TOGS	Technical and Operational Guidance Series memorandum.

Bold value indicates a detection.

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Table 11. Concentrations of Total and Dissolved Cadmium and Chromium Detected in Groundwater and Blank Samples, Third Quarter 2004, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT (ug/L)	NYSDEC SCGs[1]	WELL: / SAMPLE ID: / DATE:	10631 N-10631 11/16/2004	GM-15S GM-15S 10/04/2004	GM-16SR GM-16SR 10/01/2004	GM-17SR GM-17SR 09/30/2004	GM-18S GM-18S 11/16/2004	GM-32S GM-32S 10/11/2004	GM-78S 78 S 09/30/2004	GM-78I 78 I 09/30/2004	MW-01GF GM-1GF 10/11/2004	MW-02GF GM-2GF 10/11/2004	MW-03R MW-3R 09/30/2004
Cadmium	5		**5.8 B**	--	<10	<10	**2.4 B**	<10	<10	<10	<10	<10	**42.2**
Cadmium (Dissolved)	5		**4.9 B**	--	<10	<10	**1.9 B**	<10	--	--	<10	<10	**41.7**
Chromium	50		**25.9**	**344**	<10	**1.4 B**	<10	**54.7**	<10	**2.7 B**	<10	**29.9**	**74.6**
Chromium (Dissolved)	50		**19**	--	<10	<10	**2.8 B**	**53.9**	--	--	<10	**27.1**	**76.9**

(1) Standards, Criteria, and Guidance (SCG) values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000) that are based on the NYSDEC TOGSs (NYSDEC 1998); most stringent value listed.

NYSDEC New York State Department of Environmental Conservation
ug/L Micrograms per liter
B Detected between the IDL and CRDL
IDL Instrument detection limit
CRDL Contract-required detection limit
EQ Equipment
Value exceeds associated SCG value.
TOGS Technical and Operational Guidance Series memorandum.
Bold Constituent detected above IDL.
-- Not analyzed

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Table 11. Concentrations of Total and Dissolved Cadmium and Chromium Detected in Groundwater and Blank Samples, Third Quarter 2004, Northrop Grumman Corporation, Bethpage, New York.

CONSTITUENT (ug/L)	NYSDEC SCGs (1)	WELL:	MW-04	MW-05	MW-06	WATER EQ. BLANK	WATER EQ. BLANK	WATER EQ. BLANK	WATER EQ. BLANK	WATER EQ. BLANK
		SAMPLE ID:	PT1MW-04	PT1MW-05	PT1MW-06	FB093004	FB100104	FB100404	FB101104	FB111604
		DATE:	10/01/2004	10/01/2004	10/01/2004	09/30/2004	10/01/2004	10/04/2004	10/11/2004	11/16/2004
Cadmium	5		--	--	--	<10	<10	--	<10	**2.7 B**
Cadmium (Dissolved)	5		--	--	--	--	--	--	--	--
Chromium	50		<10	**1060**	**307**	<10	<10	<10	<10	<10
Chromium (Dissolved)	50		--	--	--	--	--	--	--	--

(1) Standards, Criteria, and Guidance (SCG) values based on documents referenced in the Groundwater Feasibility Study Report (ARCADIS Geraghty & Miller 2000) that are based on the NYSDEC TOGSs (NYSDEC 1998); most stringent value listed.

NYSDEC New York State Department of Environmental Conservation

ug/L Micrograms per liter

B Detected between the IDL and CRDL

IDL Instrument detection limit

CRDL Contract-required detection limit

EQ Equipment

Value exceeds associated SCG value.

TOGS Technical and Operational Guidance Series memorandum.

Bold Constituent detected above IDL.

-- Not analyzed

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

WELL IDENTIFICATION (Units in ug/L)	SAMPLE ID	DATE	Unknown	Trimethylsilanol	HCFC 123a[1]
GM-34D	GM-34D	10/08/04	--	--	8 NJ
GM-79I	GM-79I	10/08/04	5 J[2]	6 NJ	--
GM-79D	GM-79D	10/08/04	--	5 NJ	--

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

ug/L Micrograms per liter
-- Not Detected
N Presumtive evidence of this constituent. Calibrations were not run for these constituents; therefore, the results should be used for qualitative purposes only.
J Estimated value
(1) HCFC 123a is also known as Freon 123a or 1,2-dichloro-1,1,2-trifluroethane.
(2) These results should be used for qualitative purposes only.

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

CONSTITUENT (Units in ug/L)	SAMPLE TYPE: / SAMPLE ID: / DATE:	TRIP BLANK TB092804 09/28/2004	TRIP BLANK TB093004 09/30/2004	TRIP BLANK TB100104 10/01/2004	TRIP BLANK TB100404 10/04/2004	TRIP BLANK TB100504 10/05/2004	TRIP BLANK TB100604 10/06/2004
Chloromethane		<5	<5	<5	<5	<5	<5
Bromomethane		<5	<5	<5	<5	<5	<5
Vinyl Chloride		<2	<2	<2	<2	<2	<2
Chloroethane		<5	<5	<5	<5	<5	<5
Methylene chloride		<5	<5	<5	<5	**0.6 J**	<5
Acetone		<10	<10	<10	<10	<10	<10
Carbon disulfide		<5	<5	<5	<5	<5	<5
1,1-Dichloroethene		<5	<5	<5	<5	<5	<5
1,1-Dichloroethane		<5	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene		<5	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene		<5	<5	<5	<5	<5	<5
Chloroform		<5	<5	<5	<5	<5	<5
1,2-Dichloroethane		<5	<5	<5	<5	<5	<5
2-Butanone		<10	<10	<10	<10	<10	<10
1,1,1-Trichloroethane		<5	<5	<5	<5	<5	<5
Carbon tetrachloride		<5	<5	<5	<5	<5	<5
Bromodichloromethane		<5	<5	<5	<5	<5	<5
1,2-Dichloropropane		<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene		<5	<5	<5	<5	<5	<5
Trichloroethene		<5	<5	<5	<5	<5	<5
Dibromochloromethane		<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane		<5	<5	<5	<5	<5	<5
Benzene		<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
trans-1,3-Dichloropropene		<5	<5	<5	<5	<5	<5
Bromoform		<5	<5	<5	<5	<5	<5
4-Methyl-2-pentanone		<10	<10	<10	<10	<10	<10
2-Hexanone		<10	<10	<10	<10	<10	<10
Tetrachloroethene		<5	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane		<5	<5	<5	<5	<5	<5
Toluene		<5	<5	<5	<5	<5	<5
Chlorobenzene		<5	<5	<5	<5	<5	<5
Ethylbenzene		<5	<5	<5	<5	<5	<5
Styrene		<5	<5	<5	<5	<5	<5
Xylene (total)		<5	<5	<5	<5	<5	<5
Vinyl Acetate		<5	<5	<5	<5	<5	<5
Freon-113 *		<5	<5	<5	<5	<5	<5
Total VOCs		**0**	**0**	**0**	**0**	**0.6**	**0**

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

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

CONSTITUENT (Units in ug/L)	SAMPLE TYPE:	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK
	SAMPLE ID:	TB100704	TB100804	TB101104	TB102804	TB102904	TB110104
	DATE:	10/07/2004	10/08/2004	10/11/2004	10/28/2004	10/29/2004	11/01/2004
Chloromethane		<5	<5	<5	<5	<5	<5
Bromomethane		<5	<5	<5	<5	**<5**	<5
Vinyl Chloride		<2	<2	<2	<2	<2	<2
Chloroethane		<5	<5	<5	<5	**<5**	<5
Methylene chloride		<5	**0.6 JB**	**0.7 JB**	**2 J**	<5	<5
Acetone		<10	<10	<10	<10	<10	<10
Carbon disulfide		<5	<5	<5	<5	<5	<5
1,1-Dichloroethene		<5	<5	<5	<5	<5	<5
1,1-Dichloroethane		<5	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene		<5	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene		<5	<5	<5	<5	<5	<5
Chloroform		<5	<5	<5	<5	<5	<5
1,2-Dichloroethane		<5	<5	<5	<5	<5	<5
2-Butanone		<10	<10	<10	<10	<10	<10
1,1,1-Trichloroethane		<5	<5	<5	<5	**<5**	<5
Carbon tetrachloride		<5	<5	<5	<5	<5	<5
Bromodichloromethane		<5	<5	<5	<5	<5	<5
1,2-Dichloropropane		<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene		<5	<5	<5	<5	<5	<5
Trichloroethene		<5	<5	<5	**4 J**	**1 J**	<5
Dibromochloromethane		<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane		<5	<5	<5	<5	<5	<5
Benzene		<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
trans-1,3-Dichloropropene		<5	<5	<5	<5	<5	<5
Bromoform		<5	<5	<5	<5	<5	<5
4-Methyl-2-pentanone		<10	<10	<10	<10	<10	<10
2-Hexanone		<10	<10	<10	<10	<10	<10
Tetrachloroethene		<5	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane		<5	<5	<5	<5	**<5**	<5
Toluene		<5	<5	<5	<5	<5	<5
Chlorobenzene		<5	<5	<5	<5	<5	<5
Ethylbenzene		<5	<5	<5	<5	<5	<5
Styrene		<5	<5	<5	<5	<5	<5
Xylene (total)		<5	<5	<5	<5	<5	<5
Vinyl Acetate		<5	<5	<5	<5	<5	<5
Freon-113 *		<5	<5	<5	<5	<5	<5
Total VOCs		**0**	**0.6**	**0.7**	**6**	**1**	**0**

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

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

CONSTITUENT (Units in ug/L)	SAMPLE TYPE: / SAMPLE ID: / DATE:	TRIP BLANK TB110804 11/08/2004	TRIP BLANK TB111504 11/15/2004	TRIP BLANK TB111604 11/16/2004	TRIP BLANK TB111704 11/17/2004	TRIP BLANK TB111904 11/19/2004	TRIP BLANK TB112204 11/22/2004
Chloromethane		<5	<5	<5	<5	<5	<5
Bromomethane		<5	<5	<5	<5	<5	<5
Vinyl Chloride		<2	<2	<2	<2	<2	<2
Chloroethane		<5	<5	<5	<5	<5	<5
Methylene chloride		<5	<5	<5	<5	<5	<5
Acetone		<10	<10	<10	<10	<10	<10
Carbon disulfide		<5	<5	<5	<5	<5	<5
1,1-Dichloroethene		<5	<5	<5	<5	<5	<5
1,1-Dichloroethane		<5	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene		<5	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene		<5	<5	<5	<5	<5	<5
Chloroform		<5	<5	<5	<5	<5	<5
1,2-Dichloroethane		<5	<5	<5	<5	<5	<5
2-Butanone		<10	<10	<10	<10	<10	<10
1,1,1-Trichloroethane		<5	<5	<5	<5	<5	<5
Carbon tetrachloride		<5	<5	<5	<5	<5	<5
Bromodichloromethane		<5	<5	<5	<5	<5	<5
1,2-Dichloropropane		<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene		<5	<5	<5	<5	<5	<5
Trichloroethene		<5	<5	<5	<5	<5	<5
Dibromochloromethane		<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane		<5	<5	<5	<5	<5	<5
Benzene		<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
trans-1,3-Dichloropropene		<5	<5	<5	<5	<5	<5
Bromoform		<5	<5	<5	<5	<5	<5
4-Methyl-2-pentanone		<10	<10	<10	<10	<10	<10
2-Hexanone		<10	<10	<10	<10	<10	<10
Tetrachloroethene		<5	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane		<5	<5	<5	<5	<5	<5
Toluene		<5	<5	<5	<5	<5	<5
Chlorobenzene		<5	<5	<5	<5	<5	<5
Ethylbenzene		<5	<5	<5	<5	<5	<5
Styrene		<5	<5	<5	<5	<5	<5
Xylene (total)		<5	<5	<5	<5	<5	<5
Vinyl Acetate		<5	<5	<5	<5	<5	<5
Freon-113 *		<5	<5	<5	<5	<5	<5
Total VOCs		**0**	**0**	**0**	**0**	**0**	**0**

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

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

CONSTITUENT (Units in ug/L)	SAMPLE TYPE: / SAMPLE ID: / DATE:	TRIP BLANK TB112404 11/24/2004	WATER EQ. BLANK FB092804 09/28/2004	WATER EQ. BLANK FB093004 09/30/2004	WATER EQ. BLANK FB100104 10/01/2004
Chloromethane		<5	<5	<5	<5
Bromomethane		<5	<5	<5	<5
Vinyl Chloride		<2	<2	<2	<2
Chloroethane		<5	<5	<5	<5
Methylene chloride		<5	**1 J**	**2 J**	**1 JB**
Acetone		<10	<10	<10	<10
Carbon disulfide		<5	<5	<5	<5
1,1-Dichloroethene		<5	<5	<5	<5
1,1-Dichloroethane		<5	<5	<5	<5
cis-1,2-Dichloroethene		<5	<5	<5	<5
trans-1,2-Dichloroethene		<5	<5	<5	<5
Chloroform		<5	<5	<5	<5
1,2-Dichloroethane		<5	<5	<5	<5
2-Butanone		<10	<10	<10	<10
1,1,1-Trichloroethane		<5	<5	<5	<5
Carbon tetrachloride		<5	<5	<5	<5
Bromodichloromethane		<5	<5	<5	<5
1,2-Dichloropropane		<5	<5	<5	<5
cis-1,3-Dichloropropene		<5	<5	<5	<5
Trichloroethene		<5	<5	<5	<5
Dibromochloromethane		<5	<5	<5	<5
1,1,2-Trichloroethane		<5	<5	<5	<5
Benzene		<0.7	<0.7	<0.7	<0.7
trans-1,3-Dichloropropene		<5	<5	<5	<5
Bromoform		<5	<5	<5	<5
4-Methyl-2-pentanone		<10	<10	<10	<10
2-Hexanone		<10	<10	<10	<10
Tetrachloroethene		<5	<5	<5	<5
1,1,2,2-Tetrachloroethane		<5	<5	<5	<5
Toluene		<5	<5	<5	<5
Chlorobenzene		<5	<5	<5	<5
Ethylbenzene		<5	<5	<5	<5
Styrene		<5	<5	<5	<5
Xylene (total)		<5	<5	<5	<5
Vinyl Acetate		<5	<5	<5	<5
Freon-113 *		<5	<5	<5	<5
Total VOCs		**0**	**1**	**2**	**1**

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

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

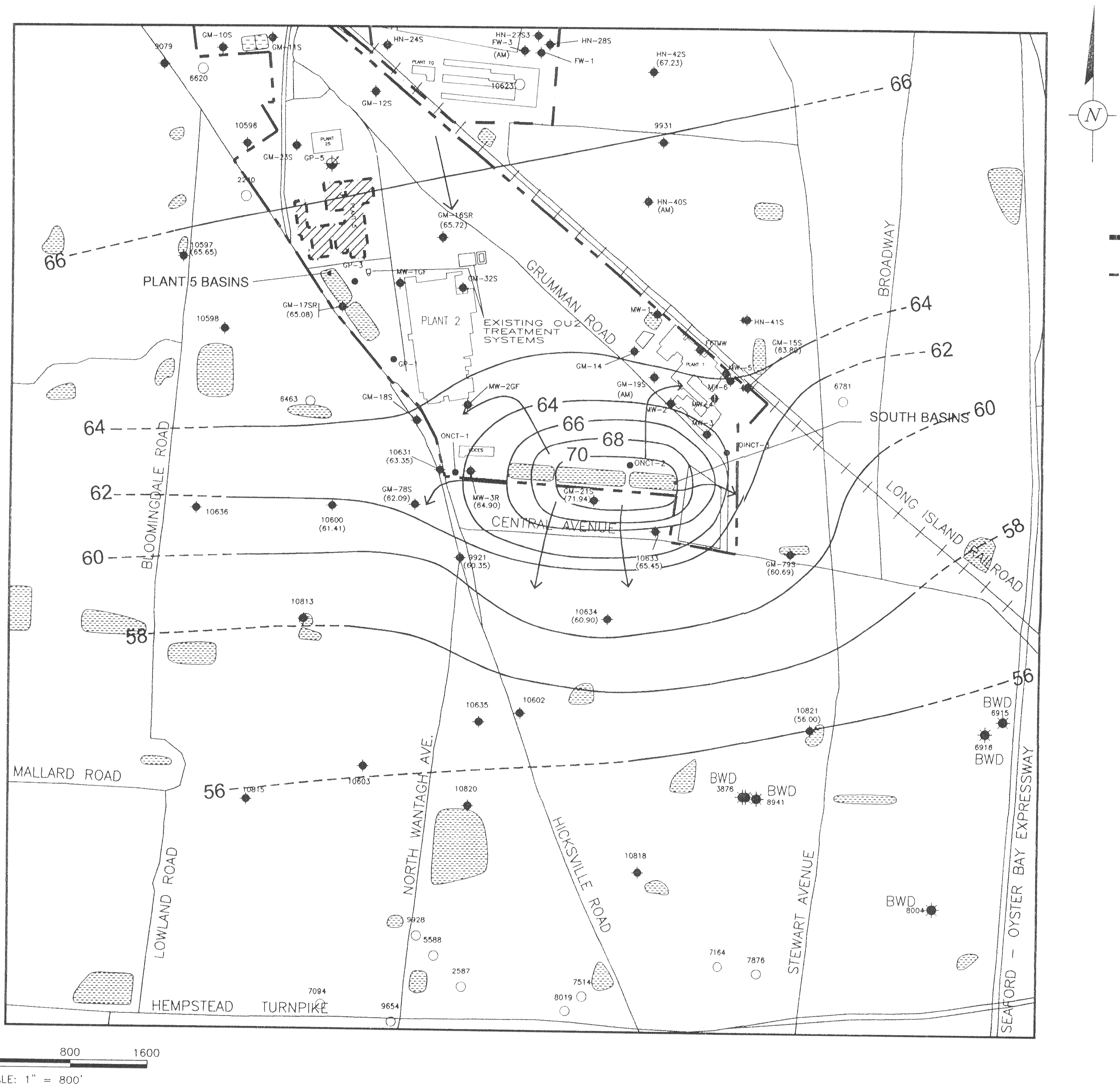
CONSTITUENT (Units in ug/L)	SAMPLE TYPE: / SAMPLE ID: / DATE:	WATER EQ. BLANK FB100404 10/04/2004	WATER EQ. BLANK FB100504 10/05/2004	WATER EQ. BLANK FB100604 10/06/2004	WATER EQ. BLANK FB100804 10/08/2004
Chloromethane		<5	<5	<5	<5
Bromomethane		<5	<5	<5	<5
Vinyl Chloride		<2	<2	<2	<2
Chloroethane		<5	<5	<5	<5
Methylene chloride		**3 J**	**2 J**	**2 J**	**2 JB**
Acetone		<10	<10	<10	<10
Carbon disulfide		<5	<5	<5	<5
1,1-Dichloroethene		<5	<5	<5	<5
1,1-Dichloroethane		<5	<5	<5	<5
cis-1,2-Dichloroethene		<5	<5	<5	<5
trans-1,2-Dichloroethene		<5	<5	<5	<5
Chloroform		<5	<5	<5	<5
1,2-Dichloroethane		<5	<5	<5	<5
2-Butanone		<10	<10	<10	<10
1,1,1-Trichloroethane		<5	<5	<5	<5
Carbon tetrachloride		<5	<5	<5	<5
Bromodichloromethane		<5	<5	<5	<5
1,2-Dichloropropane		<5	<5	<5	<5
cis-1,3-Dichloropropene		<5	<5	<5	<5
Trichloroethene		<5	<5	<5	<5
Dibromochloromethane		<5	<5	<5	<5
1,1,2-Trichloroethane		<5	<5	<5	<5
Benzene		<0.7	<0.7	<0.7	<0.7
trans-1,3-Dichloropropene		<5	<5	<5	<5
Bromoform		<5	<5	<5	<5
4-Methyl-2-pentanone		<10	<10	<10	<10
2-Hexanone		<10	<10	<10	<10
Tetrachloroethene		<5	<5	<5	<5
1,1,2,2-Tetrachloroethane		<5	<5	<5	<5
Toluene		<5	<5	<5	<5
Chlorobenzene		<5	<5	<5	<5
Ethylbenzene		<5	<5	<5	<5
Styrene		<5	<5	<5	<5
Xylene (total)		<5	<5	<5	<5
Vinyl Acetate		<5	<5	<5	<5
Freon-113 *		<5	<5	<5	<5
Total VOCs		**3**	**2**	**2**	**2**

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

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

CONSTITUENT (Units in ug/L)	SAMPLE TYPE: / SAMPLE ID: / DATE:	WATER EQ. BLANK FB101104 10/11/2004	WATER EQ. BLANK FB110104 11/01/2004	WATER EQ. BLANK FB111504 11/15/2004	WATER EQ. BLANK FB111604 11/16/2004
Chloromethane		<5	<5	<5	<5
Bromomethane		<5	<5	<5	<5
Vinyl Chloride		<2	<2	<2	<2
Chloroethane		<5	<5	<5	<5
Methylene chloride		**2 JB**	**1 J**	**2 J**	<5
Acetone		<10	<10	<10	<10
Carbon disulfide		<5	<5	<5	<5
1,1-Dichloroethene		<5	<5	<5	<5
1,1-Dichloroethane		<5	<5	<5	<5
cis-1,2-Dichloroethene		<5	<5	<5	<5
trans-1,2-Dichloroethene		<5	<5	<5	<5
Chloroform		<5	<5	<5	<5
1,2-Dichloroethane		<5	<5	<5	<5
2-Butanone		<10	<10	<10	<10
1,1,1-Trichloroethane		<5	<5	<5	<5
Carbon tetrachloride		<5	<5	<5	<5
Bromodichloromethane		<5	<5	<5	<5
1,2-Dichloropropane		<5	<5	<5	<5
cis-1,3-Dichloropropene		<5	<5	<5	<5
Trichloroethene		<5	<5	<5	<5
Dibromochloromethane		<5	<5	<5	<5
1,1,2-Trichloroethane		<5	<5	<5	<5
Benzene		<0.7	<0.7	<0.7	<0.7
trans-1,3-Dichloropropene		<5	<5	<5	<5
Bromoform		<5	<5	<5	<5
4-Methyl-2-pentanone		<10	<10	<10	<10
2-Hexanone		<10	<10	<10	<10
Tetrachloroethene		<5	<5	<5	<5
1,1,2,2-Tetrachloroethane		<5	<5	<5	<5
Toluene		<5	<5	<5	<5
Chlorobenzene		<5	<5	<5	<5
Ethylbenzene		<5	<5	<5	<5
Styrene		<5	<5	<5	<5
Xylene (total)		<5	<5	<5	<5
Vinyl Acetate		<5	<5	<5	<5
Freon-113 *		<5	<5	<5	<5
Total VOCs		**2**	**1**	**2**	**0**

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



EXPLANATION

PROPERTY BOUNDARY OF FORMER GRUMMAN AEROSPACE CORPORATION SITE

PROPERTY BOUNDARY OF THE U.S. NAVY SITE

RECHARGE BASIN

GM-15S (63.89) LOCATION AND DESIGNATION OF SHALLOW MONITORING WELL AND WATER-LEVEL ELEVATION IN FEET RELATIVE TO MEAN SEA LEVEL

3876 LOCATION AND DESIGNATION OF BETHPAGE WATER DISTRICT PUBLIC SUPPLY WELL (SHOWN FOR REFERENCE ONLY)

7164 LOCATION AND DESIGNATION OF ADDITIONAL WELL

GP-5 LOCATION AND DESIGNATION OF GRUMMAN INDUSTRIAL SUPPLY WELL (SHOWN FOR REFERENCE ONLY)

ONCT-1 LOCATION AND DESIGNATION OF ON-SITE OU2 REMEDIAL WELL (SHOWN FOR REFERENCE ONLY)

HORIZONTAL COMPONENT OF GROUNDWATER FLOW

60 LINE OF EQUAL WATER-LEVEL ELEVATION IN FEET RELATIVE TO MEAN SEA LEVEL (DASHED WHERE APPROXIMATE)

OU2 OPERABLE UNIT 2

BWD BETHPAGE WATER DISTRICT

USGS UNITED STATES GEOLOGICAL SURVEY

AM ANOMALOUS MEASUREMENT

NOTES:

1. THIS FIGURE INCLUDES LOCATIONS OF MONITORING WELLS AND PUBLIC SUPPLY WELLS AS OF SEPTEMBER 25, 2001.
2. OU2 WELLS ONCT-1, ONCT-2, ONCT-3, GP-1 AND GP-3 ARE SCREENED IN THE D2 ZONE.
3. BWD WELL 3876 IS SCREENED IN THE DEEP ZONE.
4. BWD WELLS 6915, 6916, 8004, AND 8941 ARE SCREENED IN THE D2 ZONE.
5. BASIN LOCATIONS OBTAINED FROM USGS TOPOGRAPHIC MAPS (HICKSVILLE, AMITYVILLE, HUNTINGTION, AND FREEPORT QUADRANGLES), AND INFORMATION PROVIDED BY NORTHROP GRUMMAN.
6. THE NORTHERN WEST RECHARGE BASIN UNDERWENT SCRAPING DURING THE THIRD QUARTER OF 2004 AND RECEIVED LIMITED RECHARGE DURING THIS TIME.

REV. ISSUED DATE DESCRIPTION

SEAL

ARCADIS

88 Duryea Road
Melville, NY 11747
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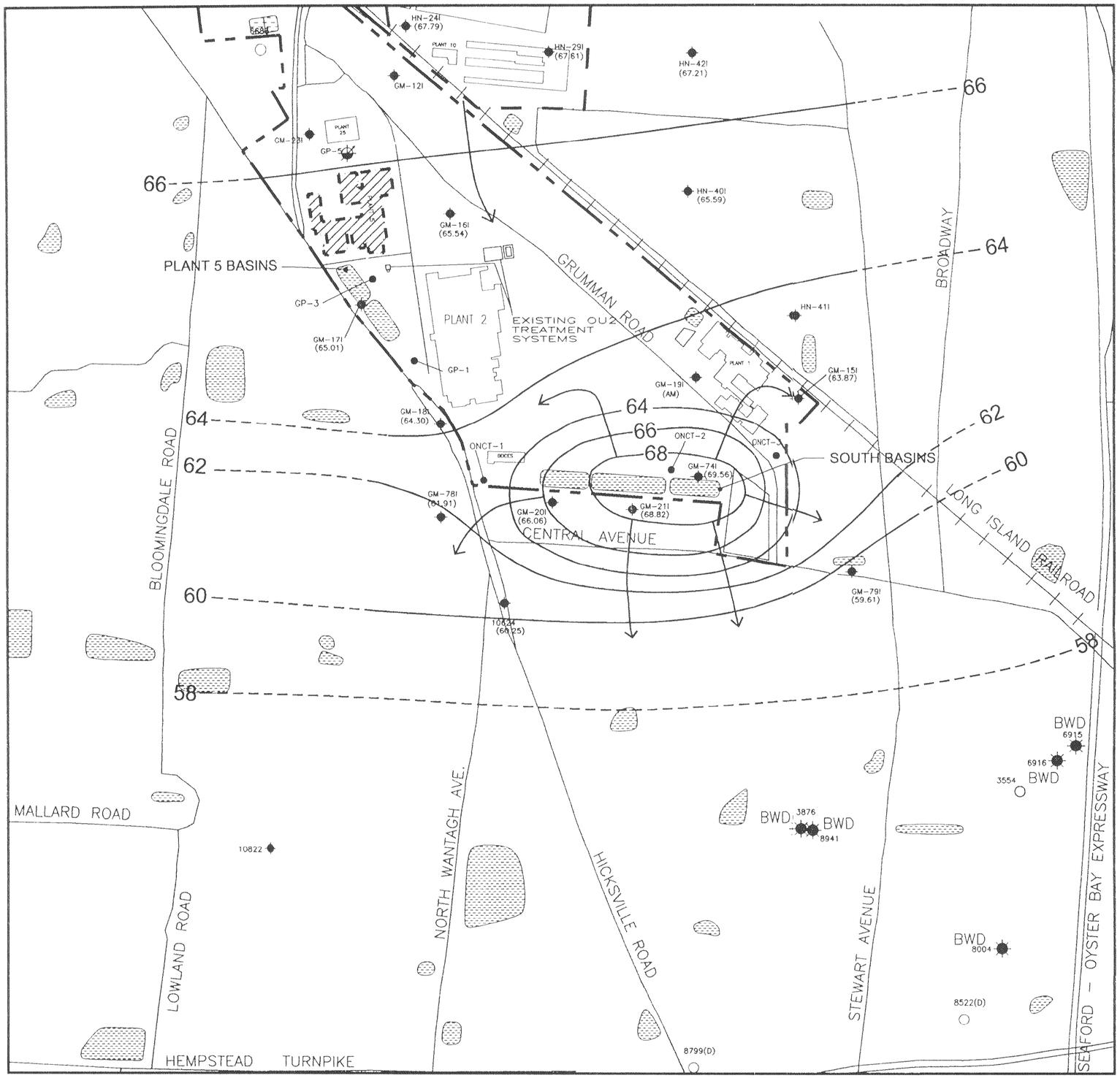
PROJECT TITLE
OPERABLE UNIT 2
NIORTHROP GRUMMAN CORPORATION
BETHPAGE, NEW YORK

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

SHEET TITLE
WATER-TABLE CONFIGURATION AND HORIZONTAL GROUNDWATER FLOW DIRECTIONS IN THE SHALLOW ZONE
OCTOBER 26, 2004

TASK/PHASE NUMBER	DRAWN BY
00004	E. HUGHES

PROJECT NUMBER	DRAWING NUMBER
NY001348.0404	2



EXPLANATION

- PROPERTY BOUNDARY OF FORMER GRUMMAN AEROSPACE CORPORATION SITE
- PROPERTY BOUNDARY OF THE U.S. NAVY SITE
- RECHARGE BASIN
- GM-15I (63.87) — LOCATION AND DESIGNATION OF INTERMEDIATE MONITORING WELL AND WATER-LEVEL ELEVATION IN FEET RELATIVE TO MEAN SEA LEVEL
- 3876 — LOCATION AND DESIGNATION OF BETHPAGE WATER DISTRICT PUBLIC SUPPLY WELL (SHOWN FOR REFERENCE ONLY)
- 3554 — LOCATION AND DESIGNATION OF ADDITIONAL WELL
- GP-5 — LOCATION AND DESIGNATION OF GRUMMAN INDUSTRIAL SUPPLY WELL (SHOWN FOR REFERENCE ONLY)
- ONCT-1 — LOCATION AND DESIGNATION OF ON-SITE OU2 REMEDIAL WELL (SHOWN FOR REFERENCE ONLY)
- HORIZONTAL COMPONENT OF GROUNDWATER FLOW
- 60 — LINE OF EQUAL WATER-LEVEL ELEVATION IN FEET RELATIVE TO MEAN SEA LEVEL (DASHED WHERE APPROXIMATE)

OU2 OPERABLE UNIT 2

BWD BETHPAGE WATER DISTRICT

USGS UNITED STATES GEOLOGICAL SURVEY

AM ANOMOLOUS MEASUREMENT

NOTES:

1. THIS FIGURE INCLUDES LOCATIONS OF MONITORING WELLS AND PUBLIC SUPPLY WELLS AS OF SEPTEMBER 25, 2001.
2. OU2 WELLS ONCT-1, ONCT-2, ONCT-3, GP-1 AND GP-3 ARE SCREENED IN THE D2 ZONE.
3. BWD WELL 3876 IS SCREENED IN THE DEEP ZONE.
4. BWD WELLS 6915, 6916, 8004, AND 8941 ARE SCREENED IN THE D2 ZONE.
5. BASIN LOCATIONS OBTAINED FROM USGS TOPOGRAPHIC MAPS (HICKSVILLE, AMITYVILLE, HUNTINGTON, AND FREEPORT QUADRANGLES), AND INFORMATION PROVIDED BY NORTHROP GRUMMAN.
6. THE NORTHERN WEST RECHARGE BASIN UNDERWENT SCRAPING DURING THE THIRD QUARTER OF 2004 AND RECEIVED LIMITED RECHARGE DURING THIS TIME.

REV. ISSUED DATE DESCRIPTION

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PROJECT TITLE

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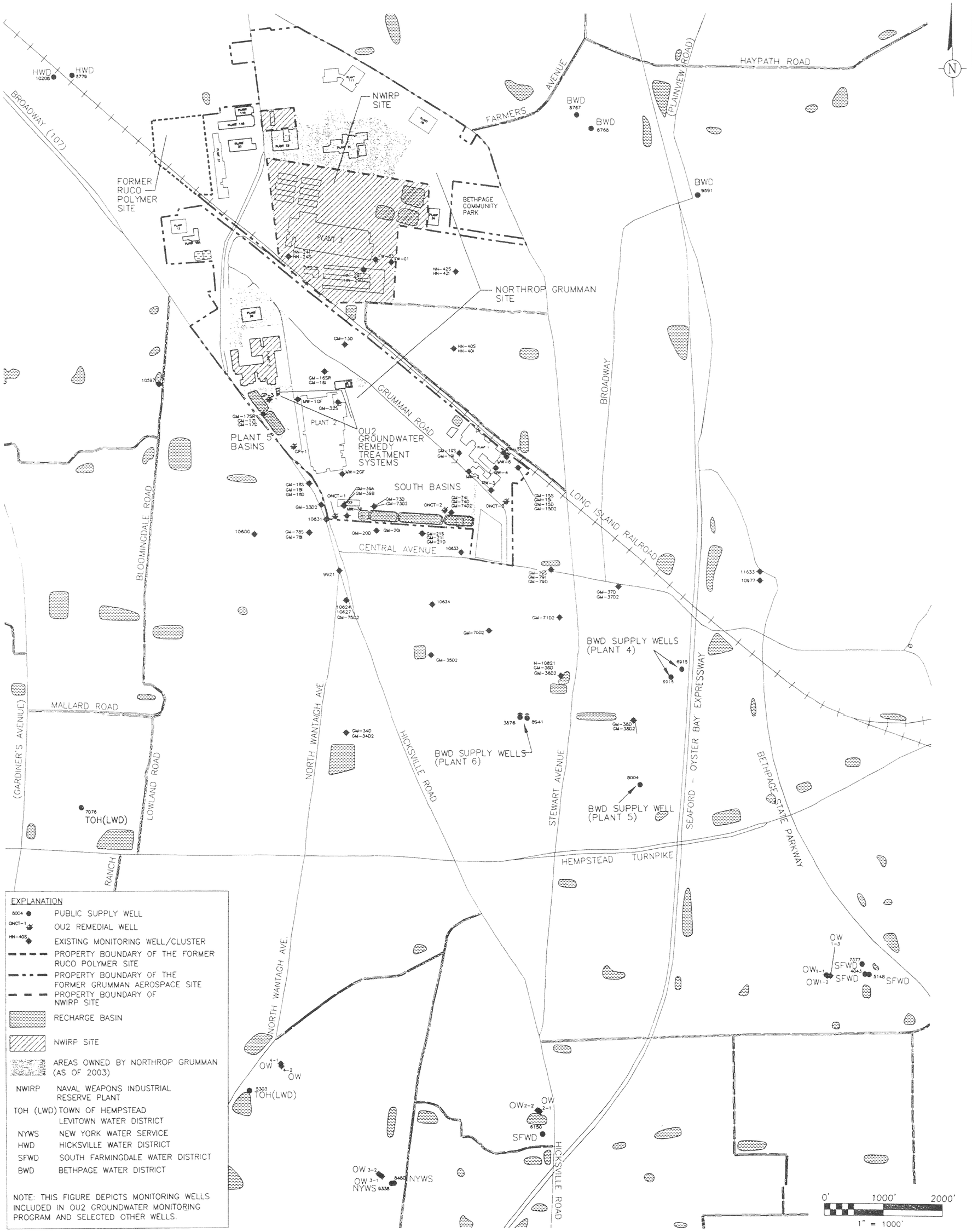
NORTHROP GRUMMAN CORPORATION
BETHPAGE, NEW YORK

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

SHEET TITLE

POTENTIOMETRIC SURFACE ELEVATION AND HORIZONTAL GROUNDWATER FLOW DIRECTIONS IN THE INTERMEDIATE ZONE OCTOBER 26, 2004

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



EXPLANATION

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

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

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

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

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

SHEET TITLE
LOCATION OF OU2
GROUNDWATER REMEDY
AND WELLS

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

Acad Version : R16.1s (LMS Tech)
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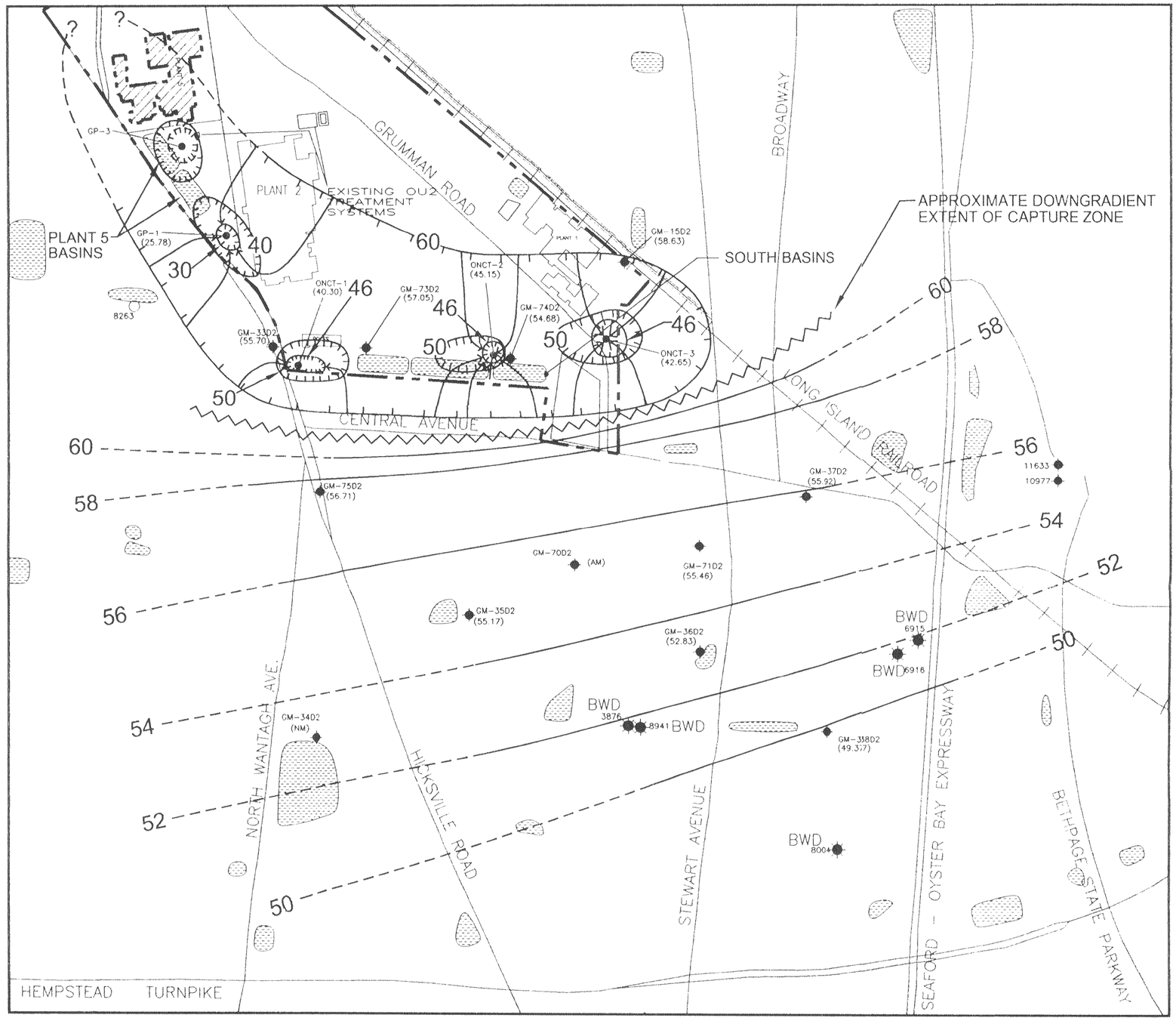

800 0 800 1600

SCALE: 1" = 800'

N

EXPLANATION

- PROPERTY BOUNDARY OF FORMER GRUMMAN AEROSPACE CORPORATION SITE
- RECHARGE BASIN
- GM-36D2 (52.83) — 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
- 8263 — LOCATION AND DESIGNATION OF ADDITIONAL WELL
- ONCT-3 (42.65) — LOCATION AND DESIGNATION OF ON-SITE OU2 REMEDIAL WELL AND WATER-LEVEL ELEVATION IN FEET RELATIVE TO MEAN SEA LEVEL
- HORIZONTAL COMPONENT OF GROUNDWATER FLOW
- 60 —— LINE OF EQUAL WATER-LEVEL ELEVATION IN FEET RELATIVE TO MEAN SEA LEVEL (DASHED WHERE APPROXIMATE)
- LINE OF EQUAL WATER-LEVEL ELEVATION DENOTING A DECREASE IN POTENTIOMETRIC SURFACE ELEVATION IN FT. MSL.

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

NOTES:

1. THIS FIGURE INCLUDES LOCATIONS OF MONITORING WELLS AND PUBLIC SUPPLY WELLS AS OF SEPTEMBER 25, 2001.
2. OU2 REMEDIAL WELLS GP-1, GP-3, ONCT-1, ONCT-2, AND ONCT-3 ARE SCREENED IN THE D2 ZONE AND WERE PUMPING AT 1,070 GPM, 440 GPM, 1026 GPM, 570 GPM, AND 722 GPM, RESPECTIVELY, AT THE TIME OF WATER-LEVEL MEASUREMENT. PUMPING RATE AT WELL GP-3 WAS MEASURED ON 10/28/2004. (NO WATER-LEVEL MEASUREMENT/ACCESS AVAILABLE).
3. BWD WELL 3876 IS SCREENED IN THE DEEP ZONE.
4. BWD WELLS 6915, 6916, 8004, AND 8941 ARE SCREENED IN THE D2 ZONE
5. BASIN LOCATIONS OBTAINED FROM USGS TOPOGRAPHIC MAPS (HICKSVILLE, AMITYVILLE, HUNTINGTON, AND FREEPORT QUADRANGLES), AND INFORMATION PROVIDED BY NORTHROP GRUMMAN.

REV. ISSUED DATE DESCRIPTION

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

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

SHEET TITLE
POTENTIOMETRIC SURFACE ELEVATION AND HORIZONTAL GROUNDWATER FLOW DIRECTIONS IN THE D2 ZONE OCTOBER 26, 2004

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

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Appendix A

Water-Level Measurement Logs

ARCADIS G&M

Page 1 of 2

Water Level Record

Northrop Grumman

Project NY 001348.0404.00002

Date 10-26-04

Well (s)	Depth to Water (ft)	Time AM	Remarks
Onct 3	66.05	9:36	722 GPM
GM15D	48.26	9:44	
GM15D2	51.15	9:48	
GM15S	45.55	9:50	manhole needs replacement
GM15I	45.38	9:52	Needs lock
GM19I	43.39	9:55	Needs new manhole
GM19S	42.81	9:58	Needs new manhole
GM13D	48.25	10:07	No lock
FW03	58.09	10:26	FW03 well
HN29D	49.16	10:30	
HN29I	48.81	10:32	No lock
HN24I	58.01	10:36	No lock
HN24S	53.87	10:38	
Onct 1	20 PSG at 45 feet of water	10:55	1026 GPM
MW3R	36.55	11:03	
GM74I	37.86		
GM74D	45.95		
GM74D2	52.68	11:11	Needs lock
Onct 2	64.85	11:18	570 GPM
GM73D	45.52	11:24	No lock
GM73D2	47.57	11:29	Needs lock, Put new cap on.
GM39D2	43.47	11:30	No lock
GM39D	40.62	11:32	No lock
GM18D	47.31		No lock
GM18I	44.73		No lock
GPI	Airline length 120 / 41	11:44	1070 GPM
GM16I	50.27	11:58	
GM16SR	50.14	12:00	
GM17I	50.82	12:06	
GM17D	52.32	12:07	
GM17SR	50.71	12:09	
GP3	17 psI off 40 feet	12:13	
N10600	41.0	12:40	Marth. Blvd & Arrandale Road
GM78I	43.15	12:43	
GM78S	42.95	12:45	
N9921	33.88	12:50	
N10627	33.93	12:51	
N10624	33.36	12:52	
—	—	—	—
—	—	—	—

ARCADIS G&M

Water Level Record

Project Northrop Grumman

Date 10-26-04

Well (s)	Depth to Water (ft)	Time	Remarks
GM-75D2	36.92	12:55	
GM-35D2	41.11		
N10634	40.30	1:08	
N 10631	40.12	1:13	
GM 33D2	51.15	1:16	
BPOW 3-1	27.05	1:31	
BPOW3-2	28.53	1:32	
BPOW 2-2	21.12	1:45	
BPOW 2-1	20.95	1:47	
BPOW 1-1	30.21	1:55	
BPOW 1-2	30.88	1:57	
BPOW 1-3	30.82	2:00	
BPOW 4-2	28.53	2:13	
BPOW 4-1	28.89	2:15	
GM 20 D	39.52	2:25	
GM 20 I	37.82	2:28	
GM 21 S	33.87	2:31	
GM 21 I	36.90	2:33	
GM 21 D	43.88	2:35	
N-10633	38.35		Central Ave & N Robert Dann Street
HN 42 I	52.40	2:47	
HN 42 S	53.09	2:51	
HN 40 S	49.48	2:55	
HN 40 I	50.32	2:57	
GM 37 D	40.57	3:06	
GM37D2	41.25	3:08	
GM35D2	42.19	3:13	Need to reset well vault (manhole)
GM 38 D	39.64	3:15	
GM 36 D	36.40	3:22	
GM 36D2	38.77	3:24	
N 10621	35.58	3:26	
GM 70D2	42.19	3:35	
GM 71D2	42.99	3:40	
GM 79 I	41.27	3:45	No lock
GM 79 D	42.75	3:47	
GM 79 S	40.19	3.49	
N 10597	44.26	3:57	
~~GM-5 60~~	~~60.05~~		

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Appendix B

Groundwater Sampling Logs

ARCADIS GERAGHTY & MILLER

Water Sampling Log

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

Site Location: Bethpage, New York Date: 10-6-04

Site/Well No.: FW-03 Replicate No.: N/A Code No.:

Weather: Sunny 730 Sampling Time: Begin 12:42pm End 12:45pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	/
Land Surface Elevation (ft)	/
Sounded Well Depth (ft bmp)	64
Depth to Water (ft bmp)	57.95
Water-Level Elevation (ft)	/
Water Column in Well (ft)	6.05
Casing Diameter/Type	2" (0.16)
Gallons in Well	.968 x3
Gallons Pumped/Bailed Prior to Sampling	2.9
Sample Pump Intake Setting (ft bmp)	/
Purge Time	begin 12:36 end 12:42pm
Pumping Rate (gpm)	.5gpm
Evacuation Method	Redflow pump

Field Parameters

	I	1L Light Brown	2V "	3V Light tan
Color	Brown			
Odor	None	None	"	None
Appearance	Turbid	Turbid	"	Turbid
pH (s.u.)	6.73	6.85	6.80	6.85
Conductivity ~~(mS/cm)~~	-	-	-	-
(µmhos/cm)	414	410	403	411
Turbidity (NTU)	-	-	-	*
Temperature (°C)	13.8	14.7	14.2	14.5
Dissolved Oxygen (mg/L)	-	-	-	-
~~Salinity (%)~~ Time	12:36 pm	12:38	12:40	12:42 pm
Sampling Method	/			

Remarks: * greater than 200 NTU

PID reading at wellhead zero

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: GW/PP

Well Casing Volumes

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

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

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 00002 Well ID: GM-13 D
Date: 10-5-04 Sampled By: GW/PP
Sampling Time: 1:15pm Recorded By: PP
Weather: Light breeze, sunny 57° Coded Replicate No.: Rep 10-5-04 and MS/MSD

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

Purging Information
Casing Material: PVC Purge Method: Dedicated Bladder / Low Flow
Casing Diameter: 4" Screen Interval (ft bmp): Top 200 Bottom 210
Sounded Depth (ft bmp): 210 Pump Intake Depth (ft bmp): 205
Depth to Water (ft bmp): 49.52 Purge time Start: 12:15 pm Finish: 1:15pm

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
12:15	—	—	—	16.9	5.12	238	369	6.43	—	—	—
12:20	—	—	—	15.5	5.00	235	371	1.72	—	49.47	—
12:25	—	—	—	15.3	5.02	234	380	1.25	—	—	—
12:30	—	—	—	15.3	5.00	234	378	1.16	—	49.47	—
12:35	—	—	—	15.2	4.98	236	387	1.18	—	—	—
12:40	—	—	—	15.2	4.96	235	379	.94	—	49.47	—
12:45	—	—	—	15.3	4.98	235	385	1.10	—	—	—
12:50	—	—	—	15.3	4.96	234	381	1.11	—	49.47	—
12:55	—	—	—	15.3	5.00	234	389	.97	—	—	—
1:00	—	—	—	15.2	4.96	234	380	1.06	—	49.47	—
1:05	—	—	—	15.3	5.00	234	391	1.07	—	—	—
1:10	—	—	—	15.3	4.96	235	386	1.08	—	49.47	—
1:15	—	—	—	15.3	4.94	235	392	1.03	1.6	—	—

Sample Condition Color: Colorless Odor: None Appearance: clear

Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading: At wellhead Zero

Comments: Replaced compression coupling & nut on feed line to pump before purging. Well needs lock.

ARCADIS GERAGHTY & MILLER

Water Sampling Log

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

Site Location: Bethpage, New York | Date: 10/4/04

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

Weather: Partly cloudy 70° | Sampling Time: Begin 5:10pm | End 5:14pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	80
Depth to Water (ft bmp)	46.82
Water-Level Elevation (ft)	—
Water Column in Well (ft)	33.18
Casing Diameter/Type	4" (0.65)
Gallons in Well	21.56 × 3
Gallons Pumped/Bailed Prior to Sampling	64.7
Sample Pump Intake Setting (ft bmp)	—
Purge Time	begin 4:37 pm end 5:10pm
Pumping Rate (gpm)	2 gpm
Evacuation Method	Rediflow Pump

Field Parameters

Field Parameters	I	1V	2V	3V
Color	—	—	—	Colorless
Odor	strong	strong	Moderate	Moderate
Appearance	—	—	—	clear
pH (s.u.)	6.34	5.63	5.51	5.45
Conductivity (~~mS/cm~~)	—	—	—	—
(µmhos/cm)	399	375	404	416
Turbidity (NTU)	—	16	21	14
Temperature (°C)	19.1	17.6	17.2	17.1
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ Time	4:37 pm	4:48	4:59	5:10 pm

Sampling Method: 3 well volume purge

Remarks: PID reading at well head zero; Strong sewer odor

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: GW PP

Well Casing Volumes

Gal./Ft.				
	1-½" = 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. NY001348.0404.00002 | Page 1 of 1

Site Location: Bethpage, New York | Date: 10-5-04

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

Weather: Sunny 58° | Sampling Time: Begin 10:38 AM | End 10:40 AM

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	105
Depth to ~~Water~~ packer (ft bmp)	94
Water-Level Elevation (ft)	—
Water Column in Well (ft)	11
Casing Diameter/Type	4" (0.65)
Gallons in Well	7.15 x 3
Gallons Pumped/Bailed Prior to Sampling	21.45
Sample Pump Intake Setting (ft bmp)	—
Purge Time	begin 9:40 AM end 10:38 AM
Pumping Rate (gpm)	—
Evacuation Method	Dedicated Bladder Packer

Field Parameters

Field Parameters	I	1V	2V	3V
Color	colorless	colorless	colorless	colorless
Odor	None	None	None	None
Appearance	clear	clear	clear	clear
pH (s.u.)	4.85	4.82	4.80	4.80
Conductivity ~~(mS/cm)~~	—	—	—	—
(µmhos/cm)	282	285	274	275
Turbidity (NTU)	—	—	—	2.7
Temperature (°C)	13.7	14.7	15.5	15.4
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ 5 gallon containers (#)	—	1/2	1/2	1/2

Sampling Method: —

Remarks: DTW = 46.62

PSI = 94 − 46.62 × .43 + 50 = 75

(Depth to Packer) − (DTW) × for 4" casing + 50 = Rounded up PSI

PID at wellhead zero. Well needs new lock.

(PID reading)

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: GWPP

Well Casing Volumes

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

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

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 00002 Well ID: GM-15D
Date: 10/4/04 Sampled By: GW/BB
Sampling Time: 2:40pm Recorded By: BB
Weather: Sunny 74° Coded Replicate No.: N/A

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

Purging Information
Casing Material: PVC Purge Method: Dedicated Bladder / Low Flow
Casing Diameter: 4" Screen Interval (ft bmp): Top 332 Bottom 342
Sounded Depth (ft bmp): 342 Pump Intake Depth (ft bmp): 337
Depth to Water (ft bmp): 49.83 Purge time Start: 1:40pm Finish: 2:40pm

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. ~~µS/cm~~ µS	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
1:40	—	—	—	20.5	4.67	174.7	421	7.26	—	—	—
1:45	—	—	—	16.7	4.56	194.3	447	5.24	3.4	49.83	—
1:50	—	—	—	16.4	4.45	191.5	438	4.74	2.4	—	—
1:55	—	—	—	17.4	4.57	189.9	454	4.74	2.3	49.84	—
2:00	—	—	—	17.6	4.47	188.0	461	4.68	2.7	—	—
2:05	—	—	—	17.7	4.58	187.1	468	4.60	2.9	49.84	—
2:10	—	—	—	17.6	4.46	186.0	449	4.53	2.7	—	—
2:15	—	—	—	17.5	4.56	186.1	470	4.49	2.5	49.83	—
2:20	—	—	—	17.7	4.52	185.3	472	4.52	2.7	—	—
2:25	—	—	—	17.8	4.58	185.1	453	4.51	2.3	49.86	—
2:30	—	—	—	17.8	4.48	185.4	472	4.56	2.0	—	—
2:35	—	—	—	17.8	4.57	185.4	460	4.59	2.0	49.87	—
2:40	—	—	—	17.7	4.49	185.3	467	4.57	2.0	—	—

Sample Condition Color: Colorless Odor: None Appearance: Clear

Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading: At wellhead Zero

Comments: ~~/~~

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 00002 Well ID: GM-15 D2
Date: 10/4/04 Sampled By: GW/BP
Sampling Time: 4:00pm Recorded By: BP
Weather: Sunny 73° Coded Replicate No.: N/A

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

Purging Information
Casing Material: PVC BP Purge Method: Dedicated Bladder / Low Flow
Casing Diameter: 4" Screen Interval (ft bmp): Top 536 Bottom 556
Sounded Depth (ft bmp): 556 Pump Intake Depth (ft bmp): 546
Depth to Water (ft bmp): 52.94 Purge time Start: 3:00 pm Finish: 4:00pm

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
3:00	—	—	—	18.5	5.00	84.2	424	6.52	—	—	—
3:05	—	—	—	18.2	5.02	84.4	428	3.50	—	52.93	—
3:10	—	—	—	17.7	5.01	84.5	419	7.78	—	—	—
3:15	—	—	—	17.5	5.05	84.5	435	8.03	—	—	—
3:20	—	—	—	17.6	5.01	84.3	425	8.09	—	52.93	—
3:25	—	—	—	17.5	5.03	84.3	437	8.13	—	—	—
3:30	—	—	—	17.5	4.97	84.2	442	8.16	—	52.93	—
3:35	—	—	—	17.6	5.03	84.1	423	8.12	—	—	—
3:40	—	—	—	17.5	4.96	84.1	438	8.23	—	—	—
3:45	—	—	—	17.2	5.04	84.3	422	8.29	—	52.93	—
3:50	—	—	—	17.4	4.97	84.3	439	8.33	—	—	—
3:55	—	—	—	17.4	5.01	84.3	423	8.37	—	52.93	—
4:00	—	—	—	17.3	5.00	84.3	431	8.37	1.00	—	—

Sample Condition Color: Colorless Odor: NONE Appearance: clear

Sample Collection

Parameter:	Container:	No.	Preservative:
See CoC			

PID Reading: At wellhead Zero

Comments: ✓

ARCADIS GERAGHTY & MILLER

Water Sampling Log

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

Site Location: Bethpage, New York Date: 10-1-04

Site/Well No.: GM-16 SR Replicate No.: N/A Code No.:

Weather: Sunny 74° Sampling Time: Begin 1:56pm End 2:01pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	/
Land Surface Elevation (ft)	/
Sounded Well Depth (ft bmp)	70
Depth to Water (ft bmp)	51.37
Water-Level Elevation (ft)	/
Water Column in Well (ft)	18.63
Casing Diameter/Type	4"(0.65) / PVC
Gallons in Well	12.11
	x 3
Gallons Pumped/Bailed Prior to Sampling	36.33
Sample Pump Intake Setting (ft bmp)	/
Purge Time	begin 1:38pm end 1:56pm
Pumping Rate (gpm)	2gpm
Evacuation Method	Rediflow Pump

Field Parameters

Field Parameters	I	1v	2v	3v
Color	Colorless	Colorless	Colorless	Colorless
Odor	None	None	None	None
Appearance	clear	clear	clear	clear
pH (s.u.)	5.21	5.45	5.25	5.19
Conductivity ~~(mS/cm)~~	—	—	—	—
(µmhos/cm)	108.8	120.1	110.5	111.0
Turbidity (NTU)	75	30	21	21
Temperature (°C)	17.3	16.3	16.8	16.7
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ Time	1:38 pm	1:44	1:50	1:56

Sampling Method:

Remarks: PID reading at wellhead zero

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: GW/PP

Well Casing Volumes

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

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

ARCADIS GERAGHTY & MILLER

Water Sampling Log

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

Site Location: Bethpage, New York Date: 10-1-04

Site/Well No.: GM-16I Replicate No.: N/A Code No.:

Weather: Sunny 73° Sampling Time: Begin: — End: —

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	145
Depth to ~~Water~~ packer (ft bmp)	134
Water-Level Elevation (ft)	—
Water Column in Well (ft)	11
Casing Diameter/Type	4" (0.65)
Gallons in Well	7.15 x3
Gallons Pumped/Bailed Prior to Sampling	21.45
Sample Pump Intake Setting (ft bmp)	—
Purge Time	begin — end —
Pumping Rate (gpm)	—
Evacuation Method	Dedicated Packer 3 volume well

Field Parameters

Field Parameters	I	1V	2V	3V
Color	Light Brown	Light Brown	Light Brown	tan
Odor	None	None	None	None
Appearance	Turbid	Turbid	Turbid	Turbid
pH (s.u.)	8.30	7.50	7.21	6.90
Conductivity ~~(mS/cm)~~ (µmhos/cm)	— 312	— 278	— 284	— 249
Turbidity (NTU)	—	—	—	270
Temperature (°C)	18.0	17.8	17.2	16.4
Dissolved Oxygen (mg/L)	—	—	—	—
5 gallon containers	—	½	½	½
~~Salinity (%)~~	—			
~~Sampling Method~~	DTW = 50.10, PSI 90			

Remarks: PID reading at wellhead zero

134 − 50.1 × .43 + 50 = 90 PSI

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

½ = one 5 gallon container

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: GW PP

Well Casing Volumes

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

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

ARCADIS GERAGHTY & MILLER

Water Sampling Log

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

Site Location: Bethpage, NY | Date: 9-30-04

Site/Well No.: GM-175R | Replicate No.: N/A | Code No.:

Weather: overcast 66 | Sampling Time: Begin 4:14pm End 4:18 pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	70
Depth to Water (ft bmp)	50.92
Water-Level Elevation (ft)	—
Water Column in Well (ft)	19.08
Casing Diameter/Type	4" (0.65) / PVC
Gallons in Well	12.4
Gallons Pumped/Bailed Prior to Sampling	x3 = 37
Sample Pump Intake Setting (ft bmp)	—
Purge Time	begin 3:56pm end 4:14pm
Pumping Rate (gpm)	2gpm
Evacuation Method	Redi-flow Pump

Field Parameters	I	1V	2V	3V
Color	—	—	—	Colorless
Odor	—	—	—	None
Appearance	—	—	—	Clear
pH (s.u.)	5.84	5.86	5.79	5.81
Conductivity ~~(mS/cm)~~ (µmhos/cm)	89.4	91.1	867	85.7
Turbidity (NTU)	19	17	17	17
Temperature (°C)	15.8	15.7	15.7	15.7
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ Time	3:56	4:02	4:08	4:14pm

Sampling Method: —

Remarks: PID reading zero at wellhead

Hole in hose

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: GW/QC

Well Casing Volumes

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

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

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 00002 Well ID: GM-17I
Date: 10-29-04 Sampled By: PP
Sampling Time: 3:00pm Recorded By: PP
Weather: Overcast 58° Coded Replicate No.: N/A

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

Purging Information
Casing Material: PVC Purge Method: Dedicated Bladder
Casing Diameter: 4" Screen Interval (ft bmp): Top 100 Bottom 120
Sounded Depth (ft bmp): 120 Pump Intake Depth (ft bmp): 110
Depth to Water (ft bmp): 51.89 Purge time Start: 2:00 pm Finish: 3:00pm

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. µS (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
2:00	–	–	–	15.7	5.20	108.2	376	6.94	6.7	–	–
2:05	–	–	–	15.6	5.54	111.4	378	6.74	6.7	51.89	–
2:10	–	–	–	15.2	5.70	115.1	370	6.25	6.7	–	–
2:15	–	–	–	15.1	5.71	115.7	372	6.55	6.6	51.89	–
2:20	–	–	–	15.1	5.73	115.8	375	6.64	6.7	–	–
2:25	–	–	–	15.0	5.74	116.1	360	6.57	6.6	51.89	–
2:30	–	–	–	15.0	5.74	116.2	368	6.22	6.6	–	–
2:35	–	–	–	15.0	5.75	116.1	361	6.42	6.8	51.88	–
2:40	–	–	–	15.0	5.75	116.2	371	6.30	6.6	–	–
2:45	–	–	–	15.0	5.76	116.1	370	6.54	6.6	51.89	–
2:50	–	–	–	14.9	5.76	116.0	363	6.63	6.6	–	–
2:55	–	–	–	14.9	5.77	116.3	367	6.61	6.7	51.89	–
3:00	–	–	–	14.9	5.77	116.3	369	6.32	6.7	–	–

Sample Condition Color: Colorless Odor: NONE Appearance: Clear

Sample Collection

Parameter:	Container:	No.	Preservative:
See CoC			

PID Reading: At Wellhead Zero

Comments:

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 00002 Well ID: GM 17D
Date: 10-29-04 Sampled By: PB
Sampling Time: 1:40pm Recorded By: PB
Weather: overcast 56° Coded Replicate No.: N/A

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

Purging Information
Casing Material: PVC Purge Method: Dedicated Bladder
Casing Diameter: 4" Screen Interval (ft bmp): Top 278 Bottom 298
Sounded Depth (ft bmp): 298 Pump Intake Depth (ft bmp): 288
Depth to Water (ft bmp): 53.29 Purge time Start: 12:40 pm Finish: 1:40 pm

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. ~~mS/cm~~ µS (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
12:40	–	–	–	14.9	4.65	106.9	391	5.64	6.77	–	–
12:45	–	–	–	14.8	4.69	106.5	389	5.71	6.70	53.31	–
12:50	–	–	–	14.8	4.79	106.1	396	6.21	–	–	–
12:55	–	–	–	14.9	4.81	106.2	391	6.19	6.58	53.29	–
1:00	–	–	–	14.9	4.81	106.3	392	5.98	6.61	–	–
1:05	–	–	–	14.8	4.81	106.3	391	6.14	6.60	53.29	–
1:10	–	–	–	15.0	4.81	106.0	404	6.19	6.53	–	–
1:15	–	–	–	14.9	4.81	106.1	398	5.89	6.52	53.29	–
1:20	–	–	–	14.9	4.80	105.9	400	6.51	6.81	–	–
1:25	–	–	–	14.9	4.80	105.9	402	6.12	6.61	53.29	–
1:30	–	–	–	14.9	4.81	106.0	409	6.39	6.71	–	–
1:35	–	–	–	14.9	4.82	106.1	403	6.09	6.50	53.29	–
1:40	–	–	–	15.0	4.83	105.8	417	6.25	6.60	–	–

Sample Condition Color: Colorless Odor: None Appearance: clear

Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading At wellhead Zero

Comments Needs New lock

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 00002 Well ID: GM 18D
Date: 10-29-04 Sampled By: PP
Sampling Time: 11:55 AM Recorded By: PP
Weather: Overcast 56° Coded Replicate No.: N/A

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

Purging Information
Casing Material: PVC Purge Method: Dedicated Bladder
Casing Diameter: 4" Screen Interval (ft bmp): Top 290 Bottom 300
Sounded Depth (ft bmp): 300 Pump Intake Depth (ft bmp): 295
Depth to Water (ft bmp): 48.23 Purge time Start: 10:55 AM Finish: 11:55 AM

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. ~~mS/cm~~ mS/cm	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
10:55	–	–	–	16.5	5.03	114.6	292	6.57	–	–	–
11:00	–	–	–	16.6	4.97	114.0	322	6.62	–	48.17	–
11:05	–	–	–	16.6	4.93	111.7	346	6.15	8.77	–	–
11:10	–	–	–	16.6	4.90	107.2	347	6.11	7.86	48.12	–
11:15	–	–	–	16.6	4.90	107.1	353	6.64	7.73	–	–
11:20	–	–	–	16.5	4.90	107.2	368	6.24	7.37	48.12	–
11:25	–	–	–	16.5	4.88	106.5	365	6.20	7.21	–	–
11:30	–	–	–	16.6	4.89	105.9	386	6.29	7.09	48.13	–
11:35	–	–	–	16.6	4.89	106.0	370	6.76	6.94	–	–
11:40	–	–	–	16.6	4.89	105.0	379	6.39	6.93	48.14	–
11:45	–	–	–	16.6	4.89	105.6	383	6.80	6.89	–	–
11:50	–	–	–	16.5	4.90	105.6	376	6.89	6.86	48.16	–
11:55	–	–	–	16.5	4.90	105.7	386	7.04	6.97	–	–

Sample Condition Color: colorless Odor: None Appearance: clear

Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading: At wellhead zero

Comments: Needs new lock

ARCADIS GERAGHTY & MILLER

Water Sampling Log

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

Site Location: Bethpage, New York | Date: 10-7-04

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

Weather: Sunny 74° | Sampling Time: Begin 12:25pm End 12:28pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	/
Land Surface Elevation (ft)	/
Sounded Well Depth (ft bmp)	105
Depth to ~~Water~~ packer (ft bmp)	94
Water-Level Elevation (ft)	/
Water Column in Well (ft)	11
Casing Diameter/Type	4" (0.65)
Gallons in Well	7.15 x3
Gallons Pumped/Bailed Prior to Sampling	21.45
Sample Pump Intake Setting (ft bmp)	/
Purge Time	begin 11:20 AM end 12:25pm
Pumping Rate (gpm)	/
Evacuation Method	Dedicated Bladder /packer

Field Parameters

Field Parameters	I	1v	2v	3v
Color	colorless	colorless	colorless	colorless
Odor	None	None	None	None
Appearance	clear	clear	clear	clear
pH (s.u.)	10.04	8.86	9.85	9.86
Conductivity ~~(mS/cm)~~ (µmhos/cm)	168.2	225	237	249
Turbidity (NTU)	—	—	—	3.5
Temperature (°C)	18.0	20.8	21.0	21.0
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ 5 gallon container	—	½	½	½

Sampling Method

Remarks: DTW = 35.51 | PID at wellhead zero

PSI = 94 − 35.51 x .43 + 50 = 80 PSI

(Depth to packer) − (DTW) x (gpf casing) + 50 = Round up

/ = one 5 gallon container

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: G.W. I.P.

Well Casing Volumes

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

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	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	Miligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS GERAGHTY & MILLER

Water Sampling Log

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

Site Location: Bethpage NY Date: 10-8-04

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

Weather: Thick Fog 62° Sampling Time: Begin 9:01 AM End 9:03 AM

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	226
Depth to ~~Water~~ packer (ft bmp)	215
Water-Level Elevation (ft)	—
Water Column in Well (ft)	11
Casing Diameter/Type	4" (0.65)
Gallons in Well	7.15 × 3
Gallons Pumped/Bailed Prior to Sampling	21.45
Sample Pump Intake Setting (ft bmp)	—
Purge Time	begin 8:20 AM end 9:01 AM
Pumping Rate (gpm)	
Evacuation Method	Dedicated Bladder/packer

Field Parameters	I	Iv	2v	3v
Color	colorless	colorless	colorless	colorless
Odor	None	None	None	None
Appearance	clear	clear	clear	clear
pH (s.u.)	5.19	5.14	5.22	5.20
Conductivity ~~(mS/cm)~~ (µmhos/cm)	93.5	96.3	99.8	101.5
Turbidity (NTU)	—	—	—	1.3
Temperature (°C)	15.9	14.5	14.2	13.6
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ 5 gallon containers	—	1½	½	1½

Sampling ~~Method~~: 1 = one five gallon container

Remarks: DTW = 38.58

215 − 38.58 × 2.43 + 50 = 130 psi (rounded up)
Depth to packer | DTW | 4" casing

PID reading at wellhead zero

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: GW PP

Well Casing Volumes

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

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

ARCADIS GERAGHTY & MILLER

Water Sampling Log

Project: NORTHROP GRUMMAN Project No. NY002348.0404.00002 Page 1 of 1

Site Location: BETHPAGE NY Date: 10-5-04

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

Weather: CLEAR 70° Sampling Time: Begin 3:46 pm End 3:48 pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	67.0
Depth to Water (ft bmp)	34.70
Water-Level Elevation (ft)	~~PP~~
Water Column in Well (ft)	32.3
Casing Diameter/Type	2" (0.16) / steel
Gallons in Well	5.16 x3
Gallons Pumped/Bailed Prior to Sampling	15.5
Sample Pump Intake Setting (ft bmp)	—
Purge Time	begin 3:37 pm end 3:46 pm
Pumping Rate (gpm)	2 gpm
Evacuation Method	Redi-Flo Pump

Field Parameters

Field Parameters	I	1V	2V	3V
Color	Brown	—	—	colorless
Odor	NONE	—	—	None
Appearance	Turbid	—	—	clear
pH (s.u.)	7.89	5.81	5.82	5.76
Conductivity ~~(mS/cm)~~ (µmhos/cm)	106.5	122.0	119.5	118.3
Turbidity (NTU)	—	—	—	31
Temperature (°C)	16.1	16.3	17.9	18.1
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ Time	3:37 pm	3:40	3:43	3:46 pm
Sampling Method	—			

Remarks: PID reading at wellhead zero

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: GW/BB

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. NY001348.0404.00002 | Page 1 of 1

Site Location: Bethpage, New York | Date: 10-5-04

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

Weather: clear 61° | Sampling Time: Begin 4:40 pm End 4:42 pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	/
Land Surface Elevation (ft)	/
Sounded Well Depth (ft bmp)	140
Depth to ~~Water~~ packer (ft bmp)	129
Water-Level Elevation (ft)	/
Water Column in Well (ft)	11
Casing Diameter/Type	4" (0.65)
Gallons in Well	7.15 x 3
Gallons Pumped/Bailed Prior to Sampling	21.45
Sample Pump Intake Setting (ft bmp)	/
Purge Time	begin 3:55 pm end 4:40 pm
Pumping Rate (gpm)	/
Evacuation Method	Dedicated Bladder Packer

Field Parameters

Field Parameters	I	1V	2V	3V
Color	colorless	colorless	colorless	colorless
Odor	None	None	None	None
Appearance	clear	clear	clear	clear
pH (s.u.)	8.68	9.15	9.61	9.44
~~Conductivity (mS/cm)~~	—	—	—	—
(µmhos/cm)	144.5	136.4	121.0	118.2
Turbidity (NTU)	—	—	—	4.9
Temperature (°C)	16.9	16.6	16.8	16.6
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ 5 gallon container ( )	—	½	½	½
Sampling Method	—	—	—	—

Remarks: DTW = 37.45

PSI = (Depth to packer) − (DTW) × 0.43 (for 4" casing) + 50 = Round up PSI

= 129 − 37.45 × .43 + 50 = 90 PSI

PID reading at wellhead zero. Well needs new lock.

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: GWPP

Well Casing Volumes

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

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

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 00002 Well ID: GM-21D
Date: 10-5-04 Sampled By: GWPP
Sampling Time: 3:25pm Recorded By: PP
Weather: Sunny 68° Coded Replicate No.: N/A

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

Purging Information
Casing Material: PVC Purge Method: Dedicated Bladder/ Low Flow
Casing Diameter: 4" Screen Interval (ft bmp): Top 278 Bottom 288
Sounded Depth (ft bmp): 288 Pump Intake Depth (ft bmp): 283
Depth to Water (ft bmp): 45.13 Purge time Start: 2:25pm Finish: 3:25pm

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. ~~mS/cm~~ µS	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
2:25	—	—	—	18.2	4.50	96.3	351	7.73	—	—	—
2:30	—	—	—	18.3	4.43	94.1	369	6.91	—	45.13	—
2:35	—	—	—	17.5	4.37	86.1	397	6.60	—	—	—
2:40	—	—	—	17.5	4.34	84.2	391	7.51	—	45.13	—
2:45	—	—	—	17.4	4.36	83.9	403	7.55	—	—	—
2:50	—	—	—	17.3	4.36	84.1	403	7.56	—	45.10	—
2:55	—	—	—	17.3	4.34	84.3	419	7.57	—	—	—
3:00	—	—	—	17.3	4.35	84.6	419	7.41	—	45.10	—
3:05	—	—	—	17.1	4.33	85.9	431	7.44	—	—	—
3:10	—	—	—	17.0	4.34	87.6	424	7.71	—	45.10	—
3:15	—	—	—	17.0	4.30	89.3	433	7.87	—	—	—
3:20	—	—	—	17.0	4.32	89.2	423	7.75	—	45.10	—
3:25	—	—	—	17.0	4.30	89.2	432	7.90	3.9	—	—

Sample Condition Color: colorless Odor: None Appearance: clear

Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading: At wellhead Zero

Comments: Well Needs New lock

ARCADIS GERAGHTY & MILLER

Water Sampling Log

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

Site Location: Bethpage, NY. Date: 10-11-04

Site/Well No.: GM-32S Replicate No.: N/A Code No.:

Weather: Partly cloudy 67° Sampling Time: Begin 1:20 pm End 1:24 pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	51
Depth to Water (ft bmp)	43.10
Water-Level Elevation (ft)	—
Water Column in Well (ft)	7.9
Casing Diameter/Type	4" (0.65)
Gallons in Well	5.135
Gallons Pumped/Bailed Prior to Sampling	x3 15.4
Sample Pump Intake Setting (ft bmp)	—
Purge Time	begin 1:05 pm end 1:20 pm
Pumping Rate (gpm)	1 gpm
Evacuation Method	Rediflow Pump

Field Parameters	I	1V	2V	3V
Color	—	colorless	colorless	colorless
Odor	—	None	None	None
Appearance	+	clear	clear	clear
pH (s.u.)	5.23	5.28	5.37	5.39
Conductivity ~~(mS/cm)~~	—	—	—	—
(µmhos/cm)	482	490	500	498
Turbidity (NTU)	60	19	8.5	4.9
Temperature (°C)	15.7	16.3	16.4	16.5
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ Time	1:05 pm	1:10	1:15	1:20 pm
Sampling Method	—			

Remarks: PID reading at wellhead Zero

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: G.W. P.P.

Well Casing Volumes

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

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

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 00002 Well ID: GM-34D
Date: 10-8-04 Sampled By: GW/RR
Sampling Time: 12:30pm Recorded By: RR
Weather: Sunny 76° Coded Replicate No.: N/A

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

Purging Information
Casing Material: Steel Purge Method: Non-dedicated Bladder / Low Flow
Casing Diameter: 2" Screen Interval (ft bmp): Top 309 Bottom 319
Sounded Depth (ft bmp): 319 Pump Intake Depth (ft bmp): 314
Depth to Water (ft bmp): 16.12 Purge time Start: 11:30 AM Finish: 12:30pm

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. ~~(mS/cm)~~ µS	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
11:30	—	—	—	20.0	7.32	173.8	36	2.99	—	—	—
11:35	—	—	—	19.5	7.45	174.9	-2	1.93	—	13.21	—
11:40	—	—	—	18.8	7.55	177.1	-28	1.33	—	—	—
11:45	—	—	—	18.2	7.60	177.6	-53	.79	—	15.19	—
11:50	—	—	—	17.9	7.71	174.0	-66	.74	—	—	—
11:55	—	—	—	18.0	8.53	166.6	-96	.63	—	13.81	—
12:00	—	—	—	18.3	8.59	167.0	*	.49	—	—	—
12:05	—	—	—	18.4	8.48	170.7	*	.51	—	13.95	—
12:10	—	—	—	18.7	8.32	173.8	*	.51	—	—	—
12:15	—	—	—	18.8	7.95	176.4	*	.52	30	14.02	—
12:20	—	—	—	19.1	7.59	178.6	*	.71	25	—	—
12:25	—	—	—	19.5	7.12	179.5	*	.76	24	14.70	—
12:30	—	—	—	19.7	6.96	181.8	*	.78	22	—	—

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

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading: At wellhead Zero
Comments: * Less than -180

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 00002 Well ID: GM-34D2
Date: 10-8-04 Sampled By: GWIPP
Sampling Time: 11:10 AM Recorded By: PR
Weather: Sunny 72° Coded Replicate No.: N/A

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

Purging Information
Casing Material: Steel Purge Method: Non-dedicated Bladder / Low Flow
Casing Diameter: 4" Screen Interval (ft bmp): Top 510 Bottom 520
Sounded Depth (ft bmp): 520 Pump Intake Depth (ft bmp): 515
Depth to Water (ft bmp): 18.35 Purge time Start: 10:10 AM Finish: 11:10 AM

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. ~~mS/cm~~ uS/cm	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
10:10	—	—	—	18.3	6.57	88.0	290	5.02	—	—	—
10:15	—	—	—	18.1	6.90	87.6	304	2.79	—	17.15	—
10:20	—	—	—	18.0	7.01	87.0	297	2.02	—	—	—
10:25	—	—	—	17.8	7.09	86.8	301	1.90	—	17.15	—
10:30	—	—	—	17.7	7.17	86.7	302	1.60	—	—	—
10:35	—	—	—	17.6	7.31	86.2	316	1.57	—	17.15	—
10:40	—	—	—	17.7	7.21	85.9	297	1.42	—	—	—
10:45	—	—	—	18.0	6.45	104.8	-45	1.01	—	—	—
10:50	—	—	—	18.2	5.94	117.5	-53	.81	—	17.30	—
10:55	—	—	—	18.3	5.83	134.7	-53	.90	—	—	—
11:00	—	—	—	18.2	5.66	137.8	-34	1.36	—	17.19	—
11:05	—	—	—	18.1	5.58	126.9	1	2.52	260	—	—
11:10	—	—	—	18.1	5.55	119.9	13	3.33	190	17.12	—

Sample Condition Color: — Odor: — Appearance: —

Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading: At Wellhead Zero

Comments: —

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 00002 Well ID: GM-39D
Date: 10-7-04 Sampled By: BB
Sampling Time: 3:30pm Recorded By: BB
Weather: Sunny 75° Coded Replicate No.: N/A

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

Purging Information
Casing Material: PVC Purge Method: Dedicated Bladder / Low Flow
Casing Diameter: 4" Screen Interval (ft bmp): Top 262 Bottom 282
Sounded Depth (ft bmp): 282 Pump Intake Depth (ft bmp): 272
Depth to Water (ft bmp): 40.38 Purge time Start: 2:30pm Finish: 3:30pm

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
2:30	—	—	—	21.1	6.67	122.6	248	8.58	—	—	—
2:35	—	—	—	16.5	6.43	122.6	272	9.12	[illegible]	40.38	—
2:40	—	—	—	17.4	6.05	113.0	300	9.36	—	—	—
2:45	—	—	—	17.2	5.87	112.6	317	9.30	—	40.38	—
2:50	—	—	—	17.5	5.87	115.9	323	9.63	—	—	—
2:55	—	—	—	17.1	5.76	112.1	331	9.15	—	40.40	—
3:00	—	—	—	17.2	5.69	111.9	342	9.20	—	—	—
3:05	—	—	—	17.3	5.71	112.7	350	9.27	—	40.39	—
3:10	—	—	—	17.2	5.68	112.9	348	9.32	—	—	—
3:15	—	—	—	17.0	5.70	112.8	365	9.28	—	40.39	—
3:20	—	—	—	17.2	5.64	113.5	358	9.18	—	—	—
3:25	—	—	—	17.2	5.68	115.0	369	9.21	1.6	40.39	—
3:30	—	—	—	17.1	5.65	115.1	372	9.24	1.3	—	—

Sample Condition Color: Colorless Odor: None Appearance: Clear

Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading: At Wellhead Zero

Comments: No lock

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 00002 Well ID: GM-39D2
Date: 10/7/04 Sampled By: BB
Sampling Time: 4:50pm Recorded By: BB
Weather: Sunny 75° Coded Replicate No.: N/A

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

Purging Information
Casing Material: PVC Purge Method: Dedicated Bladder / Low Flow
Casing Diameter: 4" Screen Interval (ft bmp): Top 410 Bottom 420
Sounded Depth (ft bmp): 420 Pump Intake Depth (ft bmp): 415
Depth to Water (ft bmp): 44.42 Purge time Start: 3:50 pm Finish: 4:50pm

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
3:50	–	–	–	17.8	5.23	126.0	357	8.98	–	–	–
3:55	–	–	–	17.9	5.24	126.5	376	9.25	–	44.42	–
4:00	–	–	–	17.5	5.28	126.1	388	9.48	–	–	–
4:05	–	–	–	17.2	5.31	127.5	393	9.59	–	44.36	–
4:10	–	–	–	17.1	5.35	124.8	386	9.75	–	–	–
4:15	–	–	–	17.0	5.33	123.8	391	9.59	–	44.37	–
4:20	–	–	–	17.0	5.33	123.9	397	9.80	–	–	–
4:25	–	–	–	17.0	5.32	123.8	381	9.61	–	44.39	–
4:30	–	–	–	16.9	5.32	124.1	392	9.76	–	–	–
4:35	–	–	–	16.9	5.26	123.9	383	9.83	–	44.37	–
4:40	–	–	–	16.9	5.32	123.8	388	9.94	–	–	–
4:45	–	–	–	16.9	5.24	123.8	400	9.82	.70	44.41	–
4:50	–	–	–	16.8	5.30	123.7	398	9.87	.70	–	–

Sample Condition Color: / Odor: / Appearance: /

Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading: At wellhead Zero

Comments: No Lock

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

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

Date: 11/1/16 Sampled By: PP

Sampling Time: 3:15pm Recorded By: PP

Weather: Clear 62° Coded Replicate No.: N/A

Instrument Identification

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

Purging Information

Casing Material: PVC Purge Method: Dedicated Bladder

Casing Diameter: 4" Screen Interval (ft bmp): Top 295 Bottom 305

Sounded Depth (ft bmp): 305 Pump Intake Depth (ft bmp): 300

Depth to Water (ft bmp): 47.0 Purge time Start: 2:15pm Finish: 3:15pm

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SU Units)	Spec. Cond. µS (~~mS/cm~~)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
2:15	–	–	–	16.5	4.46	95.1	451	6.99	–	–	–
2:20	–	–	–	16.2	4.49	92.8	456	5.39	–	47.03	–
2:25	–	–	–	15.7	4.49	91.1	465	6.24	–	–	–
2:30	–	–	–	15.7	4.49	90.9	473	6.32	–	47.02	–
2:35	–	–	–	15.7	4.51	91.3	458	5.61	–	–	–
2:40	–	–	–	15.9	4.52	91.2	470	5.86	–	47.02	–
2:45	–	–	–	16.0	4.52	91.5	471	6.30	–	–	–
2:50	–	–	–	16.0	4.52	91.7	477	5.77	–	47.02	–
2:55	–	–	–	15.9	4.52	92.0	461	5.89	–	–	–
3:00	–	–	–	15.9	4.52	91.9	471	5.60	–	47.02	–
3:05	–	–	–	15.8	4.52	92.1	473	6.48	–	–	–
3:10	–	–	–	15.8	4.51	92.1	474	6.18	7.0	47.02	–
3:15	–	–	–	15.8	4.51	92.4	472	6.06	6.9	–	–

Sample Condition Color: colorless Odor: None Appearance: clear

Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading At wellhead zero

Comments /

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 00002 Well ID: GM-74D2
Date: 11-1-04 Sampled By: PB
Sampling Time: Recorded By: PB
Weather: Clear 63° Coded Replicate No.: N/A

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

Purging Information
Casing Material: PVC Purge Method: Dedicated Bladder
Casing Diameter: 4" Screen Interval (ft bmp): Top 542 Bottom 562
Sounded Depth (ft bmp): 562 Pump Intake Depth (ft bmp): 552
Depth to Water (ft bmp): 53.49 Purge time Start: 3:40pm Finish: 4:40pm

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. (µS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
3:40	–	–	–	16.2	4.85	76.0	426	5.70	–	–	–
3:45	–	–	–	16.2	4.77	74.7	446	2.77	–	53.48	–
3:50	–	–	–	16.0	4.71	74.5	449	1.20	–	–	–
3:55	–	–	–	15.8	4.77	77.2	455	1.49	–	53.48	–
4:00	–	–	–	15.8	4.77	78.4	446	1.90	–	–	–
4:05	–	–	–	15.8	4.75	76.8	454	2.43	–	53.48	–
4:10	–	–	–	15.8	4.71	75.5	451	2.56	–	–	–
4:15	–	–	–	15.7	4.71	75.6	457	2.62	–	53.48	–
4:20	–	–	–	15.6	4.69	75.6	460	2.84	–	–	–
4:25	–	–	–	15.6	4.67	76.1	463	2.73	–	53.47	–
4:30	–	–	–	15.6	4.67	76.6	455	2.91	6.9	–	–
4:35	–	–	–	15.6	4.67	77.8	463	2.87	6.7	53.48	–
4:40	–	–	–	15.5	4.65	78.7	456	3.01	6.7	–	–

Sample Condition Color: Colorless Odor: None Appearance: clear

Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading: At wellhead Zero

Comments: No lock

ARCADIS GERAGHTY & MILLER

Water Sampling Log

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

Site Location Bethpage NY Date 9-30-04

Site/Well No. GM-78S Replicate No. N/A Code No.

Weather overcast 70° Sampling Time: Begin 1:20pm End 1:23pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	70.00
Depth to Water (ft bmp)	44.08
Water-Level Elevation (ft)	/
Water Column in Well (ft)	25.92
Casing Diameter/Type	4" (0.65)
Gallons in Well	168 x 3
Gallons Pumped/Bailed Prior to Sampling	50.54
Sample Pump Intake Setting (ft bmp)	/
Purge Time	begin 12:57pm end 1:20pm
Pumping Rate (gpm)	2gpm
Evacuation Method	Rediflow pump

Field Parameters	I	1v	2v	3v
Color	—	—	—	colorless
Odor	—	—	—	none
Appearance	—	—	—	clear
pH (s.u.)	5.37	5.34	5.34	5.32
Conductivity ~~(mS/cm)~~	—	—	—	—
(µmhos/cm)	270	289	285	289
Turbidity (NTU)	—	—	—	8.3
Temperature (°C)	17.5	16.9	16.6	16.5
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ Time	12:57 pm	1:05	1:13	1:24 p.m.
Sampling Method				
Remarks	PID reading at wellhead zero			

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel GW IPP

Well Casing Volumes

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

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

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 00002 Well ID: GM-78 I
Date: 9-30-04 Sampled By: GW/BP
Sampling Time: 12:25pm Recorded By: BP
Weather: Sunny 73° Coded Replicate No.: N/A

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

Purging Information
Casing Material: PVC Purge Method: Rediflow Pump / Low Flow
Casing Diameter: 4" Screen Interval (ft bmp): Top 90 Bottom 110
Sounded Depth (ft bmp): 110 Pump Intake Depth (ft bmp): 100
Depth to Water (ft bmp): 43.45 Purge time Start: 11:40 AM Finish: 12:25pm

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. µS (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
11:40	—	—	—	17.2	5.51	168.6	264	7.67	18	—	—
11:45	—	—	—	17.6	5.42	168.5	288	7.72	8.6	44.35	—
11:50	—	—	—	18.2	5.42	180.8	300	7.42	6.3	—	—
11:55	—	—	—	18.2	5.45	185.7	290	6.63	4.2	44.34	—
12:00	—	—	—	18.2	5.39	184.4	305	7.09	3.1	—	—
12:05	—	—	—	18.3	5.40	184.1	310	7.01	2.2	44.34	—
12:10	—	—	—	18.3	5.42	183.4	299	7.06	1.8	—	—
12:15	—	—	—	18.3	5.38	182.9	312	6.97	1.5	44.34	—
12:20	—	—	—	18.2	5.45	182.9	311	6.79	1.3	—	—
12:25	—	—	—	17.9	5.41	182.9	321	6.67	1.2	—	—

Sample Condition Color: Colo-less Odor: NONE Appearance: clear

Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading: At Wellhead Zero

Comments: ✓

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 0002 Well ID: HN-29D
Date: 10-6-04 Sampled By: GW/BB
Sampling Time: 4:00 pm Recorded By: BB
Weather: Sunny 68° Coded Replicate No.: N/A

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

Purging Information
Casing Material: PVC Purge Method: Non-dedicated Bladder / Low Flow
Casing Diameter: 4" Screen Interval (ft bmp): Top 210 Bottom 220
Sounded Depth (ft bmp): 220 ✓ Pump Intake Depth (ft bmp): 215
Depth to Water (ft bmp): 49.05 Purge time Start: 3:00 pm Finish: 4:00 pm

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
3:00	–	–	–	17.1	8.66	158	163	12.03	–	–	–
3:05	–	–	–	17.1	8.98	152.4	190	11.86	–	47.22	–
3:10	–	–	–	17.3	8.21	148.7	188	12.03	–	–	–
3:15	–	–	–	17.3	7.77	147.6	206	11.62	–	47.26	–
3:20	–	–	–	17.4	7.29	146.9	229	11.96	–	–	–
3:25	–	–	–	17.4	6.99	145.4	231	11.27	–	47.42	–
3:30	–	–	–	17.5	6.86	144.2	238	12.27	–	–	–
3:35	–	–	–	17.5	6.80	143.9	252	12.08	–	47.33	–
3:40	–	–	–	17.6	6.74	142.8	267	12.26	–	–	–
3:45	–	–	–	17.6	6.79	143.1	268	11.99	–	47.31	–
3:50	–	–	–	17.6	6.72	143.0	277	11.84	–	–	–
3:55	–	–	–	17.5	6.70	143.1	283	12.49	4.2	47.22	–
4:00	–	–	–	17.6	6.66	142.9	286	12.00	3.3	–	–

Sample Condition Color: ✓ Odor: – Appearance: ✓

Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading: At wellhead Zero

Comments: ✓

ARCADIS GERAGHTY & MILLER

Water Sampling Log

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

Site Location: Bethpage, NY Date: 9-28-04

Site/Well No.: HN - 40 S Replicate No.: N/A Code No.:

Weather: Rain Sampling Time: Begin 5:05pm End 5:07pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	/
Land Surface Elevation (ft)	/
Sounded Well Depth (ft bmp)	59
Depth to Water (ft bmp)	51.14
Water-Level Elevation (ft)	/
Water Column in Well (ft)	7.86
Casing Diameter/Type	4" (0.65)
Gallons in Well	5.109 x3
Gallons Pumped/Bailed Prior to Sampling	15.3
Sample Pump Intake Setting (ft bmp)	/
Purge Time	begin 4:56pm end 5:05pm
Pumping Rate (gpm)	2 gpm
Evacuation Method	Rediflow Pump

Field Parameters	I	IV	2V	3V
Color	–	–	–	–
Odor	–	–	–	–
Appearance	–	–	–	–
pH (s.u.)	5.14	4.95	4.80	4.81
Conductivity ~~(mS/cm)~~ (µmhos/cm)	107.8	116.0	124.9	130.2
Turbidity (NTU)	–	–	–	33
Temperature (°C)	18.6	17.1	17.0	17.0
Dissolved Oxygen (mg/L)	–	–	–	–
~~Salinity (%)~~ Time	4:56 pm	4:59	5:02	5:05

Sampling Method:

Remarks: NO PID due to rain

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: GW IPP

Well Casing Volumes

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

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

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 00002 Well ID: HN-40I
Date: 9-28-04 Sampled By: BP/GW
Sampling Time: 4:40 pm Recorded By: BP
Weather: overcast 76° Coded Replicate No.: N/A

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

Purging Information
Casing Material: PVC Purge Method: Rediflow Pump / Low Flow
Casing Diameter: 4" Screen Interval (ft bmp): Top 10.8 Bottom 118
Sounded Depth (ft bmp): 118 Pump Intake Depth (ft bmp): 113
Depth to Water (ft bmp): 51.09 Purge time Start: 3:55pm Finish: 4:40pm

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. ~~(mS/cm)~~ µS	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
3:55	—	—	—	17.4	4.86	256	305	8.65	—	—	—
4:00	—	—	—	17.2	4.89	252	354	8.76	—	51.00	—
4:05	—	—	—	17.1	4.89	251	367	9.17	—	—	—
4:10	—	—	—	17.4	4.89	251	358	9.21	—	51.00	—
4:15	—	—	—	17.5	4.85	250	369	9.31	—	—	—
4:20	—	—	—	17.7	4.84	250	386	9.28	—	51.00	—
4:25	—	—	—	17.7	4.84	251	402	9.23	—	—	—
4:30	—	—	—	17.7	4.87	251	406	9.32	—	51.00	—
4:35	—	—	—	17.6	4.86	251	374	9.15	—	—	—
4:40	—	—	—	17.5	4.88	252	391	9.22	16	51.00	—

Sample Condition Color: Colorless Odor: None Appearance: clear

Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading: RAIN

Comments: /

ARCADIS GERAGHTY & MILLER

Water Sampling Log

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

Site Location: Bethpage, New York Date: 9-28-04

Site/Well No.: HN-42S Replicate No.: N/A Code No.:

Weather: Overcast 77° Sampling Time: Begin 3:26pm End 3:28pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	60
Depth to Water (ft bmp)	53.68
Water-Level Elevation (ft)	—
Water Column in Well (ft)	6.32
Casing Diameter/Type	4" (0.65)
Gallons in Well	4.1 x 3
Gallons Pumped/Bailed Prior to Sampling	12.32
Sample Pump Intake Setting (ft bmp)	—
Purge Time	begin 3:20pm end 3:26pm
Pumping Rate (gpm)	2 gpm
Evacuation Method	Rediflow Pump

Field Parameters	I	1V	2V	3V
Color	—	—	—	colorless
Odor	—	—	—	None
Appearance	—	—	—	clear
pH (s.u.)	6.43	5.77	5.46	5.17
Conductivity ~~(mS/cm)~~ (µmhos/cm)	185	216	252	266
Turbidity (NTU)	—	—	—	26
Temperature (°C)	20.3	16.5	16.8	17.4
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ Time	3:20pm	3:22	3:24	3:26pm
Sampling Method				
Remarks	NO PID reading due to Rain			

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: GW/PP

Well Casing Volumes

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

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

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: .00002 Well ID: HN - 42 I
Date: 9-28-04 Sampled By: PP / GW
Sampling Time: 3:10 pm Recorded By: PP
Weather: overcast 77° Coded Replicate No.: N/A

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

Purging Information
Casing Material: PVC Purge Method: Rediflow Pump / Low Flow
Casing Diameter: 4" Screen Interval (ft bmp): Top 100 Bottom 110
Sounded Depth (ft bmp): 110 Pump Intake Depth (ft bmp): 105
Depth to Water (ft bmp): 54.04 Purge time Start: 2:25 pm Finish: 3:10 pm

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. µS (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
2:25	–	–	–	18.1	9.88	279	195	7.39	–	–	–
2:30	–	–	–	18.4	9.14	267	165	6.35	–	53.95	–
2:35	–	–	–	19.4	9.47	251	142	6.38	–	–	–
2:40	–	–	–	20.0	9.57	252	150	6.21	–	54.06	–
2:45	–	–	–	20.2	9.65	264	145	6.17	–	–	–
2:50	–	–	–	20.3	9.68	263	156	6.00	–	54.05	–
2:55	–	–	–	20.4	9.42	255	154	5.78	–	–	–
3:00	–	–	–	20.5	10.01	253	162	5.82	–	54.05	–
3:05	–	–	–	20.7	9.57	248	174	5.37	–	–	–
3:10	–	–	–	20.9	9.54	248	155	5.60	60	54.05	–

Sample Condition Color: Colorless Odor: NONE Appearance: Clear

Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading: Rain

Comments

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ARCADIS GERAGHTY & MILLER

Water Sampling Log

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

Site Location: Bethpage, NY Date 10-11-04

Site/Well No. MW-1 GF Replicate No. N/A Code No.

Weather: Partly Cloudy 64° Sampling Time: Begin 3:22pm End 3:25pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	/
Land Surface Elevation (ft)	/
Sounded Well Depth (ft bmp)	58
Depth to Water (ft bmp)	47.69
Water-Level Elevation (ft)	/
Water Column in Well (ft)	10.31
Casing Diameter/Type	4" (0.65) / PVC
Gallons in Well	6.7 ×3
Gallons Pumped/Bailed Prior to Sampling	20
Sample Pump Intake Setting (ft bmp)	/
Purge Time	begin 3:06pm end 3:22pm
Pumping Rate (gpm)	2gpm
Evacuation Method	Redflow Pump

Field Parameters

Field Parameters	I	1V	2V	3V	4V
Color	-	-	-	-	Colorless
Odor	-	-	-	-	None
Appearance	-	-	-	-	clear
pH (s.u.)	5.50	5.50	5.50	5.48	5.48
Conductivity ~~(mS/cm)~~ (µmhos/cm)	318	347	361	370	367
Turbidity (NTU)	*	370	100	65	39
Temperature (°C)	17.5	17.8	17.7	17.7	17.6
Dissolved Oxygen (mg/L)					
~~Salinity (%)~~ Time	3:06 pm	3:10	3:14	3:18	3:22 p

Sampling Method

Remarks: * Greater than 200 NTU

PID reading at wellhead 1ppm, BZ 0

Constituents Sampled	Container Description	Number	Preservative
See COC			

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

Well Casing Volumes

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

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

ARCADIS GERAGHTY & MILLER

Water Sampling Log

Project: Northrop Grumman Project No. NY001348.6404.00002 Page 1 of 1

Site Location: Bethpage, New York Date: 10-11-04

Site/Well No.: MW-2GF Replicate No.: N/A Code No.:

Weather: Partly Cloudy 73° Sampling Time: Begin 2:41 pm End 2:44 pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	/
Land Surface Elevation (ft)	/
Sounded Well Depth (ft bmp)	59
Depth to Water (ft bmp)	45.65
Water-Level Elevation (ft)	/
Water Column in Well (ft)	13.35
Casing Diameter/Type	4" (0.65)
Gallons in Well	8.68
Gallons Pumped/Bailed Prior to Sampling	x3 = 26
Sample Pump Intake Setting (ft bmp)	/
Purge Time	begin 2:26 pm end 2:41 pm
Pumping Rate (gpm)	2 gpm
Evacuation Method	Rediflow Pump

Field Parameters

Field Parameters	I	IV	2V	3V
Color	—	—	—	colorless
Odor	—	—	—	none
Appearance	—	—	—	clear
pH (s.u.)	6.62	6.75	6.73	6.72
Conductivity ~~(mS/cm)~~	—	—	—	—
(µmhos/cm)	232	227	230	239
Turbidity (NTU)	*	75	45	24
Temperature (°C)	16.3	16.4	16.4	16.4
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ Time	2:26 pm	2:31	2:36	2:41 pm
Sampling Method				

Remarks: * Greater than 200 NTU

PID reading at wellhead 4.2, breathing zone zero

Constituents Sampled	Container Description	Number	Preservative
See COC			

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

Well Casing Volumes

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

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

ARCADIS GERAGHTY & MILLER

Water Sampling Log

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

Site Location: Bethpage, New York Date: 9-30-04

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

Weather: Overcast 68° Sampling Time: Begin 2:20pm End 2:24pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	55
Depth to Water (ft bmp)	34.74
Water-Level Elevation (ft)	/
Water Column in Well (ft)	20.26
Casing Diameter/Type	2" (0.16)
Gallons in Well	3.24
Gallons Pumped/Bailed Prior to Sampling	x3 9.72
Sample Pump Intake Setting (ft bmp)	/
Purge Time	begin 2:08pm end 2:20pm
Pumping Rate (gpm)	1gpm
Evacuation Method	Rediflex Pump

Field Parameters	I	1V	2V	3V	4V
Color	—	—	—	—	colorless
Odor	—	—	—	—	None
Appearance	—	—	—	—	clear
pH (s.u.)	5.68	5.58	5.48	5.46	5.42
Conductivity ~~(mS/cm)~~ (µmhos/cm)	154.8	160.1	158.4	158.6	158.4
Turbidity (NTU)	—	450	160	80	37
Temperature (°C)	15.4	15.3	15.2	15.3	15.3
Dissolved Oxygen (mg/L)	—	—	—	—	—
~~Salinity (%)~~ Time	2:08pm	2:11	2:14	2:17	2:20p.

Sampling Method:

Remarks: PID reading at wellhead zero

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: GWSS

Well Casing Volumes

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

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

Water Sampling Log

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

Site Location: Bethpage, New York | Date: 11/11/04

Site/Well No.: N-10634 | Replicate No.: N/A | Code No.:

Weather: clear 67° | Sampling Time: Begin 12:52 pm End 12:54 pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	/
Land Surface Elevation (ft)	/
Sounded Well Depth (ft bmp)	67.5
Depth to Water (ft bmp)	41.66
Water-Level Elevation (ft)	/
Water Column in Well (ft)	25.84
Casing Diameter/Type	2" (0.16) PVC
Gallons in Well	4.13
Gallons Pumped/Bailed Prior to Sampling	x3 12.4
Sample Pump Intake Setting (ft bmp)	/
Purge Time	begin 12:40 pm end 12:52
Pumping Rate (gpm)	1 gpm
Evacuation Method	Rediflow Pump

Field Parameters	I	1V	2V	3V
Color	Brown	—	—	Colorless
Odor	none	—	—	none
Appearance	Turbid	—	—	clear
pH (s.u.)	6.78	5.17	5.18	5.08
Conductivity (mS/cm)	—	—	—	—
(µmhos/cm)	167.9	167.5	168.6	166.0
Turbidity (NTU)	—	—	—	—
Temperature (°C)	15.8	15.9	16.0	15.9
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ Time	12:40 pm	12:44 pm	12:48 pm	12:52
Sampling Method	3 well volume			
Remarks	PID reading at wellhead zero			

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: GW/PP

Well Casing Volumes

Gal./Ft.

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

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

ARCADIS GERAGHTY & MILLER

Water Sampling Log

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

Site Location: Bethpage, New York Date 10-1-04

Site/Well No.: PLT 1 MW-04 Replicate No. N/A Code No.

Weather: Sunny 82° Sampling Time: Begin 4:32pm End 4:34pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	/
Land Surface Elevation (ft)	/
Sounded Well Depth (ft bmp)	56.5
Depth to Water (ft bmp)	45.58
Water-Level Elevation (ft)	/
Water Column in Well (ft)	10.92
Casing Diameter/Type	2" (0.16) / PVC
Gallons in Well	1.75 x 3
Gallons Pumped/Bailed Prior to Sampling	5.25
Sample Pump Intake Setting (ft bmp)	/
Purge Time	begin 4:26 pm end 4:32pm
Pumping Rate (gpm)	1 gpm
Evacuation Method	Rediflow Pump

Field Parameters

Field Parameters	I	1V	2V	3V
Color	-	-	-	colorless
Odor	-	-	-	None
Appearance	-	-	-	clear
pH (s.u.)	6.01	6.11	6.02	6.06
Conductivity ~~(mS/cm)~~ (µmhos/cm)	371	281	350	332
Turbidity (NTU)	*	11	5.2	3.9
Temperature (°C)	18.6	16.9	18.0	18.0
Dissolved Oxygen (mg/L)	-	-	-	-
~~Salinity (%)~~ Time	4:26 pm	4:28	4:30	4:32

Sampling Method

Remarks: * greater than 200 NTU

PID reading zero at wellhead

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: GW IPP

Well Casing Volumes

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

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	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. NY001348.0404.00002 | Page 1 of 1

Site Location: Bethpage, New York | Date: 10-1-04

Site/Well No.: PLT 1 MW-05 | Replicate No.: N/A | Code No.:

Weather: Sunny 80° | Sampling Time: Begin 3:44pm End 3:46pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	/
Land Surface Elevation (ft)	/
Sounded Well Depth (ft bmp)	58
Depth to Water (ft bmp)	43.34
Water-Level Elevation (ft)	/
Water Column in Well (ft)	14.66
Casing Diameter/Type	2" (0.16) / PVC
Gallons in Well	2.34 x 3
Gallons Pumped/Bailed Prior to Sampling	7.03
Sample Pump Intake Setting (ft bmp)	Parameter every 2.5 minutes /
Purge Time	begin 3:38 end 3:44pm
Pumping Rate (gpm)	1 gpm
Evacuation Method	Rediflow Pump

Field Parameters	I	1V	2V	3V
Color	-	-	-	colorless
Odor	-	-	-	none
Appearance	-	-	-	clear
pH (s.u.)	5.98	5.85	5.93	5.86
Conductivity ~~(mS/cm)~~ (µmhos/cm)	- 199.7	- 190.1	- 184.1	- 186.0
Turbidity (NTU)	*	180	100	31
Temperature (°C)	18.4	18.0	18.3	18.0
Dissolved Oxygen (mg/L)	-	-	-	-
~~Salinity (%)~~ Time	3:38	3:40	3:42	3:44
Sampling Method	-	30 Seconds	30 Seconds	30 Seconds

Remarks: * greater than 200 NTU

PID reading at wellhead zero

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: GW/QC

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. NY001348.0404.00002 Page 1 of 1

Site Location: Bethpage, New York Date: 10-1-04

Site/Well No.: PLT 1 MW-06 Replicate No.: N/A Code No.:

Weather: Sunny 73° Sampling Time: Begin 4:09 pm. End 4:11 pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	62
Depth to Water (ft bmp)	46.90
Water-Level Elevation (ft)	15.1
Water Column in Well (ft)	~~[illegible]~~
Casing Diameter/Type	2" (0.16) / PVC
Gallons in Well	2.42
Gallons Pumped/Bailed Prior to Sampling	x 3 = 7.25
Sample Pump Intake Setting (ft bmp)	parameter every 2.5 minutes
Purge Time	begin 4:01 end 4:09 pm.
Pumping Rate (gpm)	1 gpm
Evacuation Method	Redi Flow Pump

Field Parameters	I	1V	2V	3V	4V
Color	—	—	—	—	colorless
Odor	—	—	—	—	None
Appearance	—	—	—	—	clear
pH (s.u.)	5.84	5.78	5.82	5.79	5.81
Conductivity ~~(mS/cm)~~	—	—	—	—	—
(µmhos/cm)	165.0	189.5	191.9	188.4	185.4
Turbidity (NTU)	*	*	200	65	26
Temperature (°C)	20.1	19.0	19.0	19.0	19.0
Dissolved Oxygen (mg/L)	—	—	—	—	—
~~Salinity (%)~~ Time	4:01	4:03	4:05	4:07	4:09
Sampling Method		30 Seconds	30 Seconds	30 Seconds	30 Seconds

Remarks: * greater than 200 NTU

PID reading at wellhead zero

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: GW/PP

Well Casing Volumes

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

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

ARCADIS GERAGHTY & MILLER

Water Sampling Log

Project: N-Grumman | Project No.: NY001348.0404.00002 | Page: 1 of 1

Site Location: Bethpage, NY | Date: 11/11/04

Site/Well No.: BPOW 1-1 | Replicate No.: MS/MSD | Code No.: —

Weather: Partly cloudy 55° | Sampling Time: Begin 926 AM End 930 AM

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	/
Land Surface Elevation (ft)	/
Sounded Well Depth (ft bmp)	241
Depth to ~~Water~~ packer (ft bmp)	169
Water-Level Elevation (ft)	/
Water Column in Well (ft)	72
Casing Diameter/Type	4" (0.65)
Gallons in Well	46.8 x3
Gallons Pumped/Bailed Prior to Sampling	140
Sample Pump Intake Setting (ft bmp)	/
Purge Time	begin 9:09 AM end 926
Pumping Rate (gpm)	/
Evacuation Method	Dedicated submersible pump/packer

Field Parameters	I	1V (47)	2V (94)	3V (140)
Color	CLEAR	CLEAR	CLEAR	CLEAR
Odor	NONE	NONE	NONE	NONE
Appearance	—	—	—	—
pH (s.u.)	5.08	4.89	4.67	4.76
~~Conductivity (mS/cm)~~ (µmhos/cm)	266	243	263	269
Turbidity (NTU)	12	8.2	16	19
Temperature (°C)	12.0	11.5	10.7	10.9
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ Depth to water	30.13	30.11	30.11	30.10

Sampling Method: 3 well volume

Remarks: PID at wellhead 0.2 / BZ 0

Well vault flooded

169 − 30.13 x .43 + 50 = 120 PSI

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: TM / PP

Well Casing Volumes

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

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

ARCADIS GERAGHTY & MILLER

Water Sampling Log

Project: N-Grumman | Project No. NY001348.0404.00002 | Page 1 of 1

Site Location: Bethpage, NY | Date: 11/11/04

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

Weather: Partly Sunny 50° | Sampling Time: Begin 1050 End 1053

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	335
Depth to ~~Water~~ Packer (ft bmp)	294
Water-Level Elevation (ft)	—
Water Column in Well (ft)	41
Casing Diameter/Type	4" (0.65)
Gallons in Well	26.65
Gallons Pumped/Bailed Prior to Sampling	x3 80.00
Sample Pump Intake Setting (ft bmp)	—
Purge Time	begin 1034 end 1050
Pumping Rate (gpm)	—
Evacuation Method	Dedicated submersible pump/packer

Field Parameters

Field Parameters	I	1V	2V	3V
Color	Clear	Clear	Clear	Clear
Odor	Strong Sulfur	Strong	Strong	Slight
Appearance	—	Cloudy	—	—
pH (s.u.)	6.04	4.81	4.71	4.73
Conductivity ~~(mS/cm)~~ (µmhos/cm)	60.2	54.4	57.9	58.0
Turbidity (NTU)	19	60	33	31
Temperature (°C)	12.2	11.5	11.5	11.5
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ DTW	32.31	32.29	32.30	32.30

Sampling Method: 3 well volume

Remarks: PID reading 0

294 − 32.31 x .43 + 50 = 180 PSI

Odor = Sulphur Odor

Constituents Sampled	Container Description	Number	Preservative
SEE C.O.C			

Sampling Personnel: TM/PP

Well Casing Volumes

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

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

ARCADIS GERAGHTY & MILLER

Water Sampling Log

Project: N-Grumman | Project No. NY001348.0404.00002 | Page 1 of 1

Site Location: Bethpage NY | Date 11/11/04

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

Weather overcast 57° | Sampling Time: Begin 1212 End 1215

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	/
Land Surface Elevation (ft)	/
Sounded Well Depth (ft bmp)	419
Depth to packer Water (ft bmp)	344
Water-Level Elevation (ft)	/
Water Column in Well (ft)	75
Casing Diameter/Type	4" (0.65)
Gallons in Well	48.75
Gallons Pumped/Bailed Prior to Sampling	x3 146.25
Sample Pump Intake Setting (ft bmp)	/
Purge Time	begin 1147 end 1212
Pumping Rate (gpm)	/
Evacuation Method	Dedicated submersible pumpparts

Field Parameters	I	1V	2V	3V
Color	CLEAR	CLEAR	LT. GREY	CLEAR
Odor	SLIGHT	SLIGHT	SLIGHT	NONE
Appearance	—	CLOUDY	CLOUDY	—
pH (s.u.)	5.07	5.22	5.18	5.13
Conductivity (mS/cm)	—	—	—	—
(µmhos/cm)	80.6	345	215	@ 167.1
Turbidity (NTU)	7.6	240	59	45
Temperature (°C)	12.4	11.8	11.8	11.6
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ DTW	32.22	33.59	32.93	32.35

Sampling Method: 3 well volume

Remarks: PID reading at wellhead zero

344 − 32.22 x.43 + 50 = 185 psi

Odors: Sulphur odor

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: TM/CB

Well Casing Volumes

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

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

Water Sampling Log

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

Site Location: Bethpage, NY | Date: 11/9/04

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

Weather: Partly cloudy 49° | Sampling Time: Begin 2:22pm | End 2:25pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	/
Land Surface Elevation (ft)	/
Sounded Well Depth (ft bmp)	400
Depth to ~~Water~~ Packer (ft bmp)	310
Water-Level Elevation (ft)	/
Water Column in Well (ft)	90
Casing Diameter/Type	4" (0.65)
Gallons in Well	58.5
Gallons Pumped/Bailed Prior to Sampling	x3 175.5
Sample Pump Intake Setting (ft bmp)	/
Purge Time	begin 1:56pm end 2:22pm
Pumping Rate (gpm)	/
Evacuation Method	Dedicated submersible pump/packer

Field Parameters

Field Parameters	I	1V	2V	3V
Color		Colorless		
Odor		NONE		
Appearance		CLEAR		
pH (s.u.)	4.08	4.35	4.30	4.28
Conductivity (~~mS/cm~~)	—	—	—	—
(µmhos/cm)	123.9	167.3	111.8	108.6
Turbidity (NTU)	—	—	—	—
Temperature (°C)	13.8	13.0	12.9	13.1
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ PTW	21.88	21.42	21.28	—
Sampling Method	3 well volume			

Remarks: PID reading at wellhead zero

310 - 21.88 x .43 + 50 = 175.5 psi

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: GW PP

Well Casing Volumes

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

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

Water Sampling Log

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

Site Location: Bethpage, NY | Date: 11/9/04

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

Weather: Partly cloudy 53° | Sampling Time: Begin 12:33pm | End 12:35pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	/
Land Surface Elevation (ft)	/
Sounded Well Depth (ft bmp)	495
Depth to ~~Water~~ Packer (ft bmp)	419
Water-Level Elevation (ft)	/
Water Column in Well (ft)	76
Casing Diameter/Type	4" (0.65)
Gallons in Well	49.40 x3
Gallons Pumped/Bailed Prior to Sampling	148.20
Sample Pump Intake Setting (ft bmp)	/
Purge Time	begin 12:00pm end 12:33pm
Pumping Rate (gpm)	/
Evacuation Method	Dedicated submersible pump/packer

Field Parameters	I	Iv	2v	3v
Color	colorless	colorless	colorless	colorless
Odor	None	None	None	None
Appearance	clear	clear	clear	clear
pH (s.u.)	4.30	4.33	4.30	4.25
Conductivity ~~(mS/cm)~~ (µmhos/cm)	64.1	69.0	70.9	69.4
Turbidity (NTU)	–	–	–	10
Temperature (°C)	11.2	12.0	12.6	13.2
Dissolved Oxygen (mg/L)	–	–	–	–
~~Salinity (%)~~ DTW	21.88	23.13	23.13	–

Sampling Method: 3 well volume

Remarks: PID reading at wellhead zero

419 - 21.88 x .43 + 50 = 220 PSI

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: GW/PP

Well Casing Volumes

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

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

Water Sampling

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

Site Location: Bethpage, NY | Date: 11/12/04

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

Weather: Rain 44° | Sampling Time: Begin — | End 4:29

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	516
Depth to ~~Water~~ Packer (ft bmp)	414
Water-Level Elevation (ft)	—
Water Column in Well (ft)	102
Casing Diameter/Type	4" (.65)
Gallons in Well	66.3
Gallons Pumped/Bailed Prior to Sampling	198.9 x3
Sample Pump Intake Setting (ft bmp)	—
Purge Time	begin 3:11pm end —
Pumping Rate (gpm)	—
Evacuation Method	Dedicated submersible Pump/Packer

Field Parameters

	I	Iv	2v	3v
Color	Colorless	colorless	colorless	colorless
Odor	strong	mild	mild	mild
Appearance	clear	clear	clear	clear
pH (s.u.)	4.34	3.88	3.79	3.86
~~Conductivity (mS/cm)~~	—	—	—	—
(µmhos/cm)	128.7	148.1	155.3	152.9
Turbidity (NTU)	16	35	30	24
Temperature (°C)	13.2	12.6	12.2	12.7
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ DTW	—	—	—	—

Sampling Method: 3 well volume

Remarks: DTW 26.67

414 − 26.67 x .43 + 50 = 220 psi (25)

Dedicated Pressure Gauge is Broken.

No PID due to Rain

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: JC IPP

Well Casing Volumes

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

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

ARCADIS GERAGHTY & MILLER

Water Sampling Log

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

Site Location: Bethpage, NY | Date 11/12/04

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

Weather: Rain 44° | Sampling Time: Begin 1:43 pm | End 1:45 pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	/
Land Surface Elevation (ft)	/
Sounded Well Depth (ft bmp)	647
Depth to ~~Water~~ packer (ft bmp)	503
Water-Level Elevation (ft)	/
Water Column in Well (ft)	144
Casing Diameter/Type	4" (0.65)
Gallons in Well	93.6
Gallons Pumped/Bailed Prior to Sampling	x3 280
Sample Pump Intake Setting (ft bmp)	/
Purge Time	begin 11:41 am end 1:45 pm
Pumping Rate (gpm)	/
Evacuation Method	Dedicated submersible pump/packer

Field Parameters

	I	IV	2V	3V
Color	Colorless	colorless	colorless	colorless
Odor	Moderate	Moderate	moderate	mild
Appearance	clear	clear	cloudy	clear
pH (s.u.)	5.79	5.23	5.09	4.85
Conductivity ~~(mS/cm)~~ (µmhos/cm)	—	—	—	—
	70.9	80.7	75.5	65.1
Turbidity (NTU)	14	17	90	32
Temperature (°C)	12	11.3	12.3	12.0
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity~~ DTW (%)	~~27.95~~	27.95	26.99	—

Sampling Method: 3 well volume

Remarks: DTW = 28.60

503 - 28.60 x .43 + 50 = [illegible]

254 PSI (26

no PID due to rain

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: JC IPP

Well Casing Volumes

Gal./Ft.

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

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

ARCADIS GERAGHTY & MILLER

Water Sampling Log

Project: N-Grumman | Project No. NY001348.2404.00002 | Page 1 of 1

Site Location: Bethpage, NY | Date: 11-11-04

Site/Well No.: BPOW 4-1 | Replicate No.: N/A | Code No.: —

Weather: Clear 63° | Sampling Time: Begin 1537 | End 1539

Evacuation Data

Measuring Point	TOC	
MP Elevation (ft)	—	
Land Surface Elevation (ft)	standpipe	screen
Sounded Well Depth (ft bmp)	652	692
Depth to ~~Water~~ packer (ft bmp)	503 ~~260~~ 66'	652
Water-Level Elevation (ft)	—	—
Water Column in Well (ft)	149	40
Casing Diameter/Type	4" (0.65)	2" (0.16)
Gallons in Well	96.85 x 3 = 290	6.4 x 3 = 19.2
Gallons Pumped/Bailed Prior to Sampling	309 (290+19.2)	
Sample Pump Intake Setting (ft bmp)	—	
Purge Time	begin 1400	end 1537
Pumping Rate (gpm)	—	
Evacuation Method	Dedicated submersible pump/packer	

Field Parameters

	I	IV	2V	3V
Color	CLEAR	~~BROWN~~ CLEAR	CLEAR	CLEAR
Odor	NONE	NONE	NONE	NONE
Appearance	—	—	—	—
pH (s.u.)	6.16	10.72	6.12	5.93
Conductivity ~~(mS/cm)~~ (µmhos/cm)	— 53.8	— 218	— 57.8	— 52.4
Turbidity (NTU)	27	400	50	55
Temperature (°C)	14.2	13.0	13.0	12.9
Dissolved Oxygen (mg/L)	—	—	—	—
Salinity ~~(%)~~ (PSU)	30.04	29.39	29.37	28.25
Sampling Method	3 well volume			

Remarks: PID reading at wellhead zero
PSI 252
DTW 26.79

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: TM/DV

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: N- Grumman | Project No. NY001348.0404.00002 | Page 1 of 1

Site Location: Bethpage, NY | Date: 11-10-04

Site/Well No.: BPOW 4-2 | Replicate No.: N/A | Code No.:

Weather: Partly cloudy 50° | Sampling Time: Begin 1412 End 1415

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	/
Land Surface Elevation (ft)	/
Sounded Well Depth (ft bmp)	764
Depth to ~~Water~~ Packer (ft bmp)	~~1215~~ 503
Water-Level Elevation (ft)	/
Water Column in Well (ft)	261
Casing Diameter/Type	4" (0.65)
Gallons in Well	169.65
Gallons Pumped/Bailed Prior to Sampling	x3 509
Sample Pump Intake Setting (ft bmp)	/
Purge Time	begin 11:06 AM end 1412
Pumping Rate (gpm)	/
Evacuation Method	Dedicated packer / Bladder

Field Parameters	I	IV	2V	3V
Color	CLEAR	LT. BROWN	LT. GREY	LT. GREY
Odor	NONE	NONE	NONE	NONE
Appearance	~~4.13~~	SILTY	CLOUDY	CLEAR
pH (s.u.)	4.13	4.03	4.26	4.27
Conductivity ~~(mS/cm)~~	—	—	—	—
(µmhos/cm)	47.3	130.8	66.7	59.4
Turbidity (NTU)	12	897	400	181
Temperature (°C)	11.9	10.9	11.8	12.0
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ DTW	26.15	26.29	25.96	25.95

Sampling Method: 3 well volume

Remarks:

DTW = 26.15

503 − 26.15 x .43 + 50 = 255 psi

PID reading 1.0 at wellhead, BZ 0

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: TM IBP

Well Casing Volumes

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

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

Water Sampling Log

Project: N- Grumman | Project No.: NY001348.0404.00002 | Page 1 of 1

Site Location: Bethpage, NY | Date: 11-16-04

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

Weather: Partly cloudy 55° | Sampling Time: Begin 1:13pm End —

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	67
Depth to Water (ft bmp)	43.61 ~~(11-15-04)~~ (11-16-04)
Water-Level Elevation (ft)	—
Water Column in Well (ft)	23.39
Casing Diameter/Type	2" (0.16)/steel
Gallons in Well	3.74
Gallons Pumped/Bailed Prior to Sampling	x3 11.22
Sample Pump Intake Setting (ft bmp)	Q=1 T=12 1V=4
Purge Time	begin 1:00pm end 1:12pm
Pumping Rate (gpm)	1gpm
Evacuation Method	Rediflow Pump

Field Parameters

Field Parameters	I	1V	2V	3V
Color	—	—	—	colorless
Odor	—	—	—	none
Appearance	—	—	—	clear
pH (s.u.)	6.29	6.30	6.27	6.28
Conductivity ~~(mS/cm)~~ (µmhos/cm)	88.4	252	262	~~250~~ 250
Turbidity (NTU)	~~7200~~	37	23	14
Temperature (°C)	16.2	17.1	17.2	17.5
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ Time	1:00pm	1:04	1:08	1:12pm

Sampling Method: 3 well volume

Remarks: PID at wellhead zero

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: GW/BA

Well Casing Volumes

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

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

Water Sampling

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

Site Location: Bethpage, New York | Date: 11/8/04

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

Weather: Mostly cloudy 51°, windy | Sampling Time: Begin 4:35pm End 4:37pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	/
Land Surface Elevation (ft)	/
Sounded Well Depth (ft bmp)	165
Depth to ~~Water~~ packer (ft bmp)	94
Water-Level Elevation (ft)	/
Water Column in Well (ft)	11
Casing Diameter/Type	4" (0.65) / PVC
Gallons in Well	7.15
Gallons Pumped/Bailed Prior to Sampling	x3 21.45
Sample Pump Intake Setting (ft bmp)	/
Purge Time	begin 2:52 end 4:35
Pumping Rate (gpm)	/
Evacuation Method	Dedicated bladder pump

Field Parameters	I	1V	2V	3V
Color		Colorless		
Odor		NONE		
Appearance		CLEAR		
pH (s.u.)	5.65	5.32	5.17	5.11
Conductivity ~~(mS/cm)~~ (µmhos/cm)	83.7	130.0	148.2	150.6
Turbidity (NTU)	–	–	–	7.9
Temperature (°C)	16.1	17.0	17.1	17.2
Dissolved Oxygen (mg/L)	–	–	–	–
~~Salinity (%)~~ 5 gallon containers		½	½	½

Sampling Method: 3 well volume

Remarks: PID reading at wellhead zero

DTW = 45.94 / PSI 90

94 - 45.94 x .43 + 50 = 90 PSI Rounded up

No Lock on cap

Dropped hose strap down well

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: PP

Well Casing Volumes

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

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

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 0002 Well ID: GM-33D2
Date: 11/16/04 Sampled By: GW/SP
Sampling Time: 11:05 AM Recorded By: RP
Weather: Mostly cloudy, 55°C Coded Replicate No.: N/A

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

Purging Information
Casing Material: PVC Purge Method: Dedicated Bladder / Low Flow
Casing Diameter: 4" Screen Interval (ft bmp): Top 500 Bottom 520
Sounded Depth (ft bmp): 520 Pump Intake Depth (ft bmp): 510
Depth to Water (ft bmp): 51.05 Purge time Start: 9:55AM Finish: 11:05AM

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
9:55	–	–	–	13.6	5.54	99.4	170	7.08	–		–
10:00	–	–	–	13.7	5.37	99.5	214	6.84	–	51.04	–
10:05	–	–	–	13.5	5.35	–	–	~~10.66~~	Low Flow cell	–	Flow stopped
10:10	–	–	–	–	Increased		Rate	–	–	–	
10:15	–	–	–	–	–	–	–	–	–	Refill of	Low Flow cell
10:20	–	–	–	13.6	5.25	96.2	234	8.12	–	51.04	–
10:25	–	–	–	13.9	5.04	96.2	295	7.49	–	–	–
10:30	–	–	–	13.9	5.03	96.2	294	7.44	–	51.04	–
10:35	–	–	–	14.0	4.99	95.7	315	7.34	–	–	–
10:40	–	–	–	14.0	5.01	94.8	330	7.37	–	51.04	–
10:45	–	–	–	14.1	5.01	93.6	338	7.60	–	–	–
10:50	–	–	–	14.0	5.05	93.1	344	7.50	–	51.07	–
10:55	–	–	–	14.0	5.19	92.9	351	7.65	7.7	–	–
11:00	–	–	–	14.1	5.38	93.1	346	7.86	7.3	51.04	–
11:05	–	–	–	14.0	5.52	93.8	339	7.89	7.9	–	–

Sample Condition Color: Colorless Odor: None Appearance: Clear

Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading: Zero

Comments:

Water Sampling Log

Project: N-Grumman | Project No. N0013480404.0002 | Page 1 of 1

Site Location: Bethpage, NY | Date: 11/16/04

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

Weather: 52° | Sampling Time: Begin — End —

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	/
Land Surface Elevation (ft)	/
Sounded Well Depth (ft bmp)	530
Depth to ~~Water~~ packer (ft bmp)	507
Water-Level Elevation (ft)	/
Water Column in Well (ft)	23
Casing Diameter/Type	4" (0.65) / PVC
Gallons in Well	14.95
Gallons Pumped/Bailed Prior to Sampling	x3 45
Sample Pump Intake Setting (ft bmp)	/
Purge Time	begin 4:05pm end —
Pumping Rate (gpm)	/
Evacuation Method	Dedicated Bladder / Packer

Field Parameters

Field Parameters	I	IV	2V	3V
Color	Colorless	colorless	Colorless	Colorless
Odor	None	None	None	None
Appearance	clear	clear	clear	clear
pH (s.u.)	6.59	5.81	5.90	5.86
~~Conductivity (mS/cm)~~ (µmhos/cm)	112.3	110.4	111.2	113
Turbidity (NTU)	8.6	—	8.2	8.3
Temperature (°C)	15.1	15.6	15.6	16.1
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ 5 gallon containers	—	♦♦♦	♦♦♦	♦♦♦

Sampling Method: 3 well volume

Remarks: DTW = 40.76' Parameter every 15 gallons

507 - 40.76 x .43 + 50 = 250 PSI

[redacted] sampling @

PID at wellhead Zero

Constituents Sampled	Container Description	Number	Preservative
See COC			

Remarks:
Put new lock on well. Obstruction inside previous lock
Monitoring well manhole cover does not bolt closed.

Sampling Personnel: PP

Well Casing Volumes

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

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

ARCADIS GERAGHTY & MILLER

Water Sampling Log

Project: N-Grumman | Project No. NY001348.0404.00002 | Page 1 of 1

Site Location: Bethpage, NY | Date: 11/22/04

Site/Well No.: GM-36D | Replicate No.: MS/MSD | Code No.: —

Weather: overcast 53° | Sampling Time: Begin — | End 9:58AM

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	/
Land Surface Elevation (ft)	/
Sounded Well Depth (ft bmp)	214
Depth to ~~Water~~ packer (ft bmp)	202
Water-Level Elevation (ft)	/
Water Column in Well (ft)	12
Casing Diameter/Type	4" (0.65)
Gallons in Well	7.8
Gallons Pumped/Bailed Prior to Sampling	x3 = 24
Sample Pump Intake Setting (ft bmp)	/
Purge Time	begin 8:57 AM end —
Pumping Rate (gpm)	/
Evacuation Method	Dedicated Bladder/packer

Field Parameters

Field Parameters	I	1V	2V	3V
Color	Colorless	Colorless	Colorless	Colorless
Odor	None	None	None	None
Appearance	clear	clear	CLEAR	CLEAR
pH (s.u.)	5.69	5.38	537	5.43
Conductivity ~~(mS/cm)~~ (µmhos/cm)	111.4	101.2	101.2	96.9
Turbidity (NTU)	7.6	7.9	—	8.7
Temperature (°C)	14.0	14.1	14.1	14.1
Dissolved Oxygen (mg/L)	—	—	—	—
Salinity (%)	—	—	—	—

Sampling Method: 3 well volume

Remarks: NO PID due to Rain

DTW = 36.31

202 - 36.31 x .43 + 50 = 125 PSI

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: GW/PP

Well Casing Volumes

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

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

ARCADIS GERAGHTY & MILLER

Water Sampling Log

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

Site Location: Bethpage, NY | Date: 11/22/04

Site/Well No.: GM-36D2 | Replicate No.: N/A | Code No.: —

Weather: Light Drizzle, overcast 53° | Sampling Time: Begin — End 11:25 AM

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	540
Depth to ~~Water~~ packer (ft bmp)	518
Water-Level Elevation (ft)	—
Water Column in Well (ft)	22
Casing Diameter/Type	4" (0.65) / PVC
Gallons in Well	14.3
Gallons Pumped/Bailed Prior to Sampling	x3 = 43
Sample Pump Intake Setting (ft bmp)	—
Purge Time	begin 10:02 AM end —
Pumping Rate (gpm)	—
Evacuation Method	Dedicated Bladder / packer

Field Parameters

Field Parameters	I	1J colorless	2J colorless	3J colorless
Color	COLORLESS			
Odor	NONE	NONE	NONE	NONE
Appearance	CLEAR	clear	clear	clear
pH (s.u.)	6.82	10.83	9.43	7.72
Conductivity ~~(mS/cm)~~ (µmhos/cm)	13010	216	140.9	125.1
Turbidity (NTU)	—	—	—	28
Temperature (°C)	14.0	14.0	14.0	14.0
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ 5 gallon container	—	###	###	###

Sampling Method: 3 well volume

Remarks: No PID due to Rain

DTW = 38.84

518 − 38.84 x .43 + 50 = 260 PSI

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: GW/PP

Well Casing Volumes

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

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

Water Sampling Log

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

Site Location: Bethpage, New York Date: 11-17-04

Site/Well No.: GM-37D2 Replicate No.: N/A Code No.: —

Weather: Clear 55° Sampling Time: Begin 1:17pm End 1:21pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	/
Land Surface Elevation (ft)	/
Sounded Well Depth (ft bmp)	390
Depth to ~~Water~~ packer (ft bmp)	367
Water-Level Elevation (ft)	/
Water Column in Well (ft)	23
Casing Diameter/Type	4" (0.65)
Gallons in Well	14.95
Gallons Pumped/Bailed Prior to Sampling	x3 45
Sample Pump Intake Setting (ft bmp)	/
Purge Time	begin 11:04 AM end 1:17pm
Pumping Rate (gpm)	/
Evacuation Method	Dedicated bladder packer

Field Parameters

Field Parameters	I	1V	2V	3V
Color	colorless	colorless	colorless	colorless
Odor	None	None	None	None
Appearance	clear	clear	clear	clear
pH (s.u.)	5.05	4.96	4.92	4.90
Conductivity ~~(mS/cm)~~ (µmhos/cm)	—	—	—	—
	147.7	132.9	133.5	136.0
Turbidity (NTU)	7.9	9.6	7.9	7.7
Temperature (°C)	15.4	15.1	15.1	15.2
~~Dissolved Oxygen (mg/L)~~ Time	—	11:49 AM	12:33 PM	1:17pm
~~Salinity (%)~~ 5 gallon containers	—	✓✓✓	✓✓✓	✓✓

Sampling Method: 3 well volume

Remarks: PID reading at wellhead zero

367 - 40.86 x .43 + 50 = 190

DTW = 40.86

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: GW IPP

Well Casing Volumes

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

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

ARCADIS

Water Sampling Log

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

Site Location: Bethpage, NY Date: 11/19/04

Site/Well No.: GM-38D Replicate No.: N/A Code No.: —

Weather: Mostly cloudy 64° Sampling Time: Begin 3:00 pm End 3:04 pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	340
Depth to ~~water~~ packer (ft bmp)	317
Water-Level Elevation (ft)	—
Water Column in Well (ft)	23
Casing Diameter/Type	4" (0.65)
Gallons in Well	14.95 x 3
Gallons Pumped/Bailed Prior to Sampling	45
Sample Pump Intake Setting (ft bmp)	—
Purge Time	begin 12:09 pm end 3:00 pm
Pumping Rate (gpm)	—
Evacuation Method	Dedicated Bladder/packer

Field Parameters	I	1V	2V	3V
Color	colorless	colorless	Colorless	colorless
Odor	None	None	None	None
Appearance	Trace silt	clear	clear	clear
pH (s.u.)	5.67	5.29	5.22	5.24
Conductivity ~~(mS/cm)~~	—	—	—	—
(µmhos/cm)	103.0	111.9	111.9	111.5
Turbidity (NTU)	8.5	9.9	8.9	9.0
Temperature (°C)	14.9	14.6	14.5	14.4
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ 5 gallon containers		###	###	###

Sampling Method: 3 well volume

Remarks: PID reading at wellhead zero

DTW = 39.54

317 - 39.54 x .43 + 50 = 175 PSI

New lock put on ~~well~~ well. Rounded up

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: OP / 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	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS GERAGHTY & MILLER

Water Sampling Log

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

Site Location: Bethpage, NY Date: 11-19-04

Site/Well No.: GM-38D2 Replicate No.: N/A Code No.: —

Weather: Mostly cloudy 61° Sampling Time: Begin 11:52 AM End 11:54 AM

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	/
Land Surface Elevation (ft)	/
Sounded Well Depth (ft bmp)	495
Depth to ~~Water~~ packer (ft bmp)	472
Water-Level Elevation (ft)	/
Water Column in Well (ft)	23
Casing Diameter/Type	4"(0.65)/PVC
Gallons in Well	14.95 x3
Gallons Pumped/Bailed Prior to Sampling	45
Sample Pump Intake Setting (ft bmp)	/
Purge Time	begin 9:25 AM end 11:52 AM
Pumping Rate (gpm)	/
Evacuation Method	Dedicated Bladder/Packer

Field Parameters	I	1V	2V	3V
Color	Colorless	colorless	colorless	colorless
Odor	None	None	None	None
Appearance	clear	clear	clear	clear
pH (s.u.)	5.86	4.89	5.07	5.06
Conductivity ~~(mS/cm)~~	—	—	—	—
(µmhos/cm)	90.6	79.0	79.8	79.5
Turbidity (NTU)	7.9	8.0	8.5	8.0
Temperature (°C)	13.7	14.3	14.5	14.7
~~Dissolved Oxygen (mg/L)~~ DTW	—	41.58	41.58	41.58
~~Salinity (%)~~ 5 gallon containers	—	✓✓✓	✓✓✓	✓✓✓

Sampling Method: 3 well volume

Remarks: PID reading at wellhead 4.6, BZO

DTW = 41.56

472 − 41.56 x .43 + 50 = 240 PSI Rounded up

Needs new lock

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: PP / 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. NY001348.0404.00002 Page 1 of 1

Site Location: Bethpage, NY Date: 11-22-04

Site/Well No.: GM-70D2 Replicate No.: Rep 11-22-04 Code No.: —

Weather: overcast 53° Sampling Time: Begin 3:50pm End 3:54pm

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	/
Land Surface Elevation (ft)	/
Sounded Well Depth (ft bmp)	330
Depth to ~~Water~~ Packer (ft bmp)	308
Water-Level Elevation (ft)	/
Water Column in Well (ft)	22
Casing Diameter/Type	4" (0.65) PVC
Gallons in Well	14.3
Gallons Pumped/Bailed Prior to Sampling	43 x3
Sample Pump Intake Setting (ft bmp)	/
Purge Time	begin 2:26pm end 3:50pm
Pumping Rate (gpm)	/
Evacuation Method	Dedicated Bladder/packer

Field Parameters

	I	1V	2V	3V
Color	Colorless	colorless	colorless	colorless
Odor	None	None	None	None
Appearance	clear	clear	clear	clear
pH (s.u.)	5.55	5.27	5.26	5.26
Conductivity ~~(mS/cm)~~ (µmhos/cm)	108.5	100.1	100.3	99.5
Turbidity (NTU)	—	—	—	7.6
Temperature (°C)	15.0	15.6	15.4	15.8
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ 5 gallon containers	—	[illegible]	[illegible]	[illegible]

Sampling Method: 3 well volume

Remarks: DTW = 42.31

308 − 42.31 x .43 + 50 = 170 Rounded up

NO PID due to Rain

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: GW/PP

Well Casing Volumes

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

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

Water Sampling Log

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

Site Location: Bethpage, NY | Date: 11-24-04

Site/Well No.: GM-71D2 | Replicate No.: N/A | Code No.: —

Weather: Light Drizzle / Overcast 52° | Sampling Time: Begin 9:27 AM | End 9:31 AM

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	/
Land Surface Elevation (ft)	/
Sounded Well Depth (ft bmp)	464
Depth to ~~Water~~ Packer (ft bmp)	442
Water-Level Elevation (ft)	/
Water Column in Well (ft)	22
Casing Diameter/Type	4" (0.65) PVC
Gallons in Well	14.3
Gallons Pumped/Bailed Prior to Sampling	43
Sample Pump Intake Setting (ft bmp)	/
Purge Time	begin 9:27 AM end 9:27 AM
Pumping Rate (gpm)	/
Evacuation Method	Dedicated Bladder/Packer

Field Parameters	I	1V	2V	3V
Color	colorless	colorless	colorless	colorless
Odor	None	None	None	None
Appearance	clear	clear	clear	clear
pH (s.u.)	5.00	4.98	4.93	4.94
Conductivity ~~(mS/cm)~~	—	—	—	—
(µmhos/cm)	178.3	190.6	190.6	190.6
Turbidity (NTU)	—	—	—	11
Temperature (°C)	13.6	13.9	14.0	14.1
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~	—	5 gallon container		

Sampling Method: 3 well volume

Remarks: No PID due to rain

DTW = 42.71

442 - 42.71 x .43 + 50 = 225 Round

New ball (cleaned) installed in pump pre-purging

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: CP

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	umhc cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 00002 Well ID: GM 73 D
Date: 11/9/04 Sampled By: RR/GW
Sampling Time: 2:00pm Recorded By: RR
Weather: Partly cloudy 54° windy Coded Replicate No.: Rep 11/9/04 & MS/MSD

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

Purging Information
Casing Material: PVC Purge Method: Dedicated Bladder
Casing Diameter: 4" Screen Interval (ft bmp): Top 401 Bottom 411
Sounded Depth (ft bmp): 411 Pump Intake Depth (ft bmp): 406
Depth to Water (ft bmp): 46.58 Purge time Start: 1:00 pm Finish: 2:00pm

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. ~~(mS/cm)~~ (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
1:00	–	–	–	14.9	4.79	132.2	490	6.15	–	46.58	–
1:05	–	–	–	15.2	4.69	132.4	498	5.37	–	46.58	–
1:10	–	–	–	15.6	4.61	132.9	512	6.20	–	–	–
1:15	–	–	–	15.5	4.67	127.6	490	6.90	–	46.58	–
1:20	–	–	–	15.5	4.69	126.3	503	7.17	–	–	–
1:25	–	–	–	15.5	4.69	125.9	496	6.81	–	46.58	–
1:30	–	–	–	15.4	4.70	125.9	502	6.83	–	–	–
1:35	–	–	–	15.4	4.70	125.7	497	6.75	–	46.58	–
1:40	–	–	–	15.4	4.70	125.6	501	7.22	–	–	–
1:45	–	–	–	15.4	4.70	125.4	497	7.19	–	46.59	–
1:50	–	–	–	15.5	4.69	125.3	500	7.29	6.4	–	–
1:55	–	–	–	15.4	4.69	125.3	493	7.07	6.4	46.59	–
2:00	–	–	–	15.4	4.68	125.3	495	6.94	6.4	–	–

Sample Condition Color: Color-less Odor: None Appearance: Clear

Sample Collection

Parameter:	Container:	No.	Preservative:
See CoC			

PID Reading 2 at wellhead, BZ 0

Comments No lock

Low-Flow Groundwater Sampling Log

ject Number: NY001348.0404 Task: 0002 Well ID: GM-73D2
11-8-04 Sampled By: GW, PP
mpling Time: 12:50pm Recorded By: PP
eather: Partly cloudy 52° Coded Replicate No.: N/A

s ument Identification
ater Quality Meter(s): Serial #:

ing Information
ing Material: PVC Purge Method: Dedicated Bladder
asing Diameter: 4" Screen Interval (ft bmp): Top 532 Bottom 552'
ded Depth (ft bmp): 552 Pump Intake Depth (ft bmp): 542
n to Water (ft bmp): 48.59 Purge time Start: 11:50 AM Finish: 12:50pm

eld Parameter Measurements Taken During Purging

ne	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. ~~(mS/cm)~~ µS	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
11:50	—	—	—	14.5	4.77	125.1	471	7.07	—	—	—
55	—	—	—	15.6	4.77	123.4	482	5.39	—	48.55	—
00	—	—	—	15.6	4.65	116.6	515	5.72	—	—	—
2:05	—	—	—	15.7	4.64	116.3	501	5.73	—	47.49	Rate Lowered
10	—	—	—	15.3	4.64	115.2	522	6.15	—	—	—
15	—	—	—	15.3	4.64	115.2	514	5.91	—	47.40	—
20	—	—	—	15.3	4.64	114.9	519	6.12	—	—	—
2:25	—	—	—	15.2	4.65	115.2	512	5.80	—	47.43	—
30	—	—	—	15.3	4.65	116.2	519	5.89	—	—	—
35	—	—	—	15.3	4.64	116.7	513	5.93	—	47.39	—
2:40	—	—	—	15.3	4.64	116.9	517	5.64	6.3	—	—
45	—	—	—	15.3	4.64	116.9	505	5.70	6.4	47.39	—
50	—	—	—	15.3	4.64	116.7	516	5.44	6.5	—	—

ple Condition Color: Colorless Odor: None Appearance: clear
ample Collection

arameter:	Container:	No.	Preservative:
See COC			

l eading .2 at wellhead, 8.2 c
omments No Lock

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 00002 Well ID: GM 75D2
Date: 11-15-04 Sampled By: JCI PP
Sampling Time: 2135 pm Recorded By: JC
Weather: clear 56° Coded Replicate No.: Rep 11-15-04

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

Purging Information
Casing Material: PVC Purge Method: Dedicated Bladder / Low Flow
Casing Diameter: 4" Screen Interval (ft bmp): Top 505 Bottom 525
Sounded Depth (ft bmp): 525 Pump Intake Depth (ft bmp): 515
Depth to Water (ft bmp): 36.74 Purge time Start: 1:35 pm Finish: 2:35 pm

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
1:35	—	—	—	15.08	5.84	153.9	112	4.04	—	—	—
1:40	—	—	—	15	5.51	153.4	149	3.50	—	36.74	—
1:45	—	—	—	15	5.19	149.1	276	4.98	—	—	—
1:50	—	—	—	15	5.17	147.9	295	4.86	—	36.71	—
1:55	—	—	—	15	5.13	146.1	330	5.30	—	—	—
2:00	—	—	—	14.8	5.09	144.9	330	5.82	—	36.74	—
2:05	—	—	—	14.8	5.07	145.2	366	5.78	—	—	—
2:10	—	—	—	14.8	5.07	144.8	371	5.23	—	36.73	—
2:15	—	—	—	14.8	5.06	144.6	385	5.22	—	—	—
2:20	—	—	—	14.9	5.04	144.6	384	5.55	—	36.72	—
2:25	—	—	—	14.9	5.03	144.5	404	5.53	—	—	—
2:30	—	—	—	14.8	5.03	144.4	404	5.72	—	36.74	—
2:35	/	—	—	14.8	5.02	144.5	392	5.86	9.0	—	—

Sample Condition Color: colorless Odor: mild Appearance: clear

Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading: At wellhead 0

Comments: Needs a new lock.

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 0002 Well ID: N-10624
Date: 11-15-04 Sampled By: JC/PP
Sampling Time: 4:40pm Recorded By: JC
Weather: Clear 60° Coded Replicate No.: N/A

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

Purging Information
Casing Material: Steel Purge Method: Non-dedicated ~~bladder~~ Bladder pump
Casing Diameter: 2" Screen Interval (ft bmp): Top 190 Bottom 194
Sounded Depth (ft bmp): 194 Pump Intake Depth (ft bmp): 192
Depth to Water (ft bmp): 37.26 Purge time Start: 3:40pm Finish: 4:40pm

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. (mS/cm) (µS)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
3:40	—	—	—	14.1	9.53	112.2	146	1.01	—	—	—
3:45	—	—	—	14	9.43	109.6	85	0.42	—	48.11	—
3:50	—	—	—	13.8	9.93	110.5	13	0.34	—	—	—
3:55	—	—	—	13.8	9.93	107.5	8	0.32	—	49.70	—
4:00	—	—	—	13.8	9.93	113.4	16	0.31	—	—	—
4:05	—	—	—	13.7	9.93	113.6	46	0.30	—	55.74	—
4:10	—	—	—	13.6	9.94	114.8	55	0.31	—	—	—
4:15	—	—	—	13.4	9.94	118.0	-75	0.31	—	60.96	—
4:20	—	—	—	13.3	9.93	119.4	-78	0.31	—	—	—
4:25	—	—	—	13.2	9.93	120.3	-82	0.33	—	63.62	—
4:30	—	—	—	13.1	9.93	119.5	-87	0.33	—	—	—
4:35	—	—	—	13.0	9.92	119.5	-46	0.40	37	65.12	—
4:40	—	—	—	12.8	9.93	119.6	-93	0.49	36	—	—

Sample Condition Color: / Odor: / Appearance: /

Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading: At well head = 3.9, BZ = 0

Comments: /

ARCADIS G&M, Inc.

Low-Flow Groundwater Sampling Log

Project Number: NY001348.0404 Task: 0002 Well ID: N-10627
Date: 11/15/04 Sampled By: JC / PP
Sampling Time: 12:55pm Recorded By: JC
Weather: Clear 55° Coded Replicate No.: MS/MD

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

Purging Information
Casing Material: Steel Purge Method: Non-dedicated Bladder / Low Flow
Casing Diameter: 4" Screen Interval (ft bmp): Top 290 Bottom 295
Sounded Depth (ft bmp): 295 Pump Intake Depth (ft bmp): 292.5
Depth to Water (ft bmp): 33.72 Purge time Start: 11:55AM Finish: 12:55pm

Field Parameter Measurements Taken During Purging

Time	Minutes Elapsed	Rate (mL/min)	Volume Purged	Temp (°C)	pH (SI Units)	Spec. Cond. ~~mS/cm~~ µS/cm	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Depth to Water (ft bmp)	Comments
11:55	—	—	—	15.1	7.29	569	371	2.65	—	—	—
12:00	—	—	—	15.3	8.37	570	311	1.23	—	34.36	—
12:05	—	—	—	15.3	8.63	480	194	0.70	—	—	—
12:10	—	—	—	15.4	9.00	399	154	0.67	—	—	—
12:15	—	—	—	15.4	9.24	361	111	0.63	—	34.38	—
12:20	—	—	—	15.4	9.30	356	99	0.58	—	—	—
12:25	—	—	—	15.5	9.32	355	77	0.65	—	34.11	—
12:30	—	—	—	15.5	9.33	357	62	0.60	—	—	—
12:35	—	—	—	15.4	9.35	356	50	0.60	—	34.28	—
12:40	—	—	—	15.5	9.35	357	39	0.60	—	—	—
12:45	—	—	—	15.4	9.37	349	28	0.57	—	34.28	—
12:50	—	—	—	15.4	9.30	326	20	0.53	130	—	—
12:55	—	—	—	15.5	9.04	303	20	0.57	149	34.28	—

Sample Condition Color: — Odor: Mild Appearance: cloudy

Sample Collection

Parameter:	Container:	No.	Preservative:
See COC			

PID Reading: 5.6 at wellhead, BZ 0

Comments: /

Water Sampling Log

Project: N-Grumman | Project No.: NY001318040402 | Page: 1 of 1

Site Location: Bethpage, NY | Date: 11-16-04

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

Weather: Mostly cloudy 55° | Sampling Time: Begin 12:19pm End —

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	—
Land Surface Elevation (ft)	—
Sounded Well Depth (ft bmp)	67
Depth to Water (ft bmp)	40.12
Water-Level Elevation (ft)	—
Water Column in Well (ft)	26.88
Casing Diameter/Type	2" (0.16) / steel
Gallons in Well	4.3 * 3
Gallons Pumped/Bailed Prior to Sampling	13
Sample Pump Intake Setting (ft bmp)	Q=1 T=13 IV=5
Purge Time	begin 12:03pm end 12:18pm
Pumping Rate (gpm)	1 GPM
Evacuation Method	Redi-flow Pump

Field Parameters	I	1V	2V	3V
Color	—	—	—	colorless
Odor	—	—	—	None
Appearance	—	—	—	clear
pH (s.u.)	7.54	5.63	5.1	6.17
Conductivity ~~(mS/cm)~~ (µmhos/cm)	160.7	168.7	145.4	128.1
Turbidity (NTU)	50	—	—	16
Temperature (°C)	14.7	13	14.8	14.9
Dissolved Oxygen (mg/L)	—	—	—	—
~~Salinity (%)~~ Time	12:03	12:08	12:13	12:18pm

Sampling Method: 3 well volume

Remarks: Holes in hose

PID zero at wellhead

Constituents Sampled	Container Description	Number	Preservative
See COC			

Sampling Personnel: GW/BF

Well Casing Volumes

Gal./ft.				
	1-½" = 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

Appendix C

Chain Of Custody Records

ARCADIS

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

CHAIN-OF-CUSTODY RECORD

Page _____ of _____

Project Number/Name: NY 001348.0404.00002

Project Location: BETHPAGE NY

Laboratory: SEVERN-TRENT

Project Manager: DAVE STERN

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

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40ml VOA 8260 (WP)						Remarks	Total
HW-42+	L	9-28-04		2							2
HW-42S				2							2
FB-9-28-04				2							2
HW-40I				2							2
HW-40S				2							2
TB 9-28-04				2							2

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

Total No. of Bottles/ Containers: 12

						Seal Intact?
Relinquished by: [signature]	Organization: ARCADIS	Date 9/28/04	Time 5:30			
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 DAVE STERN

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

AG 05-12/01

ARCADIS

CHAIN-OF-CUSTODY RECORD

Page ____ of ____

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

Project Number/Name NY001348.0401.00002
Project Location BETHPAGE NY
Laboratory SEVERN-TRENT SHELTON
Project Manager DAVE STERN
Sampler(s)/Affiliation G.W. P.P.

ANALYSIS / METHOD / SIZE

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	40ml VIAL VOC95-1HSP (WNA)	500ml PLASTIC TOTAL Cd/Cr HNO3	500ml PLASTIC DISSOLVED Cd/Cr (HNO3)				Remarks	Total
78I	L	9.30.04		2	1						3
78S	↓	↓		2	1						3
MW3R	↓	↓		2	1	1					4
GM-17SR	↓	↓		2	1	1					4
FB9-30-04	↓	↓		2	1						3
TB9-30-04	↓	↓		2							2

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

Total No. of Bottles/Containers 19

Relinquished by: G.W.	Organization: ARCADIS	Date 9/30/04	Time 4:20	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 STERN

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

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ARCADIS

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

CHAIN-OF-CUSTODY RECORD

Page ____ of ____

Project Number/Name: NY001318.0404.00002

Project Location: BETHPAGE NY.

Laboratory: SEVERN-TRENT SHELTON

Project Manager: DAVE STERN

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

ANALYSIS / METHOD / SIZE

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	40ml VOA VOC GC-MS (UNO)	500ml Plastic Total Calc (Hardness)	500ml Plastic Dissolved Calc (Hardness)	500ml Plastic Cr only Hubo			Remarks	Total
GM-16I	L	10-1-04		2							2
GM-16SR	↓			2	1	1					4
PT1 MW-05	↓						1				1
PT1 MW-06	↓						1				1
PT1 MW-04	↓						1				1
FB 10-1-04	↓			2							2
TB 10-1-04	↓			2							2

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

Total No. of Bottles/Containers: 13

Relinquished by: G.W.	Organization: ARCADIS	Date 10/1/04	Time 5:15	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A
Relinquished by:	Organization:	Date / /	Time	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A

Special Instructions/Remarks: REPORT TO DAVE STERN

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

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ARCADIS

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

CHAIN-OF-CUSTODY RECORD

Page ____ of ____

Project Number/Name: NY001348.0404.00002

Project Location: BETHPAGE NY

Laboratory: SEVERN-TRENT SHELTON

Project Manager: DAVE STERN

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

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40ml VOA VOC 95-1ASP (HCl)	500ml Plastic Cr only (HNO3)					Remarks	Total
GM-15D	L	10-4-04		2							2
GM-15D-2	L			2							2
GM-15S	L			2	1						3
FB 10-4-04	L			2	1						3
TB 10-4-04	L			2							2

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

Total No. of Bottles/Containers: 12

Relinquished by: DHW	Organization: ARCADIS	Date 10/4/04	Time	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A
Relinquished by:	Organization:	Date / /	Time	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A

Special Instructions/Remarks: REPORT TO DAVE STERN

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

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ARCADIS

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

CHAIN-OF-CUSTODY RECORD

Page ____ of ____

Project Number/Name: N400134B.0404.00002

Project Location: BETHPAGE N.Y.

Laboratory: SEVERN - TRENT SERVICES

Project Manager: DAVE STERN

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

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40ml VOA 95-1AS (WP)						Remarks	Total
GM-15I	L	10-5-04		2							2
GM-13D				6*							6*
GM-21S				2							2
GM-21I				2							2
GM-21D				2							2
REP-10-5-01				2							2
TB 10-5-04				2							2
FB 10-5-04				2							2

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

Total No. of Bottles/ Containers: 20

Relinquished by: [signature]	Organization: ARCADIS	Date 10/5/04	Time	Seal Intact?	
Received by:	Organization:	Date / /	Time	Yes	No N/A
Relinquished by:	Organization:	Date / /	Time	Seal Intact?	
Received by:	Organization:	Date / /	Time	Yes	No N/A

Special Instructions/Remarks: REPORT TO DAVE STERN

* PLEASE USE THIS SAMPLE FOR ANY MS/MSD & A/QC SAMPLE

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

ARCADIS

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

CHAIN-OF-CUSTODY RECORD

Page ____ of ____

Project Number/Name NY001B48.0404.0002

Project Location BETHPAGE NY

Laboratory SEVERN-TRENT SHELTON

Project Manager DAVE STERN

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

ANALYSIS / METHOD / SIZE

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	40ml vial VOCs-1 ASP A (pres)						Remarks	Total
GM-20I	L	10-7-04		2							2
GM-39D	↓	↓		2							2
GM-39D-2	↓	↓		2							2
TB 10-7-04	↓	↓		2							2

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

Total No. of Bottles/Containers: 8

Relinquished by: [signature]	Organization: ARCADIS	Date 10/7/04	Time 5:00	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A
Relinquished by:	Organization:	Date / /	Time	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A

Special Instructions/Remarks: REPORT TO DAVE STERN

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

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ARCADIS

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

CHAIN-OF-CUSTODY RECORD

Page ____ of ____

Project Number/Name: NY003218.0404.00002

Project Location: Bethpage, NY

Laboratory: Severn Trent

Project Manager: Dave Stern

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

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40ml Vial VOC 95-1 (ASP CLP)						Remarks	Total
GM-20D	L	10-8-04		2							2
GM-34D2				2							2
FB 10-8-04				2							2
GM 79D				2							2
TB 10-9-04				2							2
GM-34D				2							2
GM-79I				2							2

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

Total No. of Bottles/ Containers: 14

							Seal Intact?
Relinquished by:	Pat Rajnak	Organization:	Arcadis	Date	10/8/04	Time	Yes No N/A
Received by:		Organization:		Date	/ /	Time	
Relinquished by:		Organization:		Date	/ /	Time	Seal Intact?
Received by:		Organization:		Date	/ /	Time	Yes No N/A

Special Instructions/Remarks: Report to Dave Stern

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

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ARCADIS

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

CHAIN-OF-CUSTODY RECORD

Page ____ of ____

Project Number/Name NY 001348.0404.00002

Project Location BETHPAGE NY

Laboratory SEVERN-TRENT, SHELTON

Project Manager DAVE STERN

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

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40ml VOA VOCs SW8260 (HCl)	500ml PLASTIC TOTAL Calcium (HNO3)	500ml PLASTIC DISSOLVED Calcium (HNO3)				Remarks	Total
GM-32S	L	10-11-04		2	1	1					4
MW-16F	↓	↓			1	1					2
MW-26F					1	1					2
FB 10-11-04				2	1						3
TB 10-11-04				2							2

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

Total No. of Bottles/ Containers: 13

					Seal Intact?
Relinquished by: D. HILL	Organization: ARCADIS	Date 10/11/04	Time 4:30		
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 DAVE STERN

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

AG 05-12/01

ARCADIS

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

Project Number/Name [illegible]

Project Location [illegible]

Laboratory STL CT

Project Manager [illegible]

Sampler(s)/Affiliation [illegible]

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE							Remarks	Total
[illegible]	L	[illegible]										2
[illegible]												2
[illegible]												2
[illegible]												2
[illegible]												2
[illegible]												2
[illegible]												2
[illegible]												2
[illegible]												2
T. B.												2

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

Total No. of Bottles/Containers: 16

Relinquished by: [illegible]	Organization: ARCADIS	Date 10/25/04	Time [illegible]	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	
Relinquished by:	Organization:	Date / /	Time	Seal Intact? Yes No N/A
Received by:	Organization:	Date / /	Time	

Special Instructions/Remarks: [illegible]

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

SPECIFY SPECIFY

AG 05-12/01

ARCADIS

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

CHAIN-OF-CUSTODY RECORD

Page ____ of ____

Project Number/Name: NY001348.0004 00002
Project Location: Bethpage New York
Laboratory: Severn-Trent Shelton
Project Manager: Dave Stern
Sampler(s)/Affiliation: P.P.

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40 ml vial VOC 95-1 ASP (CLMP)						Remarks	Total
TB 10-29-04	L	10/29/04		2							2
GM 17I	↓	↓		2							2
GM 17D	↓	↓		2							2
GM 18D				2							2

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

Total No. of Bottles/Containers: 8

Relinquished by: [signature]	Organization: Arcadis	Date 10/29/04	Time	Seal Intact? Yes No N/A
Received by: C. DoMarudzki	Organization: STL-NY	Date 10/29/04	Time 4:40	
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 ______ (SPECIFY) ☐ Lab Courier ☐ Other ______ (SPECIFY)

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ARCADIS

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

CHAIN-OF-CUSTODY RECORD

Page _____ of _____

Project Number/Name: NY000348.0404.00002

Project Location: Bethpage, NY

Laboratory: Severn - Trent Shelton

Project Manager: Dave Stern

Sampler(s)/Affiliation: GI IRP

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40 ml vial VOC 95-1 ASP (cool)						Remarks	Total
GM-74D2	L	11/1/04		2							2
GM-74I				2							2
GM-74D				2							2
N10634				2							2
TB 11/1/04				2							2
FB 11/1/04				2							2

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

Total No. of Bottles/ Containers: 10

Relinquished by: Pat Rogers	Organization: Arcadis	Date 11/1/04	Time 6:30 pm	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 Stern

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

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ARCADIS

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

CHAIN-OF-CUSTODY RECORD

Page ____ of ____

Project Number/Name: NY000348.0404.00002

Project Location: BETHPAGE NY

Laboratory: SPECTRUM - TRENT STATION

Project Manager: DAVE STERN

Sampler(s)/Affiliation: GW AP

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40ml VOA VOC 95-1AP (VOA)						Remarks	Total
FW-03	GW	10604		2							2
HW-29T				2							2
HW-29D				2							2
HW-24T				2							2
TB 10-6-04				2							2
TB 10-6-04				2							2

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

Total No. of Bottles/ Containers: 12

					Seal Intact?
Relinquished by: [signature]	Organization: ARCADIS	Date 11/6/04	Time 5:50		
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 STERN

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

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ARCADIS

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

Project Number/Name: [illegible]

Project Location: Bethpage NY

Laboratory: Severn – Trent Shelton

Project Manager: Dave Stern

Sampler(s)/Affiliation: T.M. IRP

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40ml vial VOC 8015/8021						Remarks	Total
TB Hwy	L	11/1/04		2							2
Trip Blank	↓	↓		2							2

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

Total No. of Bottles/ Containers: 4

Relinquished by: [signature]	Organization: Arcadis	Date 11/10/04	Time 5:15pm	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 Stern

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

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ARCADIS

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

CHAIN-OF-CUSTODY RECORD

Page ____ of ____

Project Number/Name: NY-B-154504.0005

Project Location: Bethpage, NY

Laboratory: Severn Trent Labs

Project Manager: Dan Stern

Sampler(s)/Affiliation: JC / PC

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: VOCs 8260B						Remarks	Total
TG W-1-04	L	11/19/04		2							
DUP 3-1	↓	↓		2							
EQ W 3-2	↓	↓		2							

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

Total No. of Bottles/ Containers: 6

Relinquished by: JC Projects	Organization: Arcadis	Date 11/19/04	Time 1	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 Dan Stern

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

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[redacted] ARCADIS [redacted] Laboratory Task Order No./P.O. No. ______ [redacted] CHAI[redacted]OF-C[redacted]TO[redacted] RE[redacted]RD [redacted] Page ____ of ____

Project Number/Name: NY001347.0404.00002

Project Location: BETHPAGE NY

Laboratory: SEVERN-TRENT SHELTON

Project Manager: DAVE STERN

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

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: 40ml VOA 95-1ASP (UNP)						Remarks	Total
GM-710-2	L	11-24-04		2							2
TB 11-24-04	L	"		2							2

PLEASE NOTE: SAMPLES WERE HELD AT STL LAKE SUCCESS OFFICE FOR THANKSGIVING HOLIDAYS. ANALYSIS NEEDS TO BE DONE BY WEDNESDAY DECEMBER 1, 2004

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

Total No. of Bottles/Containers: 4

Relinquished by: [signature]	Organization: ARCADIS	Date 11/24/04	Time 4:50	Seal Intact? Yes No N/A
Received by: [signature] Coleman	Organization: STL	Date 11/24/04	Time 4:50	
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 ______ SPECIFY ☐ Lab Courier ☐ Other ______ SPECIFY

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