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**PLANT 3 DRYWELLS 20-08 AND 34-07  
SITE CHARACTERIZATION REPORT**

**Northrop Grumman Corporation  
Bethpage Plant 3 Facility  
Bethpage, New York**

**September 15, 2000**

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## 1.0 INTRODUCTION

On behalf of Northrop Grumman Corporation (NGC), Roux Associates, Inc. (Roux Associates) and our affiliated engineering firm, Remedial Engineering, P.C. (Remedial Engineering), have prepared this document titled, "Plant 3 Drywells 20-08 and 34-07 Site Characterization Report" (SCR). This SCR presents the Site characterization component of the investigative/remedial work performed at the former NGC Plant 3 Facility in Bethpage, New York (Site) from August 1999 through April 2000 at the Plant 3 Drywells 20-08 and 34-07. This component was performed in accordance with a Site Characterization Program (SCP) that was approved by the New York State Department of Environmental Conservation (NYSDEC), and was implemented in accordance with the following:

- Plant 3 Drywells 20-08 and 34-07 Soil Remediation Engineering Services Final Work Plan (Characterization Work Plan, Roux Associates, October 1999);
- Plant 3 Drywells 20-08 and 34-07 Soil Investigation Supplemental Field Characterization Final Work Plan (Supplemental Characterization Work Plan, Roux Associates, November 1999); and
- Status Letter Report Summarizing Ongoing Investigations and Proposed Scope of Work for the Delineation of PCB Contamination (Status Summary Letter Report, Roux Associates, March 2000).

The main objectives of the SCP was to delineate the extent of polychlorinated biphenyls (PCBs) in soil that were detected above the NYSDEC Recommended Soil Cleanup Objectives (RSCOs) and characterize groundwater quality near Plant 3 Drywells 20-08 and 34-07. In addition, the SCP was performed to gather information that could be used to determine whether additional remediation is necessary within the vicinity of each drywell, and if excavation or other innovative technologies are feasible to perform this work.

Although previous soil investigation and remediation efforts were performed under the UIC program and inspected by the NCDOH and the USEPA, any subsequent efforts, if required, will be governed by the NYSDEC Division of Environmental Remediation. These future investigation and remediation efforts, if any, would be governed by the NYSDEC because inclusion of Drywells 20-08 and 34-07 into the Navy's Installation Restoration Program has been accepted, which is regulated by the NYSDEC.

To accomplish the SCP objectives, the following tasks were performed:

- Task 1: Soil Boring Installation, Screening and Sampling;
- Task 2: Monitoring Well Installation and Groundwater Sampling; and
- Task 3: Quality Assurance/ Quality Control Sampling.

The work performed and the results of the three sampling tasks are described in the remainder of this report.

The remaining sections of the SCR provide the following:

- Section 2.0 - Background Information;
- Section 3.0 - Summary of Work;
- Section 4.0 - Results; and
- Section 5.0 - Conclusions and Recommendations.

## **2.0 BACKGROUND INFORMATION**

The former NGC Plant 3 Facility is located on South Oyster Bay Road in Bethpage, New York (Figure 1). The Site is located in an industrial/commercial area. Plant 3 was a government owned, contractor operated (GOCO) facility that NGC elected to return to the United States Navy. Plant 3 is part of the 105 Acre Naval Weapons Industrial Reserve GOCO property in Bethpage, New York. The facility was transferred back to the Navy in the fall of 1998 after extensive environmental remediation and building restoration activities were performed. The Site is currently owned and maintained by the Navy. Nassau County has developed a Reuse Plan for the property, which includes the redevelopment of the facility for industrial/ commercial land use. Although NGC has undertaken the investigation/remediation services that result from the investigation and conceptual design process of which this report is a part [described in the Characterization Work Plan (CWP)], the Navy has agreed to perform the design, operation and monitoring of the remedial action, if required in the vicinity of the Plant 3 Drywells 20-08 and 34-07 (Figure 2).

The material below and around the Plant 3 Drywells 20-08 and 34-07 has been identified to contain PCBs, and has partially been remediated under the Nassau County Department of Health (NCDOH) Underground Injection Control (UIC) program. Closure of these drywells is required in accordance with the United States Environmental Protection Agency (USEPA) UIC program currently administrated by the NCDOH. Previously, these drywells functioned as a component of the Site's storm-water drainage system. The drywells functioned as catch basins, with some stormwater infiltration capability, and were also interconnected to other catch basins, which ultimately discharged into the Navy recharge basins within the Site. Consequently, contamination of the material within each drywell and beyond the horizontal and vertical limits of each former drywell may have resulted from PCB containing material released during ongoing Site maintenance activities.

Previously, NGC conducted a Phase I and Phase II Environmental Site Assessment (ESA) of the Plant 3 facility, in which the results identified that the material within Drywells 20-08 and 34-07 required remediation. In June 1998, the material in and below Drywells 20-08 and 34-07 was excavated to depths feasible using a conventional shoring system. Upon the completion of these excavations, the USEPA, however, requested that NGC perform an additional investigation to

further delineate PCBs in adjacent soil above NYSDEC RSCOs and to characterize groundwater quality in the vicinity of each drywell at the Site.

As requested by the USEPA, NGC performed this additional investigation for soil and groundwater. This additional investigation was performed as part of the NYSDEC-approved SCP, and was undertaken to define the horizontal and vertical extent of PCB concentrations in soil that exceed the NYSDEC RSCOs and to characterize groundwater quality in the vicinity of each drywell. In accordance with the CWP, Soil Borings SB-1 through SB-4 and Monitoring Wells MW-1 through MW-4 were sampled (Figures 3 and 4). The results of this sampling event indicated:

- that there was a significant decrease in the concentration of PCBs in soil with depth and distance away from the drywell areas; and
- that the PCBs in soil have not significantly impacted groundwater.

Despite the decrease in PCB concentrations, the analytical data also indicated that these concentrations in soil exceeded the NYSDEC RSCOs. Therefore, subsequent sampling events, performed as part of the SCP, were undertaken to further define the horizontal and vertical extent of PCB concentrations in soil that exceed the NYSDEC RSCOs. In accordance with the Supplemental Characterization Work Plan and the Status Summary Letter Report, Soil Borings SB-5 through SB-17, located as shown in Figures 3 and 4, were sampled and analyzed. The results of this sampling event indicated that the horizontal and vertical extent of PCB concentrations in soil that exceed the NYSDEC RSCOs has been delineated. The results of the SCP are presented in the following Sections.



### 3.0 SCOPE OF WORK

The scope of work was performed between August 1999 and April 2000, and consisted of the following three tasks:

- Task 1: Soil Boring Installation, Screening and Sampling;
- Task 2: Monitoring Well Installation and Groundwater Sampling; and
- Task 3: Quality Assurance/Quality Control (QA/QC) Sampling.

A description of each scope of work task is provided below.

#### 3.1 Task 1: Soil Boring Installation, Screening and Sampling

A total of eight Soil Borings (SB-1, SB-2, SB-5, SB-6, SB-7, SB-8, SB-13 and SB-14) at Drywell 20-08 and nine Soil Borings (SB-3, SB-4, SB-9, SB-10, SB-11, SB-12, SB-15, SB-16 and SB-17) at Drywell 34-07 were sampled continuously at 2 ft. intervals using a hollow-stem auger drilling rig. The locations of the soil borings are shown in Figures 3 and 4. The samples were collected at the various depth intervals, which are provided in Figures 5 and 6 for Drywell 20-08 and Figures 7 and 8 for Drywell 34-07.

These soil borings were sampled as part of three sampling events during the implementation of the SCP. Test kits, however, were used only during the first sampling event. The results of these test kits were subsequently used as a guide for future sampling events. The following table summarizes for each respective sampling event which borings were sampled and concurrently screened, where applicable, with a test kit.

<b>Sampling Event</b>	<b>Sampling Dates</b>	<b>Soil Borings Sampled</b>	<b>Soil Borings Screened with Immunoassay Test Kits</b>
1	August 17 through August 20, 1999	SB-1, SB-2, SB-3 and SB-4	SB-1, SB-2, SB-3 and SB-4
2	November 23 through December 5, 1999	SB-5, SB-6, SB-7, SB-8, SB-9, SB-10, SB-11 and SB-12	None
3	April 18 through April 24, 2000	SB-13, SB-14, SB-15, SB-16 and SB-17	None

Each soil sample collected was also inspected for lithology, inspected for impacts (e.g., staining, odors), and screened in the field for volatile organic compounds (VOCs) using a photoionization detector (PID). End point soil samples (i.e., deepest samples) were collected from each drywell (August, 1999) from Soil Borings SB-1, SB-2, SB-3 and SB-4 during the first sampling event, and screened in the field for PCBs using immunoassay test kits to preliminarily determine the vertical extent of PCBs that exceed the test kit's maximum detection limit of 4 parts per million (ppm) and to establish whether additional vertical delineation was warranted. If the PCB concentration detected using the test kit was greater than 4 ppm, additional vertical delineation was required because the likelihood existed that the PCB concentration within this interval was greater than the NYSDEC RSCOs. Additional samples for each 2-foot (ft) depth interval below the 64 to 66 ft sampling interval were collected until the concentrations of PCBs detected using the test kits were less than 4 ppm. The test kit data generated from these four borings were then used as a guide for all subsequent soil borings sampled during the implementation of the SCP.

In addition to the test kits, each soil sample collected from each boring was also submitted to a NYSDOH Environmental Laboratory Approval Programs (ELAP) laboratory certified for Contract Laboratory Protocol (CLP) work, and analyzed for PCBs using the USEPA Method 8082.

Soil generated during the installation of each boring was stockpiled on Site in an area directly adjacent to the borings. The soil generated from the sampling of Soil Borings SB-1 through SB-12 has been characterized and disposed of off-site. The soil generated from the sampling of Soil Borings SB-13 through SB-17 has been characterized and is scheduled to be disposed of off-site.

### **3.2 Task 2: Monitoring Well Installation and Groundwater Sampling**

Two monitoring wells (MW-1 and MW-2) at Drywell 20-08 and two monitoring wells (MW-3 and MW-4) at Drywell 34-07 were installed using a hollow stem auger drilling rig. The locations of the monitoring wells are shown in Figures 3 and 4. The location of each well was determined based on the estimated regional groundwater flow direction. The regional groundwater flow direction was determined based on historical information and current well data

collected October 5, 1999. As shown in Figure 9, two monitoring wells (one shallow and one deep) were installed hydraulically downgradient of each drywell. The shallow monitoring wells (MW-1 and MW-3) were screened from 55 to 65 ft below land surface (bls), and were located immediately downgradient of each drywell. The deep monitoring wells (MW-2 and MW-4) were screened from 65 to 75 ft bls, and were located approximately 75 ft downgradient of each drywell. The location of the deep monitoring wells was selected to address potential contamination that may travel below the screened interval and possibly be missed at the shallow monitoring wells.

Prior to sampling with a disposable bailer, each monitoring well was developed and purged in accordance with the NYSDEC protocols. The groundwater samples were collected October 14 and 15, 1999 and submitted to a NYSDOH-ELPA CLP-certified laboratory. Each of the samples was analyzed for PCBs (filtered and unfiltered) using the USEPA Method 8082 (with a detection limit of not greater than 0.1 parts per billion), VOCs using the USEPA Methods 601 and 602, and semivolatile organic compounds (SVOCs) using the USEPA Method 625. An additional filtered and unfiltered sample from MW-2 was collected and sent to be analyzed on January 6, 2000 to confirm the filtered analytical results obtained from October 14 and 15, 1999 sampling event.

Containerized development water and soil generated during the monitoring well installations were staged and stockpiled respectively on Site in an area directly adjacent to the monitoring well locations. The containerized development water and soil have been characterized and disposed of off-site.

### **3.3 Task 3: Quality Assurance/Quality Control Sampling**

All soil samples collected during the SCP were handled as described below. Sample containers were pre-labeled before sample collection. The labels included the sample number, parameter sampled, date, time, sampler's initials, and the site name. A Chain of Custody (COC) form was maintained as the record of possession for the sample. The COC remained with the sample at all times, and bore the name of the person assuming responsibility for the sample.

A stainless steel trowel was used to collect a discrete soil sample from the split spoon, and each sample was placed in the sample container. Prior to the collection of each sample, all equipment used for sample collection was cleaned in the following manner:

- removed all loose material and soil;
- washed thoroughly with non-phosphate soap and tap water, utilizing a scrub brush;
- rinsed with tap water;
- rinsed with distilled water; and
- rinsed with distilled or deionized water.

Upon the completion of the first sampling event (for Soil Borings SB-1, SB-2, SB-3 and SB-4), an additional decontamination procedure was added and used for the remainder of the SCP. This procedure involved rinsing all sampling equipment with pesticide-grade methanol based on the results of the QA/QC sampling discussed in Section 4.3. After the analytical samples were collected, the sample bottles were packed in coolers for shipment to the laboratory.

Field blanks were collected from soil and groundwater sampling equipment at the rate of one per day. They were prepared by pouring distilled water, provided by the analytical laboratory, over the decontaminated sample collection apparatus and then into a laboratory prepared bottle. The field blanks were analyzed for the same parameters as the samples collected that day.

Trip blanks accompanied the groundwater samples at the rate of one per shipment, and were analyzed for VOCs only. Duplicate samples were collected at a rate of approximately five percent of each sample media. The duplicates were analyzed for the same parameters as its corresponding sample. After the analytical samples and field blanks were collected, the sample bottles were maintained at the appropriate temperature in ice-filled coolers for shipment to the laboratory.

The criteria for QA report deliverable requirements for this SCP were established in accordance with the USEPA Contract Laboratory Program (CLP) protocol. All of the analytical data and QA deliverables complied with NYSDEC Analytical Services Protocol (ASP) Category B reporting requirements.

## **4.0 RESULTS**

The results of the SCP are discussed in the following sections. Specifically, the following soil quality results are discussed for soils at each drywell:

- PCB test kits;
- Photoionization detector; and
- Soil sampling.

In addition to soil quality data, the following results are discussed as they relate to groundwater at each drywell:

- Groundwater flow determination; and
- Groundwater sampling.

Finally, QA/QC sampling results are also discussed.

### **4.1 Soil Boring Test Kit Screening and Sampling Results**

The extent of PCBs detected above the NYSDEC RSCOs in the vicinity of Drywells 20-08 and 34-07 have been delineated based on the information obtained during the SCP. The soil quality data is provided in Tables 1 through 17 and the respective Soil Boring logs are provided in Appendix A. The results are discussed below.

#### **4.1.1 Drywell 20-08**

As discussed in Section 3.0, eight soil borings (SB-1, SB-2, SB-5, SB-6, SB-7, SB-8, SB-13 and SB-14) were sampled in the vicinity of Drywell 20-08 (Figure 3). PCB test kit, PID screening and soil quality results are discussed below.

#### 4.1.1.1 PCB Test Kit Results

The PCB test kit data collected from Soil Borings SB-1 and SB-2 in the vicinity of Drywell 20-08 is provided below:

Soil Boring	Sampling Interval (feet bls)	PCB Test Kit Result (ppm)	Was Further Vertical Delineation Required Based on PCB Test Kit Result of greater than 4 ppm?
SB-1	64 to 66	>4	Yes, one additional sample collected
SB-1	66 to 68	<4	No
SB-2	64 to 66	<4	No

Based on the PCB test kit results from soil borings at SB-1 and SB-2, it was established in the field that no further vertical delineation is warranted. These results were confirmed based on the corresponding laboratory analytical results for the soil samples collected in the vicinity of Drywell 20-08 (Tables 1 and 2). Since the vertical extent of contamination was determined, all subsequent soil borings were not required to be screened with a PCB test kit.

#### 4.1.1.2 Photoionization Detector Results

A brief summary of the PID data collected from the soil borings in the vicinity of Drywell 20-08 is provided below:

Soil Boring	Range of PID Readings (ppm)	Highest PID Reading (ppm)	Sampling Interval(s) for Highest PID Reading Collected (ft bls)	Comments
SB-1	0.0 to 24.9	24.9	26 to 28	no visible petroleum staining, no odors
SB-2	-	0.0	Not Applicable	no visible petroleum staining, no odors
SB-5	0.0 to 8.3	8.3	30 to 32	no visible petroleum staining, no odors
SB-6	0.0 to 2.9	2.9	30 to 34	no visible petroleum staining, no odors
SB-7	0.0 to 10.1	10.1	42 to 44	no visible petroleum staining, no odors
SB-8	0.0 to 20.7	20.7	52 to 54	no visible petroleum staining, no odors

<b>Soil Boring</b>	<b>Range of PID Readings (ppm)</b>	<b>Highest PID Reading (ppm)</b>	<b>Sampling Interval(s) for Highest PID Reading Collected (ft bls)</b>	<b>Comments</b>
SB-13	No Data Collected	No Data Collected	No Data Collected	no visible petroleum staining, no odors, high humidity limited effectiveness of PID meter
SB-14	0.0 to 0.5	0.5	22 to 24	no visible petroleum staining, no odors

Since no visible petroleum staining and odors were present and the PID data results were relatively low, it appears that VOC impacts were not present in the soil in the vicinity of Drywell 20-08. Please note that PID readings (Appendix A) were not collected from soil boring SB-13 due to weather conditions and performance related problems with the PID

#### 4.1.1.3 Soil Sampling Results

The results of the PCB analysis for soil in the vicinity of Drywell 20-08 are presented in Figures 5 and 6. Figure 5 depicts Cross Section A-A' from the southwest to the northeast and Figure 6 depicts cross section B-B' from the northwest to the southeast. Each cross section shows the lateral and vertical extent of PCB concentrations in the vicinity of Drywell 20-08.

The lateral extent of PCBs detected above the NYSDEC RSCOs at Drywell 20-08 has been delineated. Specifically, on three of the four sides (the southeast, northeast and southwest sides) of Drywell 20-08 the extent of PCBs is respectively defined by perimeter Soil Borings SB-2, SB-13 and SB-14. However, the northwest limit of PCB concentration at Drywell 20-08 is not definitively established by perimeter Soil Boring SB-6 since PCBs detected were above the NYSDEC RSCOs at two sampling intervals (24 to 26 ft bls and 30 to 32 ft bls each at a concentration of 20 ppm). Please note that PCB concentrations 5 to 10 feet away from Drywell 20-08 typically decrease by approximately an order of magnitude. For example, the PCB concentrations within the 24 to 26 ft bls sampling interval decreased from 45,000 ppm at SB-1 (10 ft from Drywell 20-08), to 1,700 ppm at SB-5 (20 ft from Drywell 20-08) and to 20 ppm at SB-6 (30 ft from Drywell 20-08). Therefore, it is expected that the northwest limit of PCB



concentrations detected above the NYSDEC RSCOs at Drywell 20-08 extends less than 5 ft northwest of Soil Boring SB-6.

The vertical extent of PCBs detected above the NYSDEC RSCOs at Drywell 20-08 has also been delineated. Although PCBs were detected above NYSDEC RSCOs in Soil Boring SB-8 (52 to 54 ft bls), two additional soil borings (SB-1 and SB-2) were sampled adjacent to SB-8, and the results indicate that PCBs were not detected above the NYSDEC RSCOs deeper than 54 ft bls.

**4.1.2 Drywell 34-07**

As discussed in Section 3.0, nine soil borings (SB-3, SB-4, SB-9, SB-10, SB-11, SB-12, SB-15, SB-16 and SB-17) were performed in the vicinity of Drywell 34-07 (Figure 4). PCB test kit, PID screening and soil quality results for each of these borings are discussed below.

**4.1.2.1 PCB Test Kit Results**

A summary of the PCB test kit data collected from Soil Borings SB-3 and SB-4 in the vicinity of Drywell 34-07 is provided below:

<b>Soil Boring</b>	<b>Sampling Interval (feet bls)</b>	<b>PCB Test Kit Result (ppm)</b>	<b>Was Further Vertical Delineation Required Based on PCB Test Kit Result of greater than 4 ppm?</b>
SB-3	64 to 66	<4	No
SB-4	64 to 66	>4	Yes, one additional sample collected
SB-4	66 to 68	<4	No

Based on the PCB test kit results from Soil borings SB-3 and SB-4, it was established in the field that no further vertical delineation was warranted. These results were confirmed based on the corresponding laboratory analytical results for the deepest soil samples collected in the vicinity of Drywell 34-07 (Tables 3 and 4). Since the vertical extent of contamination was determined, no subsequent soil borings were screened with a PCB test kit.

**4.1.2.2 Photoionization Detector Results**

A brief summary of the PID data collected from the soil borings in the vicinity of Drywell 34-07 is provided below:

<b>Soil Boring</b>	<b>Range of PID Readings (ppm)</b>	<b>Highest PID Reading (ppm)</b>	<b>Sampling Interval(s) for Highest PID Reading Collected (ft bls)</b>	<b>Comments</b>
SB-3	0.0 to 1.7	1.7	60 to 62	no visible petroleum staining, no odors
SB-4	0.0 to 1.6	1.6	60 to 62	no visible petroleum staining, no odors
SB-9	0.0 to 19.3	19.3	22 to 24	no visible petroleum staining, no odors
SB-10	0.0 to 17.4	17.4	34 to 36	no visible petroleum staining, no odors
SB-11	0.0 to 13.9	13.9	50 to 52	no visible petroleum staining, no odors
SB-12	0.0 to 12.0	12.0	4 to 6	no visible petroleum staining, no odors
SB-15	No Data Collected	No Data Collected	No Data Collected	no visible petroleum staining, no odors, high humidity limited effectiveness of PID meter
SB-16	No Data Collected	No Data Collected	No Data Collected	no visible petroleum staining, no odors, high humidity limited effectiveness of PID meter
SB-17	No Data Collected	No Data Collected	No Data Collected	no visible petroleum staining, no odors, high humidity limited effectiveness of PID meter

Since no visible petroleum staining and odors were present and the PID data results were relatively low, it appears that VOC impacts are not present in the soil in the vicinity of Drywell 34-07. Please note that PID readings (Appendix A) were not collected from several borings due to weather conditions and performance related problems with the PID.

#### **4.1.2.3 Soil Sampling Results**

The results of the PCB analysis for soil in the vicinity of Drywell 34-07 are presented in Figures 7 and 8. Figure 7 depicts Cross Section C-C' from the southwest to the northeast and

Figure 8 depicts Cross Section D-D' from the northwest to the southeast. Each cross section shows the lateral and vertical extent of PCB concentration in the vicinity of Drywell 34-07.

The lateral extent of PCBs detected above the NYSDEC RSCOs at Drywell 34-07 has been delineated. Specifically, on three of the four sides (the northwest, northeast and southeast sides) of Drywell 34-07 are respectively defined by perimeter Soil Borings SB-17, SB-15 and SB-16. However, the southwest limit of PCB concentrations above the NYSDEC RSCOs at Drywell 34-07 is not definitively established by perimeter Soil Boring SB-11 since PCBs were detected at one sampling interval (24 to 26 ft bls) at a concentration of 86 ppm. Please note that PCB concentrations 5 to 10 feet away from Drywell 34-07 typically decrease by approximately an order of magnitude. For example, the PCB concentrations within the sampling interval (26 to 28 bls) below the 24 to 26 ft bls sampling interval decreased from 1,400 ppm at SB-4 (10 ft from Drywell 34-07) to 86 ppm at SB-11 (20 ft from Drywell 34-07). Therefore, it is expected that the southwest limit of PCB concentrations detected above the NYSDEC RSCOs at Drywell 34-07 extends less than 5 ft southwest of Soil Boring SB-11.

The vertical extent of PCBs detected above the NYSDEC RSCOs at Drywell 20-08 has also been delineated. Although PCBs were detected above NYSDEC RSCOs in the soil boring (54 to 56 ft bls) sampled by H2M, P.C. on July 29, 1998 beneath the middle of the drywell after remediation efforts were completed, two additional soil borings (SB-1 and SB-2) were sampled in the vicinity of this boring, and the results indicated that PCBs were not detected above the NYSDEC RSCOs deeper than 56 ft.

#### **4.2 Groundwater Flow Direction and Quality Results**

As part of the SCP, groundwater flow direction was determined and groundwater quality characterized in the vicinity of Drywells 20-08 and 34-07. The results are discussed below.

##### **4.2.1 Groundwater Flow Direction Results**

The regional groundwater flow direction at the Site is primarily to the south toward South Oyster Bay. Based on historical (April 30, 1993) and current (October 5, 1999) monitoring well data from recent Site field studies, the local groundwater flow direction is also primarily to the south (Figure 9).

#### **4.2.2 Groundwater Quality Results**

The groundwater quality results from Monitoring Wells MW-1, MW-2, MW-3 and MW-4 for PCBs, VOCs and SVOCs are provided in Tables 18, 19 and 20, respectively, and discussed below. Monitoring well construction logs are provided in Appendix B.

PCBs were detected in the unfiltered groundwater samples above the NYSDEC AWQSGVs for each monitoring well, while no PCBs were detected in the filtered samples from Monitoring Wells MW-1, MW-3 and MW-4 (Table 18). PCBs were detected at low concentrations (1.5 and 2.1 µg/L) in the two filtered groundwater samples collected from Monitoring Well MW-2. During the SCP, analytical results revealed that VOCs were detected above the NYSDEC AWQSGVs for samples collected from Monitoring Wells MW-1, MW-2 and MW-4 (Table 19). Specifically, trichloroethene and tetrachlorethene were detected at concentrations above the NYSDEC AWQSGVs at Monitoring Wells MW-1, MW-2 and MW-4. In addition, 1,1,1-trichloroethane and 1,1-dichloroethene were detected at concentrations above the NYSDEC AWQSGVs at Monitoring Well MW-4. SVOCs were not detected above the NYSDEC Ambient Water-Quality Standards Guidance Values (AWQSGVs) (Table 20).

#### **4.3 QA/QC Sampling Results**

The following presents the main results of the QA/QC sampling component of the SCR:

- No VOCs were detected in the trip blanks;
- Duplicate correlation values for each duplicate sample were within recommended limits; and
- Field blanks collected during the sampling of Soil Borings SB-3 and SB-4 indicated low levels of PCB concentrations detected in the field blank samples. Based on the low levels detected with respect to the high level of PCB concentrations detected at Soil Borings SB-3 and SB-4, no significant cross contamination was evident.

## 5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the SCP, the soil and groundwater investigation has been completed at Plant 3 Drywells 20-08 and 34-07. Specifically, the following objectives of the investigation have been completed at each drywell:

- the extent of PCBs in soil that were detected above the NYSDEC RSCOs has been delineated; and
- groundwater quality has been characterized.

The following sections discuss these conclusions in greater detail and provide a recommendation for upcoming work as outlined in the CWP.

### 5.1 Soil Investigation Conclusions

The extent of PCBs in soil that were detected above the NYSDEC RSCOs in the vicinity of Plant 3 Drywells 20-08 and 34-07 has been delineated as discussed below.

#### 5.1.1. Drywell 20-08

The aerial extent of PCB contamination above NYSDEC RSCOs covers an area of approximately 1,125 square feet. Within this area, the vertical extent of PCB contamination above NYSDEC RSCOs extends from approximately 2 ft bls to a depth of approximately 54 ft bls. The following table summarizes the PCB concentrations in soil, and approximate respective volumes, within selected depth intervals from grade to the vertical limits of contamination.

Interval (ft bls)	Range of Concentrations Detected (parts per million)	Total Volume of Soil Within Interval (cubic yards)	Volume of Soil Within Interval above NYSDEC RSCOs (cubic yards)
0 to 2 feet bls	Non-detect to 0.064 ppm	85	0
2 to 14 feet bls	Non-detect to 19 ppm	500	20
14 to 40 feet bls	Non-detect to 45,000 ppm	1,085	265
40 to 54 feet bls	Non-detect to 1,300 ppm	585	450

### 5.1.2. Drywell 34-07

The aerial extent of PCB contamination above NYSDEC RSCOs covers an area of approximately 1,375 square feet. Within this area, the vertical extent of PCB contamination above NYSDEC RSCOs extends from grade to a depth of approximately 56 ft bls. The following table summarizes the PCB concentrations in soil, and approximate respective volumes, within selected depth intervals from grade to the vertical limits of contamination.

Interval (ft bls)	Range of Concentrations Detected (parts per million)	Total Volume of Soil Within Interval (cubic yards)	Volume of Soil Within Interval above NYSDEC RSCOs (cubic yards)
0 to 2 feet bls	1.5 to 3.5 ppm	105	0
2 to 14 feet bls	Non-detect to 110 ppm	615	35
14 to 40 feet bls	Non-detect to 25,000 ppm	1,325	450
40 to 56 feet bls	Non-detect to 1,100 ppm	815	140

### 5.2 Groundwater Investigation Conclusions

Groundwater in the vicinity of Plant 3 Drywells 20-08 and 34-07 have been characterized as discussed below.

- PCBs in the unfiltered samples were detected above NYSDEC AWQSGVs in all of the wells in the vicinity of Drywells 20-08 and 34-07;
- PCBs in the filtered samples were not detected in monitoring wells MW-1, MW-3 and MW-4;
- PCBs in the filtered samples were detected above NYSDEC AWQSGVs in only one monitoring well (MW-2) in the vicinity of Drywell 20-08;
- VOCs (1,1-dichloroethene, 1,1,1-trichloroethane, trichloroethene and tetrachloroethene) were detected above the NYSDEC AWQSGVs in the vicinity of Drywells 20-08 and 34-07; and
- SVOCs were not detected above NYSDEC AWQSGVs in the vicinity of Drywells 20-08 and 34-07.

The presence of PCBs in the filtered sample is believed to be a result of the PCBs sorbing onto the suspended sediment on the sample less than 0.45 microns in size. In addition, although VOCs are present, VOC contamination at the Site is currently being addressed by an on-site treatment system. Therefore, no further groundwater investigation at the drywells is warranted.

### **5.3 Recommendations**

With the completion of the Site characterization component of the scope of work at the Plant 3 Drywells 20-08 and 34-07, NGC should proceed with the next phase of work consisting of an exposure assessment as outlined in the CWP.

Respectfully submitted,

ROUX ASSOCIATES, INC.



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Table 1. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-1  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	NYSDEC Soil Cleanup Objectives <sup>(1)</sup> (µg/kg)						SB-1 16-18 8/17/1999
	SB-1 4-6 8/17/1999	SB-1 6-8 8/17/1999	SB-1 8-10 8/17/1999	SB-1 10-12 8/17/1999	SB-1 12-14 8/17/1999	SB-1 14-16 8/17/1999	
Aroclor-1016	.5U	.6U	.6U	.5U	.5U	.5U	SB-1 16-18 8/17/1999
Aroclor-1221	.5U	.6U	.6U	.5U	.5U	.5U	SB-1 16-18 8/17/1999
Aroclor-1232	.5U	.6U	.6U	.5U	.5U	.5U	SB-1 16-18 8/17/1999
Aroclor-1242	.5U	.6U	.6U	.5U	.5U	.5U	SB-1 16-18 8/17/1999
Aroclor-1248	19J	.6U	.6U	.5U	.5U	.5U	SB-1 16-18 8/17/1999
Aroclor-1254	1U	1.2U	1.1U	1U	1U	1U	SB-1 16-18 8/17/1999
Aroclor-1260	1U	1.2U	1.1U	1U	1U	1U	SB-1 16-18 8/17/1999
Total PCBs (subsurface):	19J	0	0	0	0	11J	16J

**Notes:**

- <sup>(1)</sup> - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
- ft bls - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank
- E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument
- D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor
- DL - This suffix indicates a diluted sample and is appended to the sample number on the result form
- DUP - This suffix indicates a duplicate sample
- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Data highlighted in bold** represents results detected above the NYSDEC Recommended Soil Cleanup Objectives

Table 1. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-1  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter		NYSDEC Soil Cleanup Objectives <sup>(1)</sup> (µg/kg)						
(Concentrations in µg/kg)	Objectives <sup>(1)</sup> (µg/kg)	SB-1	SB-1	SB-1	SB-1/DL	SB-1/DL	SB-1/DL	SB-1/DL
Aroclor-1016	NS	.5U	.6U	.5U	350U	40000000U	7500U	88000U
Aroclor-1221	NS	.5U	.6U	.5U	350U	40000000U	7500U	88000U
Aroclor-1232	NS	.5U	.6U	.5U	350U	40000000U	7500U	88000U
Aroclor-1242	NS	0.5	.6U	2900E	3100D	45000000DP	5500000D	6100000DP
Aroclor-1248	NS	41	.6U	.5U	350U	40000000U	7500U	88000U
Aroclor-1254	NS	1U	1.1U	1U	710U	81000000U	15000U	180000U
Aroclor-1260	NS	1U	1.1U	1U	710U	81000000U	15000U	180000U
<b>Total PCBs (subsurface):</b>		<b>41</b>	<b>0</b>	<b>2900E</b>	<b>3100D</b>	<b>45000000DP</b>	<b>5500000D</b>	<b>6100000DP</b>

**Notes:**

- <sup>(1)</sup> - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
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Table 1. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-1  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

		NYSDEC Soil Cleanup Objectives <sup>(1)</sup> (µg/kg)					
Parameter (Concentrations in µg/kg)	Sample Designation: SB-1/DL	SB-1/DL 30-32	SB-1/DL 32-34	SB-1DUP/DL 32-34	SB-1/DL 34-36	SB-1/DL 36-38	SB-1/DL 40-42
	Sample Interval:	8/17/1999	8/17/1999	8/17/1999	8/17/1999	8/17/1999	8/17/1999
	Sample Date:	8/17/1999	8/17/1999	8/17/1999	8/17/1999	8/17/1999	8/17/1999
Aroclor-1016	NS	18000U	8800U	35000U	350U	180U	1800U
Aroclor-1221	NS	18000U	8800U	35000U	350U	180U	1800U
Aroclor-1232	NS	18000U	8800U	35000U	350U	180U	1800U
Aroclor-1242	NS	95000DP	42000DP	130000DP	2200D	1300P	14000D
Aroclor-1248	NS	18000U	8800U	35000U	350U	180U	1800U
Aroclor-1254	NS	35000U	18000U	70000U	700U	350U	3600U
Aroclor-1260	NS	35000U	18000U	70000U	700U	350U	3600U
Total PCBs (subsurface):	10,000	<b>95000DP</b>	<b>42000DP</b>	<b>130000DP</b>	<b>2200D</b>	<b>1300P</b>	<b>14000D</b>

Notes:

- <sup>(1)</sup> - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
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- ft bls - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
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Table 1. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-1  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	NYSDEC Soil Cleanup Objectives <sup>(1)</sup> (µg/kg)						Sample Designation: SB-1/DL 44-46 8/17/1999	Sample Interval: 42-44 8/17/1999	Sample Date: 8/17/1999	SB-1 46-48 8/17/1999	SB-1 48-50 8/17/1999	SB-1 50-52 8/17/1999	SB-1 52-54 8/17/1999	SB-1 54-56 8/17/1999
	SB-1/DL 44-46 8/17/1999	SB-1 46-48 8/17/1999	SB-1 48-50 8/17/1999	SB-1 50-52 8/17/1999	SB-1 52-54 8/17/1999	SB-1 54-56 8/17/1999								
Aroclor-1016	91000U	180U	700U	400U	180U	390U								
Aroclor-1221	91000U	180U	700U	400U	180U	390U								
Aroclor-1232	91000U	180U	700U	400U	180U	390U								
Aroclor-1242	720000DP	860	6400	790	740	1300								
Aroclor-1248	91000U	180U	700U	400U	180U	390U								
Aroclor-1254	180000U	350U	1400U	800U	350U	770U								
Aroclor-1260	180000U	350U	1400U	800U	350U	770U								
<b>Total PCBs (subsurface):</b>	<b>720000DP</b>	<b>860</b>	<b>6400</b>	<b>790</b>	<b>740</b>	<b>1300</b>								

**Notes:**

- <sup>(1)</sup> - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
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- ft bis - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
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Table 1. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-1  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

		SB-1	SB-1	SB-1	SB-1	SB-1	SB-1	SB-1/DL
Sample Designation:		56-58	58-60	60-62	62-64	62-64	64-66	66-68
Sample Interval:		8/17/1999	8/17/1999	8/17/1999	8/17/1999	8/17/1999	8/17/1999	8/17/1999
Sample Date:		8/17/1999	8/17/1999	8/17/1999	8/17/1999	8/17/1999	8/17/1999	8/17/1999
<b>NYSDEC Soil Cleanup Objectives<sup>(1)</sup> (µg/kg)</b>								
Parameter	(Concentrations in µg/kg)	190U	190U	1900U	190U	190U	380U	200U
Aroclor-1016	NS	190U	190U	1900U	190U	190U	380U	200U
Aroclor-1221	NS	190U	190U	1900U	190U	190U	380U	200U
Aroclor-1232	NS	190U	190U	1900U	190U	190U	380U	200U
Aroclor-1242	NS	320	1500P	8900P	920P	2100P	1000P	930D
Aroclor-1248	NS	190U	190U	1900U	190U	380U	380U	200U
Aroclor-1254	NS	380U	380U	3900U	390U	770U	760U	390U
Aroclor-1260	NS	380U	380U	3900U	390U	770U	760U	390U
<b>Total PCBs (subsurface):</b>		320	1500P	8900P	920P	2100P	1000P	930D

**Notes:**

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- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
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Table 2. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-2  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	Sample Designation:							
	SB-2 4-6	SB-2 6-8	SB-2 8-10	SB-2 10-12	SB-2 12-14	SB-2 DUP 14-16	SB-2 16-18	SB-2 8/17/1999
Atroclor-1016	18U	18U	17U	17U	17U	19U	19U	19U
Atroclor-1221	18U	18U	17U	17U	17U	19U	19U	19U
Atroclor-1232	18U	18U	17U	17U	17U	19U	19U	19U
Atroclor-1242	130	37	40	31J	30J	19U	19U	19U
Atroclor-1248	18U	18U	17U	17U	17U	19U	19U	19U
Atroclor-1254	35U	36U	34U	35U	34U	38U	39U	39U
Atroclor-1260	35U	36U	34U	35U	34U	38U	39U	39U
<b>Total PCBs (subsurface):</b>	130	37	40	31J	30J	0	0	0

**Notes:**

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- NS - No standard
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- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Bold** - Data highlighted in bold represents results detected above the NYSDEC Recommended Soil Cleanup Objectives

Table 2. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-2  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	Sample Designation: SB-2							
	SB-2 18-20 8/17/1999	SB-2 20-22 8/17/1999	SB-2 24-26 8/17/1999	SB-2 26-28 8/17/1999	SB-2 28-30 8/17/1999	SB-2 30-32 8/17/1999	SB-2 32-34 8/17/1999	SB-2
Atroclor-1016	17U	18U	17U	17U	17U	17U	17U	18U
Atroclor-1221	17U	18U	17U	17U	17U	17U	17U	18U
Atroclor-1232	17U	18U	17U	17U	17U	17U	17U	18U
Atroclor-1242	41	45	63	17J	61	42	23	23
Atroclor-1248	17U	18U	17U	17U	17U	17U	18U	18U
Atroclor-1254	34U	35U	34U	35U	34U	35U	35U	35U
Atroclor-1260	34U	35U	34U	35U	34U	35U	35U	35U
<b>Total PCBs (subsurface):</b>	<b>41</b>	<b>45</b>	<b>63</b>	<b>17J</b>	<b>61</b>	<b>42</b>	<b>23</b>	<b>23</b>

**Notes:**

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- µg/kg - Micrograms per kilogram
- ft bls - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank
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- DUP - This suffix indicates a duplicate sample
- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Bold** - Data highlighted in bold represents results detected above the NYSDEC Recommended Soil Cleanup Objectives

Table 2. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-2  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	Sample Designation: SB-2						SB-2 48-50 8/17/1999
	SB-2 34-36 8/17/1999	SB-2 36-38 8/17/1999	SB-2 38-40 8/17/1999	SB-2 40-42 8/17/1999	SB-2 42-44 8/17/1999	SB-2 46-48 8/17/1999	
Aroclor-1016	18U	27U	18U	18U	21U	18U	18U
Aroclor-1221	18U	27U	18U	18U	21U	18U	18U
Aroclor-1232	18U	27U	18U	18U	21U	18U	18U
Aroclor-1242	40	69	22	18U	23	18U	51
Aroclor-1248	18U	27U	18U	18U	21U	18U	18U
Aroclor-1254	35U	54U	35U	36U	42U	36U	35U
Aroclor-1260	35U	54U	35U	36U	42U	36U	35U
<b>Total PCBs (subsurface):</b>	<b>40</b>	<b>69</b>	<b>22</b>	<b>0</b>	<b>23</b>	<b>0</b>	<b>51</b>

**Notes:**

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- ft bis - Feet below land surface
- NS - No standard
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- DL - This suffix indicates a diluted sample and is appended to the sample number on the result form
- DUP - This suffix indicates a duplicate sample
- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Bold** - Data highlighted in bold represents results detected above the NYSDEC Recommended Soil Cleanup Objectives



Table 2. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-2  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	Sample Designation: Cleanup Objectives <sup>(1)</sup>						
	SB-2 50-52 8/17/1999	SB-2 52-54 8/17/1999	SB-2 54-56 8/17/1999	SB-2 56-58 8/17/1999	SB-2 58-60 8/17/1999	SB-2 60-62 8/17/1999	SB-2 62-64 8/17/1999
Aroclor-1016	18U	17U	18U	18U	19U	19U	19U
Aroclor-1221	18U	17U	18U	18U	19U	19U	19U
Aroclor-1232	18U	17U	18U	18U	19U	19U	19U
Aroclor-1242	47	37	27	34	40	34	19U
Aroclor-1248	18U	17U	18U	18U	19U	19U	19U
Aroclor-1254	35U	35U	36U	36U	38U	38U	38U
Aroclor-1260	35U	35U	36U	36U	38U	38U	38U
<b>Total PCBs (subsurface):</b>	<b>47</b>	<b>37</b>	<b>27</b>	<b>34</b>	<b>40</b>	<b>34</b>	<b>0</b>

**Notes:**

- <sup>(1)</sup> - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
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- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank
- E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument
- D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor
- DL - This suffix indicates a diluted sample and is appended to the sample number on the result form
- DUP - This suffix indicates a duplicate sample
- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Data highlighted in bold** represents results detected above the NYSDEC Recommended Soil Cleanup Objectives

Table 3. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-3  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	Sample Designation: SB-3/DL Sample Interval: 4-6 Sample Date: 8/18/1999 NYSDEC Soil Cleanup Objectives <sup>1</sup>							SB-3/DL 20-22 8/18/1999
	SB-3/DL 4-6 8/18/1999	SB-3/DL 6-8 8/18/1999	SB-3/DL 8-10 8/18/1999	SB-3/DL 12-14 8/18/1999	SB-3/DL 14-16 8/18/1999	SB-3/DL 18-20 8/18/1999	SB-3/DL 20-22 8/18/1999	
Aroclor-1016	14000U	8600U	15000U	7100U	3400U	860U	860U	
Aroclor-1221	14000U	8600U	15000U	7100U	3400U	860U	860U	
Aroclor-1232	14000U	8600U	15000U	7100U	3400U	860U	860U	
Aroclor-1242	110000D	67000DP	72000D	38000DP	27000D	6600D	49000DP	
Aroclor-1248	14000U	8600U	15000U	7100U	3400U	860U	860U	
Aroclor-1254	28000U	17000U	31000U	14000U	6800U	1700U	1700U	
Aroclor-1260	28000U	17000U	31000U	14000U	6800U	1700U	1700U	
<b>Total PCBs (subsurface):</b>	<b>110000D</b>	<b>67000DP</b>	<b>72000D</b>	<b>38000DP</b>	<b>27000D</b>	<b>6600D</b>	<b>49000DP</b>	

**Notes:**

- (<sup>1</sup>) - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
- ft bis - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank
- E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument
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- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
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Table 3. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-3  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	Sample Designation: SB-3/DL						SB-3/DL 28-30 8/18/1999	SB-3 30-32 8/18/1999	SB-3/DUP 30-32 8/18/1999	SB-3/DL 30-32 8/18/1999
	SB-3/DL 22-24 8/18/1999	SB-3/DL 24-25 8/18/1999	SB-3 26-28 8/18/1999	SB-3/DL 28-30 8/18/1999	SB-3 30-32 8/18/1999	SB-3/DUP 30-32 8/18/1999				
Aroclor-1016	1900U	200U	19U	890U	20U	18U	370U			
Aroclor-1221	1900U	200U	19U	890U	20U	18U	370U			
Aroclor-1232	1900U	200U	19U	890U	20U	18U	370U			
Aroclor-1242	14000D	480D	78	2400D	89P	140E	710D			
Aroclor-1248	1900U	200U	19U	890U	20U	18U	370U			
Aroclor-1254	3800U	390U	38U	1800U	41U	37U	740U			
Aroclor-1260	3800U	390U	38U	1800U	41U	37U	740U			
<b>Total PCBs (subsurface):</b>	<b>14000D</b>	<b>480D</b>	<b>78</b>	<b>2400D</b>	<b>89P</b>	<b>140E</b>	<b>710D</b>			

**Notes:**

- (1) - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
- ft bls - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank
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- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Bold** - Data highlighted in bold represents results detected above the NYSDEC Recommended Soil Cleanup Objectives

Table 3. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-3  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	Sample Designation: SB-3/DL							
	SB-3 32-34	SB-3 34-36	SB-3 36-38	SB-3 38-40	SB-3 40-42	SB-3 42-44	SB-3 44-46	
	Sample Interval: 8/18/1999							
	Sample Date: 8/18/1999							
	NYSDEC Soil Cleanup Objectives <sup>1</sup> (µg/kg)							
Aroclor-1016	360U	21U	18U	180U	180U	37U	18U	
Aroclor-1221	360U	21U	18U	180U	180U	37U	18U	
Aroclor-1232	360U	21U	18U	180U	180U	37U	18U	
Aroclor-1242	680D	21U	69	760	370	120	70	
Aroclor-1248	360U	21U	18U	180U	180U	37U	18U	
Aroclor-1254	720U	42U	35U	360U	350U	74U	36U	
Aroclor-1260	720U	42U	35U	360U	350U	74U	36U	
Total PCBs (subsurface):		680D	0	69	760	370	120	70

**Notes:**

- <sup>(1)</sup> - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
- ft bls - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
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Table 3. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-3  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

		Sample Designation:	SB-3	SB-3
		Sample Interval:	62-64	64-66
		Sample Date:	8/18/1999	8/18/1999
		NYSDEC Soil Cleanup Objectives <sup>1</sup>		
Parameter	(Concentrations in µg/kg)			
Aroclor-1016		NS	19U	19U
Aroclor-1221		NS	19U	19U
Aroclor-1232		NS	19U	19U
Aroclor-1242		NS	75	64
Aroclor-1248		NS	19U	19U
Aroclor-1254		NS	38U	39U
Aroclor-1260		NS	38U	39U
Total PCBs (subsurface):		10,000	75	64

**Notes:**

- (<sup>1</sup>) - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
- ft bls - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
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- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Data highlighted in bold represents results detected above the NYSDEC Recommended Soil Cleanup Objectives**

Table 4. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-4  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	Sample Designation: SB-4							SB-4 16-18 8/20/1999					
	Sample Interval: 4-6 8/20/1999	SB-4 8-10 8/20/1999	SB-4/DL 10-12 8/20/1999	SB-4 12-14 8/20/1999	SB-4 14-16 8/20/1999	SB-4 DUP 14-16 8/20/1999							
Aroclor-1016	NS	17U	35U	37U	34U	40U	37U						
Aroclor-1221	NS	17U	35U	37U	34U	40U	37U						
Aroclor-1232	NS	17U	35U	37U	34U	40U	37U						
Aroclor-1242	NS	140	180D	58P	91P	64	110P						
Aroclor-1248	NS	17U	35U	37U	34U	40U	37U						
Aroclor-1254	NS	34U	69U	75U	69U	79U	74U						
Aroclor-1260	NS	34U	69U	75U	69U	79U	74U						
<b>Total PCBs (subsurface):</b>							150	140	180D	58P	91P	64	110P

**Notes:**

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- ft bls - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
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- E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument
- D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor
- DL - This suffix indicates a diluted sample and is appended to the sample number on the result form
- DUP - This suffix indicates a duplicate sample
- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Bold** - Data highlighted in bold represents results detected above the NYSDEC Recommended Soil Cleanup Objectives

Table 4. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-4  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	Sample Designation: SB-4						SB-4/DL 30-32 8/20/1999					
	18-20 8/20/1999	20-22 8/20/1999	22-24 8/20/1999	24-26 8/20/1999	26-28 8/20/1999	28-30 8/20/1999						
Aroclor-1016	69U	70U	70U	190U	180000U	720000U	720000U					
Aroclor-1221	69U	70U	70U	190U	180000U	720000U	720000U					
Aroclor-1232	69U	70U	70U	190U	180000U	720000U	720000U					
Aroclor-1242	160P	140P	200P	770P	180000U	5000000D	2600000D					
Aroclor-1248	69U	70U	70U	190U	140000U	720000U	720000U					
Aroclor-1254	140U	140U	140U	390U	360000U	1400000U	1400000U					
Aroclor-1260	140U	140U	140U	390U	360000U	1400000U	1400000U					
<b>Total PCBs (subsurface):</b>							<b>160P</b>	<b>200P</b>	<b>770P</b>	<b>140000</b>	<b>5000000D</b>	<b>2600000D</b>

**Notes:**

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- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
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Table 4. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-4  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	Sample Designation:						
	SB-4 32-34	SB-4 34-36	SB-4 36-38	SB-4 38-40	SB-4 40-42	SB-4 42-44	SB-4 44-46
	7100U	890U	8700U	180000U	18000U	94000U	1800U
Aroclor-1016	NS	NS	NS	NS	NS	NS	NS
Aroclor-1221	7100U	890U	8700U	180000U	18000U	94000U	1800U
Aroclor-1232	7100U	890U	8700U	180000U	18000U	94000U	1800U
Aroclor-1242	42000	40000	42000	440000	100000	670000	14000
Aroclor-1248	7100U	890U	8700U	180000U	18000U	94000U	1800U
Aroclor-1254	14000U	1800U	17000U	350000U	35000U	190000U	3600U
Aroclor-1260	14000U	1800U	17000U	350000U	35000U	190000U	3600U
<b>Total PCBs (subsurface):</b>	<b>42000</b>	<b>40000</b>	<b>42000</b>	<b>440000</b>	<b>100000</b>	<b>670000</b>	<b>14000</b>

**Notes:**

(1) - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.

µg/kg - Micrograms per kilogram  
 ft bls - Feet below land surface

NS - No standard

U - This qualifier indicates compound analyzed for but not detected

J - This qualifier indicates an estimated value

B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank

E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument

D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor

DL - This suffix indicates a diluted sample and is appended to the sample number on the result form

DUP - This suffix indicates a duplicate sample

P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns

**Bold** - Data highlighted in bold represents results detected above the NYSDEC Recommended Soil Cleanup Objectives



Table 4. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-4  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	SB-4 46-48	SB-4 48-50	SB-4 50-52	SB-4 52-54	SB-4 54-56	SB-4 58-60	SB-4 60-62
<b>Sample Designation:</b> SB-4 <b>Sample Interval:</b> 46-48 <b>Sample Date:</b> 8/20/1999 NYSDEC Soil Cleanup Objectives <sup>1</sup>							
Aroclor-1016	98U	110U	1800U	7500U	900U	100U	210U
Aroclor-1221	98U	110U	1800U	7500U	900U	100U	210U
Aroclor-1232	98U	110U	1800U	7500U	900U	100U	210U
Aroclor-1242	540	260	4700	17000	2100	320	670
Aroclor-1248	98U	110U	1800U	7500U	900U	100U	210U
Aroclor-1254	200U	210U	3600U	15000U	1800U	200U	430U
Aroclor-1260	200U	210U	3600U	15000U	1800U	200U	430U
<b>Total PCBs (subsurface):</b>	<b>540</b>	<b>260</b>	<b>4700</b>	<b>17000</b>	<b>2100</b>	<b>320</b>	<b>670</b>

**Notes:**

<sup>(1)</sup> - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.

µg/kg - Micrograms per kilogram  
 ft bls - Feet below land surface

NS - No standard

U - This qualifier indicates compound analyzed for but not detected  
 J - This qualifier indicates an estimated value

B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank

E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument

D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor

DL - This suffix indicates a diluted sample and is appended to the sample number on the result form

DUP - This suffix indicates a duplicate sample

P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns

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Table 4. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-4  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	Sample Designation: SB-4 SB-4 DUP SB-4 SB-4			
	62-64	62-64	64-66	66-68
Objectives <sup>1</sup> (µg/kg)	8/20/1999	8/20/1999	8/20/1999	8/20/1999
Aroclor-1016	200U	410U	2100U	81U
Aroclor-1221	200U	410U	2100U	81U
Aroclor-1232	200U	410U	2100U	81U
Aroclor-1242	490	1700	5600	130
Aroclor-1248	200U	410U	2100U	81U
Aroclor-1254	400U	830U	4300U	160U
Aroclor-1260	400U	830U	4300U	160U
<b>Total PCBs (subsurface):</b>		490	1700	5600
<b>Total PCBs (subsurface):</b>		10,000	1700	130

**Notes:**

- (<sup>1</sup>) - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
- ft bls - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank
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- D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor
- DL - This suffix indicates a diluted sample and is appended to the sample number on the result form
- DUP - This suffix indicates a duplicate sample
- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Data** - Data highlighted in bold represents results detected above the NYSDEC Recommended Soil Cleanup Objectives

Table 5. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-5  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	Objectives <sup>1</sup> (µg/kg)	Sample Designation: SB-5						
		4-6 11/23/1999	6-8 11/23/1999	8-10 11/23/1999	10-12 11/23/1999	12-14 11/23/1999	14-16 11/23/1999	16-18 11/23/1999
Aroclor-1016	NS	38U	38U	34U	33U	33U	34U	34U
Aroclor-1221	NS	38U	38U	34U	33U	33U	34U	34U
Aroclor-1232	NS	38U	38U	34U	33U	33U	34U	34U
Aroclor-1242	NS	38U	38U	34U	33U	33U	34U	34U
Aroclor-1248	NS	38U	38U	34U	33U	33U	34U	34U
Aroclor-1254	NS	38U	38U	34U	33U	33U	34U	34U
Aroclor-1260	NS	38U	38U	34U	33U	33U	34U	34U
<b>Total PCBs (subsurface):</b>		0	0	0	0	0	0	0

**Notes:**

(<sup>1</sup>) - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.

µg/kg - Micrograms per kilogram  
 ft bls - Feet below land surface

NS - No standard

U - This qualifier indicates compound analyzed for but not detected

J - This qualifier indicates an estimated value

B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank

E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument

D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor

DL - This suffix indicates a diluted sample and is appended to the sample number on the result form

DUP - This suffix indicates a duplicate sample

P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns

**Data highlighted in bold** represents results detected above the NYSDEC Recommended Soil Cleanup Objectives

Table 5. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-5 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	Sample Designation: Sample Interval: Sample Date:	SB-5 18-20 11/23/1999	SB-5 20-22 11/23/1999	SB-5 22-24 11/23/1999	SB-5/DL 24-26 11/23/1999	SB-5/DL 26-28 11/23/1999	SB-5/DL 28-30 11/23/1999	SB-5/DL 30-32 11/23/1999
Aroclor-1016		33U	34U	34U	39000U	360U	34000U	3400U
Aroclor-1221		33U	34U	34U	39000U	360U	34000U	3400U
Aroclor-1232		33U	34U	34U	39000U	360U	34000U	3400U
Aroclor-1242		33U	34U	34U	39000U	360U	34000U	3400U
Aroclor-1248		33U	34U	34U	1700000D	10000D	310000D	89000D
Aroclor-1254		33U	34U	34U	39000U	360U	34000U	3400U
Aroclor-1260		33U	34U	34U	39000U	360U	34000U	3400U
<b>Total PCBs (subsurface):</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>1700000D</b>	<b>10000D</b>	<b>310000D</b>	<b>89000D</b>

**Notes:**

- (<sup>1</sup>) - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
- ft bls - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank
- E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument
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- DUP - This suffix indicates a duplicate sample
- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Data highlighted in bold represents results detected above the NYSDEC Recommended Soil Cleanup Objectives**

Table 5. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-5 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	Sample Designation: Sample Interval: Sample Date:					
	SB-5 32-34 11/23/1999	SB-5/DL 34-36 11/23/1999	SB-5 36-38 11/23/1999	SB-5 38-40 11/23/1999	SB-5 40-42 11/23/1999	SB-5 42-44 11/23/1999
Aroclor-1016	NS	340U	34U	35U	35U	35U
Aroclor-1221	NS	340U	34U	35U	35U	35U
Aroclor-1232	NS	340U	34U	35U	35U	35U
Aroclor-1242	NS	340U	34U	35U	35U	35U
Aroclor-1248	NS	10000D	350	780	880	190
Aroclor-1254	NS	340U	34U	35U	35U	35U
Aroclor-1260	NS	340U	34U	35U	35U	35U
<b>Total PCBs (subsurface):</b>	<b>10,000</b>	<b>10000D</b>	<b>350</b>	<b>780</b>	<b>880</b>	<b>450</b>

**Notes:**

(1) - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.

µg/kg - Micrograms per kilogram  
ft bls - Feet below land surface

NS - No standard

U - This qualifier indicates compound analyzed for but not detected  
J - This qualifier indicates an estimated value

B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank

E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument

D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor

DL - This suffix indicates a diluted sample and is appended to the sample number on the result form

DUP - This suffix indicates a duplicate sample

P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns

**Bold** - Data highlighted in bold represents results detected above the NYSDEC Recommended Soil Cleanup Objectives

Table 5. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-5  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

		Sample Designation:	SB-5/DUP	SB-5	SB-5	SB-5
		Sample Interval:	44-46	46-48	48-50	50-52
		Sample Date:	11/23/1999	11/23/1999	11/23/1999	11/23/1999
		NYSDEC Soil Cleanup Objectives <sup>1</sup>				
Parameter (Concentrations in µg/kg)	Objectives <sup>1</sup> (µg/kg)	35U	34U	34U	34U	37U
Aroclor-1016	NS	35U	34U	34U	34U	37U
Aroclor-1221	NS	35U	34U	34U	34U	37U
Aroclor-1232	NS	35U	34U	34U	34U	37U
Aroclor-1242	NS	35U	34U	34U	34U	37U
Aroclor-1248	NS	180	1000	290	1600	230
Aroclor-1254	NS	35U	34U	34U	33U	37U
Aroclor-1260	NS	35U	34U	34U	33U	37U
Total PCBs (subsurface):		180	1000	290	1600	230

**Notes:**

(<sup>1</sup>) - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.

µg/kg - Micrograms per kilogram  
 ft bls - Feet below land surface

NS - No standard

U - This qualifier indicates compound analyzed for but not detected

J - This qualifier indicates an estimated value

B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank

E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument

D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor

DL - This suffix indicates a diluted sample and is appended to the sample number on the result form

DUP - This suffix indicates a duplicate sample

P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns

**Data highlighted in bold** represents results detected above the NYSDEC Recommended Soil Cleanup Objectives

Table 6. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-6  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	NYSDEC Soil Cleanup Objectives <sup>1</sup> (µg/kg)						Sample Date:	SB-6 4-6	SB-6 6-8	SB-6 8-10	SB-6 10-12	SB-6 12-14	SB-6 14-16	SB-6 16-18
	11/25/1999	11/25/1999	11/25/1999	11/25/1999	11/25/1999	11/25/1999								
Aroclor-1016	NS	34U	34U	34U	34U	34U	39U	34U	34U	34U	33U	34U	34U	33U
Aroclor-1221	NS	34U	34U	34U	34U	34U	39U	34U	34U	34U	33U	34U	34U	33U
Aroclor-1232	NS	34U	34U	34U	34U	34U	39U	34U	34U	34U	33U	34U	34U	33U
Aroclor-1242	NS	34U	34U	34U	34U	34U	39U	34U	34U	34U	33U	34U	34U	43P
Aroclor-1248	NS	34U	34U	34U	34U	34U	39U	34U	34U	34U	33U	34U	34U	33U
Aroclor-1254	NS	34U	34U	34U	34U	34U	39U	34U	34U	34U	33U	34U	34U	33U
Aroclor-1260	NS	34U	34U	34U	34U	34U	39U	34U	34U	34U	33U	34U	34U	33U
<b>Total PCBs (subsurface):</b>							0	0	0	0	0	0	0	43

**Notes:**

- <sup>(1)</sup> - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs): Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
- ft bls - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank
- E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument
- D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor
- DL - This suffix indicates a diluted sample and is appended to the sample number on the result form
- DUP - This suffix indicates a duplicate sample
- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Data highlighted in bold** represents results detected above the NYSDEC Recommended Soil Cleanup Objectives

Table 6. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-6  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

		SB-6	SB-6	SB-6	SB-6	SB-6/DL	SB-6	SB-6/DL	SB-6/DL
Sample Designation:		SB-6	SB-6	SB-6	SB-6	SB-6/DL	SB-6	SB-6/DL	SB-6/DL
Sample Interval:		18-20	20-22	22-24	24-26	26-28	28-30	30-32	
Sample Date:		11/25/1999	11/25/1999	11/25/1999	11/25/1999	11/25/1999	11/25/1999	11/25/1999	11/25/1999
NYSDEC									
Soil Cleanup									
Parameter	Objectives <sup>1</sup>								
(Concentrations in µg/kg)	(µg/kg)								
Aroclor-1016	NS	33U	34U	33U	810U	41U	350U	1700U	
Aroclor-1221	NS	33U	34U	33U	810U	41U	350U	1700U	
Aroclor-1232	NS	33U	34U	33U	810U	41U	350U	1700U	
Aroclor-1242	NS	33U	34U	33U	810U	41U	350U	1700U	
Aroclor-1248	NS	33U	34U	33U	20000D	1100	5200D	20000D	
Aroclor-1254	NS	33U	34U	33U	810U	41U	350U	1700U	
Aroclor-1260	NS	33U	34U	33U	810U	41U	350U	1700U	
Total PCBs (subsurface):		0	0	0	20000D	1100	5200D	20000D	

**Notes:**

- (<sup>1</sup>) - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
- ft bls - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank
- E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument
- D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor
- DL - This suffix indicates a diluted sample and is appended to the sample number on the result form
- DUP - This suffix indicates a duplicate sample
- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Bold** - Data highlighted in bold represents results detected above the NYSDEC Recommended Soil Cleanup Objectives



Table 6. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-6  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	Sample Designation: SB-6/DL						SB-6 32-34	SB-6 34-36	SB-6/DUP 34-36	SB-6 36-38	SB-6 38-40	SB-6 40-42	SB-6 42-44
	Sample Interval: 11/25/1999												
Sample Date: 11/25/1999													
NYSDEC													
Soil Cleanup Objectives <sup>1</sup>													
Aroclor-1016	NS	170U	34U	33U	34U	35U	35U	35U	35U	35U	35U	35U	
Aroclor-1221	NS	170U	34U	33U	34U	35U	35U	35U	35U	35U	35U	35U	
Aroclor-1232	NS	170U	34U	33U	34U	35U	35U	35U	35U	35U	35U	35U	
Aroclor-1242	NS	170U	34U	49P	34U	35U	35U	35U	35U	35U	35U	35U	
Aroclor-1248	NS	1600D	130	33U	540	35U	440	35U	35U	35U	35U	300	
Aroclor-1254	NS	170U	34U	33U	34U	35U	35U	35U	35U	35U	35U	35U	
Aroclor-1260	NS	170U	34U	33U	34U	35U	35U	35U	35U	35U	35U	35U	
Total PCBs (subsurface):							10,000	130	49	540	0	440	300

**Notes:**

- (<sup>1</sup>) - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
- ft bls - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank
- E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument
- D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor
- DL - This suffix indicates a diluted sample and is appended to the sample number on the result form
- DUP - This suffix indicates a duplicate sample
- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Data highlighted in bold** represents results detected above the NYSDEC Recommended Soil Cleanup Objectives

Table 6. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-6  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	Sample Designation: Sample Interval: Sample Date:			
	SB-6 44-46 11/25/1999	SB-6 46-48 11/25/1999	SB-6 48-50 11/25/1999	SB-6 50-52 11/25/1999
NYSDEC Soil Cleanup Objectives <sup>1</sup>				
Aroclor-1016	NS	34U	34U	38U
Aroclor-1221	NS	34U	34U	38U
Aroclor-1232	NS	34U	34U	38U
Aroclor-1242	NS	34U	34U	38U
Aroclor-1248	NS	91	34U	38U
Aroclor-1254	NS	34U	63P	38U
Aroclor-1260	NS	34U	34U	38U
Total PCBs (subsurface):	540	91	63P	77P
	10,000			0

**Notes:**

(<sup>1</sup>) - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.

µg/kg - Micrograms per kilogram  
 ft bls - Feet below land surface

NS - No standard

U - This qualifier indicates compound analyzed for but not detected

J - This qualifier indicates an estimated value

B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank

E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument

D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor

DL - This suffix indicates a diluted sample and is appended to the sample number on the result form

DUP - This suffix indicates a duplicate sample

P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns

**Bold** - Data highlighted in bold represents results detected above the NYSDEC Recommended Soil Cleanup Objectives

Table 7. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-7/  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	NYSDEC Soil Cleanup Objectives <sup>1</sup>						
	SB-7 6-8 11/29/1999	SB-7 8-10 11/29/1999	SB-7 10-12 11/29/1999	SB-7 12-14 11/29/1999	SB-7 14-16 11/29/1999	SB-7 16-18 11/29/1999	SB-7 18-20 11/29/1999
Aroclor-1016	NS	34U	34U	34U	34U	33U	35U
Aroclor-1221	NS	34U	34U	34U	34U	34U	35U
Aroclor-1232	NS	34U	34U	34U	34U	34U	35U
Aroclor-1242	NS	34U	34U	34U	34U	34U	35U
Aroclor-1248	NS	160	37	49	200	33U	590
Aroclor-1254	NS	33U	34U	34U	34U	33U	35U
Aroclor-1260	NS	33U	34U	34U	34U	33U	35U
<b>Total PCBs (subsurface):</b>	<b>160</b>	<b>98</b>	<b>37</b>	<b>49</b>	<b>200</b>	<b>0</b>	<b>590</b>

**Notes:**

<sup>(1)</sup> - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.

µg/kg - Micrograms per kilogram

ft bls - Feet below land surface

NS - No standard

U - This qualifier indicates compound analyzed for but not detected

J - This qualifier indicates an estimated value

B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank

E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument

D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor

DL - This suffix indicates a diluted sample and is appended to the sample number on the result form

DUP - This suffix indicates a duplicate sample

P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns

**Bold** - Data highlighted in bold represents results detected above the NYSDEC Recommended Soil Cleanup Objectives

Table 7. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-7  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

		SB-7	SB-7/DL	SB-7/DL	SB-7/DL	SB-7/DL	SB-7/DL	SB-7/DL	SB-7
Sample Designation:		SB-7	SB-7/DL	SB-7/DL	SB-7/DL	SB-7/DL	SB-7/DL	SB-7/DL	SB-7
Sample Interval:		20-22	22-24	24-26	26-28	28-30	30-32	32-34	34-36
Sample Date:		11/29/1999	11/29/1999	11/29/1999	11/29/1999	11/29/1999	11/29/1999	11/29/1999	11/29/1999
NYSDEC Soil Cleanup Objectives <sup>1</sup>									
Parameter (Concentrations in µg/kg)	Objectives <sup>1</sup> (µg/kg)	33U	340U	34000U	340U	34000U	3500U	340U	35U
Aroclor-1016	NS	33U	340U	34000U	340U	34000U	3500U	340U	35U
Aroclor-1221	NS	33U	340U	34000U	340U	34000U	3500U	340U	35U
Aroclor-1232	NS	33U	340U	34000U	340U	34000U	3500U	340U	35U
Aroclor-1242	NS	33U	340U	34000U	340U	34000U	3500U	340U	35U
Aroclor-1248	NS	250	2500D	770000D	4000D	650000D	94000D	4200D	130
Aroclor-1254	NS	33U	340U	34000U	340U	34000U	3500U	340U	35U
Aroclor-1260	NS	33U	340U	34000U	340U	34000U	3500U	340U	35U
Total PCBs (subsurface):		250	2500D	770000	4000	650000D	94000D	4200D	130

**Notes:**

- (<sup>1</sup>) - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
- ft bls - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank
- E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument
- D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor
- DL - This suffix indicates a diluted sample and is appended to the sample number on the result form
- DUP - This suffix indicates a duplicate sample
- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Bold** - Data highlighted in bold represents results detected above the NYSDEC Recommended Soil Cleanup Objectives

Table 7. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-7  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	Sample Designation: SB-7						
	SB-7 36-38	SB-7/DUP 36-38	SB-7 38-40	SB-7 40-42	SB-7 42-44	SB-7 44-46	SB-7 46-48
	Sample Date: 11/29/1999						
	11/29/1999	11/29/1999	11/29/1999	11/29/1999	11/29/1999	11/29/1999	11/29/1999
NYSDEC Soil Cleanup Objectives <sup>1</sup>							
Aroclor-1016	NS	35U	36U	38U	36U	36U	36U
Aroclor-1221	NS	35U	36U	38U	36U	36U	36U
Aroclor-1232	NS	35U	36U	38U	36U	36U	36U
Aroclor-1242	NS	35U	36U	38U	36U	36U	36U
Aroclor-1248	NS	130	77	80	280	1400	140
Aroclor-1254	NS	35U	36U	38U	36U	36U	36U
Aroclor-1260	NS	35U	36U	38U	36U	36U	36U
Total PCBs (subsurface):	10,000	130	160	77	80	280	1400

**Notes:**

- (<sup>1</sup>) - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
- ft bis - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank
- E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument
- D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor
- DL - This suffix indicates a diluted sample and is appended to the sample number on the result form
- DUP - This suffix indicates a duplicate sample
- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Bold** - Data highlighted in bold represents results detected above the NYSDEC Recommended Soil Cleanup Objectives

Table 7. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-7  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

		SB-7	SB-7	SB-7
Sample Designation:		SB-7	SB-7	SB-7
Sample Interval:		48-50	50-52	52-54
Sample Date:		11/29/1999	11/29/1999	11/29/1999
<b>NYSDEC</b>				
<b>Soil Cleanup Objectives<sup>1</sup></b>				
Parameter (Concentrations in µg/kg)	Objectives <sup>1</sup> (µg/kg)	35U	35U	37U
Aroclor-1016	NS	35U	35U	37U
Aroclor-1221	NS	35U	35U	37U
Aroclor-1232	NS	35U	35U	37U
Aroclor-1242	NS	35U	35U	37U
Aroclor-1248	NS	220	330	140
Aroclor-1254	NS	35U	35U	37U
Aroclor-1260	NS	35U	35U	37U
<b>Total PCBs (subsurface):</b>		220	330	140

**Notes:**

- (<sup>1</sup>) - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs), Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
- ft bls - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank
- E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument
- D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor
- DL - This suffix indicates a diluted sample and is appended to the sample number on the result form
- DUP - This suffix indicates a duplicate sample
- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Data highlighted in bold represents results detected above the NYSDEC Recommended Soil Cleanup Objectives**

Table 8. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-8  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	Objectives <sup>1</sup> (µg/kg)	Sample Designation: SB-8 Sample Interval: 0-2 Sample Date: 11/30/1999 NYSDEC Soil Cleanup					
		SB-8 2-4 11/30/1999	SB-8 4-6 11/30/1999	SB-8/DUP 4-6 11/30/1999	SB-8 6-8 11/30/1999	SB-8 8-10 11/30/1999	SB-8 10-12 11/30/1999
Aroclor-1016	NS	33U	34U	34U	34U	34U	34U
Aroclor-1221	NS	33U	34U	34U	34U	34U	34U
Aroclor-1232	NS	33U	34U	34U	34U	34U	34U
Aroclor-1242	NS	33U	34U	34U	34U	34U	34U
Aroclor-1248	NS	64	130	65P	170	880	160
Aroclor-1254	NS	33U	34U	34U	34U	34U	34U
Aroclor-1260	NS	33U	34U	34U	34U	34U	34U
<b>Total PCBs (subsurface):</b>	<b>10,000</b>	<b>77</b>	<b>130</b>	<b>65</b>	<b>170</b>	<b>880</b>	<b>160</b>

**Notes:**

(1) - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.

µg/kg - Micrograms per kilogram  
 ft bls - Feet below land surface

NS - No standard

U - This qualifier indicates compound analyzed for but not detected

J - This qualifier indicates an estimated value

B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank

E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument

D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor

DL - This suffix indicates a diluted sample and is appended to the sample number on the result form

DUP - This suffix indicates a duplicate sample

P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns

**Bold** - Data highlighted in bold represents results detected above the NYSDEC Recommended Soil Cleanup Objectives

Table 8. Summary of polychlorinated biphenyls Detected in Soil Boring SB-8  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	Sample Designation: SB-8						
	SB-8 12-14 11/30/1999	SB-8 14-16 11/30/1999	SB-8 16-18 11/30/1999	SB-8 18-20 11/30/1999	SB-8 20-22 11/30/1999	SB-8 22-24 11/30/1999	SB-8 24-26 11/30/1999
Aroclor-1016	34U	34U	34U	34U	34U	35U	37U
Aroclor-1221	34U	34U	34U	34U	34U	35U	37U
Aroclor-1232	34U	34U	34U	34U	34U	35U	37U
Aroclor-1242	34U	34U	34U	34U	34U	35U	37U
Aroclor-1248	46	120	60	52P	37P	170	94P
Aroclor-1254	34U	34U	34U	34U	34U	35U	37U
Aroclor-1260	34U	34U	34U	34U	34U	35U	37U
<b>Total PCBs (subsurface):</b>	<b>46</b>	<b>120</b>	<b>60</b>	<b>52P</b>	<b>37P</b>	<b>170</b>	<b>94P</b>

**Notes:**

- (1) - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
- ft bls - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank
- E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument
- D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor
- DL - This suffix indicates a diluted sample and is appended to the sample number on the result form
- DUP - This suffix indicates a duplicate sample
- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Bold** - Data highlighted in bold represents results detected above the NYSDEC Recommended Soil Cleanup Objectives



Table 8. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-8  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	Sample Designation: SB-8					
	SB-8 26-28 11/30/1999	SB-8 28-30 11/30/1999	SB-8 30-32 11/30/1999	SB-8 32-34 11/30/1999	SB-8 34-36 11/30/1999	SB-8 36-38 11/30/1999
						SB-8 38-40 11/30/1999
	NYSDEC Soil Cleanup Objectives <sup>1</sup> (µg/kg)					
Aroclor-1016	NS	NS	NS	NS	NS	NS
Aroclor-1221	34U	35U	34U	36U	35U	36U
Aroclor-1232	34U	35U	34U	36U	35U	36U
Aroclor-1242	34U	35U	34U	36U	35U	36U
Aroclor-1248	92	66	90	160	35U	50
Aroclor-1254	34U	35U	34U	36U	35U	36U
Aroclor-1260	34U	35U	34U	36U	35U	36U
<b>Total PCBs (subsurface):</b>	<b>92</b>	<b>66</b>	<b>90</b>	<b>160</b>	<b>0</b>	<b>50</b>

**Notes:**

- <sup>(1)</sup> - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
- ft bls - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank
- E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument
- D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor
- DL - This suffix indicates a diluted sample and is appended to the sample number on the result form
- DUP - This suffix indicates a duplicate sample
- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Data highlighted in bold** represents results detected above the NYSDEC Recommended Soil Cleanup Objectives

Table 8. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-8  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	Sample Designation:							
	SB-8 40-42	SB-8 42-44	SB-8/DL 44-46	SB-8 30-32	SB-8/DL 46-48	SB-8/DL 48-50	SB-8/DL 50-52	SB-8/DL 52-54
	38U	36U	36000U	34U	350U	340U	34000U	36000U
Aroclor-1016	NS	NS	NS	NS	NS	NS	NS	NS
Aroclor-1221	NS	NS	NS	NS	NS	NS	NS	NS
Aroclor-1232	NS	NS	NS	NS	NS	NS	NS	NS
Aroclor-1242	NS	NS	NS	NS	NS	NS	NS	NS
Aroclor-1248	NS	NS	NS	NS	NS	NS	NS	NS
Aroclor-1254	NS	NS	NS	NS	NS	NS	NS	NS
Aroclor-1260	NS	NS	NS	NS	NS	NS	NS	NS
<b>Total PCBs (subsurface):</b>								
	130	390	410000D	90	2600D	4200D	1300000D	470000D

**Notes:**

- (1) - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
- ft bls - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank
- E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument
- D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor
- DL - This suffix indicates a diluted sample and is appended to the sample number on the result form
- DUP - This suffix indicates a duplicate sample
- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Bold** - Data highlighted in bold represents results detected above the NYSDEC Recommended Soil Cleanup Objectives

Table 9. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-9  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	Sample Designation:						
	SB-9 6-8 11/30/1999	SB-9 8-10 11/30/1999	SB-9 10-12 11/30/1999	SB-9 12-14 11/30/1999	SB-9 14-16 11/30/1999	SB-9/DUP 14-16 11/30/1999	SB-9 16-18 11/30/1999
Aroclor-1016	NS	34U	34U	34U	34U	34U	34U
Aroclor-1221	NS	34U	34U	34U	34U	34U	34U
Aroclor-1232	NS	34U	34U	34U	34U	34U	34U
Aroclor-1242	NS	34U	34U	34U	34U	34U	34U
Aroclor-1248	NS	1200	930	1100	680	750	350
Aroclor-1254	NS	33U	34U	34U	34U	34U	34U
Aroclor-1260	NS	33U	34U	34U	34U	34U	34U
<b>Total PCBs (subsurface):</b>		1200	980	930	1100	750	350

**Notes:**

- (<sup>1</sup>) - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
- ft bls - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank
- E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument
- D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor
- DL - This suffix indicates a diluted sample and is appended to the sample number on the result form
- DUP - This suffix indicates a duplicate sample
- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Bold** - Data highlighted in bold represents results detected above the NYSDEC Recommended Soil Cleanup Objectives

Table 9. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-9  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	Sample Designation: SB-9							
	SB-9 18-20 11/30/1999	SB-9/DL 20-22 11/30/1999	SB-9 22-24 11/30/1999	SB-9/DL 24-26 11/30/1999	SB-9 34-36 11/30/1999	SB-9 36-38 11/30/1999	SB-9 38-40 11/30/1999	SB-9 40-42 11/30/1999
Aroclor-1016	34U	350U	34U	34000U	36U	34U	36U	37U
Aroclor-1221	34U	350U	34U	34000U	36U	34U	36U	37U
Aroclor-1232	34U	350U	34U	34000U	36U	34U	36U	37U
Aroclor-1242	34U	350U	34U	34000U	36U	34U	36U	37U
Aroclor-1248	310	5600D	1300	1100000D	560	260	100P	210
Aroclor-1254	34U	350U	34U	34000U	36U	34U	36U	37U
Aroclor-1260	34U	350U	34U	34000U	36U	34U	36U	37U
Total PCBs (subsurface):	310	5600D	1300	1100000D	560	260	100P	210

**Notes:**

- (<sup>1</sup>) - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
- ft bls - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank
- E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument
- D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor
- DL - This suffix indicates a diluted sample and is appended to the sample number on the result form
- DUP - This suffix indicates a duplicate sample
- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Bold** - Data highlighted in bold represents results detected above the NYSDEC Recommended Soil Cleanup Objectives

Table 9. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-9  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

		SB-9	SB-9	SB-9	SB-9	SB-9	SB-9
Sample Designation:		42-44	44-46	46-48	48-50	50-52	52-54
Sample Interval:		11/30/1999	11/30/1999	11/30/1999	11/30/1999	11/30/1999	11/30/1999
Sample Date:		11/30/1999	11/30/1999	11/30/1999	11/30/1999	11/30/1999	11/30/1999
NYSDEC Soil Cleanup Objectives <sup>1</sup>							
Parameter (Concentrations in µg/kg)	Objectives <sup>1</sup> (µg/kg)						
Aroclor-1016	NS	36U	36U	34U	34U	35U	37U
Aroclor-1221	NS	36U	36U	34U	34U	35U	37U
Aroclor-1232	NS	36U	36U	34U	34U	35U	37U
Aroclor-1242	NS	36U	36U	34U	34U	35U	37U
Aroclor-1248	NS	37	89	60	150	45	54
Aroclor-1254	NS	36U	36U	34U	34U	35U	37U
Aroclor-1260	NS	36U	36U	34U	34U	35U	37U
Total PCBs (subsurface):		37	89	60	150	45	240

**Notes:**

- <sup>(1)</sup> - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
- ft bls - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank
- E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument
- D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor
- DL - This suffix indicates a diluted sample and is appended to the sample number on the result form
- DUP - This suffix indicates a duplicate sample
- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Bold** - Data highlighted in bold represents results detected above the NYSDEC Recommended Soil Cleanup Objectives

Table 10. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-10  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

		Sample Designation:	SB-10/DL	SB-10	SB-10/DL	SB-10/DL	SB-10/DL	SB-10/DL	SB-10/DL	SB-10/DL
		Sample Interval:	0-2	2-4	4-6	8-10	10-12	12-14	12-14	12-14
		Sample Date:	12/1/1999	12/1/1999	12/1/1999	12/1/1999	12/1/1999	12/1/1999	12/1/1999	12/2/1999
		NYSDEC Soil Cleanup Objectives <sup>1</sup>								
Parameter	(Concentrations in µg/kg)	Objective <sup>1</sup>	(µg/kg)							
Aroclor-1016		NS	330U	34U	330U	340U	34U	3500U	3400U	3400U
Aroclor-1221		NS	330U	34U	330U	340U	34U	3500U	3400U	3400U
Aroclor-1232		NS	330U	34U	330U	340U	34U	3500U	3400U	3400U
Aroclor-1242		NS	330U	34U	330U	340U	34U	3500U	3400U	3400U
Aroclor-1248		NS	3000D	710	14000D	8200D	360D	61000D	43000D	43000D
Aroclor-1254		NS	330U	34U	330U	340U	34U	3500U	3400U	3400U
Aroclor-1260		NS	330U	34U	330U	340U	34U	3500U	3400U	3400U
<b>Total PCBs (subsurface):</b>			3000D	710	14000D	8200D	360D	61000D	43000D	43000D

**Notes:**

- <sup>(1)</sup> - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
- ft bls - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank
- E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument
- D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor
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- DUP - This suffix indicates a duplicate sample
- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Bold** - Data highlighted in bold represents results detected above the NYSDEC Recommended Soil Cleanup Objectives

Table 10. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-10  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	Sample Designation: SB-10/DL										Objectives <sup>1</sup> (µg/kg)
	SB-10/DL 14-16 12/1/1999	SB-10/DL 16-18 12/1/1999	SB-10/DL 18-20 12/1/1999	SB-10/DL 20-22 12/1/1999	SB-10/DL 22-24 12/1/1999	SB-10/DL 24-26 12/1/1999	SB-10/DL 26-28 12/1/1999	SB-10/DL 28-30 12/1/1999	SB-10/DL 28-30 12/1/1999	SB-10/DL 28-30 12/1/1999	
Aroclor-1016	34000U	340000U	340000U	34000U	34000	36000U	350U	360000U	360000U	360000U	360000U
Aroclor-1221	34000U	340000U	340000U	34000U	34000	36000U	350U	360000U	360000U	360000U	360000U
Aroclor-1232	34000U	340000U	340000U	34000U	34000	36000U	350U	360000U	360000U	360000U	360000U
Aroclor-1242	34000U	340000U	340000U	34000U	34000	36000U	350U	360000U	360000U	360000U	360000U
Aroclor-1248	1600000D	2600000D	4300000D	1300000D	810000D	1100000	9700D	4600000D	4600000D	4600000D	4600000D
Aroclor-1254	34000U	340000U	340000U	34000U	34000	36000U	350U	360000U	360000U	360000U	360000U
Aroclor-1260	34000U	340000U	340000U	34000U	34000	36000U	350U	360000U	360000U	360000U	360000U
Total PCBs (subsurface):											10,000

**Notes:**

- (1) - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
- ft bis - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank
- E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument
- D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor
- DL - This suffix indicates a diluted sample and is appended to the sample number on the result form
- DUP - This suffix indicates a duplicate sample
- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Bold** - Data highlighted in bold represents results detected above the NYSDEC Recommended Soil Cleanup Objectives

Table 10. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-10  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	Sample Designation:				Objectives <sup>1</sup> (µg/kg)
	SB-10 46-48	SB-10 48-50	SB-10 50-52	SB-10 52-54	
Aroclor-1016	34U	35U	36U	36U	36U
Aroclor-1221	34U	35U	36U	36U	36U
Aroclor-1232	34U	35U	36U	36U	36U
Aroclor-1242	34U	35U	36U	36U	36U
Aroclor-1248	1500	580	730	1200	550
Aroclor-1254	34U	35U	36U	36U	36U
Aroclor-1260	34U	35U	36U	36U	36U
<b>Total PCBs (subsurface):</b>					1500
<b>Total PCBs (subsurface):</b>					10,000

**Notes:**

- (<sup>1</sup>) - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
- ft bis - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank
- E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument
- D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor
- DL - This suffix indicates a diluted sample and is appended to the sample number on the result form
- DUP - This suffix indicates a duplicate sample
- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Bold** - Data highlighted in bold represents results detected above the NYSEDEC Recommended Soil Cleanup Objectives



Table 11. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-11  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	Sample Designation: SB-11							SB-11/DUP
	0-2	2-4	4-6	6-8	8-10	10-12	12-14	
	Sample Interval:	0-2	2-4	4-6	6-8	8-10	10-12	12-14
	Sample Date:	12/2/1999	12/2/1999	12/2/1999	12/2/1999	12/2/1999	12/2/1999	12/5/1999
	NYSDEC Soil Cleanup Objectives <sup>1</sup>							
Aroclor-1016	NS	34U	34U	34U	34U	34U	34U	34U
Aroclor-1221	NS	34U	34U	34U	34U	34U	34U	34U
Aroclor-1232	NS	34U	34U	34U	34U	34U	34U	34U
Aroclor-1242	NS	34U	34U	34U	34U	34U	34U	34U
Aroclor-1248	NS	1500	200	72	320	34U	34U	57
Aroclor-1254	NS	35U	34U	34U	34U	34U	34U	34U
Aroclor-1260	NS	35U	34U	34U	34U	34U	34U	34U
Total PCBs (subsurface):	10,000	1500	200	72	320	0	0	64

**Notes:**

- (<sup>1</sup>) - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
- ft bis - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank
- E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument
- D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor
- DL - This suffix indicates a diluted sample and is appended to the sample number on the result form
- DUP - This suffix indicates a duplicate sample
- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- DL** - Data highlighted in bold represents results detected above the NYSDEC Recommended Soil Cleanup Objectives

Table 11. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-11  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	Sample Designation: SB-11						
	14-16	16-18	18-20	20-22	22-24	24-26	28-30
	12/2/1999	12/2/1999	12/2/1999	12/2/1999	12/2/1999	12/2/1999	12/2/1999
	NYSDEC Soil Cleanup Objectives <sup>1</sup> (µg/kg)						
Aroclor-1016	34U	33U	33U	34U	34U	3600U	36U
Aroclor-1221	34U	33U	33U	34U	34U	3600U	36U
Aroclor-1232	34U	33U	33U	34U	34U	3600U	36U
Aroclor-1242	34U	33U	33U	34U	34U	3600U	36U
Aroclor-1248	160	90	68	180	280	86000D	200
Aroclor-1254	34U	33U	33U	34U	34U	3600U	36U
Aroclor-1260	34U	33U	33U	34U	34U	3600U	36U
<b>Total PCBs (subsurface):</b>	160	90	68	180	280	<b>86000D</b>	200

**Notes:**

- (<sup>1</sup>) - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
- ft bls - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank
- E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument
- D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor
- DL - This suffix indicates a diluted sample and is appended to the sample number on the result form
- DUP - This suffix indicates a duplicate sample
- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Data highlighted in bold** represents results detected above the NYSDEC Recommended Soil Cleanup Objectives

Table 11. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-11  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	Sample Designation: SB-11 Sample Interval: 30-32 Sample Date: 12/2/1999						SB-11 34-36 12/2/1999	SB-11 36-38 12/2/1999	SB-11 38-40 12/2/1999	SB-11 40-42 12/2/1999	SB-11 42-44 12/2/1999	SB-11 44-46 12/2/1999
	NYSDEC Soil Cleanup Objectives <sup>1</sup> (µg/kg)											
Aroclor-1016	NS	36U	35U	34U	35U	36U	35U	36U	36U	35U	36U	36U
Aroclor-1221	NS	36U	35U	34U	35U	36U	35U	36U	36U	35U	36U	36U
Aroclor-1232	NS	36U	35U	34U	35U	36U	35U	36U	36U	35U	36U	36U
Aroclor-1242	NS	36U	35U	34U	35U	36U	35U	36U	36U	35U	36U	36U
Aroclor-1248	NS	280	260	73	140	210	67	66	210	66	56	56
Aroclor-1254	NS	36U	35U	34U	35U	36U	35U	36U	36U	35U	36U	36U
Aroclor-1260	NS	36U	35U	34U	35U	36U	35U	36U	36U	35U	36U	36U
<b>Total PCBs (subsurface):</b>						280	260	73	67	210	66	56

**Notes:**

- <sup>(1)</sup> - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
- ft bls - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank
- E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument
- D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor
- DL - This suffix indicates a diluted sample and is appended to the sample number on the result form
- DUP - This suffix indicates a duplicate sample
- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Data highlighted in bold** represents results detected above the NYSDEC Recommended Soil Cleanup Objectives

Table 11. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-11  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

		SB-11	SB-11	SB-11	SB-11	SB-11
Sample Designation:		46-48	48-50	50-52	52-54	54-56
Sample Interval:		12/2/1999	12/2/1999	12/5/1999	12/5/1999	12/5/1999
Sample Date:		12/2/1999	12/2/1999	12/5/1999	12/5/1999	12/5/1999
NYSDEC Soil Cleanup Objectives <sup>1</sup>						
Parameter (Concentrations in µg/kg)	Objectives <sup>1</sup> (µg/kg)	35U	34U	35U	36U	37U
Aroclor-1016	NS	35U	34U	35U	36U	37U
Aroclor-1221	NS	35U	34U	35U	36U	37U
Aroclor-1232	NS	35U	34U	35U	36U	37U
Aroclor-1242	NS	35U	34U	35U	36U	37U
Aroclor-1248	NS	100	51	140	91	100
Aroclor-1254	NS	35U	34U	35U	36U	37U
Aroclor-1260	NS	35U	34U	35U	36U	37U
Total PCBs (subsurface):		100	51	140	91	100

**Notes:**

- (<sup>1</sup>) - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
- ft bis - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank
- E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument
- D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor
- DL - This suffix indicates a diluted sample and is appended to the sample number on the result form
- DUP - This suffix indicates a duplicate sample
- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Data** - Data highlighted in bold represents results detected above the NYSDEC Recommended Soil Cleanup Objectives

Table 12. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-12  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	Sample Designation: SB-12							
	SB-12 16-18 12/5/1999	SB-12 18-20 12/5/1999	SB-12/DL 20-22 12/5/1999	SB-12/DL 22-24 12/5/1999	SB-12/DL 24-26 12/5/1999	SB-12/DL 26-28 12/5/1999	SB-12/DL 28-30 12/5/1999	SB-12/DL 30-32 12/5/1999
Atroclor-1016	34U	33U	1700U	670U	3600U	350000U	360000U	750U
Atroclor-1221	34U	33U	1700U	670U	3600U	350000U	360000U	750U
Atroclor-1232	34U	33U	1700U	670U	3600U	350000U	360000U	750U
Atroclor-1242	34U	33U	1700U	670U	3600U	350000U	360000U	750U
Atroclor-1248	51P	33U	23000D	10000D	110000D	940000D	770000D	17000D
Atroclor-1254	34U	33U	1700U	670U	3600U	350000U	360000U	750U
Atroclor-1260	34U	33U	1700U	670U	3600U	350000U	360000U	750U
<b>Total PCBs (subsurface):</b>	51P	0	23000D	10000D	110000D	940000D	770000D	17000D

**Notes:**

- (<sup>1</sup>) - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
- ft bls - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank
- E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument
- D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor
- DL - This suffix indicates a diluted sample and is appended to the sample number on the result form
- DUP - This suffix indicates a duplicate sample
- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Bold** - Data highlighted in bold represents results detected above the NYSDEC Recommended Soil Cleanup Objectives

Table 12. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-12  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	SB-12/DL 32-34 12/5/1999	SB-12/DL 34-36 12/5/1999	SB-12 36-38 12/5/1999	SB-12 38-40 12/5/1999	SB-12/DL 40-42 12/5/1999	SB-12 42-44 12/5/1999	SB-12/DUP 42-44 12/5/1999
<b>Sample Designation:</b> SB-12/DL <b>Sample Interval:</b> 32-34 <b>Sample Date:</b> 12/5/1999 NYSDEC Soil Cleanup Objectives <sup>1</sup>							
Aroclor-1016	NS	360U	35U	40U	360U	35U	35U
Aroclor-1221	NS	360U	35U	40U	360U	35U	35U
Aroclor-1232	NS	360U	35U	40U	360U	35U	35U
Aroclor-1242	NS	360U	35U	40U	360U	35U	35U
Aroclor-1248	NS	2700D	280	740	20000D	330	390
Aroclor-1254	NS	360U	35U	40U	360U	35U	35U
Aroclor-1260	NS	360U	35U	40U	360U	35U	35U
<b>Total PCBs (subsurface):</b>	<b>10,000</b>	<b>2700D</b>	<b>280</b>	<b>740</b>	<b>20000D</b>	<b>330</b>	<b>390</b>

**Notes:**

- (<sup>1</sup>) - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
- ft bis - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank
- E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument
- D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor
- DL - This suffix indicates a diluted sample and is appended to the sample number on the result form
- DUP - This suffix indicates a duplicate sample
- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Bold** - Data highlighted in bold represents results detected above the NYSDEC Recommended Soil Cleanup Objectives

Table 12. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-12  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	Sample Designation: SB-12					
	44-46	46-48	48-50	50-52	52-54	54-56
	12/5/1999	12/5/1999	12/5/1999	12/5/1999	12/5/1999	12/5/1999
	NYSDEC Soil Cleanup Objectives <sup>1</sup>					
Atroclor-1016	36U	35U	350U	35U	36U	38U
Atroclor-1221	36U	35U	350U	35U	36U	38U
Atroclor-1232	36U	35U	350U	35U	36U	38U
Atroclor-1242	36U	35U	350U	35U	36U	38U
Atroclor-1248	570	440	4100D	490	470	520
Atroclor-1254	36U	35U	350U	35U	36U	38U
Atroclor-1260	36U	35U	350U	35U	36U	38U
<b>Total PCBs (subsurface):</b>	<b>570</b>	<b>440</b>	<b>4100D</b>	<b>490</b>	<b>470</b>	<b>520</b>

**Notes:**

- (<sup>1</sup>) - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
- ft bls - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank
- E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument
- D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor
- DL - This suffix indicates a diluted sample and is appended to the sample number on the result form
- DUP - This suffix indicates a duplicate sample
- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Bold** - Data highlighted in bold represents results detected above the NYSDEC Recommended Soil Cleanup Objectives

Table 13. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-13  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	NYSDEC Soil Cleanup Objectives <sup>(1)</sup> (µg/kg)									
	SB-13 44-46 4/18/2000	SB-13 46-48 4/18/2000	SB-13 48-50 4/18/2000	SB-13 50-52 4/18/2000	SB-13 52-54 4/18/2000	SB-13 52-54 4/18/2000				
Aroclor-1016	35U	37U	37U	36U	37U	37U				
Aroclor-1221	35U	37U	37U	36U	37U	37U				
Aroclor-1232	35U	37U	37U	36U	37U	37U				
Aroclor-1242	35U	37U	37U	36U	37U	37U				
Aroclor-1248	35U	37U	53P	83P	37U	37U				
Aroclor-1254	35U	37U	37U	36U	37U	37U				
Aroclor-1260	35U	37U	37U	36U	37U	37U				
<b>Total PCBs (subsurface):</b>						0	0	53P	83P	0

**Notes:**

- <sup>(1)</sup> - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
- ft bls - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank
- E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument
- D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor
- DL - This suffix indicates a diluted sample and is appended to the sample number on the result form
- DUP - This suffix indicates a duplicate sample
- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Bold** - Data highlighted in bold represents results detected above the NYSDEC Recommended Soil Cleanup Objectives



Table 14. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-14  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	NYSDEC Soil Cleanup Objectives <sup>(1)</sup> (µg/kg)					
	SB-14 24-26 4/18/2000	SB-14 26-28 4/18/2000	SB-14 28-30 4/18/2000	SB-14 30-32 4/18/2000	SB-14 32-34 4/18/2000	SB-14 34-36 4/18/2000
Aroclor-1016	40U	35U	34U	35U	34U	35U
Aroclor-1221	40U	35U	34U	35U	34U	35U
Aroclor-1232	40U	35U	34U	35U	34U	35U
Aroclor-1242	40U	35U	34U	35U	34U	35U
Aroclor-1248	95	63P	34U	35U	34U	35U
Aroclor-1254	40U	35U	34U	35U	34U	35U
Aroclor-1260	40U	35U	34U	35U	34U	35U
<b>Total PCBs (subsurface):</b>	<b>95</b>	<b>63P</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

**Notes:**

- <sup>(1)</sup> - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
- ft bls - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank
- E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument
- D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor
- DL - This suffix indicates a diluted sample and is appended to the sample number on the result form
- DUP - This suffix indicates a duplicate sample
- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Data highlighted in bold** represents results detected above the NYSDEC Recommended Soil Cleanup Objectives

Table 15. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-15  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	NYSDEC Soil Cleanup Objectives <sup>(1)</sup> (µg/kg)			
	SB-15 24-26 4/19/2000	SB-15 26-28 4/19/2000	SB-15 28-30 4/19/2000	SB-15 30-32 4/19/2000
Aroclor-1016	NS	37U	35U	36U
Aroclor-1221	NS	37U	35U	36U
Aroclor-1232	NS	37U	35U	36U
Aroclor-1242	NS	37U	35U	36U
Aroclor-1248	NS	43	35U	36U
Aroclor-1254	NS	37U	35U	36U
Aroclor-1260	NS	37U	35U	36U
<b>Total PCBs (subsurface):</b>	<b>52</b>	<b>43</b>	<b>0</b>	<b>0</b>

**Notes:**

- <sup>(1)</sup> - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
- ft bis - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank
- E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument
- D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor
- DL - This suffix indicates a diluted sample and is appended to the sample number on the result form
- DUP - This suffix indicates a duplicate sample
- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Bold** - Data highlighted in bold represents results detected above the NYSDEC Recommended Soil Cleanup Objectives

Table 16. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-16  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	NYSDEC Soil Cleanup Objectives <sup>(1)</sup> (µg/kg)									
	SB-16 14-16 4/19/2000	SB-16 16-18 4/19/2000	SB-16 18-20 4/19/2000	SB-16 20-22 4/19/2000	SB-16 22-24 4/19/2000	SB-16 24-26 4/19/2000	SB-16 26-28 4/19/2000	SB-16 28-30 4/19/2000		
Aroclor-1016	35U	34U	35U	34U	35U	34U	35U	34U	36U	34U
Aroclor-1221	35U	34U	35U	34U	35U	34U	35U	34U	36U	34U
Aroclor-1232	35U	34U	35U	34U	35U	34U	35U	34U	36U	34U
Aroclor-1242	35U	34U	35U	34U	35U	34U	35U	34U	36U	34U
Aroclor-1248	35U	34U	35U	34U	35U	34U	35U	34U	36U	34U
Aroclor-1254	35U	34U	35U	34U	35U	34U	35U	34U	36U	34U
Aroclor-1260	35U	34U	35U	34U	35U	34U	35U	34U	36U	34U
<b>Total PCBs (subsurface):</b>	0	0	0	0	0	0	0	0	0	0

**Notes:**

- <sup>(1)</sup> - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
- ft bls - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank
- E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument
- D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor
- DL - This suffix indicates a diluted sample and is appended to the sample number on the result form
- DUP - This suffix indicates a duplicate sample
- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Data highlighted in bold** represents results detected above the NYSDEC Recommended Soil Cleanup Objectives

Table 16. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-16  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	NYSDEC Soil Cleanup Objectives <sup>(1)</sup> (µg/kg)							
	SB-16 30-32	SB-16 32-34	SB-16 34-36	SB-16 36-38	SB-16 38-40	SB-16 40-42	SB-16 42-44	SB-16 44-46
Aroclor-1016	36U	34U	34U	34U	35U	35U	34U	34U
Aroclor-1221	36U	34U	34U	34U	35U	35U	34U	34U
Aroclor-1232	36U	34U	34U	34U	35U	35U	34U	34U
Aroclor-1242	36U	34U	34U	34U	35U	35U	34U	34U
Aroclor-1248	36U	51	34U	62	35U	35U	34U	34U
Aroclor-1254	36U	34U	34U	34U	35U	35U	34U	34U
Aroclor-1260	36U	34U	34U	34U	35U	35U	34U	34U
<b>Total PCBs (subsurface):</b>	0	51	0	62	0	0	0	0

**Notes:**

- <sup>(1)</sup> - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
- ft bls - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank
- E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument
- D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor
- DL - This suffix indicates a diluted sample and is appended to the sample number on the result form
- DUP - This suffix indicates a duplicate sample
- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Bold** - Data highlighted in bold represents results detected above the NYSDEC Recommended Soil Cleanup Objectives

Table 17. Summary of Polychlorinated Biphenyls Detected in Soil Boring SB-17  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter (Concentrations in µg/kg)	NYSDEC Soil Cleanup Objectives <sup>(1)</sup> (µg/kg)					
	SB-17 24-26 4/24/2000	SB-17 26-28 4/24/2000	SB-17 28-30 4/24/2000	SB-17 30-32 4/24/2000	SB-17 32-34 4/24/2000	SB-17 32-34 4/24/2000
Aroclor-1016	34U	34U	33U	35U	34U	34U
Aroclor-1221	34U	34U	33U	35U	34U	34U
Aroclor-1232	34U	34U	33U	35U	34U	34U
Aroclor-1242	34U	34U	33U	35U	34U	34U
Aroclor-1248	160	170	53P	35U	49P	49P
Aroclor-1254	34U	34U	33U	35U	34U	34U
Aroclor-1260	34U	34U	33U	35U	34U	34U
<b>Total PCBs (subsurface):</b>	160	170	53P	0	49P	49P

**Notes:**

- <sup>(1)</sup> - New York State Department of Environmental Conservation (NYSDEC) Recommended Soil Cleanup Objectives (RSCOs) Technical and Administrative Guidance Memorandum revised January 24, 1994.
- µg/kg - Micrograms per kilogram
- ft bls - Feet below land surface
- NS - No standard
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- B - This qualifier indicates that the analyte was found in both the sample and its associated laboratory blank
- E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument
- D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor
- DL - This suffix indicates a diluted sample and is appended to the sample number on the result form
- DUP - This suffix indicates a duplicate sample
- P - This flag is used when there is greater than 25% difference for detected concentration between the two GC columns
- Data highlighted in bold** represents results detected above the NYSDEC Recommended Soil Cleanup Objectives

Table 18. Summary of Polychlorinated Biphenyls Detected in Groundwater, Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter Concentration (µg/L)	Designation: Sample Date:	MW-1 10/14/99	MW-1F 10/14/99	MW-2 10/14/99	MW-2DL 10/14/99	MW-2F 10/14/99	MW-2 1/6/2000	MW-2F 1/6/2000	MW-3 10/15/99
	NYSDEC AWQSGVs <sup>(1)</sup> (µg/L)								
Aroclor-1016	NS	0.5 U	0.6 U	0.5 U	1.0 U	0.5 U	1.0 U	1.0 U	0.5 U
Aroclor-1221	NS	0.5 U	0.6 U	0.5 U	1.0 U	0.5 U	1.0 U	1.0 U	0.5 U
Aroclor-1232	NS	0.5 U	0.6 U	0.5 U	1.0 U	0.5 U	1.0 U	1.0 U	0.5 U
Aroclor-1242	NS	3.9	0.6 U	5.3 E	3.4 DP	2.1	1.0 U	1.0 U	14 E
Aroclor-1248	NS	0.5 U	0.6 U	0.5 U	1.0 U	0.5 U	4.7	1.5	0.5 U
Aroclor-1254	NS	1.0 U	1.1 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1260	NS	1.0 U	1.1 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
<b>Total Polychlorinated Biphenyls</b>	<b>0.09</b>	<b>3.9</b>	<b>0</b>	<b>5.3</b>	<b>3.4</b>	<b>2.1</b>	<b>4.7</b>	<b>1.5</b>	<b>14</b>

**Notes:**

- I - New York State Department of Environmental Conservation (NYSDEC) Ambient Water-Quality Standards and Guidance Values (AWQSGVs). Guidance Memorandum Amended April, 2000.
- µg/L - Micrograms per Liter
- NS - No standard
- F - This suffix indicates a filtered sample
- DL - This suffix indicates a diluted sample
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument
- D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor
- P - This qualifier is used when there is a greater than 25% difference for detected concentrations between two GC columns
- Bold** - Data highlighted in bold represents results detected above the NYSDEC AWQSGVs

Table 18. Summary of Polychlorinated Biphenyls Detected in Groundwater, Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter Concentration (µg/L)	NYSDEC AWQSGVs <sup>(1)</sup> (µg/L)	Designation: Sample Date:		MW-3DL	MW-3F	MW-4	MW-4F
				10/15/1999	10/14/99	10/15/99	10/14/99
Aroclor-1016	NS			5 U	0.6 U	0.5 U	0.5 U
Aroclor-1221	NS			5 U	0.6 U	0.5 U	0.5 U
Aroclor-1232	NS			5 U	0.6 U	0.5 U	0.5 U
Aroclor-1242	NS			12	0.6 U	1.4	0.5 U
Aroclor-1248	NS			5 U	0.6 U	0.5 U	0.5 U
Aroclor-1254	NS			10.0 U	1.1 U	1.0 U	1.0 U
Aroclor-1260	NS			10.0 U	1.1 U	1.0 U	1.0 U
<b>Total Polychlorinated Biphenyls</b>	0.09			<b>12</b>	0	<b>1.4</b>	0

**Notes:**

- I - New York State Department of Environmental Conservation (NYSDEC) Ambient Water-Quality Standards and Guidance Values (AWQSGVs). Guidance Memorandum Amended April, 2000.
- µg/L - Micrograms per Liter
- NS - No standard
- F - This suffix indicates a filtered sample
- DL - This suffix indicates a diluted sample
- U - This qualifier indicates compound analyzed for but not detected
- J - This qualifier indicates an estimated value
- E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument
- D - This qualifier indicates all compounds identified in an analysis at a secondary dilution factor
- P - This qualifier is used when there is a greater than 25% difference for detected concentrations between two GC columns
- Bold** - Data highlighted in bold represents results detected above the NYSDEC AWQSGVs

Table 19. Summary of Volatile Organic Compounds Detected in Groundwater  
 Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
 Northrop Grumman Corporation, Plant 3, Bethpage, New York

Parameter	Designation:	MW-1	MW-2	MW-3	MW-4	MW-4/DL
	Sample Date:	10/14/99	10/14/99	10/15/99	10/15/99	10/15/99
Concentration (µg/L)	NYSDEC AWQSGVs <sup>(1)</sup> (µg/L)					
Chloromethane	NS	1 U	1 U	1 U	1 U	5 U
Bromoethane	5	1 U	1 U	1 U	1 U	5 U
Dichlorodifluoromethane	5	1 U	1 U	1 U	1 U	5 U
Vinyl chloride	<i>0.3</i>	1 U	1 U	1 U	1 U	5 U
Chloroethane	5	1 U	1 U	1 U	1 U	5 U
Methylene Chloride	5	1 U	1 U	1 U	1 U	5 U
Trichlorofluoromethane	5	1 U	1 U	1 U	0.7	5 U
1,1-Dichloroethene	<i>0.7</i>	1 U	1 U	1 U	<b>2.5</b>	5 U
1,1-Dichloroethane	5	1 U	1 U	1 U	1.8	5 U
Total-1,2-Dichloroethene	5	0.6 J	1 U	1 U	4.4	3.6 JD
Chloroform	7	1 U	1 U	1 U	1 U	5 U
1,2-Dichloroethane	0.6	1 U	1 U	1 U	1 U	5 U
1,1,1-Trichloroethane	5	0.7 J	0.6 J	1 U	<b>10</b>	<b>11 D</b>
Carbon Tetrachloride	<i>0.4</i>	1 U	1 U	1 U	1 U	5 U
Bromodichloromethane	<b>50</b>	1 U	1 U	1 U	1 U	5 U
1,2-Dichloropropane	1	1 U	1 U	1 U	1 U	5 U
cis-1,3-Dichloropropene <sup>(2)</sup>	0.4	1 U	1 U	1 U	1 U	5 U
Trichloroethene	5	<b>23</b>	<b>11</b>	2.9	<b>110 E</b>	<b>160 D</b>
Dibromochloromethane	<b>50</b>	1 U	1 U	1 U	1 U	5 U
trans-1,3-Dichloropropene <sup>(2)</sup>	0.4	1 U	1 U	1 U	1 U	5 U
1,1,2-Trichloroethane	1	1 U	1 U	1 U	1 U	5 U
2-chloroethylvinyl ether	NS	1 U	1 U	1 U	1 U	5 U
Bromoform	<b>50</b>	1 U	1 U	1 U	1 U	5 U
1,1,2,2-Tetrachloroethane	5	1 U	1 U	1 U	1 U	5 U
Tetrachloroethene	5	<b>18</b>	<b>13</b>	2.6	<b>79 E</b>	<b>92 D</b>
chlorobenzene	5	1 U	1 U	1 U	1 U	5 U
1,3-Dichlorobenzene	3	1 U	1 U	1 U	1 U	5 U
1,2-Dichlorobenzene	3	1 U	1 U	1 U	1 U	5 U
1,4-Dichlorobenzene	3	1 U	1 U	1 U	1 U	5 U
Benzene	1	1 U	1 U	1 U	1 U	5 U
Toluene	5	1 U	1 U	1 U	1 U	5 U
Ethylbenzene	5	1 U	1 U	1 U	1 U	5 U

**Notes:**

1 - New York State Department of Environmental Conservation (NYSDEC)  
 Ambient Water-Quality Standards and Guidance Values (AWQSGVs).  
 Guidance Memorandum Amended April, 2000.

2 - AWQSGVs is 0.4 µg/L for the sum of these compounds

µg/L - Micrograms per Liter

NS - No standard

DL - This suffix indicates a duplicate sample

U - This qualifier indicates compound analyzed for but not detected  
 sample and its associated laboratory blank

E - This qualifier indicates compounds whose concentrations  
 exceed the calibration range of the instrument

D - This qualifier indicates all compounds identified in an analysis  
 at a secondary dilution factor.

**Bold** - Data highlighted in bold represents results detected above  
 the NYSDEC AWQSGVs

Note: The NYSDEC AWQSGVs based on guidance values are provided in bold and italics.



**Table 20. Summary of Semivolatile Organic Compounds Detected in Groundwater  
Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
Northrop Grumman Corporation, Plant 3, Bethpage, New York**

Parameter Concentration (µg/L)	Designation: Sample Date:	MW-1 10/14/99	MW-2 10/14/99	MW-3 10/15/99	MW-4 10/15/99
	NYSDEC AWQSGVs <sup>(1)</sup> (µg/L)				
Phenol <sup>(2)</sup>	1	10 U	10 U	10 U	10 U
bis (2-Chloroethyl) ether	1	10 U	10 U	10 U	10 U
2-Chlorophenol <sup>(2)</sup>	1	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	3	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	3	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	3	10 U	10 U	10 U	10 U
bis (2-Chloroisopropyl) ether	NS	10 U	10 U	10 U	10 U
N-nitroso-di-n-propylamine	NS	10 U	10 U	10 U	10 U
hexachloroethane	5	10 U	10 U	10 U	10 U
Nitrobenzene	0.4	10 U	10 U	10 U	10 U
Isophorone	50	10 U	10 U	10 U	10 U
2-Nitrophenol <sup>(2)</sup>	1	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	50	10 U	10 U	10 U	10 U
bis (2-Chloroethoxy) methane	5	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	5	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	5	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U
Hexachlorobutadiene	0.5	10 U	10 U	10 U	10 U
4-Chloro-3-methylphenol <sup>(2)</sup>	1	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	5	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol <sup>(2)</sup>	1	10 U	10 U	10 U	10 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U
Dimethylphthalate	50	10 U	10 U	10 U	10 U
Acenaphthylene	NS	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	5	10 U	10 U	10 U	10 U
Acenaphthene	20	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	10	50 U	50 U	50 U	50 U
4-Nitrophenol <sup>(2)</sup>	1	50 U	50 U	50 U	50 U
2,4-Dinitrotoluene	5	10 U	10 U	10 U	10 U
Diethylphthalate	50	10 U	10 U	10 U	10 U
4-Chlorophenyl phenyl ether	NS	10 U	10 U	10 U	10 U
Fluorene	50	10 U	10 U	10 U	10 U
4,6-Dinitro-2-methylphenol <sup>(2)</sup>	1	50 U	50 U	50 U	50 U
N-nitrosodiphenylamine	50	10 U	10 U	10 U	10 U
4-Bromophenyl Phenylether	NS	10 U	10 U	10 U	10 U
Hexachlorobenzene	0.04	10 U	10 U	10 U	10 U
Pentachlorophenol <sup>(2)</sup>	1	50 U	50 U	50 U	50 U
Phenanthrene	50	10 U	10 U	10 U	10 U
Anthracene	50	10 U	10 U	10 U	10 U
Di-n-butylphthalate	50	10 U	10 U	10 U	10 U
Fluoranthene	50	10 U	10 U	5 J	10 U
Pyrene	50	10 U	10 U	2 J	10 U
N-nitrosodimethylamine	NS	10 U	10 U	10 U	10 U
Butylbenzylphthalate	50	10 U	10 U	10 U	10 U
3,3-Dichlorobenzidine	5	20 U	20 U	20 U	20 U
Benzo(a)anthracene	0.002	10 U	10 U	10 U	10 U
Chrysene	0.002	10 U	10 U	10 U	10 U
bis (2-ethylhexyl)phthalate	5	10 U	10 U	10 U	10 U
Di-n-octylphthalate	50	10 U	10 U	10 U	10 U

**Table 20. Summary of Semivolatile Organic Compounds Detected in Groundwater  
Plant 3 Dry Wells 20-08 and 34-07 Site Characterization Report  
Northrop Grumman Corporation, Plant 3, Bethpage, New York**

Parameter Concentration ( $\mu\text{g/L}$ )	Designation: Sample Date:	MW-1 10/14/99	MW-2 10/14/99	MW-3 10/15/99	MW-4 10/15/99
	NYSDEC AWQSGVs <sup>(1)</sup> ( $\mu\text{g/L}$ )				
Benzo(b)fluoranthene	<i>0.002</i>	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	<i>0.002</i>	10 U	10 U	10 U	10 U
Benzo(a)pyrene	Detectable Concentration	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	<i>0.002</i>	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	NS	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	NS	10 U	10 U	10 U	10 U
Benzidine	5	80 U	80 U	80 U	80 U

**Notes:**

(1) - New York State Department of Environmental Conservation (NYSDEC) Ambient Water-Quality Standards and Guidance Values (AWQSGVs). Guidance Memorandum Amended April, 2000.

(2) - AWQSGV is  $1\mu\text{g/L}$  for the sum of all phenolic compounds.

$\mu\text{g/L}$  - Micrograms per Liter

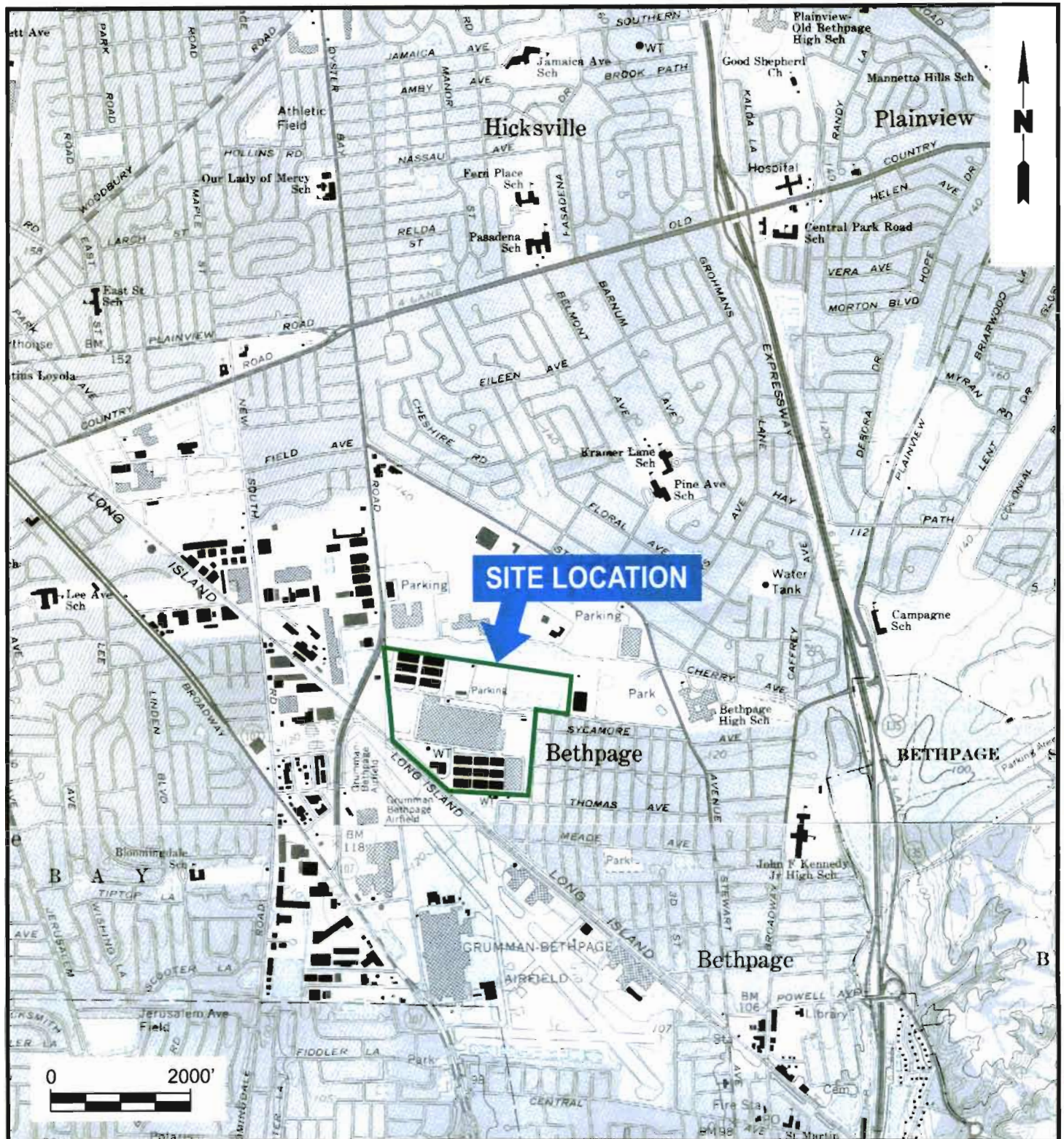
NS - No standard

U - This qualifier indicates compound analyzed for but not detected

J - This qualifier indicates an estimated value

Note: The NYSDEC AWQSGVs based on guidance values are provided in bold and italics.





QUADRANGLE LOCATION



USGS 1969; Hicksville, New York  
7.5 Minute Quadrangle (Topographic)

Title:

**SITE LOCATION MAP**

PLANT 3 DRY WELLS 20-08 AND 34-07  
SITE CHARACTERIZATION REPORT

Prepared for: NORTHROP GRUMMAN CORPORATION  
SOUTH OYSTER BAY ROAD  
BETHPAGE, NEW YORK

<p><b>ROUX</b> ROUX ASSOCIATES, INC. Environmental Consulting &amp; Management</p>	Compiled by: S.G.	Date: 03APR00	FIGURE <b>1</b>
	Prepared by: B.H.C.	Scale: 1"=2000'	
	Project Mgr.: S.G.	Office: NY	
	File No.: NGC0210206.CDR	Project No.: 70902Y	





Title:

### SITE PLAN

- DW 20-08 • APPROXIMATE LOCATION AND DESIGNATION OF NAVAL PROPERTY DRY WELL
- MW-1 • APPROXIMATE LOCATION AND DESIGNATION OF MONITORING WELL

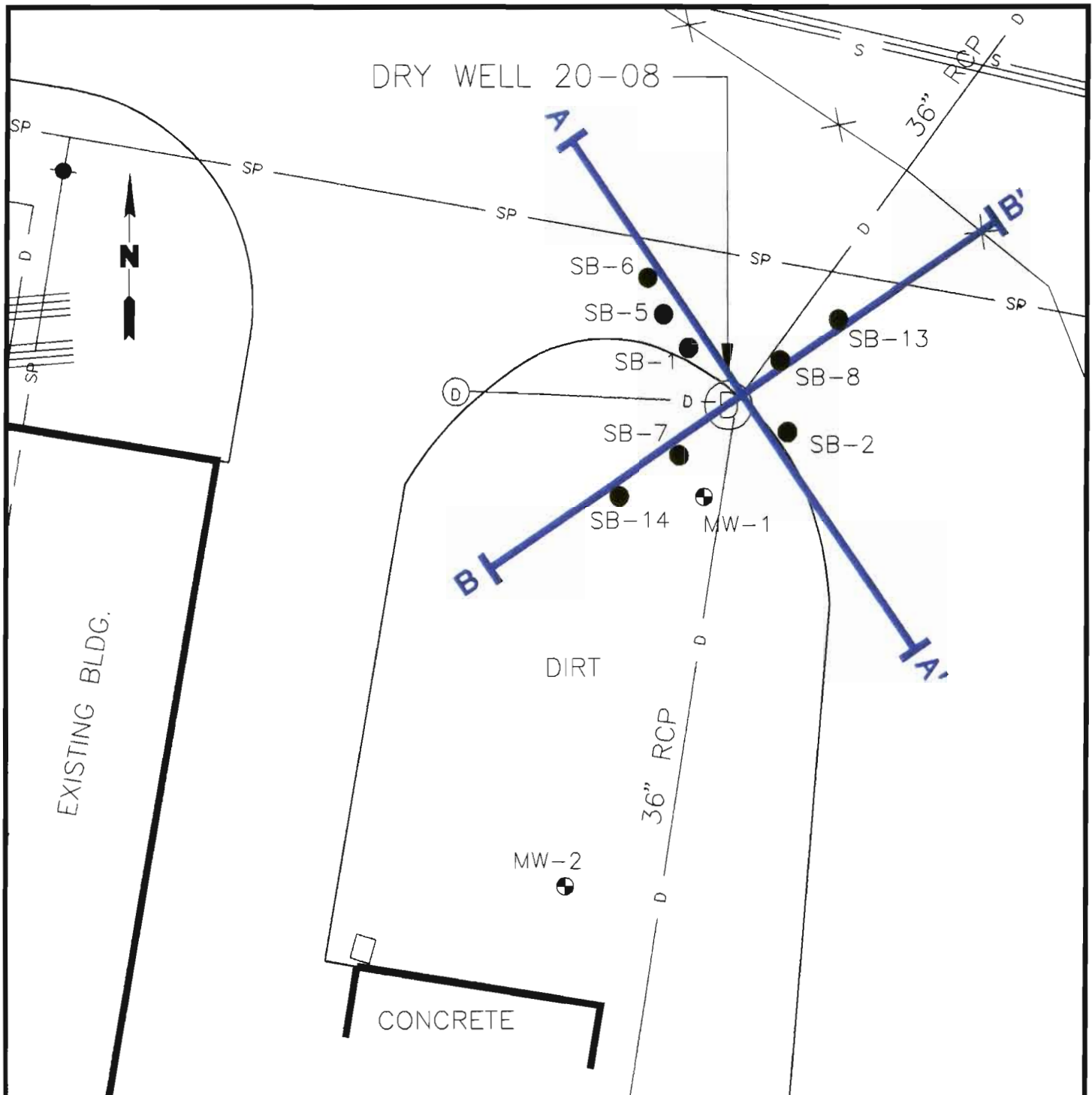
#### LEGEND

Prepared For: **NORTHROP GRUMMAN CORPORATION**  
**SOUTH OYSTER BAY ROAD**  
**BETHPAGE, NEW YORK**

PLANT 3 DRY WELLS 20-08 AND 34-07  
 SITE CHARACTERIZATION REPORT

<b>ROUX</b> ROUX ASSOCIATES, INC. <i>Environmental Consulting &amp; Management</i>	Compiled by: N.G.	Date: 03APR00	FIGURE
	Prepared by: G.M./R.K.	Scale: AS SHOWN	<b>2</b>
	Project Mgr: B.F.	Office: NY	
	File No: NCC0210201	Project: 70902Y	

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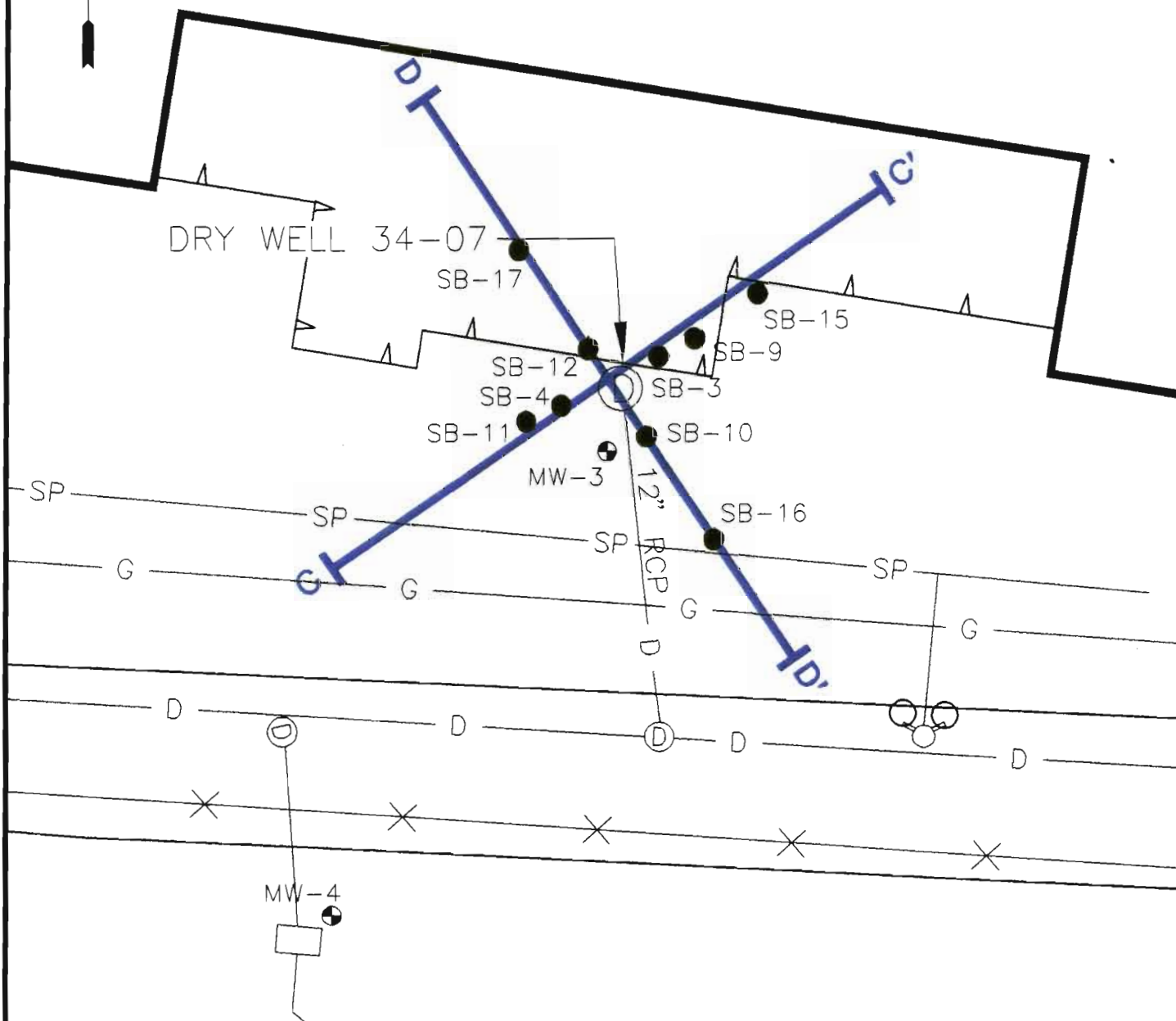
**LEGEND**

- SB-2 LOCATION AND DESIGNATION OF SOIL BORING
- ⊕ MW-1 LOCATION AND DESIGNATION OF MONITORING WELL
- A—|—A' LINE OF CROSS SECTION
- SP — SEWER PIPE
- D — DRAIN LINE
- X— X FENCE
- Ⓧ DRY WELL

<p>Title: <b>DRY WELL 20-08 SOIL BORING LOCATION PLAN</b></p>		
<p>PLANT 3 DRY WELLS 20-08 AND 34-07 SITE CHARACTERIZATION REPORT</p>		
<p>Prepared For: NORTHROP GRUMMAN CORPORATION SOUTH OYSTER BAY ROAD BETHPAGE, NEW YORK</p>		
<p><b>ROUX</b> ROUX ASSOCIATES, INC. Environmental Consulting &amp; Management</p>	<p>Compiled by: O.R. Prepared by: R.K. Project Mgr: W.F. File No: NGC0210203</p>	<p>Date: 03APR00 Scale: AS SHOWN Office: NY Project: 70902Y</p>
<p>FIGURE</p>		<p><b>3</b></p>



EXISTING BLDG.



LEGEND

- SB-3 ● LOCATION AND DESIGNATION OF SOIL BORING
- MW-3 ⊕ LOCATION AND DESIGNATION OF MONITORING WELL
- △ △ LOADING DOCK
- C — C' LINE OF CROSS SECTION
- SP — SEWER PIPE
- G — GAS LINE
- D — DRAIN LINE
- × × FENCE
- ⊙ DRY WELL

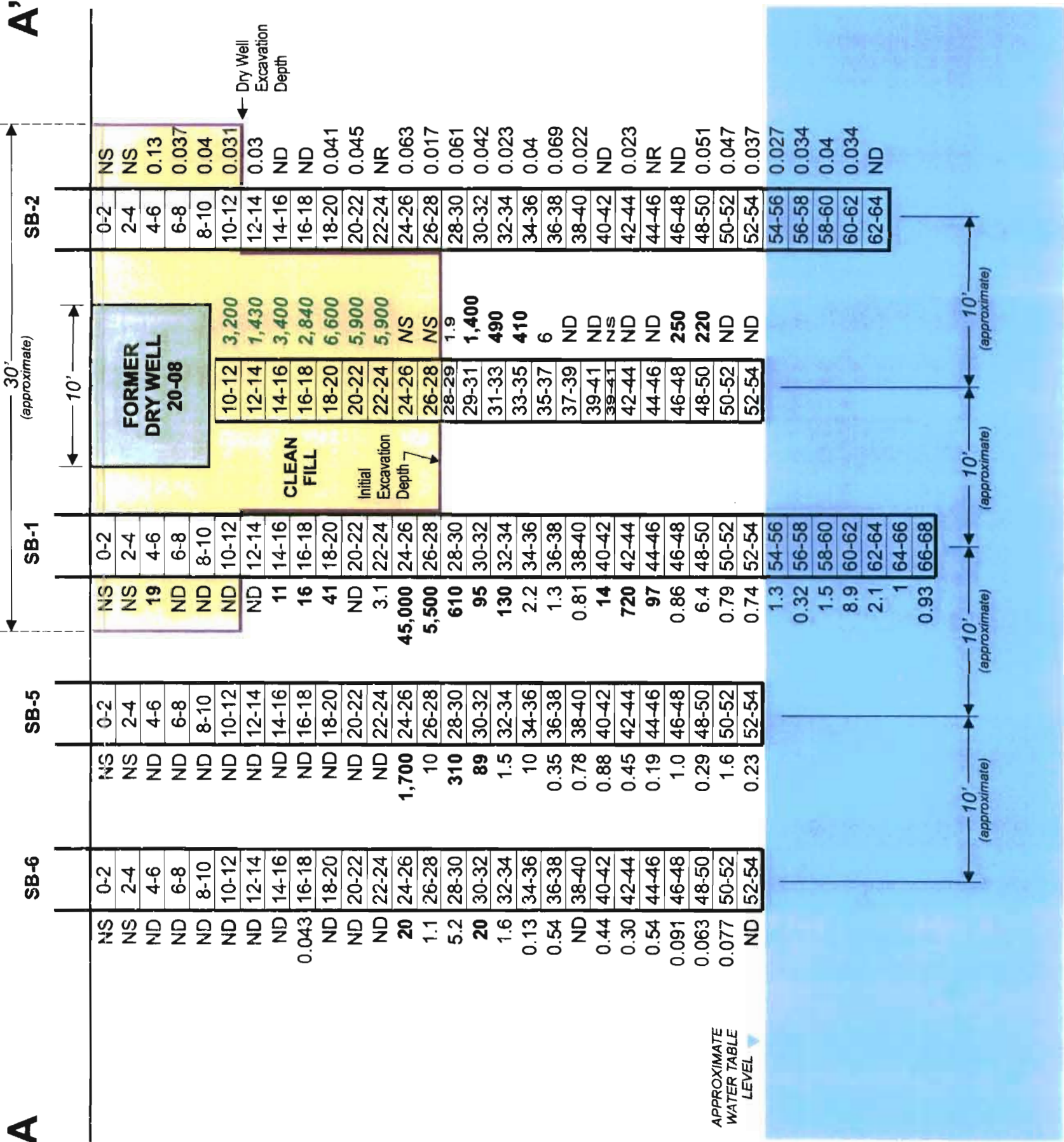


Title: <b>DRY WELL 34-07 SOIL BORING LOCATION PLAN</b>			
PLANT 3 DRY WELLS 20-08 AND 34-07 SITE CHARACTERIZATION REPORT			
Prepared For: NORTHROP GRUMMAN CORPORATION SOUTH OYSTER BAY ROAD BETHPAGE, NEW YORK			
Compiled by: O.R.	Date: 03APR00	FIGURE	
Prepared by: R.K.	Scale: AS SHOWN	<b>4</b>	
Project Mgr: W.F.	Office: NY		
File No: NGC0210202	Project: 70902Y		



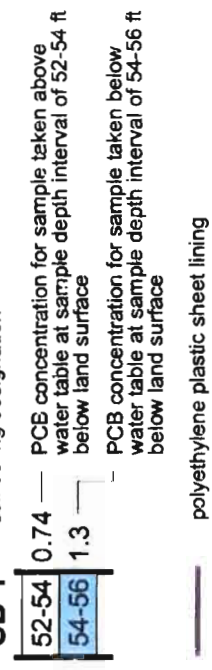
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**LEGEND**

- 5.2 PCB concentration below 10 ppm NYSDEC Regulatory Standard<sup>1,2</sup>
- 20 PCB concentration above 10 ppm NYSDEC Regulatory Standard<sup>1,2</sup>
- ND non detect
- NR no recovery
- NS no sample collected
- SB-1 soil boring designation



**NOTES:**

- NYSDEC Regulatory Standard based on *Technical and Administrative Guidance Memorandum HWR-94-4046 on the Determination of Soil Cleanup Objectives and Cleanup Levels, as revised January 24, 1994.*
- PCB concentration represented in green italics reflect concentrations detected from contaminated soil removed and disposed off-site during previous remediation efforts.
- Soil borings within and through Drywell 20-08 were installed and sampled according to the following schedule:
 

Soil Boring	Date	Sampling Interval	Consultant
DRYWELL	October 9, 1997	10 to 14-foot	Radian International, Herdon, Virginia
DRYWELL	April 4, 1998	14 to 24-foot	H2M, P.C., Melville, New York
DRYWELL	June 23, 1998	28 to 29-foot	H2M, P.C., Melville, New York
DRYWELL	July 30, 1998	29 to 54-foot	H2M, P.C., Melville, New York
- Soil borings surrounding Drywell 20-08 were installed and sampled according to the following schedule:
 

Soil Boring	Date	Sampling Interval	Consultant
SB-1	August 17, 1999	4 to 66-foot	Roux Associates, Inc.
SB-2	August 17, 1999	4 to 64-foot	Roux Associates, Inc.
SB-5	November 25, 1999	4 to 54-foot	Roux Associates, Inc.
SB-6	November 25, 1999	4 to 54-foot	Roux Associates, Inc.

**CROSS-SECTION A-A  
OF PCB CONCENTRATIONS  
AT DRY WELL 20-08**

PLANT 3 DRY WELLS 20-08 AND 34-07  
SITE CHARACTERIZATION REPORT

Prepared for: NORTROP GRUIMAN CORPORATION  
SOUTH OYSTER BAY ROAD  
BETHPAGE, NEW YORK



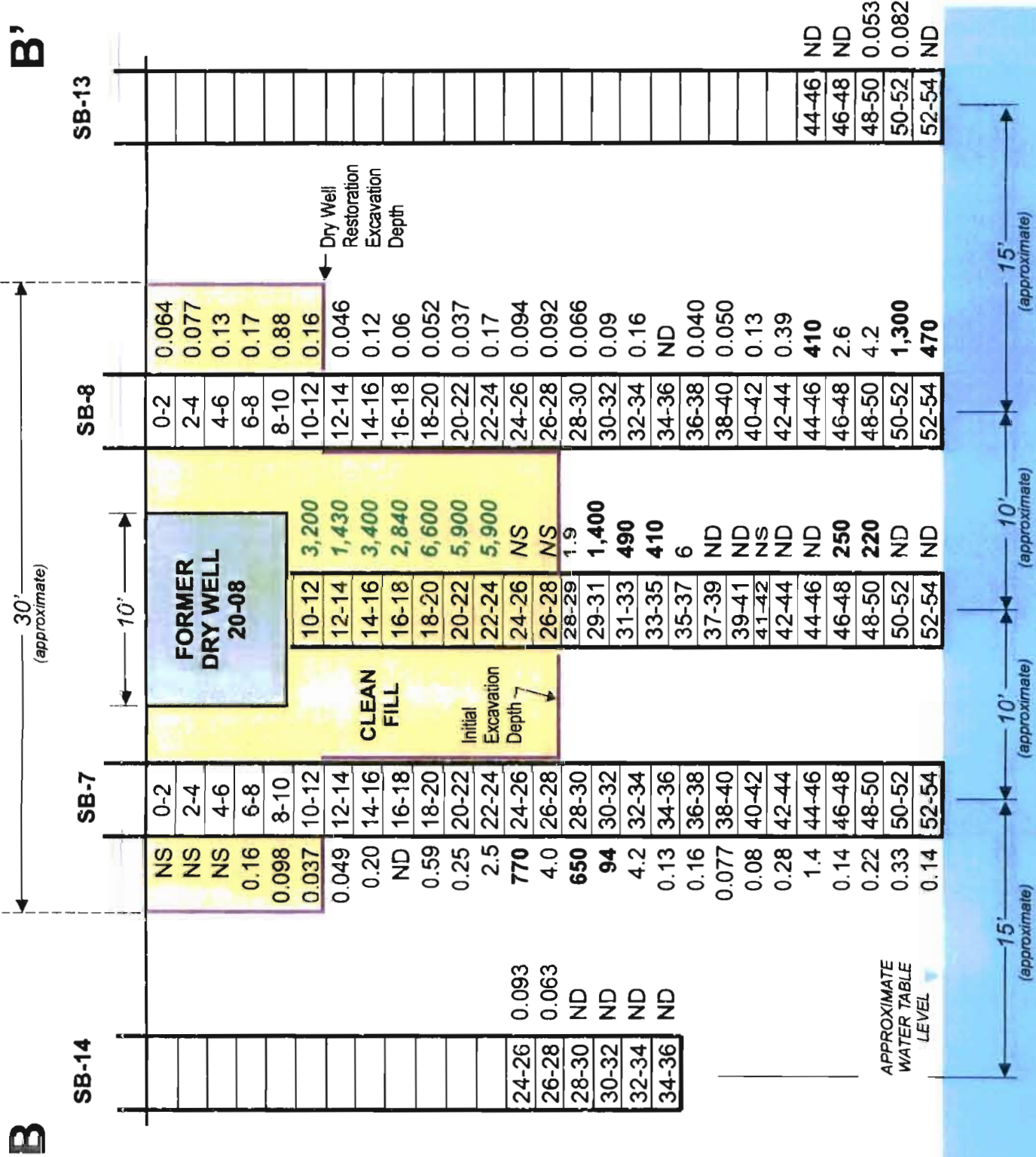
Complied by: N.G. Date: 03APR00  
Prepared by: B.H.CICIO Scale: AS SHOWN  
Project Mgr.: W.F. Office: NY  
File No.: NGC0210205 CDR Project No.: 70902Y

FIGURE  
**5**



**B'**

**B**



**LEGEND**

- 4.2 PCB concentration below 10 ppm NYSDEC Regulatory Standard<sup>1,2</sup>
- 94** PCB concentration above 10 ppm NYSDEC Regulatory Standard<sup>1,2</sup>
- ND non detect
- NS no sample collected
- SB-7** soil boring designation

22-24 2.5 — PCB concentration for sample taken above water table at sample depth interval of 22-24 ft below land surface

— polyethylene plastic sheet lining

**NOTES:**

1. NYSDEC Regulatory Standard based on *Technical and Administrative Guidance Memorandum HWR-94-4046 on the Determination of Soil Cleanup Objectives and Cleanup Levels, as revised January 24, 1994.*
2. PCB concentration represented in green italics reflect concentrations detected from contaminated soil removed and disposed off-site during previous remediation efforts.
3. Soil borings within and through Drywell 20-08 were installed and sampled according to the following schedule:
 

Soil Boring	Date	Sampling Interval	Consultant
DRYWELL	October 9, 1997	10 to 14-foot	Radian International, Herndon, Virginia
DRYWELL	April 4, 1998	14 to 24-foot	H2M, P.C., Melville, New York
DRYWELL	June 23, 1998	28 to 29-foot	H2M, P.C., Melville, New York
DRYWELL	July 30, 1998	29 to 54-foot	H2M, P.C., Melville, New York
4. Soil borings surrounding Drywell 20-08 were installed and sampled according to the following schedule:
 

Soil Boring	Date	Sampling Interval	Consultant
SB-7	November 29, 1999	6 to 54-foot	Roux Associates, Inc.
SB-8	November 30, 1999	0 to 54-foot	Roux Associates, Inc.
SB-13	April 18, 2000	44 to 54-foot	Roux Associates, Inc.
SB-14	April 18, 2000	24 to 36-foot	Roux Associates, Inc.

Title:

**CROSS-SECTION B-B'  
OF PCB CONCENTRATIONS  
AT DRY WELL 20-08**

PLANT 3 DRY WELLS 20-08 AND 34-07  
SITE CHARACTERIZATION REPORT

Prepared for: NORTROP GRUMAN CORPORATION  
SOUTH OYSTER BAY ROAD  
BETHPAGE, NEW YORK



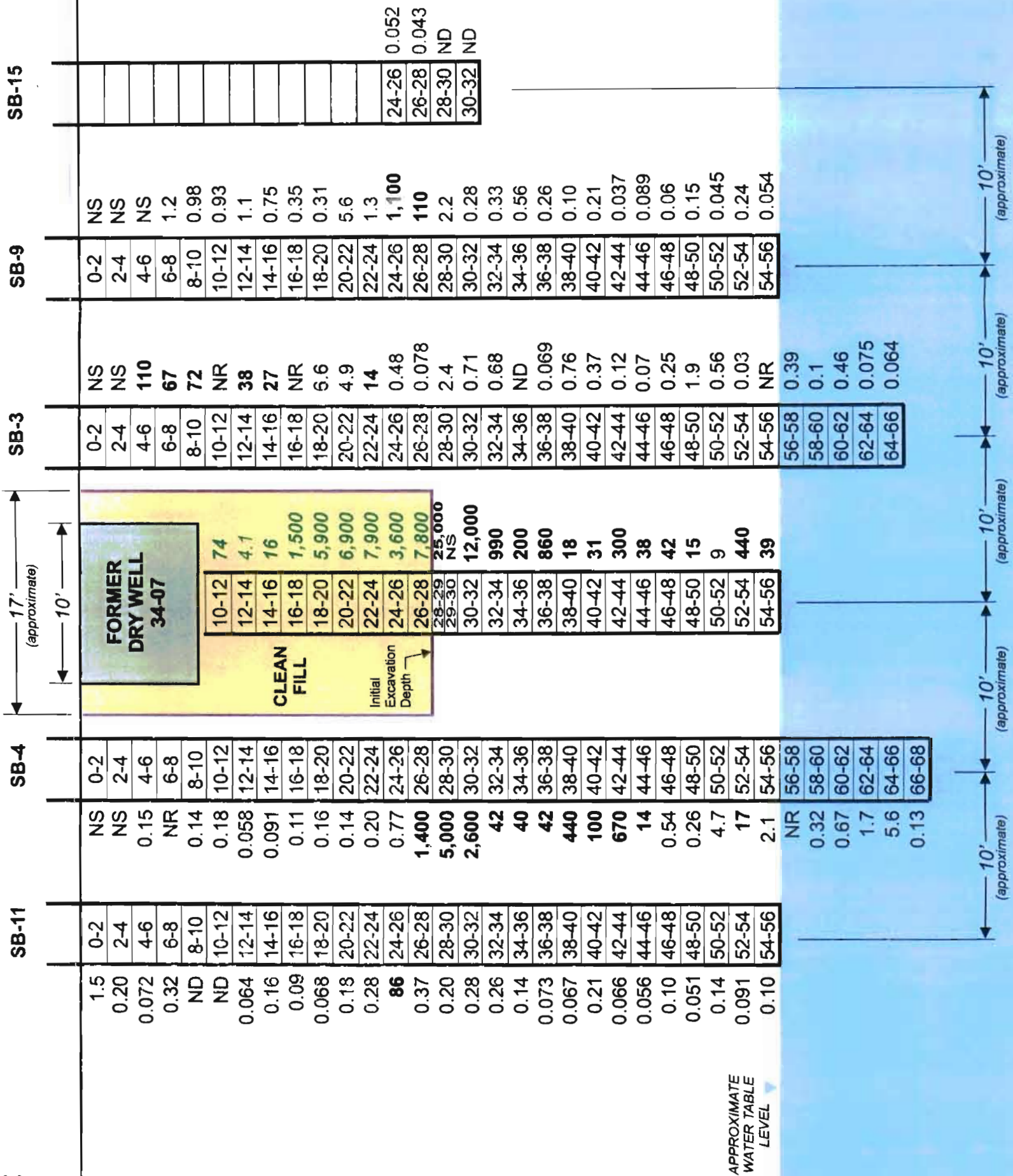
ROUX ASSOCIATES, INC.  
Environmental Consulting  
& Management

Completed by: N.G.	Date: 12MAY00	FIGURE
Prepared by: B.H. CICIO	Scale: AS SHOWN	<b>6</b>
Project Mgr.: W.F.	Office: NY	
File No.: NCG0210205 CDR	Project No.: 70902Y	



C

C'



Title:

# CROSS-SECTION C-C' OF PCB CONCENTRATIONS AT DRY WELL 34-07

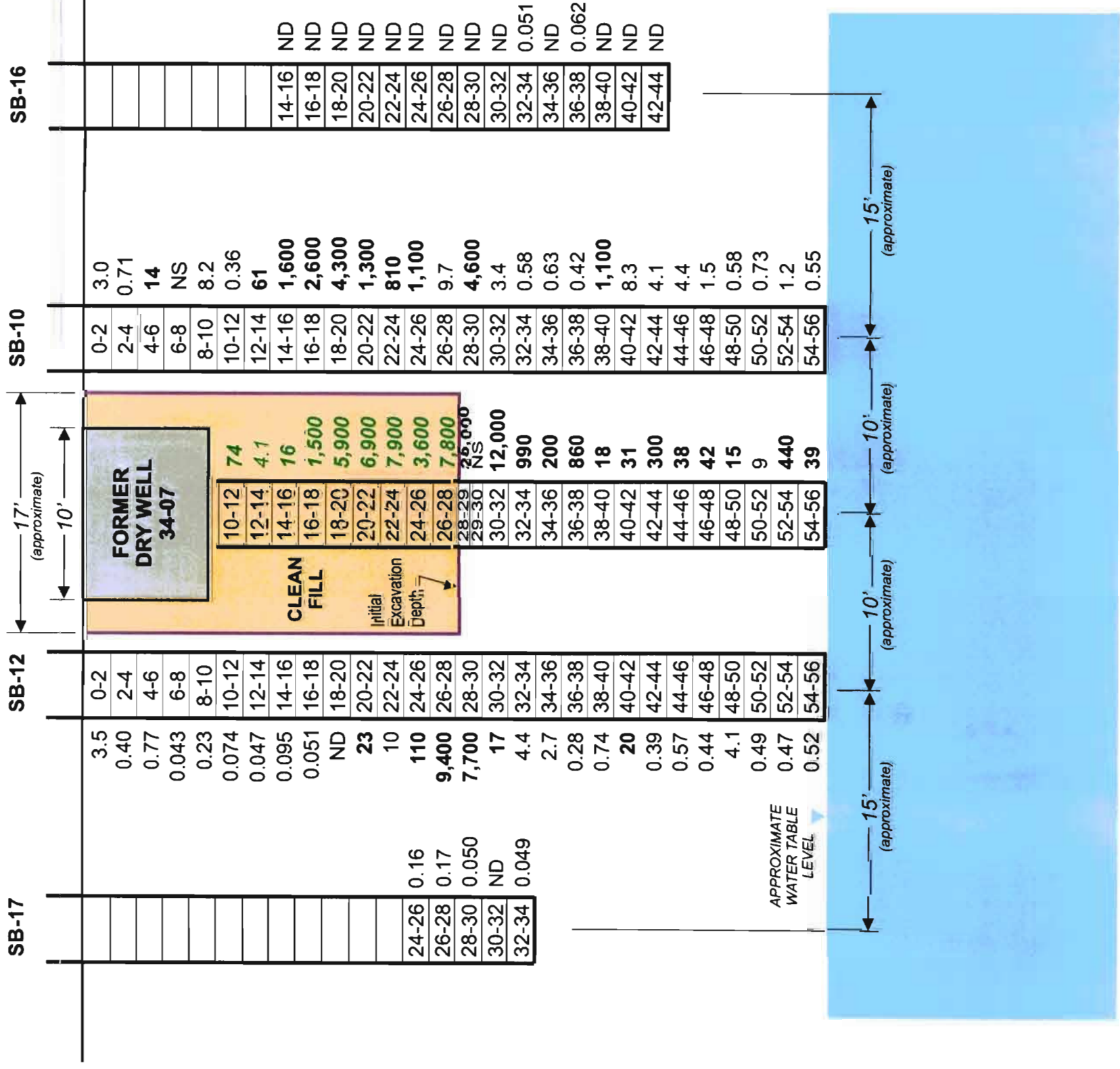
PLANT 3 DRY WELLS 20-08 AND 34-07  
SITE CHARACTERIZATION REPORT

Prepared for: NORTHROP GRUMMAN CORPORATION  
SOUTH OYSTER BAY ROAD  
BETHPAGE, NEW YORK

 ROUX ASSOCIATES, INC. Environmental Consulting & Management	Compiled by: N.G.	Date: 12MAY00	FIGURE
	Prepared by: B.H.CICIO	Scale: AS SHOWN	7
	Project Mgr.: W.F.	Office: NY	
	File No.: NCG0210205.CDR	Project No.: 70902Y	

D

D'



**LEGEND**

- 3.4 PCB concentration below 10 ppm NYSDEC Regulatory Standard<sup>1,2</sup>
- 14 PCB concentration above 10 ppm NYSDEC Regulatory Standard<sup>1,2</sup>
- ND non detect
- NS no sample collected
- SB-10 soil boring designation

6-8 NS — PCB concentration for sample taken above water table at sample depth interval of 6-8 ft below land surface

polyethylene plastic sheet lining

**NOTES:**

- NYSDEC Regulatory Standard based on *Technical and Administrative Guidance Memorandum HWR-94-4046 on the Determination of Soil Cleanup Objectives and Cleanup Levels, as revised January 24, 1994.*
- PCB concentrations represented in green italics reflect concentrations detected from contaminated soil removed and disposed off-site during previous remediation efforts.
- Soil borings within and through Drywell 34-07 were installed and sampled according to the following schedule:

Soil Boring	Date	Sampling Interval	Consultant
DRYWELL	September 10, 1997	10 to 16-foot	Radian International, Herdon, Virginia
DRYWELL	October 9, 1997	16 to 22-foot	Radian International, Herdon, Virginia
DRYWELL	April 30, 1998	22 to 28-foot	H2M, P.C., Melville, New York
DRYWELL	June 9, 1998	28 to 29-foot	H2M, P.C., Melville, New York
DRYWELL	July 29, 1998	30 to 56-foot	H2M, P.C., Melville, New York

- Soil borings surrounding Drywell 34-07 were installed and sampled according to the following schedule:

Soil Boring	Date	Sampling Interval	Consultant
SB-10	December 1 & 2, 1999	0 to 56-foot	Roux Associates, Inc.
SB-12	December 5, 1999	0 to 56-foot	Roux Associates, Inc.
SB-16	April 19, 2000	16 to 44-foot	Roux Associates, Inc.
SB-17	April 24, 2000	24 to 34-foot	Roux Associates, Inc.

Title:

## CROSS-SECTION D-D' OF PCB CONCENTRATIONS AT DRY WELL 34-07

PLANT 3 DRY WELLS 20-08 AND 34-07  
SITE CHARACTERIZATION REPORT

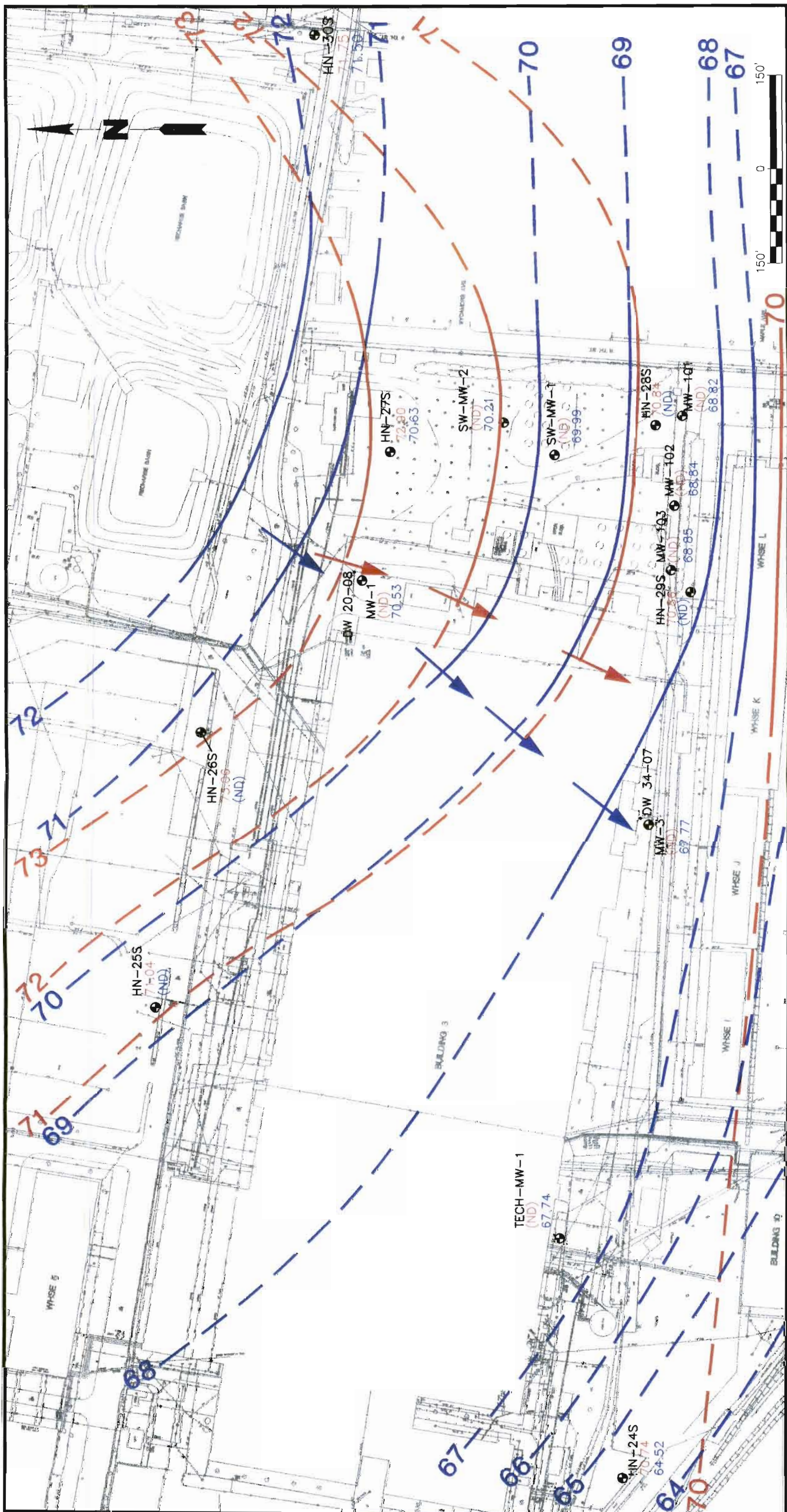
Prepared for: NORTROP GRUMMAN CORPORATION  
SOUTH OYSTER BAY ROAD  
BETHPAGE, NEW YORK



Completed by: N.G.  
Prepared by: B.H.CICIO  
Project Mgr.: W.F.  
Date: 12MAY00  
Scale: AS SHOWN  
Office: NY  
Project No.: 70902Y

FIGURE 8





**WATER-LEVEL ELEVATIONS AND ESTIMATED DIRECTION OF GROUND-WATER FLOW**

PLANT 3 DRY WELLS 20-08 AND 34-07  
SITE CHARACTERIZATION REPORT

Prepared For: NORTROP GRUMMAN CORPORATION  
SOUTH OYSTER BAY ROAD  
BETHPAGE, NEW YORK

Complied by: N.G. Date: 03APR00  
Prepared by: G.M./R.K. Scale: AS SHOWN  
Project Mgr: B.F. Office: NY  
File No: NGC0210204 Project: 70902Y

**ROUX**  
Environmental Consulting & Management

FIGURE  
**9**

- LEGEND**
- DW 20-08 • APPROXIMATE LOCATION AND DESIGNATION OF NAVAL PROPERTY DRY WELL
  - HN-275 • APPROXIMATE LOCATION AND DESIGNATION OF NAVAL PROPERTY MONITORING WELL
  - 72.90 (ND)
  - 70.63 (ND)
  - HISTORICAL (4/30/93) WATER LEVEL RELATIVE TO MEAN SEA LEVEL
  - CURRENT (10/5/99) WATER LEVEL RELATIVE TO MEAN SEA LEVEL
  - (ND) DATA NOT AVAILABLE (WELL WAS DRY, UNLOCATED OR DID NOT EXIST WHEN WATER LEVELS WERE COLLECTED ON 10/5/99)
- 70 ——— HISTORICAL LINE OF EQUAL WATER-LEVEL ELEVATION (DASHED WHERE INFERRED)
  - 70 ——— CURRENT LINE OF EQUAL WATER-LEVEL ELEVATION (DASHED WHERE INFERRED)
  - HISTORICAL ESTIMATED DIRECTION OF GROUND-WATER FLOW
  - CURRENT ESTIMATED DIRECTION OF GROUND-WATER FLOW



**APPENDIX A**  
Soil Boring Logs



**ROUX ASSOCIATES, INC.**  
 Environmental Consulting  
 & Management

1377 Motor Parkway  
 Islandia, New York 11749  
 (631) 232-2600  
 (631) 232-9898

**SOIL BORING LOG**

WELL NO. <b>SB-1</b>		NORTHING	EASTING		
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>		LOCATION <b>Plant 3 DryWells</b>			
APPROVED BY <b>O. Ramotar</b>	LOGGED BY <b>N. Gorelick</b>	<b>Bethpage, New York</b>			
DRILLING CONTRACTOR/DRILLER <b>Aquifer Drilling &amp; Testing / Jim</b>		GEOGRAPHIC AREA			
DRILL BIT DIAMETER/TYPE <b>10 inches / Auger</b>	BOREHOLE DIAMETER <b>8-inches</b>	DRILLING EQUIPMENT/METHOD <b>Mobile Drill B-61 / HSA</b>	SAMPLING METHOD <b>2" Split Spoon</b>	START-FINISH DATE <b>8/16/99-8/17/99</b>	
LAND SURFACE ELEVATION <b>(FT.)</b>	DEPTH TO WATER <b>56 (Feet BLS)</b>	BACKFILL <b>Grout</b>			

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Ballast			
5		Dark brown medium to coarse SAND, trace Silt; Moist	4	0.0	Hand augered to 5 ft. below land surface.
		Orange brown medium to coarse SAND and Gravel, little Silt, trace Clay; Moist	4 4 3 3 5 7 9	0.0	
10		Dark brown SILT, little Clay, trace Sand, Gravel; Moist	4 6 8 9	0.0	
		Dark brown orange coarse SAND, some Gravel, little Silt, trace Clay; Moist	2 4 6 7	0.0	
		Orange brown medium to coarse SAND and GRAVEL; Moist	4 6 8 9	0.0	
15		Brown fine to coarse SAND, little Gravel; Moist	5 6 7 7	0.0	
		Orange brown medium to coarse SAND and GRAVEL, trace Silt, trace Clay; Moist	7 7 7 9	0.0	
		Orange brown medium to coarse SAND and GRAVEL, trace Silt, trace Clay; Moist	3 6 7 8	0.0	Red staining.
20		Orange brown medium to coarse SAND and GRAVEL, trace Silt, trace Clay; Moist	4 7 11 11	0.0	
		Orange dark brown medium to coarse SAND, little Gravel, trace Silt, trace Clay; Moist	4 8 10 11	0.0	Red staining.
25		Brown gray fine SAND, trace Silt; Moist	5 7	20.5	

BORINGWELL: 70902Y.GPJ ROUX.GDT 9/15/00



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SOIL BORING LOG

WELL NO. <b>SB-1</b>	NORTHING	EASTING
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>	LOCATION <b>Plant 3 DryWells</b>	
APPROVED BY <b>O. Ramotar</b>	LOGGED BY <b>N. Gorelick</b>	<b>Bethpage, New York</b>

Depth, feet	Graphic Log	Visual Description (continued)	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown gray fine SAND, trace Silt; Moist <i>(continued)</i>	7		
		Dark brown SILT, some orange fine to medium Sand; Moist	9	24.9	
			11		
			6		
			22		
		Gray SILT, some orange red gold fine to medium Sand; Moist	30		
			11	20.2	Red and gold staining.
			12		
			15		
30			15		30
		Orange pink fine to coarse SAND, some Gravel; Moist	15	1.4	
			17		
			22		
		Orange fine to coarse SAND, some Gravel; Moist	26		
			22	1.5	
			19		
			25		
			35		
		Orange brown medium to coarse SAND, little Gravel; Moist	13	0.0	Red staining.
35			15		35
			42		
			46		
		White gray fine to medium SAND; Moist	13	0.0	
			15		
			19		
		White gray fine to medium SAND; Moist	22		
			21	0.0	
			22		
40			36		40
			37		
		White gray fine to medium SAND; Moist	24	0.0	
			26		
			50		
		White gray coarse SAND, trace Clay; Moist	25	5.8	
			11		
			11		
			25		
		White gray medium to coarse SAND, trace Clay; Moist	20	0.0	
45			16		45
			21		
			30		
		White medium to coarse SAND; Moist	26	0.0	
			14		
			24		
			32		
		White gray medium to coarse SAND, trace Clay; Moist	25	0.0	
			16		
			16		
50			24		50
		White gray medium to coarse SAND, trace Clay; Moist	10	0.0	
			11		
			14		
			18		
		Gray coarse SAND, trace Gravel; Moist	14	0.0	
			10		
			23		

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**SOIL BORING LOG**

WELL NO. <b>SB-1</b>	NORTHING	EASTING
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>	LOCATION <b>Plant 3 DryWells</b>	
APPROVED BY <b>O. Ramotar</b>	LOGGED BY <b>N. Gorelick</b>	<b>Bethpage, New York</b>

Depth, feet	Graphic Log	Visual Description (continued)	Blow Counts per 6"	PID Values (ppm)	REMARKS	
55		Dark brown to gray medium to coarse SAND; Moist	30 20 26 50 5	0.0	55	
		White to gray medium to coarse SAND, little Gravel; Wet	11 13 25 37	0.0		
		White to gray medium to coarse SAND, little Gravel; Wet	30 33 46 50	0.0	60	
60		White brown coarse SAND; Wet		0.0		
		White brown coarse SAND; Wet				
		White brown coarse SAND; Wet				
65						65
			Brown coarse SAND, some Clay, little Gravel; Wet	16 14 18 23		
			Brown CLAY, some Sand; Wet			
70						70

▽  
 PERCHED  
 GROUND  
 WATER LEVEL  
 8/16/99

Bottom of soil boring.



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**SOIL BORING LOG**

WELL NO. <b>SB-2</b>	NORTHING	EASTING		
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>		LOCATION <b>Plant 3 DryWells</b>		
APPROVED BY <b>O. Ramotar</b>	LOGGED BY <b>N. Gorelick</b>	<b>Bethpage, New York</b>		
DRILLING CONTRACTOR/DRILLER <b>Aquifer Drilling &amp; Testing / Jim</b>		GEOGRAPHIC AREA		
DRILL BIT DIAMETER/TYPE <b>10 inches / Auger</b>	BOREHOLE DIAMETER <b>8-inches</b>	DRILLING EQUIPMENT/METHOD <b>Mobile Drill B-61 / HSA</b>	SAMPLING METHOD <b>2" Split Spoon</b>	START-FINISH DATE <b>8/17/99-8/18/99</b>
LAND SURFACE ELEVATION <b>(FT.)</b>	DEPTH TO WATER <b>54 (Feet BLS)</b>	BACKFILL <b>Grout</b>		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown medium to coarse SAND, some Gravel; Moist			
5		Brown medium to coarse SAND, some Gravel; Moist		0.0	Hand augered to 5 ft below land surface.
		Orange brown medium to coarse SAND, some Gravel; Moist		0.0	
		Orange brown medium to coarse SAND, some Gravel; Moist		0.0	
10		Orange brown medium to coarse SAND, some Gravel; Moist		0.0	
		Orange brown coarse SAND, little Gravel; Moist		0.0	
		Orange brown coarse SAND, little Gravel; Moist		0.0	
15		Brown medium to coarse SAND, some coarse gravel; Moist		0.0	
		Orange brown medium to coarse SAND, little Gravel; Moist		0.0	
20		Brown medium to coarse SAND, little Gravel; Moist		0.0	
		No recovery		0.0	
25		Brown medium to coarse SAND and Gravel; Moist			

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### SOIL BORING LOG

WELL NO. <b>SB-2</b>	NORTHING	EASTING
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>		LOCATION <b>Plant 3 DryWells</b>
APPROVED BY <b>O. Ramotar</b>	LOGGED BY <b>N. Gorelick</b>	<b>Bethpage, New York</b>

Depth, feet	Graphic Log	Visual Description (continued)	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown medium to coarse SAND and Gravel; Moist (continued)			
		Orange brown medium to coarse SAND; Moist			
		Brown to pink brown medium to coarse SAND; Moist			
30		Brown to pink brown medium to coarse SAND; Moist			
		Orange pink fine to medium SAND; Moist			
35		Brown medium to coarse SAND, little Gravel; Moist			
		Brown medium to coarse SAND, little Gravel; Moist			
40		Brown medium to coarse SAND; Moist			
		Brown to white orange medium to coarse SAND; Moist			
		White fine to medium SAND; Moist			
45		White fine to medium SAND; Moist			
		White fine to medium SAND, trace Silt; Moist			
		White fine to medium SAND; Moist			Red to orange staining.
50		White gray fine to medium SAND; Moist			Little black staining.
		Gray purple tint medium to coarse SAND; Moist			

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### SOIL BORING LOG

WELL NO. <b>SB-2</b>	NORTHING	EASTING
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>		LOCATION <b>Plant 3 DryWells</b>
APPROVED BY <b>O. Ramotar</b>	LOGGED BY <b>N. Gorelick</b>	<b>Bethpage, New York</b>

Depth, feet	Graphic Log	Visual Description (continued)	Blow Counts per 6"	PID Values (ppm)	REMARKS	
55		Gray purple tint medium to coarse SAND; Wet				
		Brown coarse SAND; Wet				
		Brown coarse SAND, some Gravel; Wet				Orange staining.
60		Brown coarse SAND, some Gravel; Wet				Red to orange staining.
		Brown coarse SAND, some Gravel; Wet				Orange staining.
65		Brown coarse SAND, some Gravel; Wet				
		Brown medium to coarse SAND, some Silt and Clay; Wet				

Bottom of soil boring.



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### SOIL BORING LOG

WELL NO. <b>SB-3</b>		NORTHING	EASTING		
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>		LOCATION <b>Plant 3 DryWells</b>			
APPROVED BY <b>O. Ramotar</b>	LOGGED BY <b>N. Gorelick</b>	<b>Bethpage, New York</b>			
DRILLING CONTRACTOR/DRILLER <b>Aquifer Drilling &amp; Testing / Jim</b>		GEOGRAPHIC AREA			
DRILL BIT DIAMETER/TYPE <b>10 inches / Auger</b>	BOREHOLE DIAMETER <b>8-inches</b>	DRILLING EQUIPMENT/METHOD <b>Mobile Drill B-61 / HSA</b>	SAMPLING METHOD <b>2" Split Spoon</b>	START-FINISH DATE <b>8/18/99-8/19/99</b>	
LAND SURFACE ELEVATION (FT.)	DEPTH TO WATER <b>54 (Feet BLS)</b>	BACKFILL <b>Grout</b>			

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
---		Dark brown to brown coarse SAND, little Gravel; Moist			Little brown staining.
5		Dark brown to brown coarse SAND, little Gravel; Moist			
---		Dark brown to brown coarse SAND, little Gravel; Moist			Hand augered to 5 ft below land surface.
5		Dark brown to brown coarse SAND, little Gravel; Moist			
---		No recovery			
10		Dark brown to brown coarse SAND, some Gravel; Moist			
---		Dark brown to brown coarse SAND, some Gravel; Moist			
15		No recovery			
---		Dark brown to brown coarse SAND, some Gravel; Moist			
20		Brown coarse SAND, some Gravel; Moist			
---		Brown medium to coarse SAND, some Gravel; Moist			
---		Orange brown fine to medium SAND, trace Silt, Clay, and Gravel; Moist			Red to black staining.
25					

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### SOIL BORING LOG

WELL NO. <b>SB-3</b>	NORTHING	EASTING
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>		LOCATION <b>Plant 3 DryWells</b>
APPROVED BY <b>O. Ramotar</b>	LOGGED BY <b>N. Gorelick</b>	<b>Bethpage, New York</b>

Depth, feet	Graphic Log	Visual Description (continued)	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Orange brown fine to medium SAND, trace Silt, Clay, and Gravel; Moist (continued)			
		Orange brown fine to medium SAND, trace Gravel; Moist			Red-orange to black staining.
		Orange brown fine to medium SAND, trace Clay; Moist			Red-orange to black staining.
30		Brown pink medium to coarse SAND; Moist			Red staining.
		Orange brown to white fine to medium SAND; Moist			Red to black staining.
35		Pink medium to coarse SAND; Moist			
		Brown pink fine to coarse SAND, trace Gravel; Moist			
		Orange red medium to coarse SAND; Moist			
40		Orange red medium to coarse SAND; Moist			
		Orange red medium to coarse SAND, trace Clay; Moist		0.0	
		Brown fine to medium SAND, trace Clay; Moist		0.0	Bands black staining.
45		CLAY, some white medium to coarse Sand; Moist		0.0	Bands black staining.
		Brown medium to coarse SAND, little Gravel; Moist		0.0	Bands black staining.
50		Brown medium to coarse SAND, little Gravel; Moist		0.0	
		No recovery		1.3	

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### SOIL BORING LOG

WELL NO. <b>SB-3</b>	NORTHING	EASTING
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>	LOCATION <b>Plant 3 DryWells</b>	
APPROVED BY <b>O. Ramotar</b>	LOGGED BY <b>N. Gorelick</b>	<b>Bethpage, New York</b>

Depth, feet	Graphic Log	Visual Description (continued)	Blow Counts per 6"	PID Values (ppm)	REMARKS
55		No recovery		1.2	
		Red pink fine to medium SAND; Wet		1.2	
		Red pink fine to medium SAND; Wet		1.5	
60		Red pink fine to medium SAND, little Clay; Wet		1.7	
		Red pink fine to medium SAND; Wet		1.0	
65		Red pink fine to medium SAND; Wet		1.0	Black staining.

▽  
 PERCHED  
 GROUND  
 WATER LEVEL  
 8/18/99

Bottom of soil boring.

BORINGWELL 70902Y GPJ ROUX GDT 9/15/00



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### SOIL BORING LOG

WELL NO. <b>SB-4</b>	NORTHING	EASTING		
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>		LOCATION <b>Plant 3 DryWells</b>		
APPROVED BY <b>O. Ramotar</b>	LOGGED BY <b>N. Gorelick</b>	<b>Bethpage, New York</b>		
DRILLING CONTRACTOR/DRILLER <b>Aquifer Drilling &amp; Testing / Jim</b>		GEOGRAPHIC AREA		
DRILL BIT DIAMETER/TYPE <b>10 inches / Auger</b>	BOREHOLE DIAMETER <b>8-inches</b>	DRILLING EQUIPMENT/METHOD <b>Mobile Drill B-61 / HSA</b>	SAMPLING METHOD <b>2" Split Spoon</b>	START-FINISH DATE <b>8/19/99-8/20/99</b>
LAND SURFACE ELEVATION <b>(FT.)</b>	DEPTH TO WATER <b>48 (Feet BLS)</b>	BACKFILL <b>Grout</b>		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown medium to coarse SAND			
5		Brown medium to coarse SAND		1.1	Hand augered to 5 ft below land surface.
		Brown medium to coarse SAND			
		Brown medium to coarse SAND; Moist		0.3	
10		Orange brown medium to coarse SAND; little Gravel; Moist		1.1	
		Orange brown medium to coarse SAND, little Gravel; Moist		0.6	
15		Orange brown medium to coarse SAND, some Gravel; Moist		0.6	
		Orange brown medium to coarse SAND, little Gravel; Moist		0.0	
		Orange brown medium to coarse SAND, some Gravel; Moist		0.0	
20		Orange brown fine to coarse SAND, little Gravel; Moist		0.0	
		Orange brown medium to coarse SAND, some Gravel; Moist		0.0	Rust staining.
25		Brown coarse SAND and GRAVEL, little Clay; Moist			

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### SOIL BORING LOG

WELL NO. <b>SB-4</b>	NORTHING	EASTING
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>		LOCATION <b>Plant 3 DryWells</b>
APPROVED BY <b>O. Ramotar</b>	LOGGED BY <b>N. Gorelick</b>	<b>Bethpage, New York</b>

Depth, feet	Graphic Log	Visual Description (continued)	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown coarse SAND and GRAVEL, little Clay; Moist <i>(continued)</i>			
		Orange-brown fine to medium SAND; Moist			Bands black staining.
		Orange brown to white fine to medium SAND; Moist			
30		Brown to white pink fine to medium SAND; Moist			Bands black staining.
		Red pink fine to medium SAND; Wet			
		Red pink fine to medium SAND; Wet			
35					
		Brown coarse SAND and GRAVEL; Moist			
		Brown coarse SAND and GRAVEL; Moist			Dark red staining.
40					
		Brow red medium to coarse SAND, trace Gravel; Moist			Dark red staining.
		Brown red coarse SAND and GRAVEL, little white Clay; Moist			
		Brown red coarse SAND and GRAVEL, little white Clay; Moist			
45					
		Red brown fine to medium SAND; Moist		0.0	Bands purple staining.
		Purple white fine to medium SAND; Wet		0.7	Muilt-colored staining.
50					
		Red brown fine to medium SAND; Wet			
		Purple white fine to medium SAND; Wet		0.8	Muilt-colored staining.

▽  
PERCHED  
GROUND  
WATER LEVEL  
8/19/99

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**SOIL BORING LOG**

WELL NO. <b>SB-4</b>	NORTHING	EASTING
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>		LOCATION <b>Plant 3 DryWells</b>
APPROVED BY <b>O. Ramotar</b>	LOGGED BY <b>N. Gorelick</b>	<b>Bethpage, New York</b>

Depth, feet	Graphic Log	Visual Description (continued)	Blow Counts per 6"	PID Values (ppm)	REMARKS
55		Purple white fine to medium SAND; Wet		0.9	Red staining.
		Red pink fine to medium SAND; Wet		0.8	Black staining.
		Red coarse SAND, little Gravel; Wet		0.8	
60					
		Pink coarse SAND, some Gravel; Wet		1.6	
		Pink coarse SAND, some Gravel; Wet		0.9	
		Pink coarse SAND, some Gravel; Wet		0.9	
65					
		Pink red coarse SAND, some Gravel; Wet			

Bottom of soil boring.





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**SOIL BORING LOG**

WELL NO. <b>SB-5</b>	NORTHING	EASTING		
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>		LOCATION <b>Plant 3 DryWells</b>		
APPROVED BY <b>O. Ramotar</b>	LOGGED BY <b>N. Gorelick</b>	<b>Bethpage, New York</b>		
DRILLING CONTRACTOR/DRILLER <b>Aquifer Drilling &amp; Testing / Jim</b>		GEOGRAPHIC AREA		
DRILL BIT DIAMETER/TYPE <b>10 inches / Auger</b>	BOREHOLE DIAMETER <b>8-inches</b>	DRILLING EQUIPMENT/METHOD <b>Mobile Drill B-61 / HSA</b>	SAMPLING METHOD <b>2" Split Spoon</b>	START-FINISH DATE <b>11/23/99-11/23/99</b>
LAND SURFACE ELEVATION <b>(FT.)</b>	DEPTH TO WATER <b>54 (Feet BLS)</b>	BACKFILL <b>Grout</b>		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Concrete			
		Dark brown fine to coarse Sand, some Silt, trace Clay; Moist			
5		Dark brown fine to coarse Sand, some Silt, trace Clay; Moist	5		Hand augered to 5 ft. below land surface.
			3		
		Brown orange coarse SAND, some Silt; Moist	3		
			5		
			2		
			7		
			8		
			12		
		Brown coarse SAND, trace Gravel; Moist	4	3.0	
10			8		
			10		
		Brown coarse SAND, trace Gravel; Moist	8	2.0	
			10		
			12		
			14		
		Brown coarse SAND, trace Gravel; Moist	6	1.9	
			11		
			12		
			14		
			8	2.2	
15		Brown fine to medium SAND; Moist	15		
			15		
			16		
		Brown fine to medium SAND; Moist	5	4.6	
			15		
			16		
			20		
		Brown fine to medium SAND; Moist	10	6.5	
			10		
			11		
20		Brown fine to medium SAND; Moist	12	7.5	
			12		
			12		
			13		
		Brown fine to medium SAND; Moist	14	7.6	
			12		
			12		
			11		
			17	7.3	
25		Brown orange fine to medium SAND, some Silt; Moist	16		

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### SOIL BORING LOG

WELL NO. <b>SB-5</b>	NORTHING	EASTING
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>		LOCATION <b>Plant 3 DryWells</b>
APPROVED BY <b>O. Ramotar</b>	LOGGED BY <b>N. Gorelick</b>	<b>Bethpage, New York</b>

Depth, feet	Graphic Log	Visual Description (continued)	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown orange fine to medium SAND, some Silt; Moist <i>(continued)</i>	18		
			18		
		Brown orange fine to coarse SAND, some Silt; Moist	13	4.7	
			18		
			21		
			27		
		Brown orange fine to coarse SAND; Moist	25	7.8	
			35		
			24		
30			23		30
		Brown fine SAND; Moist	33	8.3	
			34		
			50		
		Brown fine to medium SAND; Moist	5	6.5	
			12		
			24		
			34		
		Brown fine SAND; Moist	50	7.6	
35			34		35
			0		
			50		
		Gray fine SAND; Moist	5	7.5	
			19		
			26		
			27		
		Gray fine SAND; Moist	25	6.6	
			16		
			17		
			20		
40			33		40
		Gray fine SAND; Moist	14	6.5	
			30		
			29		
		Gray fine SAND; Moist	27	6.7	
			40		
			37		
		Gray to yellow fine SAND; Moist	37	6.5	
45			17		45
			19		
			26		
			34		
		Gray to brown fine SAND; Moist	17	6.7	
			19		
			26		
			34		
		Gray to orange fine SAND; Moist	12	3.5	
			21		
			27		
50			38		50
		Gray to orange fine SAND; Moist	31	5.7	
			42		
			50		
			2		
		Gray to orange fine SAND; Wet	21	3.7	
			27		
			28		

BORING/WELL 70902Y.GPJ ROUX.GDT 9/15/00

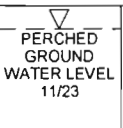


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### SOIL BORING LOG

WELL NO. <b>SB-5</b>	NORTHING	EASTING
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>		LOCATION <b>Plant 3 DryWells</b>
APPROVED BY <b>O. Ramotar</b>	LOGGED BY <b>N. Gorelick</b>	<b>Bethpage, New York</b>

Depth. feet	Graphic Log	Visual Description (continued)	Blow Counts per 6"	PID Values (ppm)	REMARKS
55		Gray to orange fine SAND; Wet	34 9 15 20 20	5.7	55

Bottom of soil boring.



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### SOIL BORING LOG

WELL NO. <b>SB-6</b>	NORTHING	EASTING		
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>		LOCATION <b>Plant 3 DryWells</b>		
APPROVED BY <b>O. Ramotar</b>	LOGGED BY <b>N. Gorelick</b>	<b>Bethpage, New York</b>		
DRILLING CONTRACTOR/DRILLER <b>Aquifer Drilling &amp; Testing / Jim</b>		GEOGRAPHIC AREA		
DRILL BIT DIAMETER/TYPE <b>10 inches / Auger</b>	BOREHOLE DIAMETER <b>8-inches</b>	DRILLING EQUIPMENT/METHOD <b>Mobile Drill B-61 / HSA</b>	SAMPLING METHOD <b>2" Split Spoon</b>	START-FINISH DATE <b>11/24/99-11/24/99</b>
LAND SURFACE ELEVATION (FT.)	DEPTH TO WATER <b>52 (Feet BLS)</b>	BACKFILL <b>Grout</b>		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Dark brown coarse SAND; Moist			
		Dark brown medium to coarse SAND, trace Gravel; Moist			
5		Dark brown medium to coarse SAND, trace Gravel; Moist	5 4 10	2.3	Hand augered to 5 ft. below land surface.
		Dark brown medium to coarse SAND, trace Gravel; Moist	23 12 32 27 30	2.8	
10		Dark brown medium to coarse SAND, trace Gravel; Moist	15 27 30	2.7	
		Dark brown medium to coarse SAND, trace Gravel; Moist	12 30 23 25 30	2.7	
		Dark brown medium to coarse SAND, trace Gravel; Moist	10 13 15 15	2.8	
15		Dark brown medium to coarse SAND, trace Gravel; Moist	7 10 10 17	2.6	
		Dark brown medium to coarse SAND, trace Gravel; Moist	10 15 20 17	2.5	
20		Brown medium SAND, little Gravel; Moist	9 17 20	2.8	
		Brown coarse SAND, some Gravel; Moist	17 13 13 15 18	2.8	
		Dark brown red coarse SAND, trace Gravel; Moist	15 15 13 16	2.7	
25		Dark brown red orange fine to coarse SAND, little Silt; Wet	10 10 16 10	2.7	
		Dark brown red-orange fine to medium SAND, little Silt; Wet	8 16 16 17	2.8	
		Dark brown red fine to medium SAND, little Gravel; Wet	25 40 45 50	2.5	

BORINGWELL 70902Y.GPJ ROUX.GDT 9/15/00



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## SOIL BORING LOG

Page **2** of **2**

WELL NO. <b>SB-6</b>	NORTHING	EASTING
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>		LOCATION <b>Plant 3 DryWells</b>
APPROVED BY <b>O. Ramotar</b>	LOGGED BY <b>N. Gorelick</b>	<b>Bethpage, New York</b>

Depth, feet	Graphic Log	Visual Description (continued)	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Dark brown red medium to coarse SAND, little Gravel; Wet	39 50	2.9	
		Red brown fine to medium SAND, trace Gravel; Moist	39 45 25 30 30		2.9
		Red brown fine to medium SAND, trace Gravel; Moist	25 22 32	2.5	
35			35 25 16		2.7
		Light gray fine to medium SAND; Moist	20 25 25	2.7	
		Light gray brown fine to medium SAND; Moist	20 28 35		2.6
40			38 26 30 28	2.8	
		Gray brown fine to medium SAND; Moist	30 20 29		2.6
		Gray brown fine to medium SAND; Moist	36 32 16	2.6	
45			32 28 36		2.6
	Gray brown to red fine to medium SAND; Moist	22 25 34	2.5		
	Gray brown to red fine to medium SAND; Moist	38 20 25		2.9	
50		26 22 10	2.7		
	Gray brown to red fine to coarse SAND; Moist	9 6 12		2.7	
	PERCHED GROUND WATER LEVEL 11/24/99	10 17 17 14			
		Gray brown to red fine to coarse SAND; Moist			Bottom of soil boring.

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## SOIL BORING LOG

WELL NO. <b>SB-7</b>	NORTHING	EASTING		
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>		LOCATION <b>Plant 3 DryWells</b>		
APPROVED BY <b>O. Ramotar</b>	LOGGED BY <b>N. Gorelick</b>	<b>Bethpage, New York</b>		
DRILLING CONTRACTOR/DRILLER <b>Aquifer Drilling &amp; Testing / Jim</b>		GEOGRAPHIC AREA		
DRILL BIT DIAMETER/TYPE <b>10 inches / Auger</b>	BOREHOLE DIAMETER <b>8-inches</b>	DRILLING EQUIPMENT/METHOD <b>Mobile Drill B-61 / HSA</b>	SAMPLING METHOD <b>2" Split Spoon</b>	START-FINISH DATE <b>11/23/99-11/23/99</b>
LAND SURFACE ELEVATION (FT.)	DEPTH TO WATER <b>53 (Feet BLS)</b>	BACKFILL <b>Grout</b>		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
5		Brown fine to medium SAND; Moist	5	5.9	Hand augered to 5 ft. below land surface.
		Brown fine to medium SAND; Moist	2		
		Brown fine to medium SAND; Moist	1		
		Brown fine to medium SAND; Moist	1		
		Brown fine to medium SAND; Moist	2	5.6	
		Brown fine to medium SAND; Moist	1		
		Brown fine to medium SAND; Moist	1		
		Brown fine to medium SAND; Moist	2		
10		Brown fine to medium SAND, some Gravel; Moist	2	6.2	
		Brown fine to medium SAND, some Gravel; Moist	2		
		Brown fine to medium SAND, some Gravel; Moist	7		
		Brown fine to medium SAND, some Gravel; Moist	5		
		Brown fine to medium SAND, some Gravel; Moist	5	5.0	
		Brown fine to medium SAND, some Gravel; Moist	6		
		Brown fine to medium SAND, some Gravel; Moist	8		
		Brown fine to medium SAND, some Gravel; Moist	7		
		Brown fine to medium SAND, some Gravel; Moist	6	6.9	
		Brown fine to medium SAND, some Gravel; Moist	7		
		Brown fine to medium SAND, some Gravel; Moist	9		
		Brown fine to medium SAND, some Gravel; Moist	9		
15		Brown fine to coarse SAND, some Gravel; Moist	7	8.0	
		Brown fine to coarse SAND, some Gravel; Moist	8		
		Brown fine to coarse SAND, some Gravel; Moist	10		
		Brown fine to coarse SAND, some Gravel; Moist	9		
		Brown fine to coarse SAND, some Gravel; Moist	8	5.6	
		Brown fine to coarse SAND, some Gravel; Moist	11		
		Brown fine to coarse SAND, some Gravel; Moist	11		
		Brown fine to coarse SAND, some Gravel; Moist	12		
		Brown fine to coarse SAND, some Gravel; Moist	6	6.5	
		Brown fine to coarse SAND, some Gravel; Moist	11		
		Brown fine to coarse SAND, some Gravel; Moist	11		
20		Brown fine to coarse SAND, some Gravel; Moist	9	7.2	
		Brown fine to coarse SAND, some Gravel; Moist	12		
		Brown fine to coarse SAND, some Gravel; Moist	12		
		Brown fine to coarse SAND, some Gravel; Moist	12		
		Orange brown fine to coarse SAND, some Gravel; Moist	9	9.6	
		Orange brown fine to coarse SAND, some Gravel; Moist	12		
		Orange brown fine to coarse SAND, some Gravel; Moist	15		
		Orange brown fine to coarse SAND, some Gravel; Moist	16		
		Orange brown fine to coarse SAND, trace Gravel; Moist	11	6.3	
25		Orange brown fine to coarse SAND, trace Gravel; Moist	14		
		Orange brown fine to coarse SAND, trace Gravel; Moist	14		
		Orange brown fine to coarse SAND, trace Gravel; Moist	14		
		Orange brown red fine to coarse SAND; Moist	12	7.1	Red staining.
		Orange brown red fine to coarse SAND; Moist	10		
		Orange brown red fine to coarse SAND; Moist	12		
		Orange brown red fine to coarse SAND; Moist	15		
		Orange brown fine to coarse SAND; Moist	7	6.9	
		Orange brown fine to coarse SAND; Moist	9		
		Orange brown fine to coarse SAND; Moist	12		
30		Orange brown fine to coarse SAND; Moist	14		

BORINGWELL 70902Y.GPJ ROUX.GDT 9/15/00



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### SOIL BORING LOG

WELL NO. <b>SB-7</b>	NORTHING	EASTING
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>		LOCATION <b>Plant 3 DryWells</b>
APPROVED BY <b>O. Ramotar</b>	LOGGED BY <b>N. Gorelick</b>	<b>Bethpage, New York</b>

Depth, feet	Graphic Log	Visual Description (continued)	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Orange brown fine to coarse SAND; Moist	9 17 21 40	7.1	
		Orange brown fine to coarse SAND; Moist	11 16 24 29	6.5	
35		Brown coarse SAND, little Gravel; Moist	14 30 39 38	6.7	Rust staining.
		Brown to white coarse SAND, little Gravel; Moist	25 36 28 27	6.8	
40		Brown white to yellow fine SAND; Moist	11 19 21	8.9	
		Brown white to yellow fine SAND; Moist	24 15 15	10.1	
		Gray white to yellow fine SAND; Moist	29 13 21 29 28	9.0	
45		Gray white to yellow fine to coarse SAND; Moist	23 0 0 5	9.9	
		Dark gray white to yellow fine to coarse SAND; Moist	16 20 28 43	5.0	Bands black staining.
		Dark gray white to yellow fine to coarse SAND; Moist	11 21 25	9.4	
50	Gray white fine to coarse SAND; Wet	22 8 13 13 24	9.0	Staining.	
	Gray white fine to coarse SAND; Wet	7 13 25 32	9.0		

▽  
PERCHED  
GROUND  
WATER LEVEL  
11/23/99

Bottom of soil boring.

BORING/WELL 70902Y GPJ ROUX GDT 9/15/00



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## SOIL BORING LOG

Page 1 of 2

WELL NO. <b>SB-9</b>	NORTHING	EASTING		
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>		LOCATION <b>Plant 3 DryWells</b>		
APPROVED BY <b>O. Ramotar</b>	LOGGED BY <b>N. Gorelick</b>	<b>Bethpage, New York</b>		
DRILLING CONTRACTOR/DRILLER <b>Aquifer Drilling &amp; Testing / Jim</b>		GEOGRAPHIC AREA		
DRILL BIT DIAMETER/TYPE <b>10 inches / Auger</b>	BOREHOLE DIAMETER <b>8-inches</b>	DRILLING EQUIPMENT/METHOD <b>Mobile Drill B-61 / HSA</b>	SAMPLING METHOD <b>2" Split Spoon</b>	START-FINISH DATE <b>11/30/99-12/1/99</b>
LAND SURFACE ELEVATION (FT.)	DEPTH TO WATER <b>54 (Feet BLS)</b>	BACKFILL <b>Grout</b>		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS	
		Brown fine to coarse SAND		8.3		
				8.7		
			Brown fine to coarse SAND	4	10.3	
5				5		
				6		Hand augered to 5 ft. below land surface.
			Brown fine to coarse SAND	7		
				4	13.3	
				6		
			Brown fine to coarse SAND; Moist	7	16.3	
10				5		
		Brown coarse SAND; Moist	13			
				13		
				14		
			Brown coarse SAND; Moist	3	14.9	
				7		
			Brown coarse SAND; Moist	7		
				10	9.9	
				9		
15			Brown coarse SAND; Moist	12	16.9	
				9		
		Brown coarse SAND; Moist	8	16.7		
			9			
		Brown coarse SAND; Moist	12	17.5		
20			7			
		Brown coarse SAND; Moist	13			
			8	15.5		
			10			
		Brown coarse SAND, little Gravel; Moist	12			
			15	19.3		
			6			
			11			
		Brown red medium SAND; Moist	12	18.4	Red staining.	
25			8			
			9			
		Brown orange red medium SAND; Moist	18	17.6	Red staining.	
			9			
			11			
		Brown orange medium SAND; Moist	12	19.1		
			10			
			12			
			16			
			7			
			11			
			11			
30			17			

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**SOIL BORING LOG**

WELL NO. <b>SB-9</b>	NORTHING	EASTING
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>		LOCATION <b>Plant 3 DryWells</b>
APPROVED BY <b>O. Ramotar</b>	LOGGED BY <b>N. Gorelick</b>	<b>Bethpage, New York</b>

Depth, feet	Graphic Log	Visual Description (continued)	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown fine to coarse SAND; Moist	6 12 15 19	10.3	
		Brown fine to coarse SAND; Moist	6 12 16 20	3.6	
35		Brown orange fine to coarse SAND; Moist	8 15 20 23	14.6	
		Brown orange fine to coarse SAND; Moist	16 19 23 26	14.9	
		Brown orange pink fine to coarse SAND; Moist	14 15 14 13	14.9	Bands pink staining.
40		Brown orange pink fine to coarse SAND, trace Silt; Moist	11 10 11 10	16.7	
		Brown orange red fine to coarse SAND; Moist	12 18 25 36	9.5	
45		Brown orange red fine to coarse SAND; Moist	10 20 25 26	15.8	
		Red Brown to gray white fine to coarse SAND; Moist	10 21 30 45	15.0	
		Red Brown to gray white yellow fine to coarse SAND; Moist	12 25 36	14.0	
50	Red Brown to gray white yellow fine to coarse SAND; Moist	5 25 47 50	9.3		
	Orang brown fine to coarse SAND; Wet	5 50 26 50	10.7		
55	 PERCHED GROUND WATER LEVEL 11/30/99	Red to gray coarse SAND; Wet	5 20 36 50 5	5.0	

Bottom of soil boring.



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### SOIL BORING LOG

WELL NO. <b>SB-10</b>		NORTHING	EASTING		
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>		LOCATION <b>Plant 3 DryWells</b>			
APPROVED BY <b>O. Ramotar</b>	LOGGED BY <b>N. Gorelick</b>	BETHPAGE, NEW YORK			
DRILLING CONTRACTOR/DRILLER <b>Aquifer Drilling &amp; Testing / Jim</b>		GEOGRAPHIC AREA			
DRILL BIT DIAMETER/TYPE <b>10 inches / Auger</b>	BOREHOLE DIAMETER <b>8-inches</b>	DRILLING EQUIPMENT/METHOD <b>Mobile Drill B-61 / HSA</b>	SAMPLING METHOD <b>2" Split Spoon</b>	START-FINISH DATE <b>12/1/99-12/1/99</b>	
LAND SURFACE ELEVATION <b>(FT.)</b>	DEPTH TO WATER <b>53 (Feet BLS)</b>	BACKFILL <b>Grout</b>			

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS	
---		Brown fine to coarse SAND; Dry		2.3		
---		Brown fine to coarse SAND; Dry		13.5		
---		Brown fine to coarse SAND; Dry		3.0		
5			3 5 7 8		Hand augered to 5 ft below land surface.	
---		Brown gray fine to coarse SAND; Moist		14.1		
---		Brown gray fine to coarse SAND; Moist		6 7 7		
10			8 5	11.4		
---		Brown fine to coarse SAND; Moist		4 6 7		
---		Brown fine to coarse SAND; Moist		3 6 7	3.7	
---		Brown fine to coarse SAND, trace Gravel; Moist		3 7	15.3	
15		10 11				
---	Brown fine to coarse SAND, trace Gravel; Moist		7 9 9	5.9		
---	Brown fine to coarse SAND, trace Gravel; Moist		13 7	15.1		
20		10 10				
---	Brown fine to coarse SAND, trace Gravel; Moist		14 9	6.2		
---	Brown coarse SAND; Moist		13 14			
---	Brown coarse SAND; Moist		7 10 9	10.1		
25		Orange brown red coarse SAND, some Silt; Moist		16.6		
---	Orange brown red coarse SAND, some Silt; Moist		10 4 8			
---	Orange brown red fine to coarse SAND, some Silt; Moist		10 5	13.1		
---	Orange brown red fine to coarse SAND, some Silt; Moist		11 13 14			
---	Orange brown red fine to coarse SAND, some Silt, trace Clay; Moist		12 15 17	14.0		
30			23			

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### SOIL BORING LOG

WELL NO. <b>SB-10</b>	NORTHING	EASTING
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>	LOCATION <b>Plant 3 DryWells</b>	
APPROVED BY <b>O. Ramotar</b>	LOGGED BY <b>N. Gorelick</b>	<b>Bethpage, New York</b>

Depth, feet	Graphic Log	Visual Description (continued)	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown pink fine to coarse SAND; trace Silt; Moist	8 12 32 35	13.0	
		Brown pink fine to medium SAND; Moist	15 25 36 40	14.9	
35		Pink orange fine to medium SAND; Moist	11 25 36 5	17.4	35
		Orange brown fine to coarse SAND; Moist	17 43 50 5	9.2	
40		Orange brown coarse SAND; Moist	10 14 27 44	17.0	40
		Orange brown coarse SAND; Moist	8 2 28 31	3.0	
		Red brown to yellow coarse SAND; Moist	8 15 13 29	3.4	Red staining.
45		Red brown to yellow coarse SAND; Moist	14 25 33 36	6.0	Red staining. 45
		White brown coarse SAND; Moist	25 31 33 30	6.1	
		White to pink brown coarse SAND; Moist	27 26 23 50	4.7	Red staining.
50		White to pink brown coarse SAND; Moist	10 30 30 31	5.5	50
		Red brown coarse SAND; Wet	15 34 36 40	7.0	Red staining.
55		Red brown coarse SAND; Wet	17 36 47 44	5.5	55

▽  
PERCHED  
GROUND  
WATER LEVEL  
12/1/99

Bottom of soil boring.

BORING/WELL 70902Y.GPJ ROUX GDT 9/15/00



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### SOIL BORING LOG

WELL NO. <b>SB-11</b>	NORTHING	EASTING		
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>		LOCATION <b>Plant 3 DryWells</b>		
APPROVED BY <b>O. Ramotar</b>	LOGGED BY <b>N. Gorelick</b>	<b>Bethpage, New York</b>		
DRILLING CONTRACTOR/DRILLER <b>Aquifer Drilling &amp; Testing / Jim</b>		GEOGRAPHIC AREA		
DRILL BIT DIAMETER/TYPE <b>10 inches / Auger</b>	BOREHOLE DIAMETER <b>8-inches</b>	DRILLING EQUIPMENT/METHOD <b>Mobile Drill B-61 / HSA</b>	SAMPLING METHOD <b>2" Split Spoon</b>	START-FINISH DATE <b>12/2/99-12/2/99</b>
LAND SURFACE ELEVATION <b>(FT.)</b>	DEPTH TO WATER <b>53 (Feet BLS)</b>	BACKFILL <b>Grout</b>		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
5		Dark brown coarse SAND and GRAVEL	6.5		
		Dark brown coarse SAND and GRAVEL	8.6		
		Dark brown coarse SAND and GRAVEL	4	8.4	
		Dark brown coarse SAND and GRAVEL	8		
		Dark brown coarse SAND and GRAVEL	13		
		Dark brown coarse SAND and GRAVEL	17		
		Dark brown coarse SAND and GRAVEL; Moist	13	6.4	
		Dark brown coarse SAND and GRAVEL; Moist	25		
		Dark brown coarse SAND and GRAVEL; Moist	27		
		Dark brown coarse SAND and GRAVEL; Moist	28		
		Dark brown coarse SAND and GRAVEL; Moist	6	6.1	
		Dark brown coarse SAND and GRAVEL; Moist	12		
		Dark brown coarse SAND and GRAVEL; Moist	12		
		Dark brown coarse SAND and GRAVEL; Moist	13		
		Dark brown coarse SAND and GRAVEL; Moist	10	4.6	
		Dark brown coarse SAND and GRAVEL; Moist	14		
		Dark brown coarse SAND and GRAVEL; Moist	10		
		Dark brown coarse SAND and GRAVEL; Moist	12		
		Brown fine to coarse SAND; Moist	7	5.2	
		Brown fine to coarse SAND; Moist	11		
		Brown fine to coarse SAND; Moist	11		
		Brown fine to coarse SAND; Moist	17		
		Brown fine to coarse SAND; Moist	7	6.8	
		Brown fine to coarse SAND; Moist	13		
		Brown fine to coarse SAND; Moist	14		
		Brown fine to coarse SAND; Moist	16		
		Brown white SAND and GRAVEL; Moist	13	9.4	
		Brown white SAND and GRAVEL; Moist	19		
		Brown white SAND and GRAVEL; Moist	15		
		Brown white SAND and GRAVEL; Moist	19		
		Brown SAND and GRAVEL; Moist	18	7.9	
		Brown SAND and GRAVEL; Moist	25		
		Brown SAND and GRAVEL; Moist	26		
		Brown SAND and GRAVEL; Moist	28		
		Brown SAND and GRAVEL; Moist	15	8.3	
		Brown SAND and GRAVEL; Moist	19		
		Brown SAND and GRAVEL; Moist	19		
		Brown SAND and GRAVEL; Moist	15		
		Brown fine to coarse SAND, little Gravel; Moist	11	6.5	
		Brown fine to coarse SAND, little Gravel; Moist	12		
		Brown fine to coarse SAND, little Gravel; Moist	12		
		Brown fine to coarse SAND, little Gravel; Moist	14		
		Brown red fine to coarse SAND, trace Gravel; Moist	16	5.3	
		Brown red fine to coarse SAND, trace Gravel; Moist	15		
		Brown red fine to coarse SAND, trace Gravel; Moist	18		
		Brown red fine to coarse SAND, trace Gravel; Moist	19		
		Brown fine SAND, trace Silt; Moist	10	7.0	
		Brown fine SAND, trace Silt; Moist	16		
		Brown fine SAND, trace Silt; Moist	17		
		Brown fine SAND, trace Silt; Moist	17		
		Orange brown fine SAND, some Silt; Moist	13	7.2	
		Orange brown fine SAND, some Silt; Moist	12		
		Orange brown fine SAND, some Silt; Moist	14		
		Orange brown fine SAND, some Silt; Moist	14		

BORINGWELL: 70902Y.GPJ ROUX.GDT 9/15/00



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### SOIL BORING LOG

WELL NO. <b>SB-11</b>	NORTHING	EASTING
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>	LOCATION <b>Plant 3 DryWells</b>	
APPROVED BY <b>O. Ramotar</b>	LOGGED BY <b>N. Gorelick</b>	<b>Bethpage, New York</b>

Depth, feet	Graphic Log	Visual Description (continued)	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Pink orange fine SAND; Moist	16 22 22 19	9.4	
		Pink brown fine to coarse SAND; Moist	11 25 31 40	6.7	
35		Orange brown red fine to coarse SAND; Moist	13 38 50 5	12.6	Red staining.
		Brown red fine to coarse SAND; Moist	28 43 50 5	12.3	
40		Brown red fine to coarse SAND, trace white Clay; Moist	20 22 35 36	2.5	
		Orange brown red fine SAND; Moist	12 16 20 26	2.1	
		Orange brown red fine SAND; Moist	20 31 30 30	2.3	
45		Orange brown red fine SAND; Moist	8 9 21 30	0.2	Banded staining.
		Orange brown red fine SAND; Moist	9 15 15 21	none	Black staining.
		Orange brown red fine SAND; Moist	17 19 19	none	
50		Red white fine SAND; Moist	20 25 28 50 5	13.9	
		Red white fine to coarse SAND; Moist	21 26 35 40	12.4	
55		Pink red orange white fine to coarse SAND; Moist	10 15 21 40	13.8	

▽  
 PERCHED  
 GROUND  
 WATER LEVEL  
 12/2/99

Bottom of soil boring.

BORINGWELL 70902Y.GPJ ROUX.GDT 9/15/00



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### SOIL BORING LOG

WELL NO. <b>SB-12</b>		NORTHING	EASTING		
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>		LOCATION <b>Plant 3 DryWells</b>			
APPROVED BY <b>O. Ramotar</b>	LOGGED BY <b>N. Gorelick</b>		<b>Bethpage, New York</b>		
DRILLING CONTRACTOR/DRILLER <b>Aquifer Drilling &amp; Testing / Jim</b>		GEOGRAPHIC AREA			
DRILL BIT DIAMETER/TYPE <b>10 inches / Auger</b>	BOREHOLE DIAMETER <b>8-inches</b>	DRILLING EQUIPMENT/METHOD <b>Mobile Drill B-61 / HSA</b>	SAMPLING METHOD <b>2" Split Spoon</b>	START-FINISH DATE <b>12/3/99-12/3/99</b>	
LAND SURFACE ELEVATION <b>(FT.)</b>	DEPTH TO WATER <b>53 (Feet BLS)</b>	BACKFILL <b>Grout</b>			

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown fine to coarse SAND; Dry		3.4	
		Brown fine to coarse SAND; Dry		1.6	
5		Brown fine to coarse SAND; Dry	6 10 14	12.0	Hand augered to 5 ft below land surface.
		Brown fine to coarse SAND; Moist	13 9 9	7.3	
		Brown fine SAND, trace Gravel; Moist	13 14	9.3	
10		Brown fine SAND, trace Gravel; Moist	9 16	5.4	
		Brown gray fine SAND, trace Gravel; Moist	14 8	3.4	Staining.
		Brown fine to coarse SAND, trace Gravel; Moist	10 12 15	1.6	
15		Brown fine to coarse SAND, trace Gravel; Moist	11 17	3.6	
		Brown fine to coarse SAND; Moist	13 6 8 9 9	3.1	
20		Brown fine to coarse SAND, trace Silt and Clay; Moist	8 7 7 5	5.6	
		Brown fine to coarse SAND, trace Silt, Clay and Gravel; Moist	4 4 3 4	4.4	
		Dark brown to brown fine to coarse SAND; Moist	5 10 14	5.3	
25		Brown orange fine to coarse SAND; Moist	6 7	5.4	
		Brown orange fine to coarse SAND; Moist	9 12 11 12	4.1	
			5 10 10 10		
30			10		

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### SOIL BORING LOG

WELL NO. <b>SB-12</b>	NORTHING	EASTING
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>		LOCATION <b>Plant 3 DryWells</b>
APPROVED BY <b>O. Ramotar</b>	LOGGED BY <b>N. Gorelick</b>	<b>Bethpage, New York</b>

Depth, feet	Graphic Log	Visual Description (continued)	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown orange to white fine to coarse SAND, trace Silt; Moist	6 6 7 7	4.1	
		Brown orange fine to coarse SAND; Moist	9 14 21 25	6.9	
35		Brown orange fine to coarse SAND; Moist	7 10 16 14	1.1	35
		Orange coarse SAND; Moist	6 6 9 9	1.6	
40		Orange red coarse SAND; Moist	6 6 5 6	6.8	40
		Red brown to yellow white medium to coarse SAND; Moist	5 6 8 10	5.1	Red staining.
45		Red brown to yellow white medium to coarse SAND; Moist	6 7 7 11	6.5	
		Yellow white medium to coarse SAND; Moist	14 21 25 40	2.0	45
50		Yellow white to gray medium to coarse SAND; Moist	14 21 23 27	4.8	
		Orange red coarse SAND; Moist	19 31 50 5	6.5	
55		Gray white to red orange coarse SAND; Moist	7 26 30 32	5.2	Orange-red staining.
		Red fine to coarse SAND; Wet	7 16 30 42	5.9	Dark red staining.
		Red fine to coarse SAND; Wet	10 17 35 40	6.8	

▽  
PERCHED  
GROUND  
WATER LEVEL  
12/3/99

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### SOIL BORING LOG

WELL NO. <b>SB-13</b>		NORTHING	EASTING		
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>		LOCATION <b>Plant 3 DryWells</b>			
APPROVED BY <b>O. Ramotar</b>	LOGGED BY <b>N. Gorelick</b>		GEOGRAPHIC AREA <b>Bethpage, New York</b>		
DRILLING CONTRACTOR/DRILLER <b>Aquifer Drilling &amp; Testing / Rick Taylor</b>					
DRILL BIT DIAMETER/TYPE <b>10 inches / Auger</b>	BOREHOLE DIAMETER <b>8-inches</b>	DRILLING EQUIPMENT/METHOD <b>Mobile Drill B-61 / HSA</b>	SAMPLING METHOD <b>2" Split Spoon</b>	START-FINISH DATE <b>4/18/00-4/18/00</b>	
LAND SURFACE ELEVATION (FT.)	DEPTH TO WATER (Feet BLS)	BACKFILL <b>Grout</b>			

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
5		Dark brown medium to coarse SAND, trace Gravel; Moist			PID not working.
10		Dark brown medium to coarse SAND, trace Gravel; Moist			
15					
20					
25					
30					

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## SOIL BORING LOG

Page 2 of 2

WELL NO. <b>SB-13</b>	NORTHING	EASTING
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>		LOCATION <b>Plant 3 DryWells</b>
APPROVED BY <b>O. Ramotar</b>	LOGGED BY <b>N. Gorelick</b>	<b>Bethpage, New York</b>

Depth, feet	Graphic Log	Visual Description (continued)	Blow Counts per 6"	PID Values (ppm)	REMARKS
35		Dark brown medium to coarse SAND, trace Gravel; Moist			
40		Dark brown red to tan medium to coarse SAND, trace Gravel; Moist	5 6 7 7		
45		Tan white fine SAND; Moist	5 6 14 16		
		White to red little black fine SAND; Moist	10 24 24		
		White gray to red fine SAND; Moist	36 14 23 28 32 20 30 32		
50		Gray to brown fine SAND; Moist	34 22 38 28 38		
		White gray to red fine to coarse SAND; Moist	22 29 34 32		

Bottom of soil boring.



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### SOIL BORING LOG

WELL NO. <b>SB-14</b>	NORTHING	EASTING		
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>		LOCATION <b>Plant 3 DryWells</b>		
APPROVED BY <b>O. Ramotar</b>	LOGGED BY <b>N. Gorelick</b>	<b>Bethpage, New York</b>		
DRILLING CONTRACTOR/DRILLER <b>Aquifer Drilling &amp; Testing / Rick Taylor</b>		GEOGRAPHIC AREA		
DRILL BIT DIAMETER/TYPE <b>10 inches / Auger</b>	BOREHOLE DIAMETER <b>8-inches</b>	DRILLING EQUIPMENT/METHOD <b>Mobile Drill B-61 / HSA</b>	SAMPLING METHOD <b>2" Split Spoon</b>	START-FINISH DATE <b>4/18/00-4/18/00</b>
LAND SURFACE ELEVATION <b>(FT.)</b>	DEPTH TO WATER <b>(Feet BLS)</b>	BACKFILL <b>Grout</b>		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
5		Dark brown medium SAND, trace Gravel.			
10					
15					
20			8	.4	Recovery 30%
25		Brown to light brown medium to coarse SAND and Gravel.	12		
			10		
			9	.5	Recovery 40%
			13		
			16		
			20		
			22		
			15	.3	Recovery 50%
			8		
			6		
			6		
			14	.2	Recovery 60%
			14		
			20		
			25		
			22	.3	Recovery 60%
			21		
			38		
30		Red brown fine to medium SAND and Gravel.	34		

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### SOIL BORING LOG

WELL NO. <b>SB-14</b>	NORTHING	EASTING
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>		LOCATION <b>Plant 3 DryWells</b>
APPROVED BY <b>O. Ramotar</b>	LOGGED BY <b>N. Gorelick</b>	<b>Bethpage, New York</b>

Depth, feet	Graphic Log	Visual Description (continued)	Blow Counts per 6"	PID Values (ppm)	REMARKS	
		Red brown fine to medium SAND.	10	.1	Recovery 50%	
			18			
			22	.1	Recovery 50%	
			24			
			22			
			27			
			29	.3	Recovery 50%	
			32			
35				28	.4	Recovery 50%
				22		
				37		
				39		
			Offwhite fine SAND.	13	.2	Recovery 50%
				15		
			15	.2	Recovery 50%	
			16			
			14			
			16	.2	Recovery 50%	
			21			
40			24			

End of soil boring.



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### SOIL BORING LOG

WELL NO. <b>SB-15</b>		NORTHING	EASTING		
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>		LOCATION <b>Plant 3 DryWells</b>			
APPROVED BY <b>O. Ramotar</b>	LOGGED BY <b>N. Gorelick</b>		GEOGRAPHIC AREA <b>Bethpage, New York</b>		
DRILLING CONTRACTOR/DRILLER <b>Aquifer Drilling &amp; Testing / Rick Taylor</b>					
DRILL BIT DIAMETER/TYPE <b>10 inches / Auger</b>	BOREHOLE DIAMETER <b>8-inches</b>	DRILLING EQUIPMENT/METHOD <b>Mobile Drill B-61 / HSA</b>	SAMPLING METHOD <b>2" Split Spoon</b>	START-FINISH DATE <b>4/19/00-4/19/00</b>	
LAND SURFACE ELEVATION <b>(FT.)</b>	DEPTH TO WATER <b>(Feet BLS)</b>	BACKFILL <b>Grout</b>			

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Asphalt			Hand augered to 5 feet.
5		Medium to coarse SAND, some Gravel.			
10		Brown medium to coarse SAND, some Gravel.			
15		Light brown to brown medium to coarse SAND, some Gravel.	8		Recovery 15%
20		Offwhite to brown fine to coarse SAND, some Gravel.	12 14 11		Recovery 40%
25		Brown to red brown medium SAND, some Gravel.	15 15 21 20		Recovery 50%

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### SOIL BORING LOG

WELL NO. <b>SB-15</b>	NORTHING	EASTING
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>	LOCATION <b>Plant 3 DryWells</b>	
APPROVED BY <b>O. Ramotar</b>	LOGGED BY <b>N. Gorelick</b>	<b>Bethpage, New York</b>

Depth, feet	Graphic Log	Visual Description (continued)	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown to red brown medium SAND, some Gravel. <i>(continued)</i>	22		
		Brown to red brown medium to coarse SAND, and grey to white fine to medium SAND.	20 11 15 15 30		Recovery 60%
		Red brown to brown fine to medium SAND.	22 32 37		Recovery 50%
30		Brown to offwhite fine to medium SAND	38 15 18 25 25		Recovery 60%
		White to offwhite fine to medium SAND	26 28 32 35		Recovery 50%
35		White to offwhite fine to medium SAND	12 15 22		
		Light red brown fine to medium SAND. Some white fine to medium SAND	34 30 37 44 45		Recovery 50%.

End of soil boring.



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### SOIL BORING LOG

WELL NO. <b>SB-16</b>		NORTHING	EASTING		
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>		LOCATION <b>Plant 3 DryWells</b>			
APPROVED BY <b>O. Ramotar</b>		LOGGED BY <b>N. Gorelick</b>		GEOGRAPHIC AREA <b>Bethpage, New York</b>	
DRILLING CONTRACTOR/DRILLER <b>Aquifer Drilling &amp; Testing / Rick Taylor</b>					
DRILL BIT DIAMETER/TYPE <b>10 inches / Auger</b>	BOREHOLE DIAMETER <b>8-inches</b>	DRILLING EQUIPMENT/METHOD <b>Mobile Drill B-61 / HSA</b>	SAMPLING METHOD <b>2" Split Spoon</b>	START-FINISH DATE <b>4/19/00-4/19/00</b>	
LAND SURFACE ELEVATION <b>(FT.)</b>	DEPTH TO WATER <b>(Feet BLS)</b>	BACKFILL <b>Grout</b>			

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Asphalt			
		Dark brown medium to coarse SAND and Gravel.			Post hole to 5 feet, then auger to 10 feet.
5					5
		Light brown to white brown fine to medium SAND, trace Gravel	18		Recovery 60%
		Light brown to white brown fine to medium SAND, and Gravel	18 18 17		Recovery 60%
		Brown to light brown fine to coarse SAND and Gravel	20 22 5		Recovery 50%
15		Brown to light brown fine to coarse SAND and Gravel	17 18 20 22		Recovery 60%
		Brown to light brown fine to coarse SAND and Gravel	37 22 25 25		Recovery 40%
		Brown to dark brown fine to coarse SAND and Gravel.	17 19 20 26 28 29 18		Recovery 50%
		Brown to red brown medium to fine SAND some Gravel.	11 15 15 17		Recovery 50%
		Brown to red brown medium to fine SAND some Gravel.	16 19		Rod broke during extraction of tube. Recovery 60%
25					25

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### SOIL BORING LOG

WELL NO. <b>SB-16</b>	NORTHING	EASTING
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>	LOCATION <b>Plant 3 DryWells</b>	
APPROVED BY <b>O. Ramotar</b>	LOGGED BY <b>N. Gorelick</b>	<b>Bethpage, New York</b>

Depth, feet	Graphic Log	Visual Description (continued)	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown to red brown medium to fine SAND some Gravel. (continued)	22		
			24		
		Light brown to red brown fine SAND.	16		Recovery 60%
			18		
			21		
			22		
		Light brown to white-brown fine SAND.	18		Recovery 80%
			20		
			21		
30			17		30
		Dark brown to red-brown fine to coarse SAND, some Gravel	12		Recovery 60%
			17		
			21		
			19		
		Dark brown to red-brown fine to coarse SAND, some Gravel	15		Recovery 50%
			19		
			21		
			25		
		White to offwhite fine to medium SAND, some Gravel.	18		Recovery 60%
35			22		35
			25		
			27		
		White to offwhite fine to medium SAND, some Gravel.	25		Recovery 40%
			28		
			32		
			37		
		Red brown fine to medium SAND.	19		Recovery 60%
			22		
			25		
40			24		40
		Red brown to off white fine to coarse SAND.	25		Recovery 40%
			25		
			32		
			38		
		Red brown to off white fine to coarse SAND.	15		Recovery 80%
			17		
			25		
			30		
		Red brown to off white fine to coarse SAND.	28		Recovery 30%
45			27		45
			20		
			25		
		Brown fine to medium SAND.	26		
			28		
			27		
			27		
		Brown fine to medium SAND.			
50					50

End boring

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### SOIL BORING LOG

WELL NO. <b>SB-17</b>	NORTHING	EASTING		
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>		LOCATION <b>Plant 3 DryWells</b>		
APPROVED BY <b>O. Ramotar</b>	LOGGED BY <b>N. Gorelick</b>	<b>Bethpage, New York</b>		
DRILLING CONTRACTOR/DRILLER <b>Aquifer Drilling &amp; Testing / Rick Taylor</b>		GEOGRAPHIC AREA		
DRILL BIT DIAMETER/TYPE <b>10 inches / Auger</b>	BOREHOLE DIAMETER <b>8-inches</b>	DRILLING EQUIPMENT/METHOD <b>Mobile Drill B-61 / HSA</b>	SAMPLING METHOD <b>2" Split Spoon</b>	START-FINISH DATE <b>4/24/00-2/24/00</b>
LAND SURFACE ELEVATION <b>(FT.)</b>	DEPTH TO WATER <b>(Feet BLS)</b>	BACKFILL <b>Grout</b>		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
	Asphalt				
5		Dark brown to brown medium to coarse SAND, some Gravel.			
10		Dark brown to brown medium to coarse SAND, some Gravel.			
15					
20		Brown to light brown medium to coarse SAND, trace Gravel.	21		Recovery 50%
		Brown to offwhite fine to coarse SAND.	21 21 23 24		
		Brown to offwhite fine to coarse SAND, trace Gravel.	12 12 19 15		Recovery 50%
25		Brown to offwhite fine to coarse SAND, trace Gravel.	20 20		Recovery 50%

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### SOIL BORING LOG

WELL NO. <b>SB-17</b>	NORTHING	EASTING
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>	LOCATION <b>Plant 3 DryWells</b>	
APPROVED BY <b>O. Ramotar</b>	LOGGED BY <b>N. Gorelick</b>	<b>Bethpage, New York</b>

Depth, feet	Graphic Log	Visual Description (continued)	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown to offwhite fine to coarse SAND, trace Gravel. <i>(continued)</i>	20		
			20		
		Brown to red brown fine to medium SAND.	10		Recovery 60%
			19		
			27		
		Brown to red brown fine to medium SAND.	19		
			9		
			14		
			8		
30			9		30
		Brown to red brown fine to coarse SAND, trace Gravel.	10		Recovery 60%
			18		
			10		
		Brown to red brown fine to coarse SAND, trace Gravel.	8		Recovery 60%
			16		
			20		
			12		
			15		
35		Red brown to white fine to medium SAND.	25		Recovery 60%
			23		35
			30		
		Brown to red brown fine to medium SAND.	25		Recovery 60%
			12		
			12		
			9		
			8		
		Brown to red brown fine to medium SAND, some Clay	15		Recovery 50%
			10		
			8		
40			6		40

End of soil boring.

**APPENDIX B**

Well Construction Logs

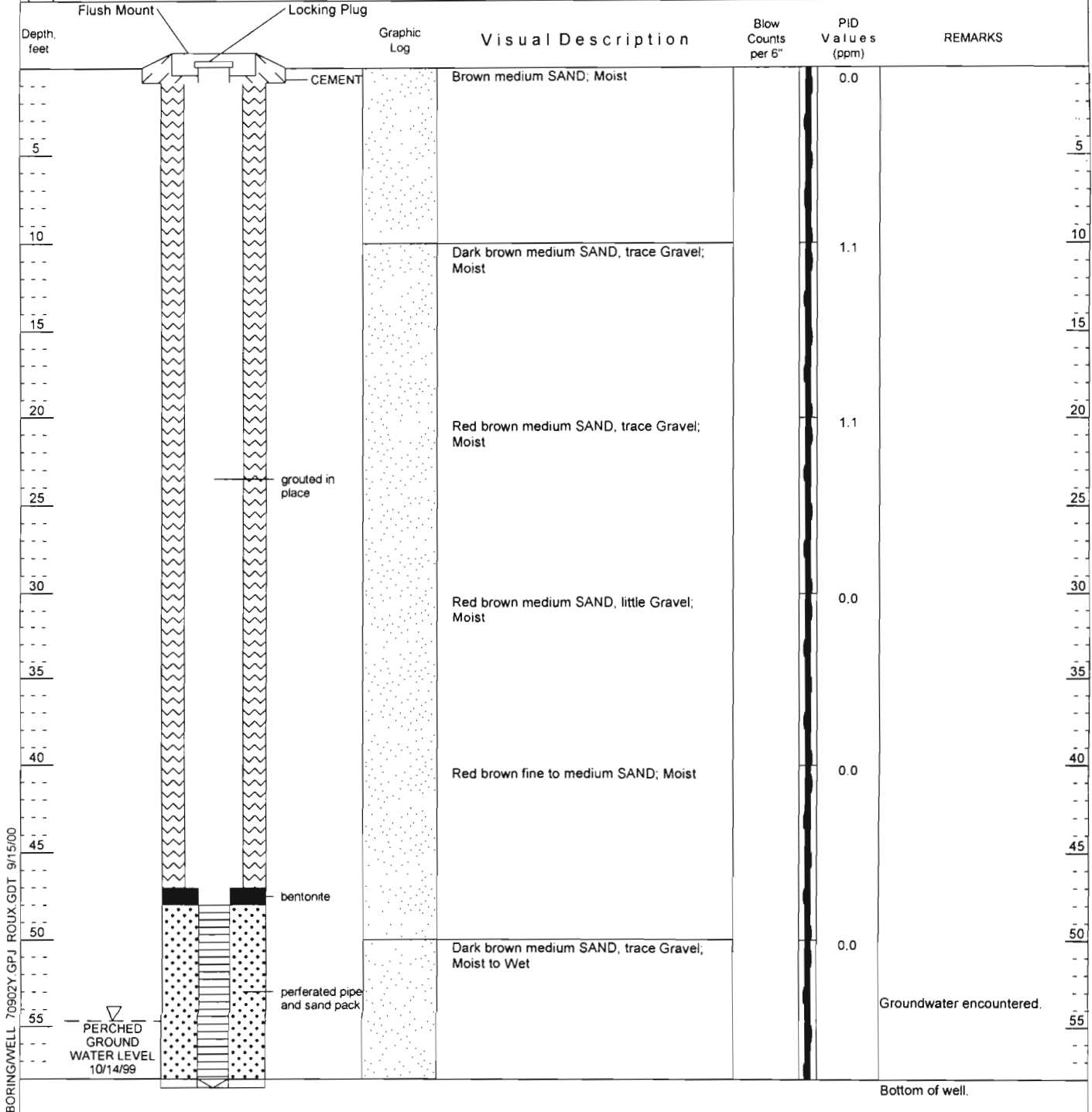


**ROUX ASSOCIATES, INC.**  
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## WELL CONSTRUCTION LOG

WELL NO. <b>MW-1</b>		NORTHING	EASTING		
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>		LOCATION <b>Plant 3 DryWells</b>			
APPROVED BY <b>B. Fisher</b>	LOGGED BY <b>N. Gorelick</b>	GEOGRAPHIC AREA <b>Bethpage, New York</b>			
DRILLING CONTRACTOR/DRILLER <b>Aquifer Drilling &amp; Testing / Chris Stratton</b>					
DRILL BIT DIAMETER/TYPE <b>10 inches / Auger</b>	BOREHOLE DIAMETER <b>8-inches</b>	DRILLING EQUIPMENT/METHOD <b>Mobile Drill B-61 / HSA</b>	SAMPLING METHOD <b>Hollow Stem Auger</b>	START-FINISH DATE <b>9/27/99-9/27/99</b>	
CASING MAT./DIA. <b>PVC / 4-inch</b>	SCREEN: TYPE <b>Slotted</b> MAT. <b>PVC</b>	TOTAL LENGTH <b>10.0</b>	DIA. <b>4-inch</b>	SLOT SIZE <b>20-Slot</b>	
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN	GW SURFACE	GRAVEL PACK <b>#2 Sand Pack</b>



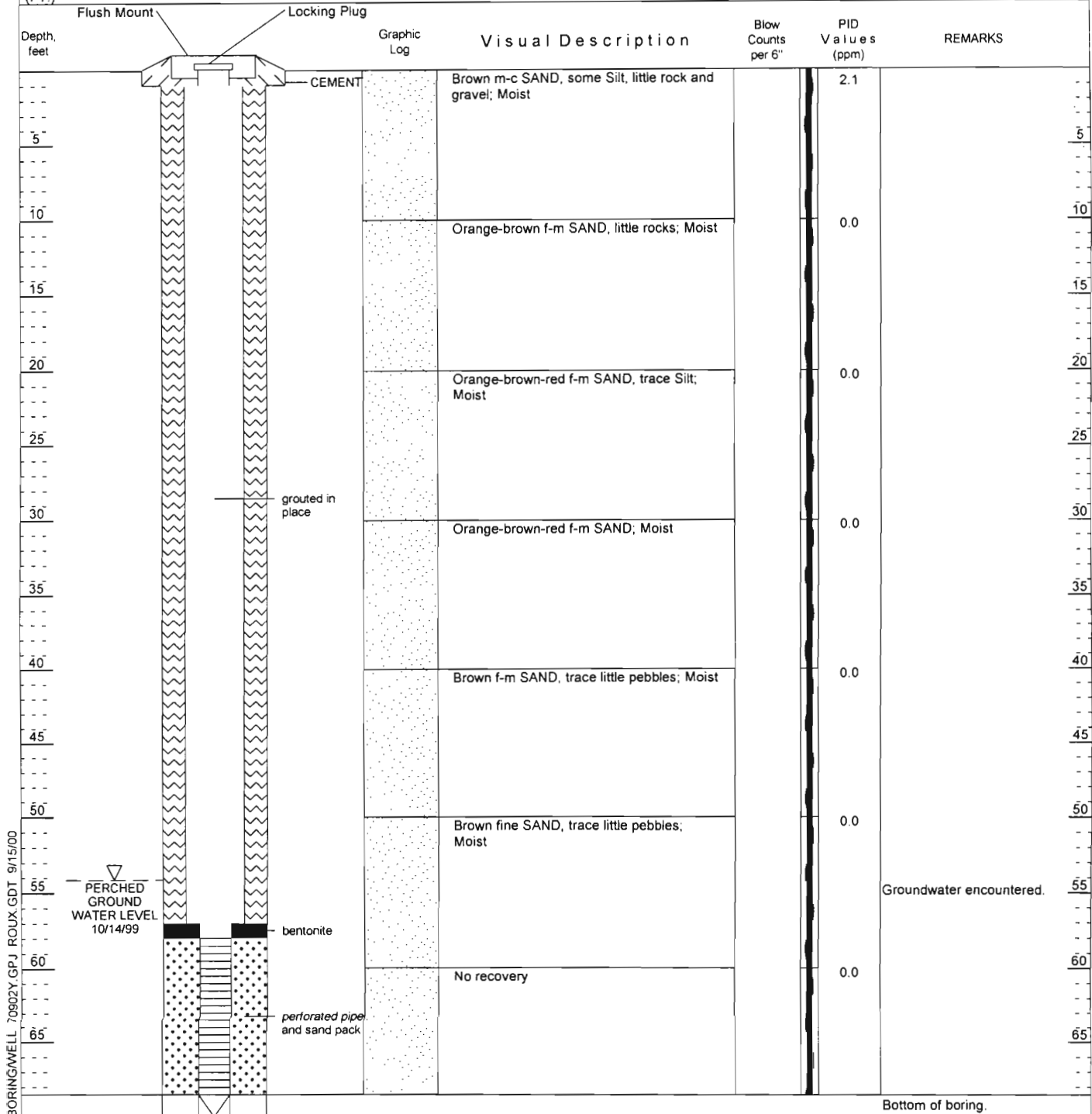


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## WELL CONSTRUCTION LOG

WELL NO. <b>MW-2</b>		NORTHING	EASTING		
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>		LOCATION <b>Plant 3 DryWells</b>			
APPROVED BY <b>B. Fisher</b>	LOGGED BY <b>N. Gorelick</b>		GEOGRAPHIC AREA <b>Bethpage, New York</b>		
DRILLING CONTRACTOR/DRILLER <b>Aquifer Drilling &amp; Testing / Chris Stratton</b>					
DRILL BIT DIAMETER/TYPE <b>10 inches / Auger</b>	BOREHOLE DIAMETER <b>8-inches</b>	DRILLING EQUIPMENT/METHOD <b>Mobile Drill B-61 / HSA</b>	SAMPLING METHOD <b>Hollow Stem Auger</b>	START-FINISH DATE <b>9/28/99-9/28/99</b>	
CASING MAT./DIA. <b>PVC / 4-inch</b>	SCREEN: TYPE <b>Slotted</b>	MAT. <b>PVC</b>	TOTAL LENGTH <b>10.0</b>	DIA. <b>4-inch</b>	SLOT SIZE <b>20-Slot</b>
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN	GW SURFACE	GRAVEL PACK <b>#2 Sand Pack</b>



BORINGWELL 70902Y.GPJ ROUX.GDT 9/15/00

Bottom of boring.

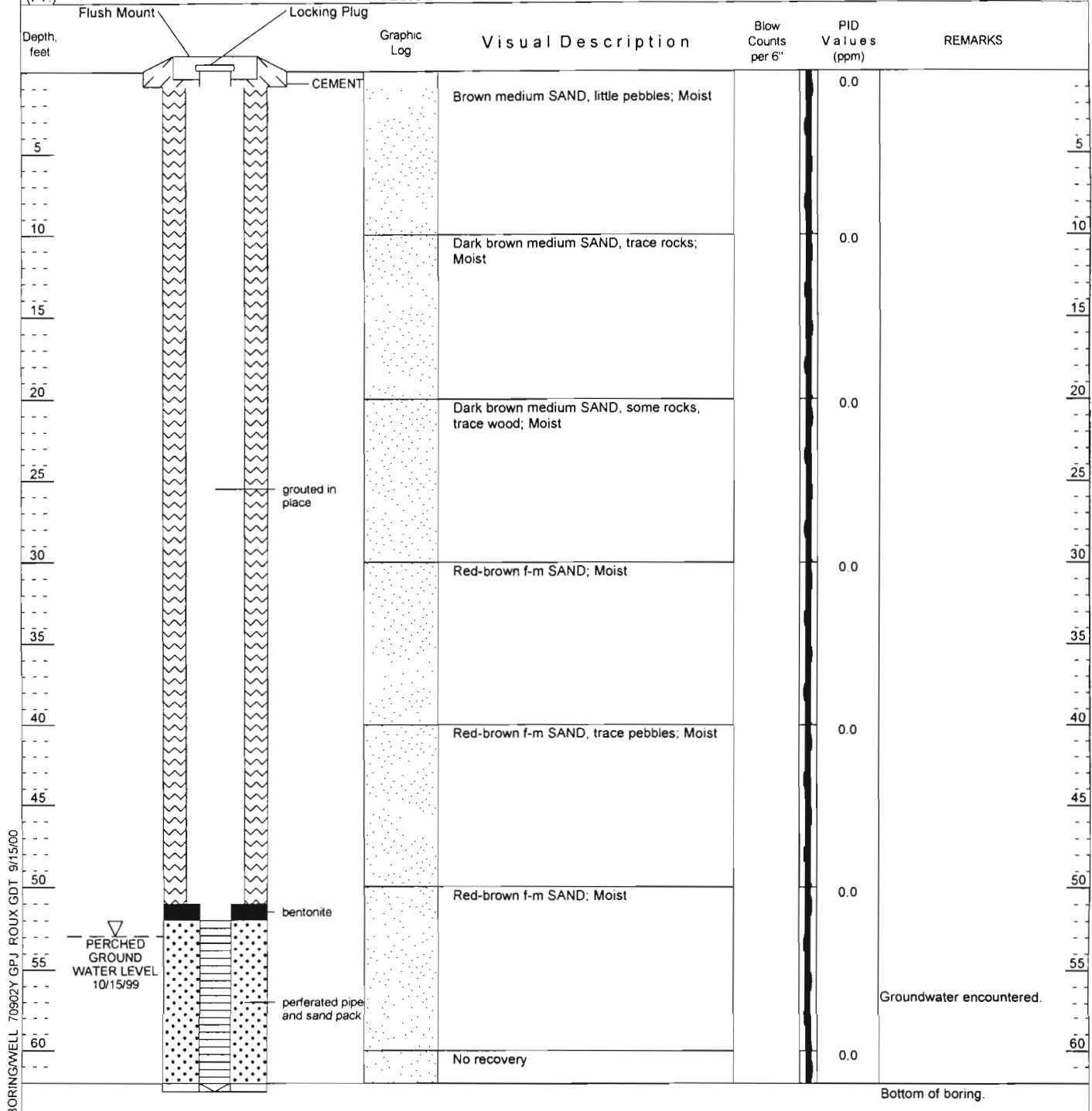


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## WELL CONSTRUCTION LOG

WELL NO. <b>MW-3</b>	NORTHING	EASTING			
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>		LOCATION <b>Plant 3 DryWells</b>			
APPROVED BY <b>B. Fisher</b>	LOGGED BY <b>N. Gorelick</b>	Bethpage, New York			
DRILLING CONTRACTOR/DRILLER <b>Aquifer Drilling &amp; Testing / Chris Stratton</b>		GEOGRAPHIC AREA			
DRILL BIT DIAMETER/TYPE <b>10 inches / Auger</b>	BOREHOLE DIAMETER <b>8-inches</b>	DRILLING EQUIPMENT/METHOD <b>Mobile Drill B-61 / HSA</b>	SAMPLING METHOD <b>Hollow Stem Auger</b>	START-FINISH DATE <b>10/5/99-10/5/99</b>	
CASING MAT./DIA. <b>PVC / 4-inch</b>	SCREEN: TYPE <b>Slotted</b> MAT. <b>PVC</b>	TOTAL LENGTH <b>10.0</b>	DIA. <b>4-inch</b>	SLOT SIZE <b>20-Slot</b>	
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING <b>120.62</b>	TOP & BOTTOM SCREEN <b>/</b>	GW SURFACE <b>67.67</b>	GRAVEL PACK <b>#2 Sand Pack</b>





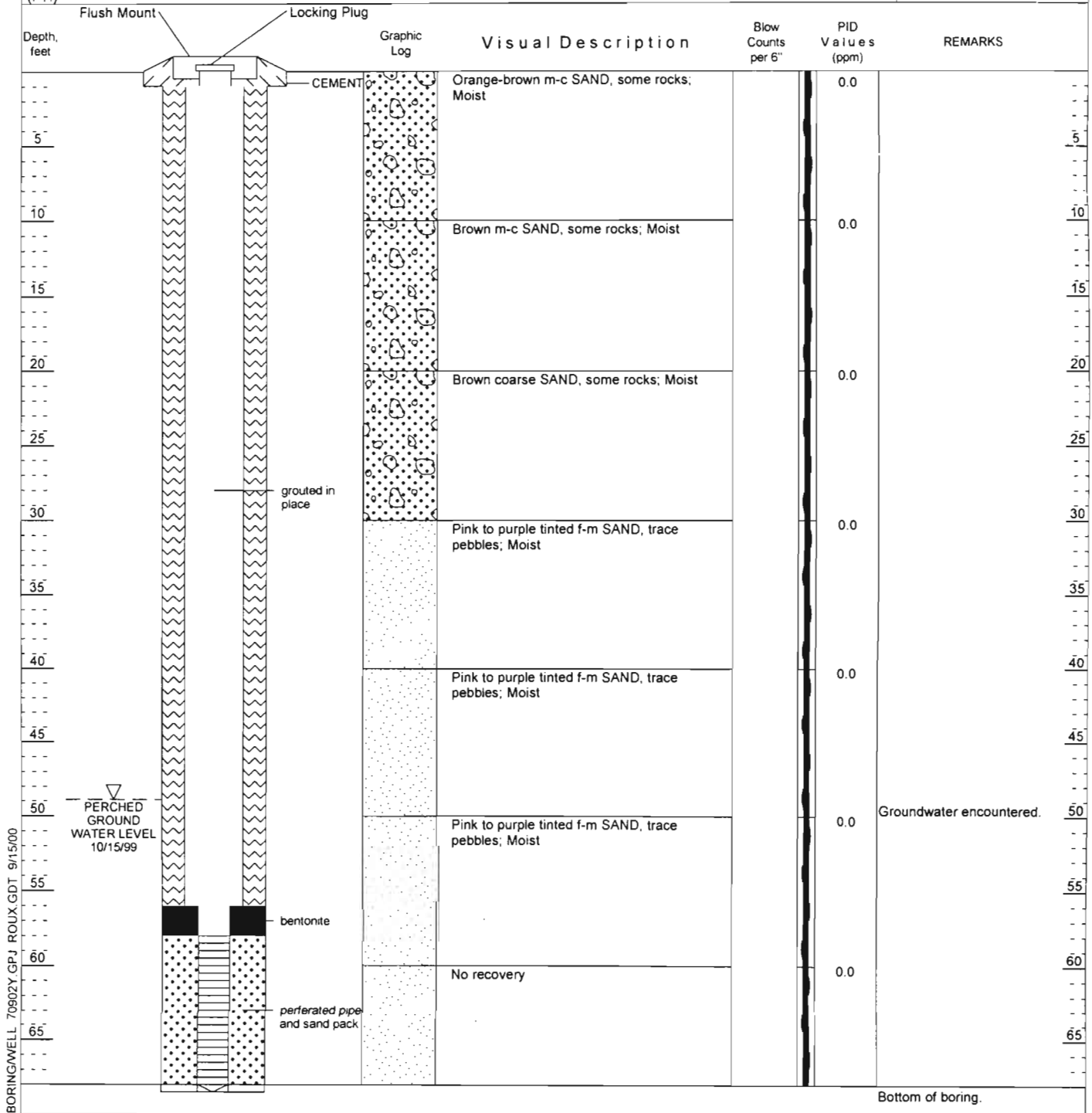
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## WELL CONSTRUCTION LOG

WELL NO. <b>MW-4</b>	NORTHING	EASTING			
PROJECT NO./NAME <b>70902Y / Northrop Grumman Corporation</b>		LOCATION <b>Plant 3 DryWells</b>			
APPROVED BY <b>B. Fisher</b>	LOGGED BY <b>N. Gorelick</b>	<b>Bethpage, New York</b>			
DRILLING CONTRACTOR/DRILLER <b>Aquifer Drilling &amp; Testing / Chris Stratton</b>		GEOGRAPHIC AREA			
DRILL BIT DIAMETER/TYPE <b>10 inches / Auger</b>	BOREHOLE DIAMETER <b>8-inches</b>	DRILLING EQUIPMENT/METHOD <b>Mobile Drill B-61 / HSA</b>	SAMPLING METHOD <b>Hollow Stem Auger</b>	START-FINISH DATE <b>10/6/99-10/6/99</b>	
CASING MAT./DIA. <b>PVC / 4-inch</b>	SCREEN TYPE <b>Slotted</b>	MAT. <b>PVC</b>	TOTAL LENGTH <b>10.0</b>	DIA. <b>4-inch</b>	SLOT SIZE <b>20-Slot</b>
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN <b>/</b>	GW SURFACE	GRAVEL PACK <b>#2 Sand Pack</b>



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