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Gannett Fleming

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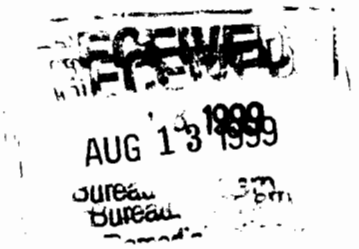
August 11, 1999
File #34413

Susan McCormick, P.E.
New York State Department of
Environmental Conservation
Division of Environmental Remediation
50 Wolf Road, Room 260B
Albany, New York 12233-7010



Re: Groundwater Monitoring Plan
Delisting Request-Plant 2 and
Parcel W-1 (Site No. 130003A)
Former Northrop Grumman Site

Dear Ms. McCormick:

This letter summarizes conversations we have had with you, John Cofman and Bill Gilday relative to the groundwater sampling plan requested by NYSDEC as a condition of granting Steel Los's request to delist the Plant 2 property at the Northrop Grumman site in Bethpage, Long Island.

At this time, we are also requesting, on behalf of Steel Los, that parcel W-1, located south of the BOCES building and west of the recharge basins, also be delisted along with Plant 2 upon the NYSDEC's approval of a comprehensive groundwater monitoring plan for the site. Steel Los is planning to purchase parcel W-1 from Northrop Grumman for use as a parking lot and storage for the BOCES building. Part of the purchase agreement will require that the existing asphalt cap and stormwater drainage system be maintained. We have enclosed a copy of Northrop Grumman's February 5 and June 26, 1997 sampling reports for this parcel which indicates that the soil does not exceed the TCLP criteria for hazardous waste. A copy of the relevant purchase contract language for maintenance of parcel W-1 will be provided under separate cover.

The attached site plan shows the location of the monitoring wells proposed in the vicinity of Plant 2 and parcel W-1. Monitoring wells GM16S, 10631, GM78S, MW3R, GM20S are included in Northrop Grumman's draft monitoring plan as submitted to NYSDEC. These wells are to be sampled for cadmium and chromium. You indicated that the NYSDEC would also like to include monitoring wells GM17S and GM18S in the cadmium and chromium sampling plan.

Continued . . .

Susan McCormick, P.E.
New York State Department of
Environmental Conservation
August 11, 1999

We suggest that, in addition, shallow monitoring wells MW1 and MW2 which were installed north of the BOCES building during a pre-sale phase II site assessment by Northrop Grumman be included in the monitoring plan for cadmium and chromium. These wells were recently inspected and redeveloped and they are producing clear water. By copy of this letter, we are requesting John Cofman to include these wells in the proposed monitoring plan for the site in accordance with the agreement between Steel Los and Northrop Grumman.

This monitoring plan should comply with your requests and allow the NYSDEC to delist Plant 2 and parcel W-1 once the complete monitoring plan for the Northrop Grumman site is approved.

Please call us if you have any questions or require additional information.

Very truly yours,

GANNETT FLEMING ENGINEERS AND ARCHITECTS, P.C.

DEAN DEVOE, P.E.
Project Manager

LEONARD EDER, P.E.
Senior Consultant

DD:LE/jbw

cc: W. Gilday, P.E.
J. Cofman
J. Lostritto
P. Casowitz, Esq.

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Dvirka
and
Bartilucci
CONSULTING ENGINEERS

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516-364-9890 • 718-460-3634 • Fax: 516-364-9045

June 26, 1997

John Ohlmann, P.E.
Consultant for
Northrop Grumman Corporation
Mail Stop D08-001
Bethpage, NY 11714-3582

Re: Former South Receiving Basin
Supplemental Phase II Site Assessment
D&B No. 801/96-80

Dear Mr. Ohlmann:

This letter presents the results of the Supplemental Phase II Site Assessment conducted by Dvirka and Bartilucci Consulting Engineers (D&B) on May 7, 1997 at the former South Receiving Basin located to the south of the B.O.C.E.S. site in Bethpage, NY. The scope of work for the Supplemental Phase II Site Assessment was conducted in accordance with our letter proposal to Northrop Grumman Corporation (NGC) dated April 25, 1996.

The purpose of the investigation was to resample locations where certain metals were previously detected in soil samples at concentrations greater than 20 times the Toxicity Characteristic Leaching Procedure (TCLP) regulatory levels, during the Phase II Site Assessment. Specifically, the Phase II results are as follows:

Sample Location	Metal	Concentration (mg/kg)	TCLP Regulatory Level (mg/L)
BRB-1 (10'-12')	Chromium	201	5.0
BRB-1 (10'-12')	Lead	108	5.0
BRB-1 (20'-22')	Lead	804	5.0
BRB-2 (10'-12')	Chromium	903	5.0
BRB-2 (10'-12')	Lead	200	5.0
BRB-2 (10'-12')	Silver	100	5.0
BRB-2 (15'-17')	Chromium	337	5.0
BRB-2 (20'-22')	Chromium	304	5.0

Background

The former South Receiving Basin is the westernmost in a series of recharge basins located along the southern boundary of the NGC property in Bethpage, NY. According to a Remedial Investigation Report dated 1994 prepared by others, the "south recharge basins" were utilized under a State Pollutant Discharge Elimination System (SPDES) permit for the recharge of treated wastewater from the Industrial Waste Treatment Plant (IWTP) at NGC Plant 2 from the mid-1940's to 1981. In 1981, the Plant 2 IWTP was connected to the Nassau County sewer system and since that time the south recharge basins have been permitted to receive only non-contact cooling water and storm water runoff. Aerial photographs reviewed by D&B as part of the Phase I Site Assessment indicated the former South Receiving Basin was partially backfilled by 1988.

D&B conducted several field investigations at the former South Receiving Basin between February 1996 and July 1996 which are summarized in a letter report dated February 5, 1997. As part of one of those field investigations, one groundwater monitoring well, MW-3, was installed at the southwest corner of the backfilled former South Receiving Basin in February 1996. Depth to groundwater in this monitoring well was measured at approximately 44 feet below grade at that time. Groundwater samples were collected from MW-3 in February, May and July 1996. Groundwater sample analytical results indicated concentrations of cadmium and chromium above the New York State Department of Environmental Conservation (NYSDEC) Class GA Groundwater Standards.

Two soil borings, BRB-1 and BRB-2, were drilled within the backfilled former South Receiving Basin to the northeast of MW-3 (hydraulically upgradient) in February 1996. In July 1996, deeper soil borings were advanced to the water table, adjacent to the previous two soil boring locations. Soil samples collected from the borings consisted primarily of brown sand. Brown/black organic material was observed in several samples collected above 17 feet below grade. Soil samples collected above 10'-12' deep were moist and soil samples collected at or below 10'-12' deep were saturated.

Soil samples collected from the borings contained individual semivolatile organic compounds (SVOCs) at concentrations greater than the NYSDEC TAGM 4046 Appendix A criteria, however the total concentrations of SVOCs in the soil samples were less than the alternative NYSDEC TAGM 4046 Appendix A criteria for total SVOCs of 500 mg/kg. With the exception of mercury, exceedances of the higher of the NYSDEC TAGM 4046 Appendix A criteria or the published background soil concentrations for metals were limited to between 5 feet and 22 feet below grade.

Field Investigation - May 7, 1997

On May 7, 1997, two soil borings were advanced within the backfilled former South Receiving Basin, each approximately 7 feet southwest of the location of the previous soil boring locations. The lateral distance was selected based on NGC's discussion with NYSDEC regarding the scope of work. As stated above, the purpose of the field investigation was to obtain soil samples for TCLP metals analysis at depths and locations where previously collected soil samples contained metals at concentrations greater than 20 times the TCLP regulatory levels.

The borings were advanced and soil samples collected using a truck-mounted Earth Probe. Soil samples were collected approximately 7' from BRB-1 ("SW-BRB-1") at depths of 10'-12' and 20'-22'. Soil samples were collected approximately 7' from BRB-2 ("SW-BRB-2") at depths of 10'-12', 15'-17' and 20'-22'. Soil samples collected at depths of 10' to 12' in both borings consisted of moist brown sand. Soil samples collected from 15' to 17' deep in SW-BRB-2 and 20' to 22' deep in both borings consisted of saturated brown sand. Black organic material was observed in the 10' to 12' deep sample collected from SW-BRB-1.

All soil samples were collected in precleaned jars, stored on ice and transported to a NYSDEC approved laboratory for analysis. Soil samples were extracted according to the EPA TCLP and the extract was analyzed for the eight TCLP metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver) according to EPA SW-846 Methods 6010 and 7000 series. The analytical results for the soil samples are presented on the attached Table 1. As indicated on Table 1, the concentrations of metals in the TCLP extracts are below the TCLP regulatory levels.

The laboratory data package was reviewed in accordance with NYSDEC requirements in order to ensure the integrity and usability of the results. Based on the data validation, sample analyses were performed in accordance with the required methods and no problems were noted with the analyses, therefore all results are deemed valid and usable.

Conclusion

On May 7, 1997, soil samples were collected at the former South Receiving Basin adjacent to the locations of previously collected soil samples which exhibited concentrations of certain metals (chromium, lead and silver) greater than 20 times the TCLP regulatory levels. The concentrations of metals in the TCLP extracts from the soil samples were all less than the TCLP regulatory levels.

If you have any questions and/or comments regarding this matter, please do not hesitate to contact Mr. David Glass or me at (516)364-9890.

Very truly yours,

Richard M. Walka

Richard M. Walka
Vice President

RMW/DSG/mb
Enclosure
cc: J. Cofman (NGC)
A. Postyn (NGC)
D. Glass (D&B)
♦0801\RMW0627.JO(R05)

TABLE 1
NORTHROP GRUMMAN CORPORATION
FORMER SOUTH RECEIVING BASIN
SOIL SAMPLING RESULTS
TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) METALS

SAMPLE IDENTIFICATION	SW-BRB-1	SW-BRB-1	SW-BRB-2	SW-BRB-2	SW-BRB-2	INSTRUMENT DETECTION LIMIT	TCLP REGULATORY LEVEL
SAMPLE DEPTH	10'-12'	20'-22'	10'-12'	15'-17'	20'-22'		
DATE OF COLLECTION	05/07/97	05/07/97	05/07/97	05/07/97	05/07/97		
DILUTION FACTOR	1	1	1	1	1		
UNITS	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)
Arsenic	6.5 B	3.1 B	8.7 B	5.6 B	4.2 B	3.0	5,000
Barium	820	145 B	943	851	214	4.0	100,000
Cadmium	10.7	13.7	8.3	12.1	9.3	1.0	1,000
Chromium	31.0	15.3	84.3	26.1	32.6	1.0	5,000
Lead	139	13.3	144	32.6	26.0	2.0	5,000
Mercury	U	U	U	U	U	0.2	200
Selenium	9.7	11.7	11.8	11.0	10.8	3.0	1,000
Silver	1.4 B	U	9.5 B	1.2 B	U	1.0	5,000

Qualifiers:
B: Concentration is greater than the Instrument Detection Limit but less than the Contract Required Detection Limit.
U: Analyzed for but not detected.

NORTHROP GRUMMAN

Grumman Aerospace Corporation
Electronics & Systems Integration Division
A Subsidiary of Northrop Grumman
South Oyster Bay Road
Bethpage, New York 11714

February 13, 1997
ETC97-038

Mr. J. D. Barnes, P.E.
Bureau of Eastern Remedial Action
New York State Department of Environmental Conservation
50 Wolf Road
Albany, New York 12233

Subject: **Former South Receiving Basin**
Soil and Groundwater Sampling Program Report

Enclosure: Letter Report from Dvirka & Bartilucci to J. Ohlmann dated February 5, 1997

Dear Mr. Barnes:

As discussed with J. Ohlmann, enclosed please find two (2) copies of the subject report prepared by our consultants, Dvirka & Bartilucci.

The report documents the groundwater sample results from a monitoring well located at the Former South Receiving Basin. It also documents the soil sample results from samples taken from the filled-in former South Receiving Basins.

As discussed, we are concerned with the chromium and cadmium levels found in the groundwater samples. We will follow up with a call next week to review this report.

If you have any questions, please call me at 516/575-2333 or our consultant, John Ohlmann at 516/575-2385.

Very truly yours,

NORTHROP GRUMMAN

Larry Leskovjan, Manager
Environmental, Health, Safety, and Medical Services
Mail Stop: D16-001

bcc: M. Mroz, S. Pozza, G. Smith
J. Cotman, J. Ohlmann, P. Siegel

038SoRecBasin

Dvirka
and
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February 5, 1997

John Ohlmann, P.E.
Consultant for
Northrop Grumman Corporation
Mail Stop D08-001
Bethpage, NY 11714-3582

Re: Former South Receiving Basin
Soil and Groundwater Sampling Program
D&B No. 1167-W

Dear Mr. Ohlmann:

As requested, the purpose of this letter is to document the sampling activities conducted to date by Dvirka and Bartilucci Consulting Engineers at the former receiving basin located to the south of the B.O.C.E.S. Site.

Introduction and Background

As part of the Phase II Site Assessment for the B.O.C.E.S. property owned by Northrop Grumman Corporation, monitoring well MW-3 was installed to characterize groundwater quality downgradient of the site. The well was installed in the southwest corner of a former, backfilled receiving basin located south of the B.O.C.E.S. Site (see Figure 1 in Attachment 1).

This former receiving basin was the westernmost of a series of basins located along the southern boundary line of the Northrop Grumman Corporation Bethpage property. Aerial photographs reviewed during the Phase I Site Assessment for the B.O.C.E.S. Site revealed that this receiving basin was in existence as early as 1950 and was partially backfilled by 1988.

A Remedial Investigation (RI) report prepared in 1994 by others as part of a Remedial Investigation/ Feasibility Study for the Bethpage facility was also reviewed during preparation of the B.O.C.E.S. Phase I Site Assessment. This report identifies "the south recharge basins" as a discharge site for treated wastewater from the Industrial Waste Treatment Plant (IWTP) at Plant 2. According to the RI report, treated wastewater was discharged into the south recharge basins from the mid-1940's to 1981 under a State Pollutant Discharge Elimination System (SPDES) permit. The RI report states that in 1981 the Plant 2 IWTP was connected to the Nassau County

sewer system. Since that time, the south recharge basins have been permitted to receive only discharges of non-contact cooling water and storm water runoff.

Monitoring Well Installation

As stated above, in conjunction with the Phase II Site Assessment for the B.O.C.E.S. Site, on February 16, 1996, monitoring well MW-3 was installed in the southwest corner of the former receiving basin. The well was installed in a borehole constructed using a 4¼-inch ID hollow stem auger. Well construction consisted of a 2-inch ID PVC screen (0.010-inch slot size) and riser pipe with threaded joints. The well was constructed with a 15-foot long screen and was screened 41.5 to 56.5 feet below grade across the water table. The bottom of the well casing was sealed with a threaded PVC plug. A sandpack was installed around the well screen using a tremie pipe. Above the sandpack a minimum 2-foot thick bentonite seal was installed followed by cement/bentonite grout for the remainder of the annulus to ground surface using a tremie pipe. The well was protected with a locking PVC cap and a steel flush mounted vault with a bolted cover.

Upon completion of well construction, the well was developed using a submersible pump. The well was considered developed when the turbidity of the discharge water was less than 50 nephelometric turbidity units (NTUs). The depth to groundwater below the top of the casing prior to sampling was measured to be 43.78 feet.

Monitoring Well Borehole Soil Sampling - February 16, 1996

During the installation of MW-3, split spoon soil samples were collected from the monitoring well borehole at 2-foot intervals from ground surface to a depth of 10 feet, and from that point on at 5-foot intervals. One soil sample collected from 42 to 44 feet (i.e., above the water table interface) was selected for laboratory analysis for volatile organic compounds (VOCs) by Method 8240 and total petroleum hydrocarbons (TPHCs) by Method 418.1. As indicated on Table 1 (see Attachment 2), with the exception of methylene chloride, VOCs were not detected in the soil sample. Methylene chloride is a common laboratory chemical, and it was also detected in the blanks. Therefore, its presence in the environmental sample can be attributed to laboratory contamination. Additionally, as indicated on Table 2 (Attachment 2), TPHCs were detected at a concentration of 13 mg/kg in the borehole soil sample.

Groundwater Sampling - February 27, 1996

On February 27, 1996 a groundwater sample was collected from MW-3 for laboratory analysis of VOCs by Method 8240, semivolatile organic compounds (SVOCs) by Method 8270 and priority

pollutant metals by Method 6010. Prior to sampling, a minimum of three times the volume of standing water in the casing and sandpack was removed with a bailer. The results of the analyses are compared to the NYSDEC Class GA Groundwater Standards/Guidelines in the discussion which follows.

As indicted on Table 3 in Attachment 2, methylene chloride was detected at a concentration of 8 ug/L in the groundwater sample collected from MW-3. The Class GA Standard for methylene chloride is 5 ug/L. However, since this compound was also detected in the blanks and is a common laboratory chemical, its presence in the environmental sample can be attributed to laboratory contamination. The VOC trichloroethene was also detected at an estimated concentration of 7 ug/L. The Class GA Groundwater Standard for trichloroethene is 5 ug/L. Methylene chloride was also detected in the other monitoring wells (MW-1, MW-2 and MW-4, see Figure 1 in Attachment 1) installed in connection with the Phase II Site Assessment of the B.O.C.E.S. property. In addition, trichloroethene was detected at an estimated concentration of 8 ug/L in the groundwater sample collected from MW-1.

As shown on Table 4 (Attachment 2) SVOCs were not detected in MW-3 above method detection limits, with the exception of bis(2-ethylhexyl)phthalate. Bis(2-ethylhexyl)phthalate was detected at a concentration of 2 ug/L which is below the Class GA Groundwater Standard of 50 ug/L for this compound. SVOCs were not detected above method detection limits in MW-1, MW-2 and MW-4, with the exception of bis(2-ethylhexyl)phthalate, which was detected in all three samples at concentrations below the NYSDEC Class GA groundwater standard.

The results of the analyses of the groundwater sample collected from MW-3 on February 27, 1996 for priority pollutant metals are shown on Table 5 (see Attachment 2). As indicated on Table 5, cadmium was detected at 83.5 ug/L, and chromium was detected at 64.6 ug/L. The Class GA Groundwater Standards for cadmium and chromium are 10 ug/L and 50 ug/L, respectively. It should be noted that higher than expected levels of metals in the field blank prompted a decision to reanalyze the blank collected during the groundwater sampling event. In the reanalyzed blank, the results (as shown on Table 5) are in the range of expected field blank concentrations (i.e., below the contract required detection limits or non-detect). It was then decided to reanalyze the actual groundwater sample for priority pollutant metals. Table 5 presents the "reanalyzed" results. Although there were slight variations, the results of the original analysis and the reanalysis are comparable with respect to exceedances of Class GA Groundwater Standards.

Wells MW-1, MW-2 and MW-4 on the B.O.C.E.S. Site did not exhibit priority pollutant metals in excess of the NYSDEC groundwater standards. The Phase II report concluded that there were no known sources of these contaminants on the B.O.C.E.S. Site, and that the contamination found in MW-3 appeared to be from off-site sources (i.e., not attributable to the B.O.C.E.S. Site).

As a result, additional groundwater sampling of MW-3 and collection of soil borings in the former receiving basin area was conducted as described below.

Groundwater Sampling - May 7, 1996 and July 10, 1996

Confirmatory resampling of MW-3 was conducted on May 7, 1996. The sample was analyzed for filtered and unfiltered metals. The groundwater sample collected on May 7, 1996 was split between two analytical laboratories: Nytest Environmental, Inc. and EcoTest Laboratories, Inc. Additionally, well MW-3 was redeveloped and sampled on July 10, 1996; and the sample collected was filtered and analyzed for priority pollutant metals. The results of both filtered and unfiltered sample analyses for the sample collected on May 7, 1996 are shown on Table 6 (Attachment 2). The results of the July 10, 1996 sampling event are shown on Table 6 as well. As indicated on the table, the filtered sample results confirm the previous exceedances for cadmium and chromium detected in MW-3.

Soil Sampling - February 21, 1996 and July 9 and 10, 1996

Two soil borings (BRB-1 and BRB-2) were advanced within the backfilled receiving basin (as shown on Figure 1 in Attachment 1) on February 21, 1996, with a conventional drill rig by the hollow stem auger method of drilling. Boring BRB-1 was advanced through the fill material from grade to a depth of 16 feet. Boring BRB-2 was advanced from grade to a depth of 33 feet. Split spoon soil samples collected from the 12 to 14-foot depth interval at BRB-1 and from the 15 to 17-foot depth interval at BRB-2 were selected for analysis. These samples were analyzed for VOCs by Method 8240, SVOCs by Method 8270 and priority pollutant metals by Method 6010.

In addition, on July 9 and 10, 1996 two soil borings (BRB-1, BRB-2) were advanced adjacent to the borings advanced in February 1996, within the backfilled receiving basin, with a conventional drill rig by the hollow stem auger method of drilling. Each boring was advanced through the fill material from grade to a depth of 42 feet. Split spoon samples were collected from the 5 to 7-foot, 10 to 12-foot, 20 to 22-foot, 30 to 32-foot and 40 to 42-foot depth intervals in both BRB-1 and BRB-2. Each of these ten (10) samples were analyzed for semivolatile organic compounds by Method 8270 and priority pollutant metals by Method 6010.

As indicated on Table 1, the VOC trichloroethene was detected at a concentration of 89 ug/kg in the sample collected from BRB-1 (12'-14'), which is below the NYSDEC TAGM 4046 Appendix A criteria of 700 ug/kg. Methylene chloride was detected at a concentration of 11 ug/kg in both BRB-1 (12'-14') and BRB-2 (15'-17') and acetone was detected at a concentration of 7 ug/kg in BRB-2 (15'-17'). Methylene chloride and acetone are common

laboratory chemicals and, since both of these compounds were also detected in the blanks, their presence can be attributed to laboratory contamination.

As indicated on Table 7 (Attachment 2) SVOCs were detected in all six samples from boring BRB-1. Individual SVOCs were detected at concentrations exceeding the NYSDEC TAGM 4046 Appendix A criteria in BRB-1 (5'-7'), BRB-1 (10'-12') and BRB-1 (12'-14'). In sample BRB-1 (5'-7'), benzo(a)pyrene was detected at a concentration of 180 ug/kg; in sample BRB-1 (10'-12'), benzo(a)anthracene, chrysene and benzo(a)pyrene were detected at concentrations of 650 ug/kg, 800 ug/kg and 620 ug/kg, respectively; and in sample BRB-1 (12'-14'), benzo(a)anthracene and chrysene were each detected at a concentration of 720 ug/kg, and benzo(a)pyrene was detected at a concentration of 600 ug/kg. It should be noted that although the soil samples exhibited concentrations of *individual* SVOC constituents above the NYSDEC TAGM 4046 levels, the samples did not exhibit concentrations of *total* SVOCs above the NYSDEC alternative TAGM 4046 criteria of 500,000 ug/kg for *total* SVOCs.

SVOCs were also detected in all six samples from boring BRB-2. Individual SVOCs were detected in concentrations exceeding the NYSDEC TAGM 4046 Appendix A criteria in BRB-2 (5'-7'), BRB-2 (10'-12') and BRB-2 (20'-22'). In sample BRB-2 (5'-7'), benzo(a)pyrene was detected at a concentration of 88 ug/kg; in sample BRB-2 (10'-12'), benzo(a)anthracene was detected at a concentration of 880 ug/kg, chrysene and benzo(b)fluoranthene were each detected at a concentration of 1200 ug/kg, and benzo(a)pyrene was detected at a concentration of 1100 ug/kg. In sample BRB-2 (20'-22'), benzo(a)anthracene was detected at a concentration of 360 ug/kg, chrysene was detected at 520 ug/kg, and benzo(a)pyrene was detected at a concentration of 480 ug/kg. Similar to the samples collected from boring BRB-1, although the samples exhibited concentrations of *individual* SVOC constituents above the NYSDEC TAGM 4046 Appendix A criteria, the samples collected from boring BRB-2 did not exhibit concentrations of *total* SVOCs above the NYSDEC alternative TAGM 4046 criteria of 500,000 ug/kg for *total* SVOCs.

The results of the analyses for priority pollutant metals are shown on Table 8 (Attachment 2). Priority pollutant metals were detected at concentrations exceeding the NYSDEC TAGM 4046 Appendix A criteria in all six samples collected from soil boring BRB-1 as discussed below.

Beryllium was detected in BRB-1 (5'-7') and BRB-1 (10'-12') at concentrations of 0.21 mg/kg and 0.17 mg/kg, respectively. However, these metal concentrations are within the range of background soil contaminant concentrations for this compound as published in TAGM 4046. Chromium was detected in BRB-1 (10'-12'), BRB-1 (12'-14') and BRB-1 (20'-22') at 201 mg/kg, 73.7 mg/kg and 62 mg/kg, respectively. These levels exceed the upper limit of the published background soil concentration range of 40 mg/kg for chromium as well as the TAGM

4046 Appendix A criteria of 50 mg/kg. Copper was detected in BRB-1 (5'-7'), BRB-1 (10'-12'), BRB-1 (12'-14') and BRB-1 (20'-22'), at the following concentrations: 101 mg/kg, 590 mg/kg, 40.2 mg/kg and 33.6 mg/kg, respectively. The concentrations of copper detected in the 5 to 7-foot and 10 to 12-foot intervals are above the upper limit of the background soil concentration range for copper. Lead was detected in BRB-1 (20'-22') at 804 mg/kg which is above the 500 mg/kg upper limit of the background range for metropolitan and suburban area soils. Mercury was detected in BRB-1 (5'-7'), BRB-1 (10'-12'), BRB-1 (20'-22'), BRB-1 (30'-32') and BRB-1 (40'-42') at the following concentrations: 0.98 mg/kg, 0.56 mg/kg, 0.21 mg/kg, 2.3 mg/kg and 0.32 mg/kg, respectively. In each sample, the values exceed the upper limit of the background soil concentration range of 0.20 mg/kg for mercury. Zinc was detected in BRB-1 (5'-7'), BRB-1 (10'-12'), BRB-1 (12'-14'), and BRB-1 (20'-22') at the following concentrations: 24.8 mg/kg, 98.2 mg/kg, 38.9 mg/kg and 34.6 mg/kg, respectively. Only the value for BRB-1 (10'-12') exceeds the upper limit of the background soil concentration range of 50 mg/kg for zinc.

Priority pollutant metals were detected at concentrations exceeding the NYSDEC TAGM 4046 Appendix A criteria in all six samples collected from soil boring BRB-2. Beryllium was detected at a concentration of 0.2 mg/kg in BRB-2 (10'-12'). However, the result is within the background soil concentration range for this compound. Chromium was detected in BRB-2 (10'-12'), BRB-2 (15'-17') and BRB-2 (20'-22') at the following concentrations: 903 mg/kg, 337 mg/kg and 304 mg/kg, respectively. These levels exceed the TAGM 4046 Appendix A criteria as well as the upper limit of the background soil concentration range for chromium. Copper was detected in BRB-2 (5'-7'), BRB-2 (10'-12'), BRB-2 (15'-17'), BRB-2 (20'-22') and BRB-2 (40'-42') at the following concentrations: 71.8 mg/kg, 447 mg/kg, 182 mg/kg, 163 mg/kg and 30.8 mg/kg. The concentrations of copper detected in the first four samples exceed the upper limit of the background soil concentration range, while the concentration of 30.8 mg/kg detected in BRB-2 (40'-42') is within the background soil concentration range for this compound. Mercury was detected in BRB-2 (5'-7'), BRB-2 (10'-12'), BRB-2 (20'-22'), BRB-2 (30'-32') and BRB-2 (40'-42') at the following concentrations: 1.1 mg/kg, 1.3 mg/kg, 0.59 mg/kg, 0.73 mg/kg and 0.22 mg/kg. These results all exceed the upper limit of 0.2 mg/kg for the background soil concentration range for mercury. Nickel was detected at 30.5 mg/kg in BRB-2 (10'-12') and at 27 mg/kg in BRB-2 (15'-17'). Both these values exceed the upper limit of the background soil concentration range of 25 mg/kg for nickel. Finally, zinc was detected as follows: 121 mg/kg in BRB-2 (10'-12'); 54.9 mg/kg in BRB-2 (15'-17'); 45.7 mg/kg in BRB-2 (20'-22'); and 20.1 mg/kg in BRB-2 (30'-32'). The first two results exceed the upper limit of the background soil concentration range, while the results for BRB-2 (20'-22') and BRB-2 (30'-32') are within the background range for zinc.

Summary of Analytical Results - Soils

As described above, several individual SVOCs were detected in soil samples collected from borings BRB-1 and BRB-2 at concentrations which exceed the corresponding TAGM 4046 Appendix A criteria, as summarized below:

SUMMARY OF EXCEEDANCES OF APPENDIX A CRITERIA FOR INDIVIDUAL SVOCs DETECTED IN RECEIVING BASIN SOILS

Sample ID	SVOCs Detected Above TAGM 4046 Appendix A Criteria
BRB-1 (5'-7')	Benzo(a) pyrene
BRB-1 (10'-12')	Benzo (a) anthracene Chrysene Benzo(a) pyrene
BRB-1 (12'-14')	Benzo (a) anthracene Chrysene Benzo(a) pyrene
BRB-2 (5'-7')	Benzo(a) pyrene
BRB-2 (10'-12')	Benzo (a) anthracene Chrysene Benzo(b) fluoranthene Benzo(a) pyrene
BRB-2 (20'-22')	Benzo (a) anthracene Chrysene Benzo(a) pyrene

With respect to metals, several priority pollutant metals were detected in soil samples collected from borings BRB-1 and BRB-2 at concentrations that exceed the TAGM 4046 Appendix A criteria or the background soil concentration ranges, as summarized below.

SUMMARY OF EXCEEDANCES OF APPENDIX A AND BACKGROUND METAL CRITERIA FOR RECEIVING BASIN SOILS

Sample ID	Metals Detected Above TAGM 4046 Appendix A Criteria	Metals Detected Above Background Concentration Range
BRB-1 (5'-7')	Beryllium, Copper, Mercury, Zinc	Copper, Mercury
BRB-1 (10'-12')	Beryllium, Chromium, Copper, Mercury, Zinc	Cadmium, Chromium, Copper, Mercury, Zinc
BRB-1 (12'-14')	Chromium, Copper, Zinc	Cadmium, Chromium
BRB-1 (20'-22')	Chromium, Copper, Mercury, Zinc	Cadmium, Chromium, Lead, Mercury
BRB-1 (30'-32')	Mercury	Cadmium, Mercury
BRB-1 (40'-42')	Mercury	Cadmium, Mercury
BRB-2 (5'-7')	Copper, Mercury	Copper, Mercury
BRB-2 (10'-12')	Beryllium, Chromium, Copper, Mercury, Nickel, Zinc	Cadmium, Chromium, Copper, Mercury, Nickel, Zinc
BRB-2 (15'-17')	Chromium, Copper, Nickel, Zinc	Cadmium, Chromium, Copper, Nickel, Zinc
BRB-2 (20'-22')	Chromium, Copper, Mercury, Zinc	Cadmium, Chromium, Copper, Mercury
BRB-2 (30'-32')	Mercury, Zinc	Cadmium, Mercury
BRB-2 (40'-42')	Copper, Mercury	Mercury

Summary of Findings

Based upon a review of the SVOC summary table above, individual SVOCs were detected at concentrations that exceeded TAGM 4046 Appendix A criteria to a depth of 12 to 14 feet in BRB-1 and to a depth of 20 to 22 feet in BRB-2. Therefore, the vertical extent of soil contamination by individual SVOCs appears to range from 12 to 14 feet and BRB-1 and 20 to 22 feet below ground surface at BRB-2. However, as stated previously, the NYSDEC alternative TAGM 4046 criteria of 500,000 ug/kg for total SVOCs was not exceeded in any of the samples collected.

Based upon a review of the priority pollutant metals summary table, mercury in BRB-1, and copper and mercury in BRB-2, were detected at concentrations that exceed TAGM 4046 Appendix A criteria in the deepest interval sampled (i.e., 40'-42'). However, these metals were not detected above NYSDEC Class GA Groundwater Standards/Guidelines in the filtered groundwater samples collected at MW-3. Therefore, it does not appear groundwater is being impacted by these contaminants.

Although zinc was detected above the TAGM 4046 Appendix A criteria to a depth of 20-22 feet at boring BRB-1 and to a depth of 30-32 feet at BRB-2, the levels detected at those depths did not exceed the upper limit of the background soil concentration range, and zinc was not detected above the NYSDEC Class GA Groundwater Standard in the filtered groundwater samples collected at MW-3.

Cadmium was not detected above the recently revised TAGM 4046 Appendix A criteria of 10 mg/kg in any of the samples collected, however, the concentrations of cadmium detected in samples BRB-1 (10'-12'), BRB-1 (12'-14'), BRB-1 (20'-22'), BRB-1 (30'-32'), BRB-1 (40'-42'), BRB-2 (10'-12'), BRB-2 (20'-22') and BRB-2 (30'-32') all exceed the upper limit of the background concentration range for cadmium of 1 mg/kg. In addition, cadmium was also detected in all groundwater samples collected from MW-3 at concentrations in excess of the NYSDEC Class GA Groundwater Standards.

Chromium was detected at concentrations exceeding the TAGM 4046 Appendix A criteria to a depth of 20 to 22 feet in both borings BRB-1 and BRB-2. Chromium was also detected in all groundwater samples collected from MW-3 at concentrations in excess of the NYSDEC Class GA Groundwater Standard.

Recommendations

As a follow up to ongoing discussions between NGC and NYSDEC, it is recommended that NGC submit this letter report to the Department for their review.

We are prepared to assist NGC as needed with any additional required efforts at your request. In the meantime, if you have any questions and/or comments regarding this matter, please do not hesitate to contact Mr. David Glass or me at (516) 364-9892.

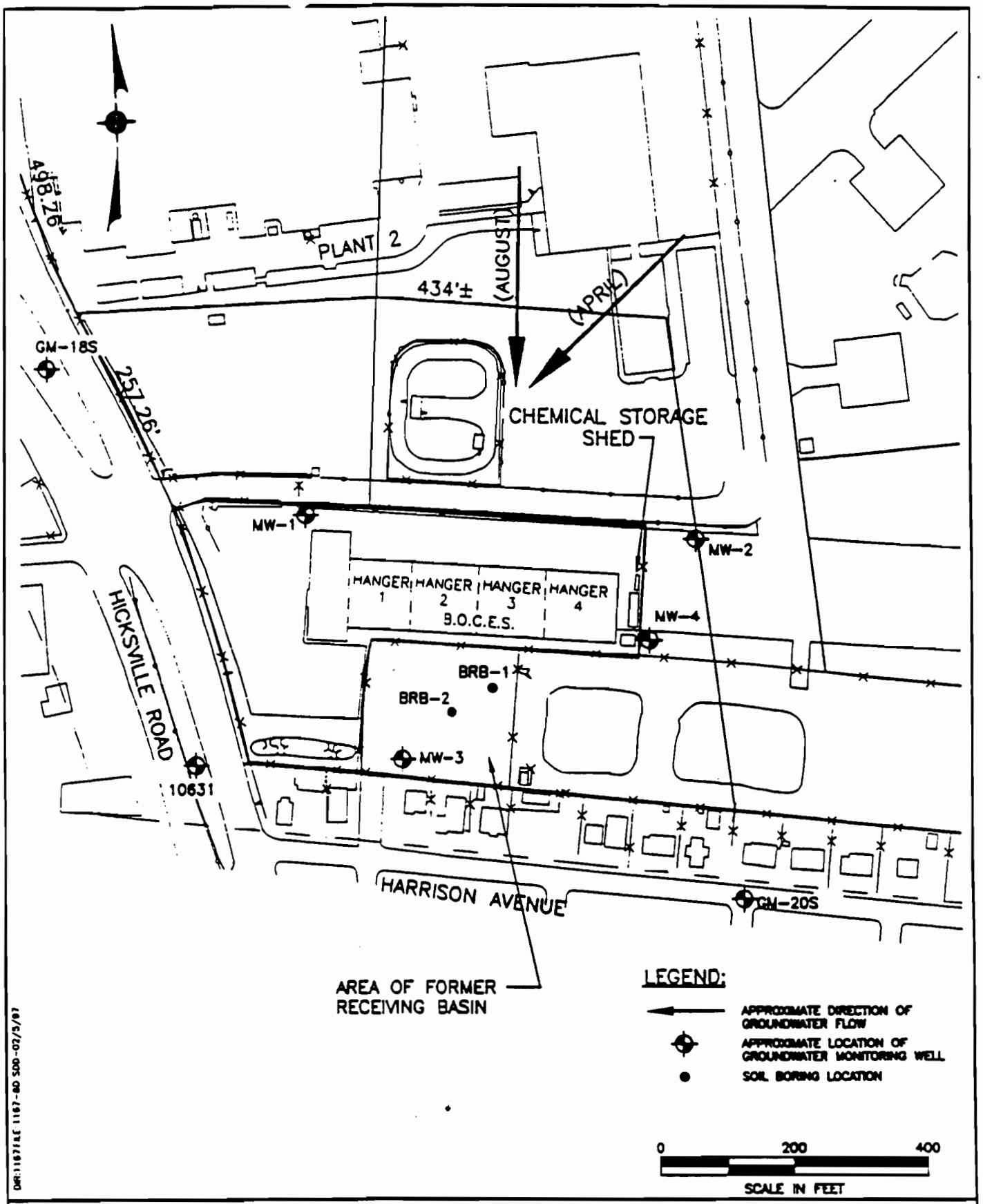
Very truly yours,

Richard M. Walka
Vice President

RMW/CW/tm,ajm,scs
cc: D. Glass (D&B)
♦1167\RMW01167.JO(R07)

ATTACHMENT 1

SOIL BORING AND MONITORING WELL LOCATION MAP



GRUMMAN AEROSPACE CORPORATION
BETHPAGE FACILITY

SOIL BORING AND MONITORING WELL LOCATION MAP

FIGURE 1

Dvirka and Bartilucci Consulting Engineers
A Division of William F. Cosulich Associates, P.C.

ATTACHMENT 2

ANALYTICAL RESULTS

TABLE 1
NORTHROP GRUMMAN CORPORATION
RECEIVING BASIN
SOIL SAMPLING RESULTS
VOLATILE ORGANIC COMPOUNDS

SAMPLE IDENTIFICATION	BRB-1		BRB-2		MW-3		CONTRACT REQUIRED DETECTION LIMITS (ug/kg)	NYSDEC TAGM 4046 APPENDIX A CRITERIA (ug/kg)
SAMPLE DEPTH	12' - 14'		15' - 17'		42' - 44'			
DATE OF COLLECTION	02/21/96		02/21/96		02/16/96			
DILUTION FACTOR	1		1		1			
VOLATILE ORGANICS	(ug/kg)		(ug/kg)		(ug/kg)			
Chloromethane		U		U		U	10	----
Bromomethane		U		U		U	10	----
Vinyl Chloride		U		U		U	10	200
Chloroethane		U		U		U	10	1900
Methylene Chloride	11	JB	11	JB	11	B	10	100
Acetone		U	7	JB		U	10	200
Carbon Disulfide		U		U		U	10	2700
1,1-Dichloroethene		U		U		U	10	400
1,1-Dichloroethane		U		U		U	10	200
1,2-Dichloroethene (total)		U		U		U	10	300
Chloroform		U		U		U	10	300
1,2-Dichloroethane		U		U		U	10	100
2-Butanone		U		U		U	10	300
1,1,1-Trichloroethane		U		U		U	10	800
Carbon Tetrachloride		U		U		U	10	600
Bromodichloromethane		U		U		U	10	----
1,2-Dichloropropane		U		U		U	10	----
cis-1,3-Dichloropropene		U		U		U	10	----
Trichloroethene	89			U		U	10	700
Dibromochloromethane		U		U		U	10	----
1,1,2-Trichloroethane		U		U		U	10	----
Benzene		U		U		U	10	60
Trans-1,3-Dichloropropene		U		U		U	10	----
Bromoform		U		U		U	10	----
4-Methyl-2-Pentanone		U		U		U	10	1000
2-Hexanone		U		U		U	10	----
Tetrachloroethene		U		U		U	10	1400
1,1,2,2-Tetrachloroethane		U		U		U	10	600
Toluene		U		U		U	10	1500
Chlorobenzene		U		U		U	10	1700
Ethylbenzene		U		U		U	10	5500
Styrene		U		U		U	10	----
Xylene (total)		U		U		U	10	1200
TOTAL VOCs	100		18		11			10000

QUALIFIERS:
U: Compound analyzed for but not detected
B Compound found in the blank as well as the sample.
J Compound found at concentration below the CRDL

NOTES:
---- Not established

TABLE 2
NORTHROP GRUMMAN CORPORATION
RECEIVING BASIN
SOIL SAMPLING RESULTS
TOTAL PETROLEUM HYDROCARBONS

SAMPLE IDENTIFICATION	MW-3
SAMPLE DEPTH	42-44 FT
DATE OF COLLECTION	02/16/96
DILUTION FACTOR	1
PERCENT SOLIDS	97
COMPOUND	(mg/kg)
Total Petroleum Hydrocarbons	13

TABLE 3
NORTHROP GRUMMAN CORPORATION
RECEIVING BASIN
GROUNDWATER SAMPLING RESULTS
VOLATILE ORGANIC COMPOUNDS

SAMPLE IDENTIFICATION	MW-3		FB		TB		CONTRACT REQUIRED DETECTION LIMIT	NYSDEC CLASS GA GROUNDWATER STANDARD/GUIDELINE
DATE OF COLLECTION	02/27/96		02/27/96		02/27/96			
DILUTION FACTOR	1		1		1			
VOLATILE ORGANICS	(ug/L)		(ug/L)		(ug/L)		(ug/L)	(ug/L)
Chloromethane		U		U		U	10	5 ST
Bromomethane		U		U		U	10	5 ST
Vinyl Chloride		U		U		U	10	2 ST
Chloroethane		U		U		U	10	5 ST
Methylene Chloride	[illegible]	B	14	B	10	B	10	5 ST
Acetone		U		U	3	JB	10	50 GV
Carbon Disulfide		U		U		U	10	----
1,1-Dichloroethene		U		U		U	10	5 ST
1,1-Dichloroethane		U		U		U	10	5 ST
1,2-Dichloroethene (total)		U		U		U	10	5 ST*
Chloroform		U		U		U	10	7 ST
1,2-Dichloroethane		U		U		U	10	5 ST
2-Butanone		U		U		U	10	50 GV
1,1,1-Trichloroethane		U		U		U	10	5 ST
Carbon Tetrachloride		U		U		U	10	5 ST
Bromodichloromethane		U		U		U	10	50 GV
1,2-Dichloropropane		U		U		U	10	5 ST
cis-1,3-Dichloropropene		U		U		U	10	5 ST
Trichloroethene	7	J		U		U	10	5 ST
Dibromochloromethane		U		U		U	10	50 GV
1,1,2-Trichloroethane		U		U		U	10	5 ST
Benzene		U		U		U	10	0.7 ST
Trans-1,3-Dichloropropene		U		U		U	10	5 ST
Bromoform		U		U		U	10	50 GV
4-Methyl-2-Pentanone		U		U		U	10	----
2-Hexanone		U		U		U	10	50 GV
Tetrachloroethene		U		U		U	10	5 ST
1,1,2,2-Tetrachloroethane		U		U		U	10	5 ST
Toluene		U		U		U	10	5 ST
Chlorobenzene		U		U		U	10	5 ST
Ethylbenzene		U		U		U	10	5 ST
Styrene		U		U		U	10	5 ST
Total Xylenes		U		U		U	10	5 ST*
Vinyl Acetate		U		U		U	10	---
TOTAL VOCs	15		14		13			

QUALIFIERS:
U: Compound analyzed for but not detected
B: Compound found in the blank as well as the sample
J: Compound found at concentration below the CRDL, value estimated

NOTES:
GV Guidance Value
ST Standard
----: Not established
[illegible]: Value exeeds standard/guideline
*: Applies to each isomer individually

TABLE 4
NORTHROP GRUMMAN CORPORATION
RECEIVING BASIN
GROUNDWATER SAMPLING RESULTS
SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE IDENTIFICATION	MW-3	FB	CONTRACT REQUIRED DETECTION LIMIT	NYSDEC CLASS GA GROUNDWATER STANDARDS/ GUIDELINES
DATE OF COLLECTION	02/27/96	02/27/96		
DILUTION FACTOR	1	1		
SEMIVOLATILE ORGANIC COMPOUNDS	(ug/L)	(ug/L)	(ug/L)	(ug/L)
Phenol	U	U	10	1 ST **
bis(2-Chloroethyl)ether	U	U	10	1 0 ST
2-Chlorophenol	U	U	10	1 ST **
1,3-Dichlorobenzene	U	U	10	5 ST
1,4-Dichlorobenzene	U	U	10	4 7 ST *
1,2-Dichlorobenzene	U	U	10	4 7 ST *
2-Methylphenol	U	U	10	1 ST **
2,2'-oxybis(1-chloropropane)	U	U	10	5 ST
4-Methylphenol	U	U	10	1 ST**
N-Nitroso-di-n-propylamine	U	U	10	---
Hexachloroethane	U	U	10	5 ST
Nitrobenzene	U	U	10	5 ST
Isophorone	U	U	10	50 GV
2-Nitrophenol	U	U	10	1 ST **
2,4-Dimethylphenol	U	U	10	1 ST **
2,4-Dichlorophenol	U	U	10	1 ST **
1,2,4-Trichlorobenzene	U	U	10	5 ST
Naphthalene	U	U	10	10 GV
4-Chloroaniline	U	U	10	5 ST
Hexachlorobutadiene	U	U	10	5 ST
bis(2-Chloroethoxy)methane	U	U	10	5 ST
4-Chloro-3-methylphenol	U	U	10	1 ST **
2-Methylnaphthalene	U	U	10	---
Hexachlorocyclopentadiene	U	U	10	5 ST
2,4,6-Trichlorophenol	U	U	10	1 ST **
2,4,5-Trichlorophenol	U	U	25	1 ST **
2-Chloronaphthalene	U	U	10	10 GV
2-Nitroaniline	U	U	25	5 ST
Dimethylphthalate	U	U	10	50 GV
Acenaphthylene	U	U	10	---
2,6-Dinitrotoluene	U	U	10	5 ST
3-Nitroaniline	U	U	25	5 ST
Acenaphthene	U	U	10	20 GV

QUALIFIERS:
J: Compound found at a concentration below the CRDL, value estimated
U. Compound analyzed for but not detected

NOTES:
ST. Standard
GV. Guidance Value
---: Not established
*: Value pertains to the sum of the isomers
**: Value pertains to total phenols

TABLE 4 (continued)
NORTHROP GRUMMAN CORPORATON
RECEIVING BASIN
GROUNDWATER SAMPLING RESULTS
SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE IDENTIFICATION	MW-3		FB		CONTRACT REQUIRED DETECTION LIMIT	NYSDEC CLASS GA GROUNDWATER STANDARDS/ GUIDELINES
DATE OF COLLECTION	02/27/96		02/27/96			
DILUTION FACTOR	1		1			
SEMIVOLATILE ORGANIC COMPOUNDS	(ug/L)		(ug/L)		(ug/L)	(ug/L)
2,4-Dinitrophenol		U		U	25	1 ST **
4-Nitrophenol		U		U	25	1 ST **
Dibenzofuran		U		U	10	---
2,4-Dinitrotoluene		U		U	10	5 ST
Diethylphthalate		U		U	10	50 GV
4-Chlorophenyl-phenylether		U		U	10	--
Fluorene		U		U	10	50 GV
4-Nitroaniline		U		U	25	5 ST
4,6-Dinitro-2-methylphenol		U		U	25	1 ST **
N-Nitrosodiphenylamine		U		U	10	50 GV
4-Bromophenyl-phenylether		U		U	10	--
Hexachlorobenzene		U		U	10	0 35 ST
Pentachlorophenol		U		U	25	1 ST **
Phenanthrene		U		U	10	50 GV
Anthracene		U		U	10	50 GV
Carbazole		U		U	10	---
Di-n-butylphthalate		U		U	10	50 ST
Fluoranthene		U		U	10	50 GV
Pyrene		U		U	10	50 GV
Butylbenzylphthalate		U		U	10	50 GV
3,3'-Dichlorobenzidine		U		U	10	5 ST
Benzo(a)anthracene		U		U	10	0 002 GV
Chrysene		U		U	10	0 002 GV
bis(2-Ethylhexyl)phthalate	2	J		U	10	50 ST
Di-n-octylphthalate		U		U	10	50 GV
Benzo(b)fluoranthene		U		U	10	0 002 GV
Benzo(k)fluoranthene		U		U	10	0 002 GV
Benzo(a)pyrene		U		U	10	ND ST
Indeno(1,2,3-cd)pyrene		U		U	10	0 002 GV
Dibenzo(a,h)anthracene		U		U	10	---
Benzo(g,h,i)perylene		U		U	10	---
TOTAL PAHs	0		0			
TOTAL CARCINOGEN PAHs	0		0			
TOTAL SVOCs	2		0			

QUALIFIERS:
J: Compound found at a concentration below the CRDL, value estimated
U Compound analyzed for but not detected

NOTES:
ST: Standard
GV: Guidance Value
---: Not established
ND Non-Detect
**: Value pertains to total phenols

TABLE 5
NORTHROP GRUMMAN CORPORATION
RECEIVING BASIN
GROUNDWATER SAMPLING RESULTS
PRIORITY POLLUTANT METALS

SAMPLE IDENTIFICATION	MW-3	FB	INSTRUMENT	NYSDEC CLASS GA
DATE OF COLLECTION	02/27/96	02/27/96	DETECTION	GROUNDWATER
DILUTION FACTOR	1	1	LIMITS	STANDARD/GUIDELINE
INORGANIC CONSTITUENTS	(ug/L)	(ug/L)	(ug/L)	(ug/L)
Antimony	U	U	8.5	3 GV
Arsenic	2.9 B	U	5.1	25 ST
Beryllium	U	U	0.2	3 GV
Cadmium	[redacted]	U	0.3	10 ST
Chromium	[redacted]	U	1	50 ST
Copper	19.6 B	U	1.7	200 ST
Lead	1.7 B	U	1.4	25 ST
Mercury	U	U	0.2	2 ST
Nickel	7.1 B	U	2	----
Selenium	U	U	4.4	10 ST
Silver	U	U	1.3	50 ST
Thallium	U	U	5.6	4 GV
Zinc	186	16.5 B	3.3	300 ST

QUALIFIERS:
U: Analyzed for but not detected.
B: Concentration is less than the CRDL but greater than the IDL.

NOTES:
GV: Guidance Value
ST: Standard
[redacted]: Value exceeds standard/guideline
----: Not established

TABLE 6
NORTHROP GRUMMAN CORPORATION
RECEIVING BASIN
ADDITIONAL GROUNDWATER SAMPLING RESULTS
PRIORITY POLLUTANT METALS

LABORATORY	Nytest	EcoTest	Nytest	EcoTest	Nytest	INSTRUMENT	NYSDEC CLASS GA
FILTERED / UNFILTERED	Filtered	Filtered	Unfiltered	Unfiltered	Filtered	DETECTION	GROUNDWATER
DATE OF COLLECTION	05/07/96	05/07/96	05/07/96	05/07/96	7/10/96	LIMITS	STANDARD/GUIDELIN
DILUTION FACTOR	1	1	1	1	1	(ug/L)	(ug/L)
INORGANIC CONSTITUENTS	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)		
Antimony	U	U	[redacted]	U	U	8.5	3 GV
Arsenic	U	U	[redacted]	[redacted]	7.3 B	5.1	25 ST
Beryllium	U	U	[redacted]	[redacted]	1.2 B	0.2	3 GV
Cadmium	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	0.3	10 ST
Chromium	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	1	50 ST
Copper	U	U	[redacted]	[redacted]	9.6 B	1.7	200 ST
Lead	U	U	[redacted]	[redacted]	U	1.4	25 ST
Mercury	U	U	U	0.7	U	0.2	2 ST
Nickel	4.8 B	U	105	190	10.3 B	2	----
Selenium	U	U	8.5	3	4.8 B	4.4	10 ST
Silver	U	U	[redacted]	[redacted]	U	1.3	50 ST
Thallium	U	U	[redacted]	U	U	5.6	4 GV
Zinc	222	170	[redacted]	[redacted]	248	3.3	300 ST

QUALIFIERS:
U: Analyzed for but not detected
B: Concentration is less than the CRDL but greater than the IDL.

NOTES:
GV: Guidance Value
ST: Standard
----: Not established
[redacted] : Value exceeds standard/guideline

TABLE 7
NORTHROP GRUMMAN CORPORATION
RECEIVING BASIN
SOIL SAMPLING RESULTS
SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE IDENTIFICATION	BRB-1		BRB-1		BRB-1		BRB-1		BRB-1		BRB-1		CONTRACT REQUIRED DETECTION LIMITS	NYSDEC TAGM 4046 APPENDIX A CRITERIA
SAMPLE DEPTH	5' - 7'		10' - 12'		12' - 14'		20' - 22'		30' - 32'		40' - 42'			
DATE OF COLLECTION	7/09/96		7/09/96		2/21/96		7/09/96		7/09/96		7/09/96			
DILUTION FACTOR	1		1		1		1		1		1			
PERCENT SOLIDS	90		88		88		88		81		81			
UNITS	(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)	(ug/kg)
Phenol		U		U		U		U		U		U	330	30 or MDL
bis(2-Chloroethyl)ether		U		U		U		U		U		U	330	----
2-Chlorophenol		U		U		U		U		U		U	330	800
1,3-Dichlorobenzene		U		U		U		U		U		U	330	1600
1,4-Dichlorobenzene		U		U		U		U		U		U	330	8500
1,2-Dichlorobenzene		U		U		U		U		U		U	330	7900
2-Methylphenol		U		U		U		U		U		U	330	100 or MDL
2,2'-Oxybis(1-chloropropane)		U		U		U		U		U		U	330	----
4-Methylphenol		U		U		U		U		U		U	330	900
N-Nitroso-di-n-propylamine		U		U		U		U		U		U	330	----
Hexachloroethane		U		U		U		U		U		U	330	----
Nitrobenzene		U		U		U		U		U		U	330	200 or MDL
Isophorone		U		U		U		U		U		U	330	4400
2-Nitrophenol		U		U		U		U		U		U	330	330 or MDL
2,4-Dimethylphenol		U		U		U		U		U		U	330	----
bis(2-Chloroethoxy)methane		U		U		U		U		U		U	330	----
2,4-Dichlorophenol		U		U		U		U		U		U	330	400
1,2,4-Trichlorobenzene		U		U		U		U		U		U	330	3400
Naphthalene		U	70	J	150	J		U		U		U	330	13000
4-Chloroaniline		U		U		U		U		U		U	330	220 or MDL
Hexachlorobutadiene		U		U		U		U		U		U	330	----
4-Chloro-3-methylphenol		U		U		U		U		U		U	330	240 or MDL
2-Methylnaphthalene		U		U	74	J		U		U		U	330	36400
Hexachlorocyclopentadiene		U		U		U		U		U		U	330	----
2,4,6-Trichlorophenol		U		U		U		U		U		U	330	----
2,4,5-Trichlorophenol		U		U		U		U		U		U	800	100
2-Chloronaphthalene		U		U		U		U		U		U	330	----
2-Nitroaniline		U		U		U		U		U		U	800	430 or MDL
Dimethylphthalate		U		U		U		U		U		U	330	2000
Acenaphthylene		U		U		U		U		U		U	330	41000
2,6-Dinitrotoluene		U		U		U		U		U		U	330	1000
3-Nitroaniline		U		U		U		U		U		U	800	500 or MDL
Acenaphthene		U	210	J	340	J		U		U		U	330	50000
2,4-Dinitrophenol		U		U		U		U		U		U	800	200 or MDL
4-Nitrophenol		U		U		U		U		U		U	800	100 or MDL

TABLE 7 (continued)
NORTHROP GRUMMAN CORPORATION
RECEIVING BASIN
SOIL SAMPLING RESULTS
SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE IDENTIFICATION	BRB-1		BRB-1		BRB-1		BRB-1		BRB-1		BRB-1		CONTRACT REQUIRED DETECTION LIMITS	NYSDEC TAGM 4046 APPENDIX A CRITERIA
SAMPLE DEPTH	5' - 7'		10' - 12'		12' - 14'		20' - 22'		30' - 32'		40' - 42'			
DATE OF COLLECTION	7/09/96		7/09/96		2/21/96		7/09/96		7/09/96		7/09/96			
DILUTION FACTOR	1		1		1		1		1		1			
PERCENT SOLIDS	90		88		88		88		81		81			
UNITS	(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)	(ug/kg)
Dibenzofuran		U	100	J	150	J		U		U		U	330	6200
2,4-Dinitrotoluene		U		U		U		U		U		U	330	----
Diethylphthalate	83	J	220	J		U	39	J		U		U	330	7100
4-Chlorophenyl-phenylether		U		U		U		U		U		U	330	----
Fluorene		U	160	J	240	J		U		U		U	330	50000
4-Nitroaniline		U		U		U		U		U		U	800	----
4,6-Dinitro-2-methylphenol		U		U		U		U		U		U	800	----
N-Nitrosodiphenylamine		U		U		U		U		U		U	330	----
4-Bromophenyl-phenylether		U		U		U		U		U		U	330	----
Hexachlorobenzene		U		U		U		U		U		U	330	410
Pentachlorophenol		U		U		U		U		U		U	800	1000 or MDL
Phenanthrene	230	J	1500		1500		81	J		U		U	330	50000
Anthracene		U	350	J	340	J		U		U		U	330	50000
Carbazole		U	210	J	210	J		U		U		U	330	----
Di-n-butylphthalate		U		U		U		U		U		U	330	8100
Fluoranthene	450		1700		2000		120	J		U		U	330	50000
Pyrene	380		1300		1200		96	J		U		U	330	50000
Butylbenzylphthalate	67	J	120	J		U		U		U		U	330	50000
3,3'-Dichlorobenzidine		U		U		U		U		U		U	330	----
Benzo(a)anthracene	150	J	[redacted]		720		44	J		U		U	330	224 or MDL
Chrysene	240	J	[redacted]		[redacted]		64	J		U		U	330	400
bis(2-Ethylhexyl)phthalate	170	J	340	J	480		110	J	72	J	100	J	330	50000
Di-n-octylphthalate		U		U		U		U		U		U	330	50000
Benzo(b)fluoranthene	160	J	460		630		45	J		U		U	330	1100
Benzo(k)fluoranthene	130	J	590		360	J	55	J		U		U	330	1100
Benzo(a)pyrene	[redacted]		[redacted]		[redacted]		50	J		U		U	330	61 or MDL
Indeno(1,2,3-cd)pyrene	170	J	360	J	390			U		U		U	330	3200
Dibenzo(a,h)anthracene		U		U		U		U		U		U	330	14 or MDL
Benzo(g,h,i)perylene	200	J	360	J	400			U		U		U	330	50000
Benzyl Alcohol		U		U		U		U		U		U	330	----
Benzoic Acid		U		U		U		U		U		U	330	2700
TOTAL SVOCs	2610		10120		10504		704		72		100			500000

QUALIFIERS
U: Compound analyzed for but not detected.
J Compound found at a concentration below the detection limit

NOTES
---- : Not established
[redacted]: Value exceeds the NYSDEC TAGM 4046 Appendix A Criteria
MDL: Method Detection Limit

TABLE 7 (continued)
NORTHROP GRUMMAN CORPORATION
RECEIVING BASIN
SOIL SAMPLING RESULTS
SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE IDENTIFICATION	BRB-2	BRB-2	BRB-2	BRB-2	BRB-2	BRB-2	CONTRACT	NYSDEC
SAMPLE DEPTH	5' - 7'	10' - 12'	15' - 17'	20' - 22'	30' - 32'	40' - 42'	REQUIRED	TAGM 4046
DATE OF COLLECTION	7/09/96	7/09/96	2/21/96	7/09/96	7/09/96	7/09/96	DETECTION	APPENDIX A
DILUTION FACTOR	1	5	1	2	1	1	LIMITS	CRITERIA
PERCENT SOLIDS	95	63	87	86	92	90		
UNITS	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Phenol	U	U	U	U	U	U	330	30 or MDL
bis(2-Chloroethyl)ether	U	U	U	U	U	U	330	----
2-Chlorophenol	U	U	U	U	U	U	330	800
1,3-Dichlorobenzene	U	U	U	U	U	U	330	1600
1,4-Dichlorobenzene	U	U	U	U	U	U	330	8500
1,2-Dichlorobenzene	U	U	U	U	U	U	330	7900
2-Methylphenol	U	U	U	U	U	U	330	100 or MDL
2,2'-Oxybis(1-chloropropane)	U	U	U	U	U	U	330	----
4-Methylphenol	U	U	U	U	U	U	330	900
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	330	----
Hexachloroethane	U	U	U	U	U	U	330	----
Nitrobenzene	U	U	U	U	U	U	330	200 or MDL
Isophorone	U	U	U	U	U	U	330	4400
2-Nitrophenol	U	U	U	U	U	U	330	330 or MDL
2,4-Dimethylphenol	U	U	U	U	U	U	330	----
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	330	----
2,4-Dichlorophenol	U	U	U	U	U	U	330	400
1,2,4-Trichlorobenzene	U	U	U	U	U	U	330	3400
Naphthalene	U	U	U	U	U	U	330	13000
4-Chloroaniline	U	U	U	U	U	U	330	220 or MDL
Hexachlorobutadiene	U	U	U	U	U	U	330	----
4-Chloro-3-methylphenol	U	U	U	U	U	U	330	240 or MDL
2-Methylnaphthalene	U	U	U	U	U	U	330	36400
Hexachlorocyclopentadiene	U	U	U	U	U	U	330	----
2,4,6-Trichlorophenol	U	U	U	U	U	U	330	----
2,4,5-Trichlorophenol	U	U	U	U	U	U	800	100
2-Chloronaphthalene	U	U	U	U	U	U	330	----
2-Nitroaniline	U	U	U	U	U	U	800	430 or MDL
Dimethylphthalate	U	U	U	U	U	U	330	2000
Acenaphthylene	U	U	U	U	U	U	330	41000
2,6-Dinitrotoluene	U	U	U	U	U	U	330	1000
3-Nitroaniline	U	U	U	U	U	U	800	500 or MDL
Acenaphthene	U	U	U	U	U	U	330	50000
2,4-Dinitrophenol	U	U	U	U	U	U	800	200 or MDL
4-Nitrophenol	U	U	U	U	U	U	800	100 or MDL

TABLE 7 (continued)
NORTHROP GRUMMAN CORPORATION
RECEIVING BA IN
SOIL SAMPLING RESULTS
SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE IDENTIFICATION	BRB-2		BRB-2		BRB-2		BRB-2		BRB-2		BRB-2		CONTRACT REQUIRED DETECTION LIMITS	NYSDEC TAGM 4046 APPENDIX A CRITERIA
SAMPLE DEPTH	5' - 7'		10' - 12'		15' - 17'		20' - 22'		30' - 32'		40' - 42'			
DATE OF COLLECTION	7/09/96		7/09/96		2/21/96		7/09/96		7/09/96		7/09/96			
DILUTION FACTOR	1		5		1		2		1		1			
PERCENT SOLIDS	95		63		87		86		92		90			
UNITS	(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)		(ug/kg)	(ug/kg)
Dibenzofuran		U		U		U		U		U		U	330	6200
2,4-Dinitrotoluene		U		U		U		U		U		U	330	----
Diethylphthalate		U		U	110	J		U		U		U	330	7100
4-Chlorophenyl-phenylether		U		U		U		U		U		U	330	----
Fluorene		U		U		U		U		U		U	330	50000
4-Nitroaniline		U		U		U		U		U		U	800	----
4,6-Dinitro-2-methylphenol		U		U		U		U		U		U	800	----
N-nitrosodiphenylamine		U		U		U		U		U		U	330	----
4-Bromophenyl-phenylether		U		U		U		U		U		U	330	----
Hexachlorobenzene		U		U		U		U		U		U	330	410
Pentachlorophenol		U		U		U		U		U		U	800	1000 or MDL
Phenanthrene	210	J	1200	J	68	J	520	J		U		U	330	50000
Anthracene		U		U		U		U		U		U	330	50000
Carbazole		U		U		U		U		U		U	330	----
Di-n-butylphthalate		U		U		U		U		U		U	330	8100
Fluoranthene	300	J	3000		160	J	1200		44	J	54	J	330	50000
Pyrene	200	J	1600	J	96	J	660	J		U		U	330	50000
Butylbenzylphthalate		U	2000	J	120	J	450	J		U		U	330	50000
3,3'-Dichlorobenzidine		U		U		U		U		U		U	330	----
Benzo(a)anthracene	89	J	[redacted]	J	51	J	[redacted]	J		U		U	330	224 or MDL
Chrysene	100	J	[redacted]	J	69	J	[redacted]	J		U		U	330	400
bis(2-Ethylhexyl)phthalate	70	J	3800		220	J	860		110	J	89	J	330	50000
Di-n-octylphthalate		U		U				U		U		U	330	50000
Benzo(b)fluoranthene	84	J	[redacted]	J	70	J	570	J		U		U	330	1100
Benzo(k)fluoranthene	74	J	1000	J	51	J	360	J		U		U	330	1100
Benzo(a)pyrene	[redacted]	J	[redacted]	J	52	J	[redacted]	J		U		U	330	61 or MDL
Indeno(1,2,3-cd)pyrene	62	J	700	J	50	J	260	J		U		U	330	3200
Dibenzo(a,h)anthracene		U		U		U		U		U		U	330	14 or MDL
Benzo(g,h,i)perylene	68	J	740	J	57	J	270	J		U		U	330	50000
Benzyl Alcohol		U		U		U		U		U		U	330	----
Benzoic Acid		U		U		U		U		U		U	330	2700
TOTAL SVOCs	1345		18420		1174		6510		154		143			500000

QUALIFIERS
U Compound analyzed for but not detected
J Compound found at a concentration below the detection limit

NOTES
---- : Not established
[redacted]: Value exceeds the NYSDEC TAGM 4046 Appendix A Criteria
MDL: Method Detection Limit

TABLE 7 (continued)
NORTHROP GRUMMAN CORPORATION
RECEIVING BASIN
SOIL SAMPLING RESULTS
SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE IDENTIFICATION	FB2		CONTRACT REQUIRED DETECTION LIMITS	NYSDEC TAGM 4046 APPENDIX A CRITERIA
SAMPLE DEPTH	NA			
DATE OF COLLECTION	7/09/96			
DILUTION FACTOR	1			
PERCENT SOLIDS	0			
UNITS	(ug/L)		(ug/kg)	(ug/kg)
Phenol		U	330	30 or MDL
bis(2-Chloroethyl)ether		U	330	----
2-Chlorophenol		U	330	800
1,3-Dichlorobenzene		U	330	1600
1,4-Dichlorobenzene		U	330	8500
1,2-Dichlorobenzene		U	330	7900
2-Methylphenol		U	330	100 or MDL
2,2'-Oxybis(1-chloropropane)		U	330	----
4-Methylphenol		U	330	900
N-Nitroso-di-n-propylamine		U	330	----
Hexachloroethane		U	330	----
Nitrobenzene		U	330	200 or MDL
Isophorone		U	330	4400
2-Nitrophenol		U	330	330 or MDL
2,4-Dimethylphenol		U	330	----
bis(2-Chloroethoxy)methane		U	330	----
2,4-Dichlorophenol		U	330	400
1,2,4-Trichlorobenzene		U	330	3400
Naphthalene		U	330	13000
4-Chloroaniline		U	330	220 or MDL
Hexachlorobutadiene		U	330	----
4-Chloro-3-methylphenol		U	330	240 or MDL
2-Methylnaphthalene		U	330	36400
Hexachlorocyclopentadiene		U	330	----
2,4,6-Trichlorophenol		U	330	----
2,4,5-Trichlorophenol		U	800	100
2-Chloronaphthalene		U	330	----
2-Nitroaniline		U	800	430 or MDL
Dimethylphthalate		U	330	2000
Acenaphthylene		U	330	41000
2,6-Dinitrotoluene		U	330	1000
3-Nitroaniline		U	800	500 or MDL
Acenaphthene		U	330	50000
2,4-Dinitrophenol		U	800	200 or MDL
4-Nitrophenol		U	800	100 or MDL

TABLE 7 (continued)
NORTHROP GRUMMAN CORPORATION
RECEIVING BASIN
SOIL SAMPLING RESULTS
SEMIVOLATILE ORGANIC COMPOUNDS

SAMPLE IDENTIFICATION	FB2							CONTRACT REQUIRED DETECTION LIMITS	NYSDEC TAGM 4046 APPENDIX A CRITERIA
SAMPLE DEPTH	NA								
DATE OF COLLECTION	7/09/96								
DILUTION FACTOR	1								
PERCENT SOLIDS	0								
UNITS	(ug/L)							(ug/kg)	(ug/kg)
Dibenzofuran		U						330	6200
2,4-Dinitrotoluene		U						330	----
Diethylphthalate		U						330	7100
4-Chlorophenyl-phenylether		U						330	----
Fluorene		U						330	50000
4-Nitroaniline		U						800	----
4,6-Dinitro-2-methylphenol		U						800	----
N-Nitrosodiphenylamine		U						330	----
4-Bromophenyl-phenylether		U						330	----
Hexachlorobenzene		U						330	410
Pentachlorophenol		U						800	1000 or MDL
Phenanthrene		U						330	50000
Anthracene		U						330	50000
Carbazole		U						330	----
Di-n-butylphthalate		U						330	8100
Fluoranthene		U						330	50000
Pyrene		U						330	50000
Butylbenzylphthalate		U						330	50000
3,3'-Dichlorobenzidine		U						330	----
Benzo(a)anthracene		U						330	224 or MDL
Chrysene		U						330	400
bis(2-Ethylhexyl)phthalate		U						330	50000
Di-n-octylphthalate		U						330	50000
Benzo(b)fluoranthene		U						330	1100
Benzo(k)fluoranthene		U						330	1100
Benzo(a)pyrene		U						330	61 or MDL
Indeno(1,2,3-cd)pyrene		U						330	3200
Dibenzo(a,h)anthracene		U						330	14 or MDL
Benzo(g,h,i)perylene		U						330	50000
Benzyl Alcohol		U						330	----
Benzoic Acid		U						330	2700
TOTAL SVOCs	0								500000

QUALIFIERS
U: Compound analyzed for but not detected.
J: Compound found at a concentration below the detection limit

NOTES
---- Not established
MDL: Method Detection Limit

TABLE 8
NORTHROP GRUMMAN CORPORATION
RECEIVING BASIN
SOIL SAMPLING RESULTS
PRIORITY POLLUTANT METALS

SAMPLE IDENTIFICATION	BRB-1	BRB-1	BRB-1	BRB-1	BRB-1	BRB-1	INSTRUMENT	NYSDEC	EASTERN
SAMPLE DEPTH	5'- 7'	10'- 12'	12'- 14'	20' - 22'	30' - 32'	40'-42'	DETECTION	TAGM 4046	USA
DATE OF COLLECTION	07/09/96	07/09/96	02/21/96	07/09/96	07/09/96	07/09/96	LIMITS	APPENDIX A	BACKGROUND
PERCENT SOLIDS	90 1	88	88	87 9	80 6	84 4		CRITERIA	
INORGANIC CONSTITUENTS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/L)	(mg/kg)	(mg/kg)
Antimony	U	U	U	3.2 B	U	U	31	SB	----
Arsenic	4.4	4.9	4.1	2.3	0.87 B	1.7	5	7 5 or SB	3-12*
Beryllium			U	0.11 B	0.03 B	0 06 B	4	0 16 or SB	0-1 75
Cadmium	0.44 B	3	2	3 9	1 1	1.2	2	10 *** or SB	0.1-1
Chromium	26.1				22	29.1	4	50 *** or SB	1 5-40*
Copper					5	7.8	10	25 or SB	1-50
Lead	25.2	108	22.4	804	15.1	13.3	35	SB	200-500**
Mercury			U				0.2	0 1	0 001-0 2
Nickel	4.7	12.5	4.6 B	4.1 B	1.5 B	3 B	38	13 or SB	0 5-25
Selenium	U	U	U	U	U	U	5	2 or SB	0 1-3 9
Silver	5.3	32.9	7.5	2.2	U	0.73 B	7	SB	----
Thallium	1.2	U	U	U	1.3 B	1.3	5	SB	----
Zinc					11.6	16.9	12	20 or SB	9-50

QUALIFIERS:

U: Analyzed for but not detected

B: Concentration is less than the CRDL but greater than the IDL.

NOTES:

—: Not Established.

SB: Site background

Value exceeds NYSDEC TAGM 4046 Appendix A Criteria

* New York State Background.

** Background for metropolitan or surburban areas

*** Revised criteria

TABLE 8 (continued)
NORTHROP GRUMMAN CORPORATION
RECEIVING BASIN
SOIL SAMPLING RESULTS
PRIORITY POLLUTANT METALS

SAMPLE IDENTIFICATION	BRB-2	BRB-2	BRB-2	BRB-2	BRB-2	BRB-2	INSTRUMENT	NYSDEC	EASTERN
SAMPLE DEPTH	5 '- 7'	10 '- 12'	15 '- 17'	20' - 22'	30' - 32'	40 '- 42'	DETECTION	TAGM 4046	USA
DATE OF COLLECTION	07/10/96	07/10/96	02/21/96	07/10/96	07/10/96	07/10/96	LIMITS	APPENDIX A	BACKGROUND
PERCENT SOLIDS	95 3	63 5	87.0	86 0	91 8	90 2		CRITERIA	
INORGANIC CONSTITUENTS	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/L)	(mg/kg)	(mg/kg)
Antimony	U	U	1.9 B	U	U	U	31	SB	----
Arsenic	1.9	4 6	U	2 8	1 4	3 6	5	7 5 or SB	3-12*
Beryllium	0.14 B	[redacted]	U	0.11 B	0 06 B	0 08 B	4	0 16 or SB	0-1 75
Cadmium	0.24 B	8	3.2	2 5	2.3	0 7	2	10 *** or SB	0 1-1
Chromium	24 6	[redacted]	[redacted]	[redacted]	29.8	24 1	4	50 *** or SB	1 5-40*
Copper	[redacted]	[redacted]	[redacted]	[redacted]	24.7	[redacted]	10	25 or SB	1-50
Lead	15 1	200	74.2	68 3	6 5	9	35	SB	200-500**
Mercury	[redacted]	[redacted]	U	[redacted]	[redacted]	[redacted]	0.2	0 1	0 001-0 2
Nickel	3.2 B	[redacted]	[redacted]	9	3 3 B	2 6 B	38	13 or SB	0 5-25
Selenium	U	U	U	U	U	U	5	2 or SB	0 1-3 9
Silver	7 3	100	44.8	22 6	3 2	2 5	7	SB	----
Thallium	0 81 B	1 2 B	U	1 4	1 1	1 2	5	SB	----
Zinc	10 5	[redacted]	[redacted]	[redacted]	[redacted]	13 1	12	20 or SB	9-50

QUALIFIERS:

U: Analyzed for but not detected

B: Concentration is less than the CRDL but greater than the IDL.

NOTES:

----: Not Established

SB: Site background

[redacted]: Value exceeds NYSDEC TAGM 4046 Appendix A Criteria

* New York State Background

** Background for metropolitan or surburban areas

*** Revised criteria

TABLE 8 (continued)
NORTHROP GRUMMAN CORPORATION
RECEIVING BASIN
SOIL SAMPLING RESULTS
PRIORITY POLLUTANT METALS

SAMPLE IDENTIFICATION	FB1	FB2					INSTRUMENT DETECTION LIMITS	NYSDEC TAGM 4046 APPENDIX A CRITERIA	EASTERN USA BACKGROUND
SAMPLE DEPTH	NA	NA							
DATE OF COLLECTION	07/09/96	07/09/96							
PERCENT SOLIDS	0	0							
INORGANIC CONSTITUENTS	(ug/L)	(ug/L)					(ug/L)	(mg/kg)	(mg/kg)
Antimony	U	U					31	SB	----
Arsenic	U	U					5	7.5 or SB	3-12*
Beryllium	U	U					4	0.16 or SB	0-1.75
Cadmium	U	U					2	10 *** or SB	0.1-1
Chromium	U	U					4	50 *** or SB	1.5-40*
Copper	U	U					10	25 or SB	1-50
Lead	2.2 B	U					35	SB	200-500**
Mercury	U	U					0.2	0.1	0.001-0.2
Nickel	U	U					38	13 or SB	0.5-25
Selenium	U	U					5	2 or SB	0.1-3.9
Silver	U	U					7	SB	----
Thallium	U	U					5	SB	----
Zinc	17.6 B	U					12	20 or SB	9-50

QUALIFIERS:

U: Analyzed for but not detected

B: Concentration is less than the CRDL but greater than the IDL.

NOTES:

—: Not Established.

SB: Site background.

NA: Not Applicable.

* New York State Background

** Background for metropolitan or surburban areas.

*** Revised criteria