

**REMEDIAL INVESTIGATION REPORT  
GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK**

September 1994

Prepared for

Grumman Aerospace Corporation  
Bethpage, New York 11714

Prepared by

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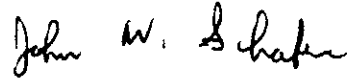
REMEDIAL INVESTIGATION REPORT  
GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK

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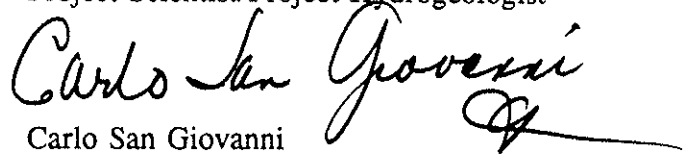
Geraghty & Miller, Inc. is submitting this report to Grumman Aerospace Corporation for work performed at its Bethpage, New York facility. The report was prepared in conformance with Geraghty & Miller's strict quality assurance/quality control procedures to ensure that the report meets industry standards in terms of the methods used and the information presented. If you have any questions or comments concerning this report, please contact one of the individuals listed below.

Respectfully submitted,

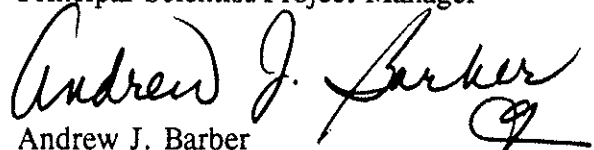
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**REMEDIAL INVESTIGATION REPORT  
GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK**

**EXECUTIVE SUMMARY**

Geraghty & Miller, Inc. was retained by the Grumman Aerospace Corporation (Grumman) to conduct a Remedial Investigation (RI) at its Bethpage, New York facility. The RI was completed in two phases. The purpose of Phase 1 was to determine the nature and extent of on-site chemical contamination; the purpose of Phase 2 was to fill in on-site data gaps and determine the nature and extent of off-site chemical contamination.

The Grumman facility is situated on approximately 500 acres in east-central Nassau County, in the Hamlet of Bethpage, Town of Oyster Bay, New York. The U.S. Naval Weapons Industrial Reserve Plant (NWIRP), a New York State Superfund site, is situated on approximately 100 acres in the north-central portion of the site; and the Occidental Chemical Corporation (OCC)/RUCO Polymer Corporation, a federal Superfund site, is located adjacent to and northwest of Grumman.

The Grumman facility includes numerous buildings, 14 production wells (seven on NWIRP property and seven on Grumman property), and five recharge basin areas (one on NWIRP property and four on Grumman property). Production wells currently provide a total of 3 to 11 million gallons per day (mgd). The water is primarily used for non-contact cooling and in a number of processes. The wells are turned on and off based on facility demand, which is typically greatest during the summer months. Non-contact cooling water and storm-water runoff is discharged to the on-site recharge basins. These discharges are regulated under a State Pollutant Discharge Elimination System (SPDES) permit.



A U.S. Geological Survey (USGS) study that began in 1985 was conducted in the Bethpage-Hicksville-Levittown area. This study identified the presence of a volatile organic compound (VOC) plume beneath and extending southward from the Grumman, U.S. Navy, and OCC/RUCO Polymer Corporation sites. The plume is approximately 5,700 ft wide, 12,000 ft long, and more than 500 ft thick. The VOCs most frequently detected in the groundwater were trichloroethene (TCE) and tetrachloroethene (PCE) with concentrations exceeding 1,000 micrograms per liter ( $\mu\text{g/L}$ ). Vinyl chloride; 1,1,1-trichloroethane (1,1,1-TCA); 1,2-dichloroethene (1,2-DCE); and 1,1-dichloroethane (1,1-DCA) were also detected.

Prior to initiating the investigations, Geraghty & Miller prepared Phase 1 and Phase 2 work plans that summarized the proposed activities and methodologies for the RIs. These work plans were approved by the New York State Department of Environmental Conservation (NYSDEC), and field activities for the Phase 1 and Phase 2 investigations began on February 4, 1991 and August 21, 1992, respectively. The scope of the investigations included the following tasks:

- Task 1. Review of Available Site History and Groundwater Quality Data.
- Task 2. Screening of Preliminary Remedial Technologies.
- Task 3. Phase 1 (On-Site) Remedial Investigation.
- Task 4. Phase 1 Remedial Investigation Data Report.
- Task 5. Phase 2 (Off-Site) Remedial Investigation.
- Task 6. Remedial Investigation Report.

The Phase 1 and Phase 2 field investigations included soil-gas surveys, soil sampling, monitoring well installation, and groundwater sampling. In addition, recharge basin water and sediment sampling was conducted during Phase 1.

In general, the geology beneath the Grumman site, from land surface to the bottom of the Magothy Formation, consists primarily of sand with interbedded layers of silt, clay, and gravel. The uppermost sequence of these sediments is part of the Upper Pleistocene outwash



deposits, while the lower sequence belongs to the Magothy Formation, which is part of the Atlantic Coastal Plain marine deposits. In general, the upper Pleistocene deposits in this area of Long Island tend to be coarser than the underlying Magothy Formation. Within the Magothy Formation, the deposits tend to become finer with depth, except for the basal Magothy where gravel deposits are common. As agreed to with the NYSDEC, the contact between these two formations was not identified during this investigation.

Groundwater beneath the Grumman facility, to a depth of approximately 460 ft below land surface (bls), occurs in two separate geologic units that are hydraulically connected and behave as one hydrogeologic unit. These units are the Upper Glacial and Magothy aquifers. Groundwater predominantly flows to the south and southeast with a slight downward component, but is greatly influenced by the groundwater withdrawal that occurs at the numerous site production wells and the reinfiltration that occurs at the on-site recharge basins. Operation of these wells and use of the recharge basins has changed the flow patterns locally. Under natural conditions, the vertical head difference between the water table and the base of the Magothy aquifer (approximately 650 ft bls) is 1 to 4 ft. The hydraulic conductivity and anisotropy of the aquifers indicate that the vertical movement of groundwater is relatively slow. However, deep pumpage and surface recharge, as occur at the Grumman facility, decrease the hydraulic head at depth and increase the head at the water table. The net effect is that the vertical head difference, and thus the rate of vertical groundwater movement under the Grumman site, is greatly increased. The vertical head difference measured between the water table and the deep zone (approximately 250 ft bls) beneath the Grumman site is approximately 3 ft.

Both the USGS and the U.S. Navy have developed groundwater flow and transport models for the Grumman area. The models indicate that on-site pumpage and recharge provide some measure of hydraulic control and that a groundwater divide is present beneath Grumman's south recharge basins. In general, groundwater entering the local flow system north of the divide is drawn down to the production wells and recirculated through Grumman's pumpage and recharge. Groundwater entering the local flow system south of the divide flows off-site with the regional gradient. Modeling results and groundwater quality data generated during this RI



indicate that the groundwater divide is not completely effective at preventing the off-site migration of contaminated groundwater (there is some flow around the basins and under the production wells). Although this hydraulic barrier is not completely effective, it has helped prevent the spread and migration of contaminants. Discharges to the south recharge basins currently meet state drinking water standards.

The results of the Phase 1 and Phase 2 soil-gas surveys indicate that VOCs were detected in several locations. Based on these results, four areas of concern were identified for further investigation during the soil and groundwater sampling programs. In addition, a follow-up soil-gas survey is planned for the Plant 15 area.

The analytical results of soil samples collected during Phases 1 and 2 indicate that several VOCs, semivolatile organic compounds (SVOCs), and metals were detected above the NYSDEC cleanup objectives. Based on these results, the area near Plant 2 (the TCE storage tank) appears to be a potential source of groundwater contamination, and a soil vapor extraction interim remedial measure (IRM) is currently underway at this location.

The analytical results of recharge basin water samples collected during Phase 1 indicate that parameters were below standards, criteria, and guidance (SCGs), with the exception of iron in the total metals samples. The results of recharge basin sediment samples collected during Phase 1 indicate that several metals and SVOCs were detected above eastern United States background levels and/or NYSDEC soil cleanup objectives. These contaminants are most likely adsorbed on sediment particles and should be retained (i.e., be immobile), as evidenced by their not being detected in recharge basin water samples.

Groundwater sampling conducted during the Phase 1 and Phase 2 RIs indicate two plumes of groundwater contamination (eastern and western) near the center of the facility. The eastern plume generally consists of TCE; PCE; 1,1,1-TCA; 1,2-DCE; 1,1-dichloroethene (1,1-DCE); and 1,1-DCA. The western plume is primarily composed of TCE. In addition, an area of contamination was also identified along the Grumman and OCC/RUCO Polymer Corporation



site borders (near Plant 37). The concentrations detected in this area do not indicate a discrete plume or plumes, and generally consists of the following compounds: TCE; PCE; 1,1,1-TCA; 1,1-DCE; and vinyl chloride.

To the south of the Grumman property, i.e., hydraulically downgradient, contaminants were detected in groundwater at varying depths within an area generally bounded by Wells GM-33D2, GM-34D, GM-34D2, GM-37D, N-6915, N-6916, N-8004, N-10816, N-10999, and N-11000. However, the concentrations of contaminants do not indicate that a discrete plume or plumes are present. In discussing off-site groundwater contamination south of the Grumman facility, it is important to distinguish between contamination detected due south of Grumman from that detected southeast of Grumman (specifically, Well Clusters GM-36 and GM-38). Groundwater modeling conducted by the USGS and the U.S. Navy indicates that groundwater contamination originating on the eastern part of the U.S. Navy facility would follow a flow path through the area of Well Clusters GM-36 and GM-38.

Eight VOCs and six inorganic analytes (metals) were detected above SCGs in groundwater samples (dissolved samples for metals) collected during Phase 2. Specific sources of contamination have not been fully delineated on the U.S. Navy or OCC/RUCO Polymer Corporation properties; however, groundwater flow and quality data on, and downgradient of, the Grumman facility indicate contamination that likely originated from one or more sources on the U.S. Navy and OCC/RUCO properties, and from at least one source on the Grumman property (the Plant 2 TCE storage tank).

The major contaminant migration pathways identified for the Grumman site are sediment transport and groundwater. The primary migration pathway for the lower mobility contaminants (e.g., metals and PAHs) is sediment transport, with the eventual fate being the recharge basins. Because the recharge basins are continually receiving water, there does not appear to be a pathway by which exposure could occur. If, for example, the basins were left dry for extended periods of time, then exposure via windblown dust would be a possibility. Recharge basins are maintained (scraped) by Grumman at least once a year, thereby, further minimizing the potential





for exposure to recharge basin sediment via windblown dust. Basin maintenance activities, which included scraping and loading tasks, are conducted below grade (out of the wind) using low speed equipment, further minimizing the potential for exposure via windblown dust.

For VOCs, the main migration pathway is groundwater, and the only exposure pathway is through contact/ingestion of contaminated groundwater that is pumped from the aquifer. Within the Grumman facility, groundwater is withdrawn from the ground by 14 production wells and distributed through the facility by piping. At the point where the water is discharged on Grumman property, it meets state drinking water standards. Furthermore, the area south of the Grumman facility is served by public water supply provided by the Bethpage Water District (BWD); private potable water supply wells are not known to exist in this area. Currently, the BWD Plant 6 has a treatment system installed, the Plant 4 treatment system should be operational by summer 1994 and the Plant 5 treatment system should be operational by summer 1995. Water-quality data from the district indicates that the water supplied to the public has met drinking water standards. The presence of the treatment systems eliminates this as a possible exposure pathway.

Based on data collected during the Phase 1 and Phase 2 RIs, Geraghty & Miller recommends the following remedial action objectives:

1. On-site source areas should be remediated to prevent them from acting as a continuing source of groundwater contamination. To accomplish this objective, a soil vapor extraction IRM is currently underway at the Plant 2 TCE storage tank.
2. Exposure pathways (on- and off-site) should be eliminated. To accomplish this objective, the effectiveness of the hydraulic barrier at preventing the off-site migration of contaminated groundwater will be evaluated. If necessary, the current pumpage/treatment/recharge system will be modified to provide more effective hydraulic control. Furthermore, potential off-site receptors (e.g., public



supply wells) should be monitored and treatment provided, as necessary, to eliminate exposure.

3. Remedial actions at the Grumman, NWIRP, and OCC/RUCO Polymer Corporation sites should be coordinated to prevent the spread of contamination and/or the duplication of effort.

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**REMEDIAL INVESTIGATION REPORT  
GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK**

**1.0 INTRODUCTION**

Geraghty & Miller, Inc. was retained by the Grumman Aerospace Corporation (Grumman) to conduct a Remedial Investigation (RI) at its Bethpage, New York facility. The RI was conducted pursuant to Grumman's October 25, 1990 Consent Order No. W1-0018-81-01 with the New York State Department of Environmental Conservation (NYSDEC). After completing a detailed review of the site history and available groundwater quality data for the area, Geraghty & Miller decided (with NYSDEC approval) to conduct the RI using a phased approach. The RI was completed in two phases; Phase 1 was conducted to determine the nature and extent of on-site chemical contamination and Phase 2 was conducted to fill in on-site data gaps and determine the nature and extent of off-site chemical contamination.

Prior to initiating field activities, Geraghty & Miller prepared Phase 1 and Phase 2 work plans that summarized the proposed activities and methodologies for the RIs (Geraghty & Miller, Inc. 1990 and 1992a). These work plans were approved by the NYSDEC, and field activities for the Phase 1 and Phase 2 investigations began on February 4, 1991 and August 21, 1992, respectively. Where necessary, the work plans were modified during the RI to accommodate field conditions; changes to the work plans were approved by the NYSDEC.

Upon completion of the Phase 1 RI, Geraghty & Miller prepared a basic data report (Geraghty & Miller, Inc. 1992b) for submittal to the NYSDEC. The data report summarized data collected during the Phase 1 RI. This Remedial Investigation Report summarizes and interprets data collected during both the Phase 1 and Phase 2 RIs. Raw data previously provided in the Phase 1 data report are included by reference in this report.



## 1.1 PURPOSE AND SCOPE

The purpose of the RI was to identify and define the nature and extent of chemical contamination attributable to the Grumman facility and to provide sufficient information for the conceptual design of a remedial action alternative for the site. These goals were accomplished by sampling and analyzing appropriate environmental media (soils, groundwater, soil gas, and water and sediment in the recharge basins).

The RI consisted of the following tasks:

- Task 1. Review of Available Site History and Groundwater Quality Data.
- Task 2. Screening of Preliminary Remedial Technologies.
- Task 3. Phase 1 (On-Site) Remedial Investigation.
- Task 4. Phase 1 Remedial Investigation Data Report.
- Task 5. Phase 2 (Off-Site) Remedial Investigation.
- Task 6. Remedial Investigation Report.

## 1.2 REPORT ORGANIZATION

This report follows the recommended format for remedial investigation reports, as outlined in the "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA" (U.S. Environmental Protection Agency [USEPA] 1988a). This report is divided into the following seven sections:

- 1.0 Introduction
- 2.0 Site Background
- 3.0 Methodology
- 4.0 Nature and Extent of Contamination
- 5.0 Contaminant Fate and Transport
- 6.0 Summary and Conclusions
- 7.0 References



Section 1.0 describes the purpose and organization of this report. Section 2.0 provides a discussion of the site location, description, and history, along with a summary of previous investigations conducted at and in the vicinity of the Grumman facility. The regional hydrogeology is also described in Section 2.0. Section 3.0 presents a brief description of the methodologies used during the RI. Section 4.0 describes the findings of the RI, including the site-specific hydrogeology and the nature and extent of contamination. Section 5.0 describes the fate and transport of the contaminants detected. Section 6.0 summarizes the RI findings and conclusions, and Section 7.0 provides a list of references cited in the report.



## **2.0 SITE BACKGROUND**

The background and physical setting of the Grumman facility and the surrounding area are discussed in this section.

### **2.1 SITE LOCATION AND DESCRIPTION**

The Grumman facility is situated on approximately 500 acres in east-central Nassau County, in the Hamlet of Bethpage, Town of Oyster Bay, New York (Figure 2-1). The facility is bounded by Stewart Avenue to the north, Central Avenue to the south, Route 107 to the southwest, and South Oyster Bay Road to the west (Figure 2-2). The U.S. Naval Weapons Industrial Reserve Plant (NWIRP), a New York State Superfund site, is situated on approximately 100 acres in the north-central portion of the site; and the Occidental Chemical Corporation (OCC)/RUCO Polymer Corporation, a federal Superfund site, is located adjacent to and northwest of Grumman. The locations of the NWIRP and OCC/RUCO facilities are shown on Figure 2-2.

The Grumman facility includes numerous buildings, 14 production wells (seven on NWIRP property and seven on Grumman property), and five recharge basin areas (one on NWIRP property and four on Grumman property). The buildings are identified in Table 2-1, and site features are shown on Figure 2-2.

The screened intervals for the production wells range between 280 and 570 ft below land surface (bls). Production wells currently provide a total of 3 to 11 million gallons per day (mgd) (depending on the season [see Table 2-2]). The water is primarily used for non-contact cooling and in a number of processes. The wells are turned on and off based on facility demand, which is typically greatest during the summer months. The non-contact cooling water and storm-water runoff is discharged to the on-site recharge basins. These discharges are regulated under a State Pollutant Discharge Elimination System (SPDES) permit.



## 2.2 SITE HISTORY

A chronology of site history as it pertains to Grumman's manufacturing operations; material storage; and waste generation, storage, treatment, and disposal practices is provided below. A summary of the buildings owned or leased by Grumman, as well as an assessment of their contamination potential, is provided in Table 2-1.

### 2.2.1 Chronological History of Manufacturing Operations at the Grumman Facility

Table 2-3 summarizes the chronological history of manufacturing operations at the Grumman facility. This chronology was compiled from a 1986 Rogers, Golden and Halpern (RGH) study, entitled "Initial Assessment Study, Naval Weapons Industrial Reserve Plant, Bethpage and Calverton, New York," as modified by information provided by Grumman personnel (Ohlmann pers. comm. 1988 and 1989).

### 2.2.2 Chemical/Hazardous Material Storage, Waste Generation Points, and Waste Storage, Treatment, and Disposal Practices

In general, chemicals and hazardous materials used by Grumman were either stored on NWIRP property or delivered by tank truck to tanks located at the major manufacturing plants at the site. Some wastes generated by Grumman were also stored and/or treated on NWIRP property (Ohlmann pers. comm. 1988; RGH 1986). A complete discussion of Grumman's chemical/hazardous material storage, waste generation points, and waste storage, treatment, and disposal practices is provided below. The NWIRP property is the subject of a separate U.S. Navy investigation; therefore, it was not included as part of the Grumman RI.



### **2.2.2.1 Chemical and Hazardous Material Storage Practices**

According to the RGH study (1986), some of the chemicals and hazardous materials used by Grumman were stored on U.S. Navy property. When needed by Grumman, these materials were transported by truck to the plant that had requested them. As these materials were stored on NWIRP property, which is the subject of a separate U.S. Navy investigation, they were not addressed as part of the Grumman RI.

Some of the bulk chemicals and hazardous materials used by Grumman were delivered by tank truck and transferred to bulk storage tanks located at the major Grumman manufacturing plants. As part of the RI, the locations of bulk chemical and/or hazardous material storage sites on the Grumman property were identified. These storage tanks and areas are summarized in Tables 2-4 and 2-5, respectively, and are shown on Figure 2-3.

### **2.2.2.2 Waste Generation Points**

According to Grumman personnel (Ohlmann pers. comm. 1989), two types of waste generation points were identified for the Grumman site, these generation points include (1) process line waste generation points, and (2) various "waste generation stations." These waste generation points are discussed below.

Wastes generated as a byproduct of a process line are piped to holding tanks for temporary storage, awaiting treatment. From the holding tanks, wastes are piped to an on-site treatment plant for treatment prior to discharge to the sanitary sewer.

Wastes generated at other locations throughout the Grumman facility are either handled as described above or are temporarily stored in sealed drums on bermed areas. At various times, these drums are transferred by truck to the drum storage area located on NWIRP property, to await disposal by private vendor.





### 2.2.2.3 Waste Treatment, Storage, and Disposal Practices

According to the RGH study (1986), some Grumman-generated wastes were brought onto NWIRP property for treatment and/or storage awaiting off-site disposal by private vendors. Because the NWIRP property is the subject of a separate U.S. Navy investigation, these areas were not addressed in the RI.

Several waste storage, treatment, and disposal sites have been identified on the Grumman property. These sites are summarized in Tables 2-4, 2-5, and 2-6 and include the Plant 02 Industrial Waste Treatment Plant (IWTP), the south recharge basins, the Plant 02 Waste Trichloroethylene (TCE) Storage/Recycling Facility, as well as other storage areas. These sites, in addition to the OCC/RUCO Polymer Corporation and U.S. Navy sites, are shown on Figure 2-3 and described below.

The Plant 02 IWTP has been used from the late 1940s to the present to treat Bethpage plant wastewater and chrome-bearing wastewaters from the U.S. Navy Plants until their own treatment plant was built in the early eighties. The main treatment is chrome reduction and precipitation; treatment also includes neutralization and precipitation of metals, fluorides, sulfates, silicates, and phosphates. Phenols, penetrants, and trace organics are treated and destroyed by oxidation; the plant also treats soluble oil through an emulsion-breaking process. Silver recovery and ion exchange are also used in Plant 02. Approximately 50,000 to 250,000 gallons per day (gpd) of wastewater have been treated in the Plant 02 IWTP during this period (Ohlmann pers. comm. 1988).

The south recharge basins were used from the late 1940s to 1981 for the disposal of treated wastewater from the Plant 02 IWTP. These wastewaters were discharged in accordance with a SPDES permit and have been discharged to the sanitary sewer since 1981 under a Nassau County Department of Public Works permit. Currently, the south recharge basins receive only discharges of non-contact cooling water, which are regulated under a SPDES permit, and storm-water runoff.



The Plant 02 Waste TCE Storage/Recycling Facility was operated from the late 1940s to the late 1970s. Waste TCE was transferred by drums from degreasing tanks to the TCE Recycling Facility at Plant 02. Recycled TCE was held in a bulk tank for reuse in Plant 02 (Ohlmann pers. comm. 1988).

## **2.3 PREVIOUS INVESTIGATIONS**

This section summarizes the results of an area-wide investigation conducted by the U.S. Geological Survey (USGS), as well as studies conducted at the adjacent U.S. Navy and OCC/RUCO Polymer Corporation sites.

### **2.3.1 USGS Study: Bethpage-Hicksville-Levittown Area**

Beginning in 1985, the USGS conducted an investigation of the hydrogeology and groundwater quality of the Bethpage-Hicksville-Levittown area, in Nassau County, New York. The study area includes the Grumman, OCC/RUCO Polymer Corporation, and U.S. Navy sites. The results of this study are summarized in three separate reports. The first report, entitled "Geohydrology of the Bethpage-Hicksville-Levittown Area, Long Island, New York (Smolensky and Feldman 1990)," summarizes the geology, groundwater elevations, and flow directions in east-central Nassau County, New York. The second report is entitled "Ground Water Quality in the Bethpage-Hicksville-Levittown Area, Long Island, New York (Smolensky et al. 1992) and summarizes groundwater quality in east-central Nassau County. The third report is entitled "Three-Dimensional Advective Transport of Volatile Organic Compounds in Groundwater Beneath an Industrial/Residential Area of Nassau County, New York" (Smolensky and Feldman, in press) and is presently in print; this report summarizes the results of groundwater modeling activities (flow and transport). At this time this report was prepared, the third USGS report could be viewed at the USGS office in Syosset, New York, but it was not available for distribution.



In general, the first report (Smolensky and Feldman 1990) describes a regional southward horizontal groundwater flow direction that is locally influenced by groundwater withdrawal and recharge beneath the Grumman facility. A more detailed discussion of the regional and site hydrogeology is provided in Sections 2.4 and 4.1, respectively, of this report.

The second report (Smolensky et al. 1992) describes the presence of a volatile organic compound (VOC) plume beneath and extending southward from the Grumman, U.S. Navy, and OCC/RUCO Polymer Corporation sites. The plume is approximately 5,700 ft wide, 12,000 ft long, and more than 500 ft thick. The VOCs most frequently detected in the groundwater were TCE and tetrachloroethene (PCE), with concentrations exceeding 1,000 micrograms per liter ( $\mu\text{g/L}$ ). Vinyl chloride; 1,1,1-trichloroethane (1,1,1-TCA); 1,2-dichloroethene (1,2-DCE); and 1,1-dichloroethane (1,1-DCA) were also detected.

The third report (Smolensky and Feldman, in press) documents the construction, calibration, and use of a groundwater flow and particle tracking model covering the Bethpage-Hicksville-Levittown study area. The groundwater flow model was developed to simulate three-dimensional flow in the Upper Glacial aquifer and underlying Magothy aquifer. Local groundwater flow patterns are significantly altered in this area by the pumping of 14 industrial production wells screened in the Magothy aquifer and discharging the water to the Upper Glacial aquifer through nearby recharge basins. The particle tracking model used the flow model output primarily to analyze groundwater flow paths from groundwater source areas to discharge locations and to delineate sources of water to pumping wells. The particle tracking analysis did not address the effects of chemical reactions, adsorption, and dispersion, but rather provided "a quantitative estimate of advective movement under conditions in which pumping and recharge are the major factors that effect [sic] contaminant transport."

The report (Smolensky and Feldman, in press) describes how model-generated vertical hydraulic sections and potentiometric surface maps were used to illustrate the three-dimensional distribution of head within the modeled area. The vertical head distribution reveals the marked effects of pumping wells and recharge basins on the local flow system. The vertical head



difference between the uppermost (water-table) and deepest (basal Magothy) model layers in unstressed areas is about 3 feet (downward). In areas where both recharging and pumping occur, a vertical head difference of 7 feet may exist. This downward gradient results in a substantial increase in both the rates and quantities of downward groundwater flow. The pumping and recharging also introduce a pronounced flow component from recharge basin areas to well screen locations. South of the industrial area (i.e., the Grumman site) the effects of pumping and recharging diminish.

According to the report (Smolensky and Feldman, in press), flow lines that begin at the water table located above the industrial wells (i.e., Grumman production wells) show little horizontal movement and nearly vertical flow in the upper model layers. Groundwater mounding caused by recharge from basins also increases vertical groundwater flow. An important aspect of the local recharge mound in the vicinity of the south recharge basins is the creation of a horizontal flow gradient counter to the regional trend and the subsequent creation of a local groundwater stagnation point.

The report (Smolensky and Feldman, in press) describes the groundwater circulation patterns created by pumping and recharging under steady-state conditions. Simulations reveal that about two-thirds of the water applied to the two northernmost basins is kept within the study area by the pumping of the production wells. After the pumped water is discharged to the same recharge basins, it becomes a source of water to the same wells, thus establishing a recycling pattern. However, not all of the water discharged to the recharge basins remains in or near the industrial (i.e., Grumman) zone.

The report (Smolensky and Feldman, in press) states that "The probability that some of the water applied to the basins reaches the screened intervals of pumped wells and constitutes part of the total pumpage has important implications for aquifer management. First, as water is caught within a cycling pattern, it cannot migrate from the industrial zone, and downgradient public supply wells are partly protected by this 'containment' effect. Secondly, as water is



discharged to recharge basins, it comes into contact with the atmosphere, which allows volatilization of organic contaminants and thereby decreases the concentrations of VOCs."

Two of the major conclusions drawn from the modeling effort and stated in the report (Smolensky and Feldman, in press) are as follows:

1. "Particle flow lines indicate two possible fates for water entering the system at the water table along a north-south line through the center of the industrial zone (Grumman) and the modeled area. The area near the southern recharge basins acts as a local groundwater divide; thus, particles entering the system north of this recharge area eventually are drawn to the pumping (production) wells, whereas particles entering south of this area continue along regional flow lines and are not directly affected by the pumping wells or recharge basins."
2. "Groundwater moves in a cyclic pattern in the area between the two northernmost groups of recharge basins and the production wells. Flow lines indicate that water applied to the basins can be drawn to the production wells and eventually returned to the recharge basins. This cyclic flow seems to partially contain the contaminated water by preventing it from moving southward into the regional system. Thus, current pumping and recharge practices are helping to control, or at least delay, the spread and migration of contaminants in this area. Any contaminated water that is discharged to the southern basins will almost certainly enter the regional flow system, however, and continue to migrate southward." (Discharges to the south recharge basins currently meet state drinking water standards.)

### **2.3.2 U.S. Navy Investigations**

In May 1992, a Phase 1 RI of the NWIRP, Bethpage, New York was completed by Halliburton, NUS Corporation under the U.S. Navy Installation Restoration Program. This investigation included a soil-gas survey, soil sampling, surface-water and sediment sampling, and



monitoring well installation, and groundwater sampling. Three sites, the former drum marshalling area, the salvage area, and the recharge basins, were identified for investigation. Findings obtained from the U.S. Navy Phase 1 RI report (Halliburton, NUS 1992) are summarized below.

The soil-gas survey results for the former drum marshalling, recharge basin, and salvage storage areas indicated potential solvent contamination. The results of the soil sampling program confirmed the presence of solvents at the former drum marshalling area, with detections of PCE and TCE at concentrations up to 4,800 and 200 micrograms per kilogram ( $\mu\text{g}/\text{kg}$ ), respectively. Slightly elevated concentrations of VOCs (less than  $65 \mu\text{g}/\text{kg}$ ) were also detected in soil samples from the recharge basin and the salvage storage areas. In addition, soil sampling results revealed elevated concentrations of polychlorinated biphenyls (PCBs) (up to  $7,900 \mu\text{g}/\text{kg}$ ), inorganics, and polynuclear aromatic hydrocarbons (PAHs) at the three sites, and pesticides, at concentrations up to  $440 \mu\text{g}/\text{kg}$ , in the former drum marshalling area.

VOCs were detected in groundwater samples from the former drum marshalling area, the salvage storage area, and the recharge basins. The groundwater near the former drum marshalling area contained concentrations of TCE ( $1,500 \mu\text{g}/\text{L}$ ); PCE ( $7,700 \mu\text{g}/\text{L}$ ); 1,1,1-TCA ( $10,000 \mu\text{g}/\text{L}$ ); 1,1-DCA ( $880 \mu\text{g}/\text{L}$ ); 1,1-dichloroethene (1,1-DCE) ( $250 \mu\text{g}/\text{L}$ ); and 1,2-DCE ( $3,600 \mu\text{g}/\text{L}$ ). The groundwater downgradient of the salvage storage area (southwest corner of Plant 3) had concentrations of TCE up to  $58,000 \mu\text{g}/\text{L}$  and lesser concentrations of PCE and 1,1,1-TCA. TCE was detected in groundwater samples near the recharge basins at concentrations up to  $16 \mu\text{g}/\text{L}$ . The surface-water and sediment sampling program at the recharge basins found VOC contamination of the surface waters with TCE at  $35 \mu\text{g}/\text{L}$ . The sediments of the recharge basin were found to contain TCE and PCE at concentrations up to  $8 \mu\text{g}/\text{kg}$ .

In October 1993, a Phase 2 RI of the NWIRP was completed. The investigation included a soil-gas survey, soil sampling, and monitoring well installation and sampling. In addition to the sites investigated during Phase 1, the Phase 2 RI also included an investigation of Plant 3,



the Well HN-24 area, and off-site areas to the east/southeast. Findings of the investigation obtained from the U.S. Navy Phase 2 RI report (Halliburton, NUS 1993) are summarized below.

The first stage soil-gas survey (headspace monitoring with an organic vapor analyzer [OVA]) at Plant 3 indicated that several areas contained high readings of VOCs (up to 88 parts per million [ppm]). During the second stage soil-gas survey (soil-gas analysis with a portable gas chromatograph [GC]), several areas in Plant 3 showed concentrations of PCE (up to 5,000  $\mu\text{g/L}$ ), TCE (up to 280  $\mu\text{g/L}$ ), and 1,1,1-TCA (120  $\mu\text{g/L}$ ). The soil-gas survey conducted at the drum storage area near the northern warehouses showed lower concentrations of TCE (12  $\mu\text{g/L}$ ), PCE (3  $\mu\text{g/L}$ ), and 1,1,1-TCA (0.2  $\mu\text{g/L}$ ).

With the exception of two locations at the former drum marshalling area, which had PCB concentrations of 30 and 1,470 milligrams per kilogram (mg/kg), PCBs were generally detected at concentrations of 10 mg/kg or less in soil samples collected from the former drum marshalling area, salvage storage area, and the recharge basin area. The soil sampling at the Well HN-24 area reported levels of TCE up to 36  $\mu\text{g/kg}$ , toluene up to 27  $\mu\text{g/kg}$ , and carbon disulfide up to 12  $\mu\text{g/kg}$ .

The groundwater quality data collected during the Phase 2 RI found concentrations of VOCs at the former drum marshalling area, at Plant 3, and in off-site monitoring wells. The groundwater near the former drum marshalling area contained the following maximum concentrations of VOCs: TCE (340  $\mu\text{g/L}$ ); PCE (1,400  $\mu\text{g/L}$ ); 1,1,1-TCA (690  $\mu\text{g/L}$ ); 1,1-DCA (120  $\mu\text{g/L}$ ); and 1,2-DCE (220  $\mu\text{g/L}$ ). The groundwater near Plant 3 contained concentrations of TCE up to 12,000  $\mu\text{g/L}$ , while the off-site monitoring program reported lower concentrations (less than 16  $\mu\text{g/L}$ ) of TCE; PCE; 1,1,1-TCA; 1,1-DCA; 1,1-DCE; and toluene.

A groundwater flow and particle tracking model was developed by Halliburton, NUS as part of the NWIRP Phase 2 RI. The main objectives of the modeling task were to develop a model that accurately represented groundwater directions and simulated contaminant releases under a variety of pumping and recharge scenarios. In general, U.S. Navy modeling results are



consistent with USGS results and indicate that under certain pumpage scenarios, contaminants released from the former drum marshalling area and the NWIRP recharge basins can impact (are captured by) Grumman production wells and public supply wells of the Bethpage Water District.

### **2.3.3 OCC/RUCO Polymer Corporation Investigation**

In August 1992, a RI, which included a soil-gas study, an electromagnetic terrain conductivity survey, recharge basin sediment and water sampling, shallow and deep soil sampling, and groundwater sampling, was completed for the OCC/RUCO Polymer Corporation site. The data summarized below were obtained from the OCC/RUCO draft RI report (Leggette, Brashears & Graham, Inc. 1990) and from the U.S. Navy Phase 2 RI Report (Halliburton, NUS 1993).

Soil samples collected during the RI contained the following maximum concentrations: TCE (7,600  $\mu\text{g}/\text{kg}$ ), PCE (57,000  $\mu\text{g}/\text{kg}$ ), ethylbenzene (950  $\mu\text{g}/\text{kg}$ ), toluene (390  $\mu\text{g}/\text{kg}$ ), PAHs (7,770  $\mu\text{g}/\text{kg}$ ), phenols (120,000  $\mu\text{g}/\text{kg}$ ), phthalates (120,000  $\mu\text{g}/\text{kg}$ ), and PCBs (2.1  $\text{mg}/\text{kg}$ ). The sediments from the recharge basins were found to contain toluene and 1,2-DCE at concentrations of 260  $\mu\text{g}/\text{kg}$  and 76  $\mu\text{g}/\text{kg}$ , respectively. Also found in the recharge basin sediments were PAHs and phthalates at concentrations of 2,180  $\mu\text{g}/\text{kg}$  and 9,580  $\mu\text{g}/\text{kg}$ , respectively.

The groundwater sampling from on-site wells found the following VOCs: PCE (85  $\mu\text{g}/\text{L}$ ), TCE (14  $\mu\text{g}/\text{L}$ ), and vinyl chloride (560  $\mu\text{g}/\text{L}$ ). Also, tentatively identified compounds (TICs) with concentrations as high as 5,000  $\mu\text{g}/\text{L}$  were found during the monitoring well sampling.





## 2.4 REGIONAL HYDROGEOLOGY

This section describes the regional geology and hydrology in east-central Nassau County. Information contained in this section was compiled from the following USGS reports: McClymonds and Franke (1972), Franke and Cohen (1972), Isbister (1966), and Smolensky and Feldman (1990).

### 2.4.1 Regional Geology

Long Island is located entirely within the glaciated part of the Atlantic Coastal Plain physiographic province and is underlain by unconsolidated deposits of clay, silt, sand, and gravel that overlie southeast-sloping consolidated bedrock. The bedrock surface and the overlying unconsolidated deposits slope at about 65 feet per mile. The unconsolidated deposits have been classified into four major geologic (and hydrogeologic) units. The geologic units are primarily differentiated by age, depositional environment, and lithology. The hydrogeologic units are primarily differentiated by their water-transmitting properties. The geologic units (and hydrogeologic) units, in descending order from land surface, are as follows: (1) the upper Pleistocene deposits (Upper Glacial aquifer), (2) the Magothy Formation (Magothy aquifer), (3) the Clay Member of the Raritan Formation (Raritan confining unit), and (4) the Lloyd Sand Member of the Raritan Formation (Lloyd aquifer). These units are described below, and a generalized north-south cross section through the area is shown on Figure 2-4.

The upper Pleistocene deposits include morainal tills and outwash-plain deposits of glaciofluvial origin (deposition was controlled by glacial meltwaters). These deposits consist of medium-to-coarse sand and gravel, and are approximately 75 ft thick in the study area. Fine sand, silt, and local clay lenses are also present.

The Magothy Formation consists of fine-to-medium, gray to white sand and clayey sand with a maximum thickness of approximately 650 ft in the study area. Discontinuous, solid clay lenses, lignite, pyrite, iron oxide concretions, and a basal gravel deposit are also common. The



upper surface of the Magothy Formation was extensively eroded by glacial meltwaters during the Pleistocene, making the contact with the Upper Pleistocene deposits difficult to identify.

The Clay Member of the Raritan Formation (Raritan Clay) consists of white, gray, and red clay; silt; and sandy clay, with a few scattered lenses of fine sand. Lignite and pyrite are also common. The Raritan Clay has an average thickness of 175 ft across the study area and dips (slopes) to the southeast at about 65 feet per mile.

The Lloyd Sand Member of the Raritan Formation (Lloyd Sand) consists of fine-to-coarse sand and gravel, commonly with a clayey matrix. Lenses of solid and silty clay and thin layers of lignite are also present. The Lloyd Sand dips to the southeast at about 65 feet per mile and is approximately 300 ft thick.

#### **2.4.2 Regional Hydrology**

Groundwater is the sole source of freshwater for Nassau County, Long Island. As discussed previously in this report (Section 2.4.1 [Regional Geology]), the groundwater reservoir of east-central Nassau County is divided into the following three main aquifers: (1) the Upper Glacial aquifer, (2) the Magothy aquifer, and (3) the Lloyd Sand aquifer. The Upper Glacial and Magothy aquifers are of principal interest in this investigation because they lie directly beneath land surface and the latter is the principal source of public water supply in Nassau County. Furthermore, the lateral continuity and the low average vertical hydraulic conductivity (approximately  $1 \times 10^{-3}$  ft per day [ft/d]) of the Raritan Clay severely retards the vertical movement of groundwater into the Lloyd Sand aquifer and acts to prevent contamination of the Lloyd Sand aquifer from the overlying Upper Glacial and Magothy aquifers.

The water table occurs in the Upper Glacial Formation over much of the study area. Water occurring in the Upper Glacial Formation is under unconfined conditions. The average horizontal hydraulic conductivity of the Upper Glacial Formation is approximately 270 ft/day; anisotropy (the ratio of horizontal to vertical hydraulic conductivity) is approximately 10:1.



Water occurring in the Magothy Formation is under both unconfined and semi-confined conditions; with the degree of confinement increasing with depth, primarily due to stratification and the numerous silt and clay lenses present. The estimated average horizontal hydraulic conductivity of the Magothy Aquifer is 50 ft/day, and anisotropy is approximately 100:1. The Upper Glacial and Magothy aquifers are in direct hydraulic contact with each other.

Regional groundwater flow on Long Island is characterized by an east-west trending groundwater divide (located along the north-central axis of Long Island). Water entering the system at the divide flows vertically downward, and then horizontally seaward. Groundwater north of the divide discharges into Long Island Sound; groundwater south of the divide discharges into the Great South Bay and the Atlantic Ocean (see Figure 2-4). Regionally, the horizontal direction of groundwater flow in the Upper Glacial and Magothy aquifers at the study area is to the south. Locally, the water-table configuration and groundwater flow direction is influenced by topography, aquifer thickness, hydraulic conductivity, and proximity to local surface water, recharge areas, or production well pumping centers.



### **3.0 METHODOLOGY**

This section describes data collection methods used during the Phase 1 and 2 RIs; detailed protocols are provided in the RI work plans (Geraghty & Miller, Inc. 1990 and 1992a) and the Phase I Data Report (Geraghty & Miller, Inc. 1992b). Analytical services for the Phase 1 and 2 RIs were provided by Industrial & Environmental Analysis, Inc. Laboratories (IEA), Monroe, Connecticut and National Environmental Testing (NET), Inc., Thorofare, New Jersey; drilling services were provided by Delta Well & Pump Company, Inc., Ronkonkoma, New York.

#### **3.1 REMEDIAL INVESTIGATION APPROACH**

A two-phased approach was used to conduct the Grumman RI. The Phase 1 RI primarily consisted of an on-site study to define the nature and extent of potential chemical contamination attributable to the Grumman facility. The Phase 2 RI focused on the investigation of potential on-site sources identified during the Phase 1 and on the off-site groundwater quality.

The Phase 1 field investigation was developed using a detailed review of the site history, which identified potential on-site source areas where chemical usage, storage, and disposal had occurred. Also taken into consideration for the development of the Phase 1 RI was the existing water-quality data from the on-site production wells and off-site monitoring wells, the pumping of water from the on-site production wells, and the discharge of well water to on-site recharge basins. To address the areas of concern, this investigation included, as necessary, soil-gas surveys, soil sampling, surface-water and sediment sampling, monitoring well installation, and groundwater sampling.

The Phase 2 RI was developed using data collected during Phase 1 and the following sources:



- A provisional copy of the USGS draft report entitled, "Ground-Water Quality in the Bethpage-Hicksville-Levittown Area, Long Island, New York" (Smolensky et al. 1992).
- The draft Remedial Investigation Report for the U.S. Naval Weapons Industrial Reserve Plant at Bethpage, New York, February 1992 (this version of the report did not include analytical data for the deep monitoring wells) (Halliburton, NUS 1992).
- The 1991 pumpage and analytical data for Bethpage Water District Public Supply Wells 6-1 and 6-2.

To address the areas of concern identified, the Phase 2 investigation included, as necessary, soil-gas surveys, soil sampling, monitoring well installation, and groundwater sampling.

### **3.2 REMEDIAL INVESTIGATION PROTOCOLS**

Except as described below, the protocols used in the RI are provided in the Phase 1 and 2 Work Plans (Geraghty & Miller, Inc. 1990 and 1992a) and the Phase 1 Data Report (Geraghty & Miller, Inc. 1992b). The revised methodologies described below were used during the Phase 2 RI to accommodate field conditions encountered; all procedures used during the RI were approved by the NYSDEC before use.

#### **3.2.1 Monitoring Well Installation**

At the request of the NYSDEC, the drilling method (mud rotary) proposed for the deep (D) (approximately 250 ft bls) and very deep (D2) (approximately 500 ft bls) wells in the Phase 2 Work Plan was changed and a modified version of the combination mud-rotary/reverse-rotary



method used during the Phase 1 RI was used to drill these wells. The revised method is described below.

At each location, an 8-inch diameter pilot borehole was drilled using the mud-rotary method (except for Well GM-22D, in which a 4-inch diameter hollow-stem auger was used) to the proposed well depth. Split-spoon core samples were collected every 10 feet from land surface to the bottom of the pilot borehole to define the geology and assist in selecting a screen zone. After sampling had been completed, the borehole was geophysically logged for natural gamma radiation (as described in the Phase 1 Data Report [Geraghty & Miller, Inc. 1992b]). The pilot borehole was then abandoned using a 95 percent cement/5 percent bentonite grout. After abandonment of the pilot borehole, the drill rig was moved to a nearby location (approximately 20 feet away) to drill and install the deep well. The hollow-stem auger method was utilized to install a surface casing (10-inch diameter steel casing) from land surface to the water table to seal off the coarsest geologic materials and minimize fluid loss during mud-rotary drilling. The borehole was filled with a non-polymer drilling fluid (100-percent bentonite and water), and drilling continued using the mud-rotary method from the water table to approximately 40 feet above the designated screen zone. The mud was flushed out of the borehole with potable water and drilling continued using the reverse-rotary method and potable water (as the drilling fluid) to the final well depth. The same process was used to install the D2 wells.

Wells GM-37D, GM-37D2, GM-38D, and GM-38D2 were added to the Phase 2 RI based on the results of groundwater samples from Well GM-36D; the following method was used to drill these wells. As described above, the hollow-stem auger method was utilized to install a surface casing at each location. The borehole was filled with a non-polymer drilling fluid (100-percent bentonite and water), and drilling continued using the mud-rotary method to the final well depth. After the borehole was completed, it was geophysically logged for natural gamma radiation (as described above). The mud was then flushed out of the borehole with potable water and the well was constructed.



Due to problems (i.e., high turbidity readings) encountered during development of Well GM-36D2, Wells GM-33D2, GM-35D2, GM-37D, GM-37D2, GM-38D, and GM-38D2 were constructed with continuous wire-wrapped stainless-steel, 10-slot screen. Wire-wrapped screen was used because stainless steel is stronger than PVC and allows more rigorous well development methods to be used, and wire-wrapped screen exposes more of the formation to well development (more surface area is exposed) than slotted screens. Extra gravel pack and/or fine sand were also used in well construction. Well construction details for all monitoring wells are provided in Table 3-1, and well construction logs are in Appendix A.

### **3.2.2 Water-Level Measurements**

Bethpage Water District Wells N-4063, N-4146, and N-4175 had been proposed for inclusion in the synoptic rounds of water-level measurements. However, these wells proved to be inaccessible and were deleted from the rounds of synoptic water-level measurements.



## **4.0 NATURE AND EXTENT OF CONTAMINATION**

This section describes the site hydrogeology and analytical results (nature and extent) of the Phase 1 and 2 RIs. Where available, analytical results are compared to standards, criteria, and guidance (SCGs) identified for the Grumman facility (see Table 4-1).

Due to their detection in quality assurance/quality control (QA/QC) samples (e.g., field and trip blanks) and/or no history of usage, the following compounds are believed to be laboratory artifacts: acetone, methylene chloride, 2-butanone, and phthalates. For this reason, these compounds are not included in the data evaluation.

### **4.1 SITE HYDROGEOLOGY**

This section describes the local geology and hydrology beneath the Grumman facility, as determined from soil samples collected and water-level measurements made during the Phase 1 and 2 RIs.

#### **4.1.1 Site Geology**

In general, the geology at the site, from land surface to the bottom of the Magothy Formation, consists primarily of sand with interbedded layers of silt, clay, and gravel. The uppermost sequence of these sediments is part of the Upper Pleistocene outwash deposits, while the lower sequence belongs to the Magothy Formation, which is part of the Atlantic Coastal Plain marine deposits. The upper Pleistocene deposits in this area of Long Island tend to be coarser than the underlying Magothy Formation. Within the Magothy Formation, the deposits tend to become finer with depth, except for the basal Magothy where gravel deposits are common. As agreed to with the NYSDEC, the contact between these two formations was not identified during this investigation.





Five geologic cross sections were developed to illustrate the stratigraphy at and in the vicinity of the Grumman facility. These cross sections are shown on Figures 4-1 through 4-5; the locations of the cross sections are shown on Figure 4-6. Cross sections were prepared using soil samples collected and geophysical (gamma) logs run during the investigations. Sample core and gamma logs from the Phase 1 RI were previously submitted as part of the Phase 1 data report (Geraghty & Miller, Inc. 1992b); sample core logs from the Phase 2 RI are provided in Appendix B; gamma logs are provided on Figures 4-1, 4-2, and 4-5.

The cross sections illustrate the high degree of stratification of the deposits that occur beneath the site. Sand is the predominant component with varying amounts of clay, silt, and gravel distributed throughout the area.

#### **4.1.2 Site Hydrology**

Groundwater beneath the Grumman facility, to a depth of approximately 460 ft bls, occurs in two separate geologic units that are hydraulically connected and behave as one hydrogeologic unit. These units are the Upper Glacial and Magothy aquifers. Groundwater predominantly flows regionally to the south and southeast with a slight downward component, but is greatly influenced by the groundwater withdrawal that occurs at the numerous site production wells and the reinfiltration that occurs at the on-site recharge basins. Operation of these wells and use of the recharge basins has changed the flow patterns locally.

As described in Section 2.1 (Site Location and Description) of this report, the production wells operate on an irregular frequency (based on demand) and in various combinations. Consequently, their influence on the local flow regime at any time is dependent on how much is pumped and which production wells are doing the pumping. Current groundwater withdrawal rates are approximately 3 to 11 mgd, and are highest during the summer months when the demand for cooling water is greatest. Almost all the production well water (and most of the storm-water runoff) is discharged to the on-site recharge basins. Locations of the production wells and recharge basins are shown on Figure 2-2.



Pumping wells can increase or reverse the horizontal groundwater flow gradients near them; recharge basins have the same effect as pumping wells but the horizontal gradients are directed away from them. Depressions (caused by pumpage) are formed around the intake screen of production wells, and the hydraulic effects diminish vertically towards land surface. Mounds (caused by the infiltration of water) are formed on the surface of the water table near recharge basins and the hydraulic effects diminish vertically with depth.

To determine the horizontal and vertical groundwater flow directions at the site, synoptic water-level measurements were periodically collected during the Phase 1 and 2 RIs. Data collected during the Phase 1 RI is summarized in the Phase 1 Data Report (Geraghty & Miller, Inc. 1992b); water levels measured in April and August 1993 during the Phase 2 RI are summarized in Tables 4-2 and 4-3, respectively. Water levels measured in April 1993 are characteristic of low pumpage/low recharge conditions, and water levels measured in August 1993 are representative of high pumpage/high recharge conditions. Water-level data for the April and August 1993 rounds were used to prepare water-level elevation contour maps for the shallow zone (approximately 35 to 75 ft bls), intermediate zone (approximately 100 to 150 ft bls), and deep zone (approximately 200 to 250 ft bls). Contour maps were not prepared for the interval between 300 to 500 ft bls (the D2 zone) because an insufficient number of wells was screened within this interval. Contour maps of groundwater elevations and the estimated flow directions are shown on Figure 4-7 through 4-12.

As illustrated on Figures 4-7 and 4-10, the horizontal direction of groundwater flow in the shallow zone is generally to the south and southeast, but is greatly affected by localized groundwater pumpage and recharge. Pumpage effects (depression) are observed around Plant 15 (in the vicinity of Production Well GP-13). Recharge effects (mounding) are evident around the Plant 3 basins, Plant 5 basins, south recharge basins, and to a lesser extent near the Plant 12 basins. Mounding is also observed along the eastern border of the OCC/RUCO facility (near Plant 115) and is presumably attributed to recharge occurring at the OCC/RUCO site. In general, the observed recharge and pumpage effects were greater in August, which represents peak pumpage/recharge conditions, than in April.



The direction of horizontal groundwater flow in the intermediate zone is similar to the shallow zone, except that the magnitude of the recharge and pumpage effects differs (see Figures 4-8 and 4-11). With the exception of the Plant 5 recharge basins, mounds are observed at the same locations as in the overlying shallow zone. However, because groundwater is recharged at land surface (to the unsaturated zone) the recharge effects are less apparent in the intermediate zone. Mounding may occur in the intermediate zone below the Plant 5 recharge basins, but was not detected because there are no intermediate wells located in this area. Because the screened intervals of the production wells range between approximately 280 and 570 ft bls, pumpage effects are more pronounced in the intermediate zone than in the shallow zone. Specifically, pumpage effects in the intermediate zone are evident along the western site border (particularly near Production Well GP-13), where a cone of depression is observed. Similar to the shallow zone, recharge and pumpage effects were more pronounced in the August round.

In general, the horizontal direction of groundwater flow in the deep zone is similar to the shallow and intermediate zones, but mounding from the recharge basins was not observed (see Figures 4-9 and 4-12). In addition, because water-level elevations could not be measured in the production wells and the number of deep on-site monitoring wells is limited, the effects of on-site pumpage on flow directions in the deep zone is not clearly evident. However, based on the results of the groundwater flow and transport models developed by the USGS (Smolensky and Feldman, in press) and the U.S. Navy (Halliburton, NUS 1993), the effects of on-site pumpage on groundwater flow patterns beneath the Grumman site are most apparent in the deep and D2 zones because this is where the production wells are screened. In general, the USGS and U.S. Navy models illustrate similar groundwater flow patterns that result from production well pumpage and infiltration near the recharge basins.

A comparison of the water-level elevations for the April and August rounds indicates that there is a downward vertical hydraulic gradient beneath the Grumman facility (see Table 4-4). As described in the 1985 USGS study (Smolensky and Feldman 1990), pumping at depth in virtually the same horizontal location as the recharge site has a substantial effect on the three-dimensional flow patterns. Under natural conditions, the vertical head difference between the



water table and the base of the Magothy aquifer (approximately 650 ft bls) is 1 to 4 ft. The hydraulic conductivity and anisotropy of the aquifers indicate that the vertical movement of groundwater is relatively slow. However, deep pumpage and surface recharge, as occurs at the Grumman facility, decreases the hydraulic head at depth and increases the head at the water table. The net effect is that the vertical head difference, and thus the rate of vertical groundwater movement under the Grumman site, is greatly increased. The vertical head difference measured between the water table and deep zone (approximately 250 ft bls) at the Grumman site is approximately 3 ft.

To better illustrate the flow system at the Grumman site, five generalized hydraulic cross sections were prepared. The hydraulic cross sections are shown on Figures 4-13 and 4-14; the line of cross section is illustrated on Figure 4-6. These cross sections show a predominant south/southeast and downward flow direction. With the exception of Cross Section D-D' (Figure 4-14), groundwater flow directions were not illustrated on the hydraulic cross sections, because, due to the anisotropy of the aquifer and the vertical exaggeration used in drafting the figures, the angle that they would intersect the equipotential lines is unknown. The generalized flow direction across the site (drawn at right angles to the equipotential lines) is shown on Figure 4-14.

As described in Section 2.3 (Previous Investigations) of this report, the USGS and U.S. Navy modeling results (Smolensky and Feldman, in press; and Halliburton, NUS 1993) indicate that on-site pumpage and recharge provide some measure of hydraulic control and that a groundwater divide is present beneath the south recharge basins. In general, groundwater entering the local flow system north of the divide is drawn down to the production wells and recirculated through Grumman's pumpage and recharge. Groundwater entering the local flow system south of the divide flows off-site with the regional gradient. Modeling results and groundwater quality data generated during the RI indicate that the groundwater divide is not completely effective at preventing the off-site migration of contaminated groundwater (there is some flow around the basins and under the production wells). Although this hydraulic barrier is not completely effective, it has helped prevent the spread and migration of contaminants (see



Section 2.3.1 [USGS Study: Bethpage-Hicksville-Levittown Area] of this report). Discharges to the south recharge basins currently meet state drinking water standards.

## 4.2 SOIL-GAS SURVEY

Soil-gas surveys were conducted at the Grumman facility in accordance with NYSDEC-approved Phase 1 and Phase 2 work plans (Geraghty & Miller, Inc. 1990 and 1992a). Although there are no regulatory cleanup standards for soil gas, the surveys were conducted to identify areas that may require further investigation by soil and/or groundwater sampling and laboratory analysis. From April 16 through April 29, 1991, the Phase 1 survey was conducted to screen 12 proposed areas of investigation. Proposed soil-gas location SG-12 was not investigated due to access problems and proposed locations SG-5 and SG-6 were combined and designated as SG-5. On August 28, 1992, the Phase 2 survey was conducted to investigate a thirteenth proposed area of concern. During both surveys, a Photovac portable GC was used to analyze soil vapors for vinyl chloride; cis-1,2-DCE; trans-1,2-DCE; TCE; and PCE. The locations of the soil-gas surveys are shown on Figure 4-15.

The results of the Phase 1 and Phase 2 soil-gas surveys are provided in Table 4-5 and summarized below. The selected list of analyzed compounds, as described above, were not detected in Soil-Gas Samples SG-2, SG-7, SG-8, SG-9, or SG-13. PCE concentrations ranged from 1 to 3 part per million by volume (ppmv) in Samples SG-1A through SG-1F. TCE and PCE were detected in Sample SG-3C at 1 ppmv. cis-1,2-DCE, TCE, and PCE were detected at concentrations of 5 to 10 ppmv, 60 to 100 ppmv, and 0.5 ppmv, respectively, in Samples SG-4A through SG-4D. TCE was detected in Sample SG-5F at 1 ppmv. cis-1,2-DCE, TCE, and PCE were detected at concentrations of 0.4 ppmv, 0.3 to 3 ppmv, and 10 to 400 ppmv, respectively, in Soil-Gas Samples SG-10A, SG-10B, and SG-10C. PCE was detected in Samples SG-11A, SG-11B, and SG-11C at concentrations ranging from 0.6 to 3 ppmv. In addition, several unknowns were detected in Samples SG-5C, SG-5D, and SG-5E, and one unknown was detected in Samples SG-8B and SG-10A.



Based on the results of the Phase 1 and Phase 2 soil-gas surveys, four areas of concern were selected for further investigation during the soil sampling program (Borings B-1 through B-7) and the groundwater sampling program (Wells GM-31S and GM-32S). In addition, a follow-up soil-gas survey is planned for the Plant 15 area.

### 4.3 SOIL SAMPLING

Soil boring programs were conducted at the Grumman facility in accordance with NYSDEC-approved Phase 1 and Phase 2 work plans (Geraghty & Miller, Inc. 1990 and 1992a). Three shallow soil borings (designated B-1, B-2, and B-3) were installed on June 20, 1991 adjacent to the Plant 2 aboveground storage tank for TCE (see Figure 4-15). The borings were drilled by the hollow-stem auger method and split-spoon core samples were collected continuously to a depth of 10 feet bls. One soil sample from each boring was selected for laboratory analysis based on visual inspection and head-space analysis. Head-space measurements and sample core descriptions are provided in the Phase 1 Data Report (Geraghty & Miller, Inc. 1992b). Soil samples were analyzed for VOCs, semivolatile organic compounds (SVOCs), pesticides, and PCBs on the Target Compound List (TCL), inorganic parameters on the Target Analyte List (TAL) pH, and hexavalent chromium, in accordance with NYSDEC Analytical Services Program (ASP) protocols. Analytical results are provided in Tables 4-6 through 4-9.

In addition, soil samples were collected during the installation of nine shallow and 17 intermediate monitoring wells. The wells were installed using the hollow-stem auger method to depths ranging from 46 to 73 feet bls in the shallow wells and 100 to 145 feet bls for the intermediate wells. With the exception of Well Cluster GM-1, split-spoon core samples were collected every 10 feet. Split-spoon core samples were collected every 5 feet in Well Cluster GM-1, as originally proposed in the Phase 1 RI work plan (Geraghty & Miller, Inc. 1990). One soil sample (from the unsaturated zone) was selected from each borehole for laboratory analysis based on head-space analysis and visual inspection. Head-space analyses were conducted in accordance with the approved work plans and the results are provided in the Phase 1 Data



Report (Geraghty & Miller, Inc. 1992b). Soil samples were analyzed for VOCs, SVOCs, pesticides, and PCBs on the TCL, inorganic parameters on the TAL pH, and hexavalent chromium, in accordance with NYSDEC ASP protocols. Analytical results are provided in Tables 4-6 through 4-9.

Except for Well GM-20D, one soil sample was selected (based on head-space analysis and visual inspection) from each deep borehole in the unsaturated zone and sent to the laboratory for analysis. A soil sample was not analyzed for Well GM-20D because the head-space analyses conducted on unsaturated soil samples from Boring GM-20I were equal to or less than background measurements and the well is located off-site in a residential neighborhood where no waste disposal was suspected; therefore, the NYSDEC did not require that a soil sample be submitted for laboratory analysis. Soil samples were analyzed for VOCs, SVOCs, pesticides, and PCBs on the TCL, inorganic parameters on the TAL, pH, and hexavalent chromium, in accordance with NYSDEC ASP protocols. Analytical results are provided in Tables 4-6 through 4-9.

As specified in the NYSDEC-approved work plan, as part of the Phase 2 soil boring program, four additional borings were drilled using the hollow-stem auger method and soil samples were collected using a split-spoon sampler. These additional borings, Borings B-4 through B-7, were installed to followup on potential areas of contamination identified in the soil-gas survey. Boring locations are shown on Figure 4-15.

The results of the soil sample analyses from each boring/monitoring well were compared to the NYSDEC cleanup objectives (January 1994) in Table 4-1. To determine which of the samples exceeded the objectives for metals, consideration was given to the cleanup objective guidance value, to the site background levels, or to the eastern United States background concentrations. Because the NYSDEC cleanup objectives have been developed to be protective of groundwater, selected metals for which there are no drinking water standards or for which there are only secondary drinking water standards (non-health related, aesthetic concerns) were compared to the eastern United States background concentrations. These metals include



aluminum, calcium, iron, magnesium, manganese, potassium, sodium, and zinc. Lead levels were compared to published values for average lead levels found in metropolitan or suburban areas, or near highways (see Table 4-10).

SVOCs were detected above the NYSDEC cleanup objectives in Soil Samples GMS-3I, GMS-7D, GMS-16S, GMS-16I, GMS-22S, GMS-22I, GMS-23S, B-2, and B-3; VOCs were detected above the NYSDEC cleanup objectives in Soil Samples B-2 and B-5; selected metals (arsenic, beryllium, cadmium, chromium, mercury, and thallium) were detected above the NYSDEC cleanup objectives in Soil Samples GMS-12S, GMS-14I, GMS-17S, GMS-19S, GMS-19I, GMS-23I, B-2, and B-3. PCBs and pesticides were not detected above the NYSDEC cleanup objectives in soil samples.

#### **4.4 RECHARGE BASIN WATER AND SEDIMENT SAMPLING**

Recharge basin water and bottom sediment samples were collected during the Phase 1 RI at the locations shown on Figure 4-15. Recharge basin water samples were not collected from proposed locations RW-3 and RW-4 because these basins were dry at the time of sampling. In addition, basin water samples RW-1, RW-1MS, RW-1MSD, RW-2, RW-REP2, and RWFB-2 were resampled for hexavalent chromium on March 20, 1991, because the laboratory exceeded the holding time for the original samples. The samples were analyzed for VOCs, SVOCs, pesticides, and PCBs on the TCL; inorganic parameters on the TAL, pH, hexavalent chromium, and asbestos (basin water samples only), in accordance with NYSDEC ASP protocols. Analytical results of recharge basin water and bottom sediment samples are provided in Tables 4-11 through 4-14 and summarized below.

VOCs, SVOCs, pesticides, and PCBs were not detected in recharge basin water samples. With the exception of total iron, inorganic parameters analyzed for in recharge basin water samples were detected below SCGs.

VOCs, pesticides, and PCBs were not detected above NYSDEC soil cleanup objectives in sediment samples from the bottom of the recharge basin. Several SVOCs and metals were





detected above NYSDEC soil cleanup objectives and/or eastern United States background levels. Specifically, benzo(a)pyrene was detected above cleanup objectives in Samples BS-1 and BS-2, and chrysene, benzo(a)anthracene, and dibenzo(a,h)anthracene were detected above cleanup objectives in Sample BS-2. In addition, chromium (in Samples BS-1) and copper (in Samples BS-1, BS-2, BS-3, and BS-4) were detected above cleanup objectives and eastern United States site background levels (see Tables 4-1 and 4-10 for cleanup objectives and background levels, respectively).

#### 4.5 GROUNDWATER SAMPLING

Groundwater sampling was conducted during both the Phase 1 and Phase 2 RIs. During Phase 1, groundwater samples were collected from 29 newly installed Phase 1 wells and 17 existing wells, which formed the Phase 1 well clusters (as described in the Phase 1 work plan [Geraghty & Miller, Inc. 1990]), with the exception of Well GM-11S, which, due to access constraints, was installed during Phase 2. The Phase 1 groundwater sampling was conducted in September 1991, and the Phase 2 groundwater sampling was conducted in late August/early September 1993. During Phase 2, groundwater samples were collected from the 12 newly installed Phase 2 wells, the Phase 1 monitoring network, and additional existing wells specified in the Phase 2 work plan (Geraghty & Miller, Inc. 1992a). The groundwater sampling logs and chain-of-custody forms are provided in Appendix C. Additional groundwater samples were collected from Wells GM-36D, GM-36D2, GM-37D, GM-37D2, GM-38D, and GM-38D2 during the Phase 2 RI drilling program to determine off-site groundwater quality in the vicinity of BWD Plants 4 and 5 (Wells N-6915, N-6916, and N-8004) and to assess the need for additional monitoring wells in this vicinity. Water-quality data from these preliminary sampling rounds are not included in this report as they were not a part of the RI work plans; these data have previously been provided to the NYSDEC in the monthly progress reports prepared during the RI field investigations. The depth, designation, and construction of the wells sampled are provided in Tables 3-1 and 4-15. The locations of the wells sampled are shown on Figure 2-2.



Groundwater samples collected during Phase 1 were analyzed for VOCs by USEPA Method 8240. Groundwater samples collected during Phase 2 were analyzed for VOCs by USEPA Method 8240 and for a list of inorganic parameters that included metals and conventional water-quality parameters. Samples were analyzed by IEA and NET, and used NYSDEC ASP validation protocols. Validated analytical results are in Tables 4-16 to 4-18; validation memos are in Appendix D and laboratory data sheets are provided in Appendix E.

Validated VOC results from the Grumman monitoring well network (Table 4-17) and U.S. Navy monitoring wells (Table 4-19) are plotted on Figures 4-16 to 4-35; U.S. Navy well construction details are summarized in Table 4-20. These figures depict the areal (or horizontal) and vertical distribution of contaminants in groundwater at and downgradient of the U.S. Navy and Grumman facilities. Left undisturbed (by pumpage and/or recharge), contaminants migrating in groundwater will establish a chemical gradient or plume (Section 5.0 [Contaminant Fate and Transport] of this report discusses the different processes that control plume formation and migration). Groundwater sampling conducted during the Phase 1 and Phase 2 RIs indicate two plumes of contaminated groundwater (eastern and western) near the center of the facility. The eastern plume, which generally consists of TCE; PCE; 1,1,1-TCA; 1,2-DCE; 1,1-DCE; and 1,1-DCA, is defined by Wells GM-14I, GM-16I, GM-19I, GM-22D, HN-27S3, and Well Clusters GM-13 and HN-29. The western plume, which primarily consists of TCE, is defined by Wells GM-12S, GM-12I, GM-18S, GM-18I, GM-32S, HN-24S, HN-24I2, and Production Wells GP-1 and GP-2. Figures 4-36 to 4-38 depict the TCE concentration as a ratio of the concentration of total volatile halogenated organic compounds (VHOCs) in cross section. These figures show a distinct difference in the contaminants that comprise each plume. Figure 4-37 bisects the western plume (through Wells HN24I2, GM-12S, and GM-12I) and is composed almost entirely of TCE. The eastern plume is bisected on Figure 4-36 (through Wells GM-14I, GM-16I, GM-19I, GM-22D, HN-27S3, and Well Clusters GM-13 and HN-29) and is composed of the six VOCs discussed above.

In addition to the two plumes (eastern and western) identified in the central portion of the Grumman and U.S. Navy sites, an area of contamination was also identified along the



borders of Grumman and OCC/RUCO Polymer Corporation (near Plant 37). This area of contamination is defined by Well Clusters GM-4, GM-5, GM-10, GM-23, and Production Wells GP-5, GP-8, and GP-14. The concentrations detected do not indicate a discrete plume or plumes, and generally consist of the following compounds: TCE; PCE; 1,1,1-TCA; 1,1-DCE; and vinyl chloride. In addition, analytical results of groundwater samples collected by Grumman from Production Well GP-6 indicate that this well is also in the area affected by the OCC/RUCO Polymer Corporation (see Table 4-17).

To the south of the Grumman property, i.e., hydraulically downgradient, contaminants are present in groundwater at varying depths within an area generally bounded by Wells GM-33D2, GM-34D, GM-34D2, GM-37D, N-6915, N-6916, N-8004, N-10816, N-10999, and N-11000. However, the concentrations of contaminants do not indicate that a discrete plume or plumes are present. The pumpage and recharge of groundwater on Grumman and NWIRP property, as well as the pumpage by the Bethpage Water District, is likely responsible for the observed contamination downgradient of the Grumman facility. The relationship between the observed contamination and the groundwater flow system is discussed in greater detail in Section 5.0 (Contaminant Fate and Transport) of this report.

In defining the limits of plumes and areas of contamination, validated analytical results for Phase 2 (the most recent and complete round) have been compared against SCGs for the individual contaminants. SCGs for contaminants detected during the Phase 1 and 2 RIs are given in Table 4-1. Eight VOCs were detected above SCGs in groundwater samples collected during Phase 2. These compounds and the frequency detected above SCGs are as follows: TCE (28); PCE (15); 1,1,1-TCA (nine); total 1,2-DCE (nine); 1,1-DCE (six); 1,1-DCA (five); vinyl chloride (one); and toluene (one). The range of concentrations detected and the well where the maximum concentration was detected are summarized in Table 4-21. In summary, except for toluene (which was detected at its maximum concentration in Well 12I), the other seven VOCs were detected at their maximum concentrations in Well Cluster GM-13 and in the production wells.



During the Phase 2 groundwater sampling round, both total and dissolved samples were collected for inorganic analyses. Many of the groundwater samples collected were described as turbid (see Appendix C). For this reason, Geraghty & Miller believes that the dissolved analyses are more indicative of concentrations in groundwater; therefore, the results of the dissolved analyses are used in the following data analysis. Six inorganic analytes (metals) exceeded SCGs and background water quality in dissolved groundwater samples collected in Phase 2. Three of the six metals (iron, manganese, and sodium) are secondary drinking water standards (taste and odor), which are typically high in the groundwater beneath Long Island. For this reason, they are not discussed further. The other three metals were each detected in one sample above SCGs and background values; these metals include arsenic at 38.2  $\mu\text{g/L}$  in Well GM-13I, cadmium at 12.3  $\mu\text{g/L}$  in Well GM-20S, and chromium at 131  $\mu\text{g/L}$  in Well GM-32S.



## **5.0 CONTAMINANT FATE AND TRANSPORT**

This section provides a discussion of the environmental processes that control the movement of contaminants and how these processes affect the distribution of contaminants detected in the Phase 1 and Phase 2 RIs conducted at the Grumman facility. The discussion is limited to those organic contaminants detected in three or more samples and inorganic contaminants (metals) detected above background soil concentrations or above SCGs.

### **5.1 CONTAMINANT FATE AND TRANSPORT PROCESSES**

This subsection provides a discussion of the fate and transport processes for the contaminants detected at or in the vicinity of the Grumman facility.

#### **5.1.1 Sorption/Precipitation**

Sorption and precipitation are chemical processes that retard or prohibit contaminant migration in the subsurface. Sorption refers collectively to those processes by which contaminants chemically attach to soil and sediment. Precipitation is a chemical reaction in which the dissolved contaminant reacts with another dissolved species and forms an insoluble product (or solid). For organic contaminants, adsorption to naturally occurring organic matter in soil and sediment is the dominant process affecting contaminant mobility and migration. Migration rates of metals are controlled by both sorption and precipitation.

The mobility of organic compounds in groundwater may be evaluated by examining their aqueous solubilities and partition coefficients (see Table 5-1). Aqueous solubility is a measure of the amount of a compound that will dissolve in a unit volume of water; more soluble compounds are generally more mobile. The solubilities listed in Table 5-1 vary widely, with many values well below 1 milligram per liter (mg/L) to values in excess of 1,000 mg/L. TCE, which has a solubility of 1,100 mg/L, would be characterized as fairly mobile and would, therefore, move relatively fast in an aquifer. By contrast, PAHs, with solubilities ranging from 0.00026 to 30 mg/L, would be expected to be far less mobile.



Partition coefficients measure the relative affinity of a compound for an organic versus an aqueous matrix. The most common partition coefficients are the soil/sediment partition or sorption coefficient ( $K_{oc}$ ) and the octanol/water partition coefficient ( $K_{ow}$ ) (see Table 5-1). These coefficients are usually expressed as logarithms ( $\log K_{oc}$  and  $\log K_{ow}$ ) due to their wide ranging values. Higher  $\log K_{oc}$  and  $\log K_{ow}$  values indicate lower aqueous mobility (higher affinity for soil organic matter). For example, TCE, with a  $\log K_{ow}$  value of 2.42, would again be expected to be more mobile than PAHs, which have  $\log K_{ow}$  values ranging from 3.36 to 7.70.

The mobility of metals is assessed by examining the solubility of the metal, the relative propensity of the metal to form insoluble compounds, and its ability to bond with clays (ion exchange). Because of the range of possible reactions, the mobility of metals is usually expressed qualitatively (e.g., high, medium, and low).

### 5.1.2 Volatilization

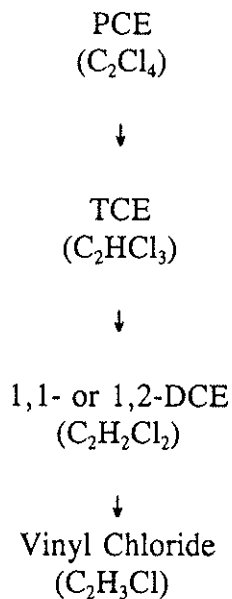
Volatilization is a process generally associated with organic compounds and refers to the transfer of compounds from the dissolved phase or liquid state to the gaseous (vapor) state. This can occur at several points: directly from a spill or leak, from the surface of uncovered impoundments containing VOC-contaminated water, and from VOC-contaminated water at or near the water table into the unsaturated zone. Volatilization is assessed by examining the Henry's law ( $K_H$ ) coefficient and vapor pressure (see Table 5-1) for each compound. Henry's law constants provide a semi-quantitative rate that a compound will volatilize from soil and/or water, and vapor pressure provides an indication of the relative volatility of a substance. If  $K_H$  is less than  $10^{-7}$  atm-m<sup>3</sup>/mole, the substance has a low volatility; if  $K_H$  is greater than  $10^{-7}$  but less than  $10^{-5}$  atm-m<sup>3</sup>/mole, the substance will volatilize slowly. Values of  $K_H$  exceeding  $10^{-3}$  atm-m<sup>3</sup>/mole indicate volatilization will proceed rapidly. For example, TCE, with a  $K_H$  of  $1.03 \times 10^{-2}$  is very volatile, and PAHs, with  $K_H$  values ranging from  $10^{-3}$  to  $10^{-20}$ , have relatively low volatility.



### 5.1.3 Degradation/Transformation

Degradation is a chemical or biochemical process that removes or transforms organic compounds. Metals do not undergo degradation or transformation reactions. Chemical degradation usually involves hydrolysis or oxidation, while biochemical processes can involve oxidation or reduction depending on whether aerobic (oxygen) or anaerobic (without oxygen) conditions are present. In general, aerobic processes are much faster than anaerobic processes. The wide range of environmental conditions that control degradation processes make it infeasible to characterize the degradability of a compound with a measured value. It should be noted that hydrolysis and oxidation reactions in groundwater are slow compared with transformations mediated by biochemical processes.

The following classes of organic compounds detected at the Grumman Aerospace site have been found to undergo either biotic or abiotic degradation: chlorinated ethanes and chlorinated ethenes. The reductive dehalogenation of chlorinated ethanes and ethenes (i.e., the sequential removal of chlorine atoms from the molecule) has been reasonably well studied. For example, based on the work of Roberts, Hopkins, Mackay and Semprini (1990), a degradation sequence for the chlorinated ethenes has been established. The degradation of PCE occurs through the following sequence of compounds:



A diagram (Fetter 1993) showing the possible degradation pathways for chlorinated alkanes and alkenes is shown on Figure 5-1.

Environmental conditions influencing the type and rate of the preceding reactions include pH, temperature, state of oxidation or reduction, microorganisms present, and types of other chemicals present. Reaction kinetics also play an important role in the determination of the abiotic and biotic fate of organic contaminants.

#### **5.1.4 Chemical Reaction**

The reactions and equilibria of inorganic systems are subject to two major types of prevailing conditions in the solution:

- Oxidation/reduction (redox) conditions; and
- Acid/base conditions.

Various combinations of these conditions cause metals to be in predominantly one form (species) or another, as will be discussed in the following two sections.

##### **5.1.4.1 Oxidation/Reduction Reactions**

Oxidation/reduction (redox) chemistry deals with the abundance of electrons in a particular system. Oxidized or oxidizing conditions implies a system or substance with a low concentration of electrons; reduced or reducing conditions implies a system or substance with a high concentration of electrons.

Oxidizing conditions most commonly occur in shallow parts of surface-water bodies and uncontaminated aquifer systems. Reducing conditions occur in areas that are cut off from oxidizing agents like oxygen and where biologic activity has taken place. Such conditions occur most commonly at depth in surface-water bodies, within deep aquifer systems, and at any depth





in groundwater systems contaminated with organic compounds that are readily biodegraded. If the redox form of a metal can be determined, an estimate can be made of the mobility of the contaminant. For example, chromium, in its oxidized anionic form ( $\text{CrO}_4^{-2}$ ) is likely to be more mobile than chromium in a reduced cation form ( $\text{Cr}^{+3}$ ), because adsorption onto soils by ion exchange occurs more readily for positively charged species like  $\text{Cr}^{+3}$ . Such adsorption would slow the movement of  $\text{Cr}^{+3}$  relative to  $\text{CrO}_4^{-2}$ : Oxidation/reduction information for selected metals detected above background soil concentrations or above SCGs during the remedial investigation is provided in Table 5-2.

#### 5.1.4.2 Acid/Base Reactions (Hydrolysis)

Acid/base chemistry relates to the abundance of hydrogen ions in a system. Acidic conditions implies a system with a high concentration of hydrogen ions ( $\text{H}^+$ ) and a low concentration of hydroxide ions ( $\text{OH}^-$ ); basic conditions imply the opposite. Hydrolysis is the reaction of a metal ion with water ( $\text{H}_2\text{O}$ ) or hydroxide ( $\text{OH}^-$ ) to form a metal hydroxide. The hydrolysis reaction is important because it changes the charge and hence the mobility of the metal species in the system. Most hydroxide forms of metals have low solubility, which translates into low mobility. Hydrolysis rates increase as the hydroxide concentration or pH is raised.

Hydrolysis constants for the metals discussed previously are provided in Table 5-2; they provide for a means to evaluate the extent of hydrolysis in systems where the pH is known. If the pH equals the hydrolysis constant for a metal and the system is at equilibrium, half the metal ions are in the hydroxide form and half are not. Below that pH, the amount of hydrolysis decreases rapidly and above that pH, hydrolysis occurs much more completely. Hydroxide solubility values for the selected metals are also included in Table 5-2. Hydroxides of low solubility would preferentially drop out of solution and would not be very mobile in the groundwater system. For example, cadmium hydroxide has a solubility of 2.6 mg/L, and therefore its mobility is considered low.



## 5.2 CONTAMINANT FATE

The following sections discuss, in general terms, the reasons certain types of contaminants were detected in the soil-gas, soil, recharge basin water and sediment, and groundwater, in the context of the previous discussion on contaminant transport processes.

### 5.2.1 Soil-Gas

A limited soil-gas survey was performed around outside solvent storage areas as part of the Phase 1 and Phase 2 RIs. The soil-gas survey was used to define potential source areas for follow-up soil borings and monitoring wells since VOCs detected in the soil-gas would likely be the result of volatilization from contaminated soil and/or groundwater due to the relatively high Henry's law constants and vapor pressures of these compounds. Volatilization into the soil gas could also be promoted by fluctuations in the water table. A rising water table allows VOCs to adsorb onto the soil above the original water table; when the water table falls again, the soil is exposed to the air and the VOCs volatilize. The results indicated the presence of chlorinated VOCs (cis-1,2-DCE; TCE; and PCE) in the soil gas at several locations (SG-1, SG-3, SG-4, SG-5, SG-10, and SG-11).

### 5.2.2 Soil

Soil samples were collected from selected soil borings as part of the Phase 1 and Phase 2 RIs. The laboratory results indicated that VOCs (toluene and TCE), SVOCs, and several metals were detected in several soil samples underlying the site. In addition to the laboratory analyses, a portable GC was also used to analyze the headspace above the soil in several samples; chlorinated VOCs (1,2-DCE; TCE; and PCE) were detected in several of these samples. Because the  $\log K_{oc}$  and  $K_{ow}$  adsorption coefficients for the VOCs detected are relatively low, indicating fairly rapid transport through soil and a low potential for adsorption onto sediment, the detection of VOCs in the soil at these locations indicates either that the soil is potentially a source of VOC contamination to the groundwater or that the soil may contain



residual VOCs from minor leaks and spills and is not an active source. It should be noted that not every VOC detected has the potential to be a source; generally, low  $\log K_{oc}$  and  $K_{ow}$  values combined with high concentrations of VOCs would suggest a potential source area. For example, the concentrations of VOCs detected in Soil Borings B-1 through B-3 (Phase 1) and B-5 (Phase 2) at the Plant 2 TCE storage tank indicated the presence of a sufficient source to warrant the recommendation and installation of a soil vapor extraction IRM. With respect to the SVOCs and metals detected, the chemical properties (discussed previously) would suggest a low potential for mobility, as evidenced by the low concentrations, if any, of these compounds in groundwater samples.

### **5.2.3 Recharge Basin Water and Sediment**

The results of water and bottom sediment samples collected from the recharge basins during Phase 1 indicate the presence of VOCs, SVOCs, and PCBs in the bottom sediment. Water discharged to the basins on Grumman property currently meets state drinking water standards for VOCs.

The lack of detection of VOCs in the recharge basin water is attributable to the upgrades made by Grumman in accordance with their SPDES permit, to ensure that discharged water meets state drinking water standards. Trace concentrations (less than 10  $\mu\text{g}/\text{kg}$ ) of VOCs were detected in the bottom sediment samples, which are likely residuals from previous discharges that contained higher concentrations of VOCs (within prevailing permit limits). The detection of SVOCs and PCBs in the sediment is directly related to the relatively low solubility and high  $K_{oc}$  and  $K_{ow}$  values for these compounds. These contaminants are most likely adsorbed on sediment particles and should be retained (i.e., be immobile), as evidenced by their not being detected in the recharge basin water samples.



#### **5.2.4 Groundwater**

The results of the Phase 1 and Phase 2 groundwater sampling activities indicate the presence of the following VOCs: 1,1-DCA; 1,1-DCE; 1,2-DCE; toluene; 1,1,1-TCA; TCE; PCE; and vinyl chloride. Acetone was also detected in several samples, but it is a potential laboratory artifact and is, therefore, not included in the data evaluation. In addition, the following metals were detected in excess of ARARs: arsenic, cadmium, and chromium. The VOCs present in the highest concentrations were TCE; 1,1,1-TCA; and PCE. The detection of VOCs in groundwater is due to the relatively high solubilities of these specific compounds (see Table 5-1), as well as the low log  $K_{oc}$  and  $K_{ow}$  values of these compounds. These chemical properties make the VOCs detected very mobile. However, the concentrations of VOCs detected have likely been influenced by the microbial degradation of TCE, 1,1,1-TCA, and PCE into chlorinated compounds with lower molecular weights (see Section 5.1.3 [Degradation/Transformation] of this report).

The groundwater data collected indicates that metals have not migrated into deeper wells underlying the site, with the exception of Wells GM-13I and GM-16I. These wells are located near recharge basins where there is an increased vertical flow component. The slow migration of the metals is directly related to their low mobility, as previously discussed.

### **5.3 CONTAMINANT TRANSPORT**

This section provides a discussion of the contaminant migration pathways and potential exposure scenarios.

#### **5.3.1 Contaminant Migration Pathways**

The previous sections have discussed the physical and chemical properties that control contaminant fate and transport, and account for the observed contaminant distributions. The



combination of environmental conditions, such as groundwater flow, with the fate and transport mechanisms dictate the dominant contaminant migration pathways.

For the contaminants with relatively low mobility (such as the PCBs, PAHs, and metals), the dominant process is sorption, as previously discussed. Once sorbed onto particles (e.g., soil) these contaminants will generally only migrate if the particles themselves are physically moved. The metals detected in the subsurface soils have a very low potential for movement due to the depth at which they were encountered. The two main mechanisms for moving particles are by windblown dust and by surface-water runoff. The results of the RI field program suggest that surface-water runoff is the more important migration pathway for the lower mobility compounds, as the majority of these compounds were detected in the recharge basin sediment. The detection of low mobility compounds in recharge basin sediments would suggest that contaminated particles are transported during precipitation events from a variety of sources such as parking lots, roads, and roofs and are carried into the recharge basins. The type of contaminants detected also suggest this type of transport mode, as explained below.

- The PAHs are major constituents of coal tar, but are also lesser constituents of heavier petroleum products, such as lubricating oil and asphalt.
- The PCBs are most frequently associated with dielectric fluid in older electrical equipment such as transformers; any leakage of electrical equipment such as pole- or roof-mounted transformers could contaminate particulate material such as soil or roofing material, which could then be transported by runoff.

Based on the RI data, VOCs appear to have migrated largely via the groundwater pathway. Although specific sources of contamination have not been fully delineated on the U.S. Navy or OCC/RUCO Polymer Corporation properties, groundwater flow and quality data on, and downgradient of, the Grumman facility indicate contamination that likely originated from one or more sources on the U.S. Navy and OCC/RUCO Polymer Corporation properties, and from at least one source on the Grumman property (the Plant 2 TCE storage tank). VOCs



released at the surface or into the subsurface would be transported vertically downward as precipitation infiltrates the ground and dissolves the VOCs. Sorption processes may somewhat retard the rate that VOCs migrate in the subsurface, such that the VOCs do not move vertically or horizontally as fast as water. Generalized areas of groundwater impact identified during the RI are shown on Figure 5-2.

Once the VOCs reach the water table, they will move both vertically and horizontally under the prevailing hydraulic gradients. One condition that could differ from this scenario is if a separate non-aqueous (non-dissolved) phase exists such that there is a bulk density difference between water and the non-aqueous phase. The density of most chlorinated VOCs is greater than water; therefore, a separate phase (with a density greater than water) would tend to sink within the aquifer. There is only one area (near U.S. Navy Well HN-24) where results suggest a potential dense non-aqueous liquid (DNAPL); separate phase liquid has not been found in either the U.S. Navy or Grumman investigations.

The groundwater flow system and the impact pumpage and recharge have had on the flow system have been described in Section 2.3.1 (USGS Study: Bethpage-Hicksville-Levittown Area) and Section 4.1.2 (Site Hydrogeology). Figures 4-33 to 4-35 depict the concentrations of four individual VOCs plotted in cross section. These figures, in combination with Figures 4-13 and 4-14, demonstrate the movement of VOCs in groundwater along the prevailing hydraulic gradients. Within the Grumman property, groundwater withdrawal and recharge has created relatively strong downward flow conditions, and the chemical gradients (or plumes) generally mimic the flow gradients. To the south (downgradient) of the Grumman facility, VOCs, which have been distributed over several hundred feet of saturated thickness, move horizontally with the prevailing gradient.

These two different migration pathways indicate that the groundwater divide present underneath the south recharge basins has acted as a hydraulic barrier to migration of VOCs in groundwater. The fact that VOCs are present in groundwater south of the Grumman property clearly indicates that this hydraulic barrier has not completely limited migration of VOCs from



the Grumman facility. The studies conducted by the USGS (Smolensky and Feldman 1990, in press), which include groundwater modeling, discuss the significance of the hydraulic barrier in limiting contaminant migration. VOCs that have migrated south of the Grumman facility would likely be attributable to one of two causes:

- In the past, groundwater was pumped, used for non-contact cooling, and then discharged without treatment. Water is now treated to meet drinking water standards prior to discharge. However, the discharge of contaminated water to the south recharge basins likely contributed to shallow groundwater contamination south of the Grumman facility. Recent groundwater quality results from shallow monitoring wells near the south recharge basin have shown appreciable improvement since Grumman installed a treatment system. For example, groundwater samples collected from Wells GM-20S, GM-21S, and GM-22S (located immediately downgradient of the south recharge basins) during the Phase 1 RI (prior to treatment) contained concentrations of total VOCs ranging from 1 to 10  $\mu\text{g/L}$ ; VOCs were not detected in groundwater samples collected from these wells during the Phase 2 RI (after a treatment system was installed). In addition, groundwater samples collected from Well N-10631 had total VOCs of 391  $\mu\text{g/L}$  and 33  $\mu\text{g/L}$  in November 1986 and January 1992, respectively.
- As described in Section 2.1 (Site Location and Description) of this report, Grumman's pumpage and recharge activities vary seasonally to meet cooling demands within the facility. The lowered pumpage and recharge during cooler weather would reduce the effectiveness of the hydraulic barrier. A greater amount of contaminated groundwater from the Grumman facility would be able to pass under or around the hydraulic barrier during such periods, which may account for the groundwater contamination found at depth south of the Grumman facility.



In discussing off-site groundwater contamination south of the Grumman facility, it is important to distinguish between contamination detected due south of Grumman from that detected southeast of Grumman (specifically, Wells GM-36D, GM-36D2, GM-38D, and GM-38D2). Groundwater modeling conducted by the USGS (Smolensky and Feldman, in press) and the U.S. Navy (Halliburton, NUS 1993) indicates that groundwater contamination originating on the eastern part of the U.S. Navy facility would follow a flow path through this area. This finding is supported by Figures 4-7 and 4-10, which also show a flow path from the eastern part of the U.S. Navy property, going east of the Grumman property and continuing into the area of Well Clusters GM-36 and GM-38. Generalized areas of groundwater impact identified during the RI are shown on Figure 5-2.

### 5.3.2 Receptors

As discussed previously, the primary migration pathway for the contaminants with lower mobility is by sediment transport, with the eventual fate being the recharge basins. Because the recharge basins are continually receiving water, there does not appear to be a pathway by which exposure could occur. If, for example, the basins were left dry for extended periods of time, then exposure via windblown dust would be a possibility. Recharge basins are maintained (scraped) by Grumman at least once a year, thereby further minimizing the potential for exposure to recharge basin sediment via windblown dust. Basin maintenance activities, which included scraping and loading tasks, are conducted below grade (out of the wind) using low speed equipment, further minimizing the potential for exposure via windblown dust.

For the VOCs in groundwater, the only exposure pathway is through contact/ingestion of contaminated groundwater that is pumped from the aquifer. Within the Grumman facility, groundwater is withdrawn from the ground by 14 production wells and distributed through the facility by piping. There is generally only very limited opportunity to directly contact the pumped water. Additionally, treatment takes place at different points in the water distribution system, further limiting any possibility for contact, and at the point where the water is discharged on Grumman property, it meets state drinking water standards.

The area south of the Grumman facility is served by public water supply provided by the Bethpage Water District (BWD). Private potable water supply wells are not known to exist in





this area. Currently, BWD Plant 6 has a treatment system installed, the Plant 4 treatment system should be operational by summer 1994, and the Plant 5 treatment system should be operational by summer 1995. Water-quality data from the district indicate that the water supplied to the public has met drinking water standards. In the absence of the current treatment system at BWD Plant 6 and those systems to be installed at BWD Plants 4 and 5, a pathway would exist for exposure to contaminated groundwater at areas off-site. The presence of the treatment systems eliminates this possible exposure pathway. The locations of public supply wells in the vicinity and south of the Grumman facility are shown on Figure 5-3.



## **6.0 SUMMARY AND CONCLUSIONS**

This section summarizes the findings and conclusions presented in this report. Data limitations and recommended remedial action objectives are also described in this section.

### **6.1 FINDINGS AND CONCLUSIONS**

The findings and conclusions presented by Geraghty & Miller in this report are summarized below.

#### **6.1.1 Geology**

In general, the geology at the site from land surface to the bottom of the Magothy Formation consists primarily of sand with interbedded layers of silt, clay, and gravel. The uppermost sequence of these sediments is part of the Upper Pleistocene outwash deposits, while the lower sequence belongs to the Magothy Formation.

#### **6.1.2 Hydrogeology**

Groundwater beneath the Grumman facility, to a depth of approximately 460 ft bls, occurs in two separate geologic units that are hydraulically connected and, in general, behave as one hydrogeologic unit. These units are the Upper Glacial and Magothy aquifers.

Groundwater predominantly flows regionally to the south and southeast across the site with a slight downward component, but is greatly influenced by the groundwater withdrawal that occurs at the numerous site production wells and the reinfiltration that occurs at the on-site recharge basins. Operation of these wells and use of the recharge basins has changed the flow patterns locally. Pumping wells can increase or reverse the horizontal groundwater flow gradients near them; recharge basins have the same effect as pumping wells, but the horizontal gradients are directed away from them. Depressions (caused by pumpage) are formed around



the intake screen of production wells and the hydraulic effects diminish vertically towards land surface. Mounds (caused by the infiltration of water) are formed on the surface of the water table near recharge basins and the hydraulic effects diminish vertically with depth.

USGS and U.S. Navy modeling results indicate that on-site pumpage and recharge provide some measure of hydraulic control and that a groundwater divide is present beneath the south recharge basins. In general, groundwater entering the local flow system north of the divide is drawn down to the production wells and recirculated through Grumman's pumpage and recharge. Groundwater entering the local flow system south of the divide flows off-site with the regional gradient. Modeling results and groundwater quality data collected during the RI indicate that the groundwater divide is not completely effective at preventing the off-site migration of contaminated groundwater (there is some flow around the basins and under the production wells). Although this hydraulic barrier is not completely effective, it has helped prevent the spread and migration of contaminants. Discharges to the south recharge basins currently meet drinking water standards.

### **6.1.3 Nature and Extent of Contamination**

The results of the Phase 1 and Phase 2 soil-gas surveys indicate that VOCs were detected in the following locations: SG-1, SG-3, SG-4, SG-5, SG-10, and SG-11. Based on these results, four areas of concern were selected for further investigation during the soil sampling program (Borings B-1 through B-7) and the groundwater sampling program (Wells GM-31S and GM-32S). In addition, a follow-up soil-gas survey is planned for the Plant 15 area.

The analytical results of soil samples collected during Phases 1 and 2 indicate that SVOCs were detected above the NYSDEC cleanup objectives in Soil Samples GMS-3I, GMS-7D, GMS-16S, GMS-16I, GMS-22S, GMS-22I, GMS-23S, B-2, and B-3; VOCs were detected above the NYSDEC cleanup objectives in Soil Samples B-2 and B-5; selected metals (arsenic, beryllium, cadmium, chromium, mercury, and thallium) were detected above the NYSDEC cleanup objectives in Soil Samples GMS-12S, GMS-14I, GMS-17S, GMS-19S, GMS-19I, GMS-



23I, B-2, and B-3. PCBs and pesticides were not detected above the NYSDEC cleanup objectives in soil samples.

Based on an analysis of soil samples collected at the Grumman facility, the area near the Plant 2 TCE storage tank appears to be a potential source of groundwater contamination. A soil vapor extraction IRM is underway at this location.

The results of recharge basin water samples collected during Phase 1 indicate that all parameters analyzed for were detected below SCGs, with the exception of iron in total metals samples.

The results of recharge basin bottom sediment samples collected during Phase 1 indicate that several metals and SVOCs were detected above eastern United States background levels and/or NYSDEC soil cleanup objectives.

The results of Phases 1 and 2 groundwater sampling indicate two plumes of groundwater contamination (eastern and western) near the center of the facility. The eastern plume, which generally consists of TCE; PCE; 1,1,1-TCA; 1,2-DCE; 1,1-DCE; and 1,1-DCA is defined by Wells GM-14I, GM-16I, GM-19I, GM-22D, HN-27S3, and Well Clusters GM-13 and HN-29. The western plume, which primarily consists of TCE, is defined by Wells GM-12S, GM-12I, GM-18S, GM-18I, GM-32S, HN-24S, HN-24I2, and Production Wells GP-1 and GP-2. In addition to these two plumes, an area of contamination was also identified along the borders of Grumman and OCC/RUCO Polymer Corporation (near Plant 37). This area of contamination is defined by Well Clusters GM-4, GM-5, GM-10, GM-23, and Production Wells GP-5, GP-8, and GP-14. The concentrations detected do not indicate a discrete plume or plumes, and generally consist of the following compounds: TCE; PCE; 1,1,1-TCA; 1,1-DCE; and vinyl chloride.

To the south of the Grumman property, i.e., hydraulically downgradient, contaminants are present in groundwater at varying depths within an area generally bounded by Wells GM-



33D2, GM-34D, GM-34D2, GM-37D, N-6915, N-6916, N-8004, N-10816, N-10999, and N-11000. The concentrations of contaminants do not indicate that a discrete plume or plumes are present. The pumpage and recharge of groundwater on Grumman and NWIRP property, as well as the pumpage by the Bethpage Water District, is likely responsible for the observed distribution of contamination downgradient of the Grumman facility.

Eight VOCs were detected above SCGs in groundwater samples collected during Phase 2. Six metals exceeded SCGs and background water quality in dissolved groundwater samples collected in Phase 2.

#### **6.1.4 Contaminant Fate and Transport**

VOCs detected in the soil gas would likely be the result of volatilization from contaminated soil and/or groundwater due to the relatively high Henry's law constants and vapor pressures of these compounds. Volatilization into the soil gas could also be promoted by fluctuation in the water table.

VOCs detected in soils indicate the potential for the soil to be a source of VOC contamination to groundwater, or contain residual VOCs from minor leaks and spills. Concentrations of VOCs in soil samples from Plant 2 (the TCE storage tank) were sufficient to warrant the recommendation and installation of a soil vapor extraction IRM. The chemical properties of SVOCs and metals detected in soil samples indicate a low potential for mobility, as evidenced by the low concentrations, if any, of these compounds in groundwater samples.

The lack of detection of VOCs in the recharge basin water is attributable to the upgrades made by Grumman, in accordance with their SPDES permit, to ensure that discharged water meets state drinking water standards. Trace concentrations (less than 10  $\mu\text{g}/\text{kg}$ ) of VOCs were also detected in the bottom sediment samples which are likely residuals from previous discharges that contained higher concentrations of VOCs (within prevailing permit limits). The detection of SVOCs and PCBs in the sediment is directly related to the relatively low solubility and high



$K_{oc}$  and  $K_{ow}$  values for these compounds. These contaminants are most likely adsorbed on sediment particles and should be retained (or immobile), as evidenced by their not being detected in the recharge basin water samples.

The detection of VOCs in groundwater is due to the relatively high solubilities of these specific compounds, as well as the low log  $K_{oc}$  and  $K_{ow}$  values of these compounds. These chemical properties make the VOCs detected very mobile. However, the concentrations of VOCs detected have likely been influenced by the microbial degradation of TCE, 1,1,1-TCA, and PCE into lower molecular weight chlorinated compounds.

The groundwater data collected indicate that metals have not migrated into deeper wells underlying the site, with the exception of Wells GM-13I and GM-16I. These wells are located near recharge basins where there is an increased vertical flow component. The slow migration of the metals is directly related to their low mobility.

The primary migration pathway for the contaminants with lower mobility is by sediment transport, with the eventual fate being the recharge basins. Because the recharge basins are continually receiving water, there does not appear to be a pathway by which exposure could occur. If, for example, the basins were left dry for extended periods of time, then exposure via windblown dust would be a possibility. Recharge basins are maintained (scraped) by Grumman at least once a year, thereby further minimizing the potential for exposure to recharge basin sediment via windblown dust. Basin maintenance activities, which included scraping and loading tasks, are conducted below grade (out of the wind) using low speed equipment, further minimizing the potential for exposure via windblow dust.

VOCs appear to have migrated largely via the groundwater pathway. Although specific sources of contamination have not been fully delineated on the U.S. Navy or OCC/RUCO Polymer Corporation properties, groundwater flow and quality data on, and downgradient of, the Grumman facility indicate contamination that likely originated from one or more sources on the U.S. Navy and OCC/RUCO Polymer Corporation properties, and from at least one source on the Grumman property (the Plant 2 TCE storage tank). Groundwater modeling conducted



by the USGS and the U.S. Navy indicates that groundwater contamination originating on the eastern part of the U.S. Navy facility would follow a flow path through the off-site area of Well Clusters GM-36 and GM-38.

Contact/ingestion is the only exposure pathway for VOCs in groundwater. There is generally only very limited opportunity for direct contact with groundwater at the Grumman facility, and at the point where the water is discharged on Grumman property, it meets state drinking water standards. The area south of the Grumman facility is served by public water supply provided by the BWD. Private potable water supply wells are not known to exist in this area. Currently, BWD Plant 6 has a treatment system installed, the Plant 4 treatment system is scheduled to be operational in summer 1994 and the Plant 5 treatment system is scheduled to be operational in summer 1995. Water-quality data from the district indicates that the water supplied to the public has met drinking water standards. The presence of the treatment system eliminates this possible exposure pathway for VOCs in groundwater.

## 6.2 DATA LIMITATIONS

The Phase 1 analytical data were validated by Geraghty & Miller in accordance with the QA/QC criteria set forth in the following documents: "Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses" (USEPA 1988b), "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses" (USEPA 1988c), and the NYSDEC ASP (NYSDEC 1989). The documentation prepared as a result of validating the Phase 1 data is presented in the Phase 1 Remedial Investigation Data Report (Geraghty & Miller, Inc. 1992b).

The Phase 2 analytical data were validated by Geraghty & Miller in accordance with QA/QC criteria set forth in the USEPA Contract Laboratory Program "National Functional Guidelines for Organic Data Review" draft document revised June 1991, the USEPA "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses" dated July 1988, and the NYSDEC ASP, revised December 1991. The documentation prepared as a result of validating the Phase 2 data is presented in Appendix C.



Overall, both the Phase 1 and Phase 2 data were found to be acceptable and usable for this investigation. Qualifiers applied to the analytical results were based on the USEPA data validation guidelines with a relatively small number of sample results requiring qualification. Furthermore, with the exception of the sample from Well GM-33D2, groundwater samples split with the NYSDEC meet USEPA guidelines for duplicate samples. The data for Well GM-33D2 (total VOC concentration of 22  $\mu\text{g/L}$  in the Geraghty & Miller sample and 22,078  $\mu\text{g/L}$  in the NYSDEC sample) is questionable and Geraghty & Miller recommends that Well GM-33D2 be resampled.

### 6.3 RECOMMEND REMEDIAL ACTION OBJECTIVES

Remedial technologies for the Grumman site were identified in the Phase 1 Work Plan (Geraghty & Miller, Inc. 1990). These technologies will be evaluated and developed into remedial action alternatives during the Feasibility Study (FS). Based on data collected during the Phase 1 and Phase 2 RIs, Geraghty & Miller recommends the following remedial action objectives:

1. On-site source areas should be remediated to prevent them from acting as a continuing source of groundwater contamination. To accomplish this objective, a soil vapor extraction IRM is currently underway at the Plant 2 TCE storage tank.
2. Exposure pathways (on- and off-site) should be eliminated. To accomplish this objective, the effectiveness of the production wells and recharge basins at preventing the off-site migration of contaminated groundwater will be evaluated during the FS. If necessary, the current pumpage/treatment/recharge system will be modified to provide more effective hydraulic control. Furthermore, potential off-site receptors (e.g., public supply wells) should be monitored and treatment provided, as necessary, to eliminate exposure. Treatment has already been





provided for BWD Plant 6 and is being constructed for BWD Plant 4 and designed for BWD Plant 5.

3. Remedial actions at the Grumman, NWIRP, and OCC/RUCO Polymer Corporation sites should be coordinated to prevent the spread of contamination and/or the duplication of effort.



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Table 2-1. Summary of Buildings Owned or Leased by the Grumman Aerospace Corporation,  
Bethpage, New York

Building Name	Building Owner	Date of Initial Occupancy	Function or Operation	Estimated Contamination Potential	Comments
Plant 01	GAC	1937	Engineering, final and sub-assembly	Moderate	----
Plant 02	GAC	1941	Manufacturing and final assembly	Moderate	----
Plant 04	GAC	1943	Flight operations, engineering, hangar, support	Moderate	----
Hanger 07	GAC	1986	Hanger, support	Low	----
Plant 12	GAC	1959	Engineering offices and support laboratories	Low	----
Plant 12A	GAC	----	Maintenance shops	Moderate	----
Plant 12B	Voight Realty Company	1970	Maintenance warehouse	Moderate	No longer in use
Plant 12C	----	1988	Furniture storage warehouse	Low	No longer in use
Plant 14	GAC	1960	Engineering and assorted test laboratories for avionics systems	Low	----
Plant 15	GAC	1957	Engineering offices	Low	----
Plant 16	GAC	1974	Security	Low	----
Plant 18	GAC	1951	Security	Low	Demolished

Source: Grumman Aerospace Corporation (1971); Ohlmann (1987, 1988), RGH (1986), Kant (1994).  
 ---- Not applicable or no data available.  
 GAC Grumman Aerospace Corporation.  
 Moderate Moderate potential for contamination based on building use  
 Low Low potential for contamination based on building use.



Table 2-1. Summary of Buildings Owned or Leased by the Grumman Aerospace Corporation, Bethpage, New York

Building Name	Building Owner	Date of Initial Occupancy	Function or Operation	Estimated Contamination Potential	Comments
Plant 21	Klein & Tieholz	1968	Production parts warehouse	Low	No longer in use
Plant 22	Servo Corp of America	1961	Offices	Low	No longer in use
Plant 24	GAC	1966	Central receiving and instrument inspection	Low	----
Plant 25	GAC	1963	Engineering offices	Low	----
Plant 26	GAC	1963	Research center and associated laboratories	Low	----
Plant 28	GAC	1964	Personnel office	Low	----
Plant 28A (Presently 116)	GAC	1966	Food service storage, facilities operations	Low	----
Plant 29 (Presently 115)	GAC	1954	Light production and temporary storage	Low	----
Plant 29A (Presently 114)	GAC	----	Light production	Low	Leased by outside company
Plant 30	GAC	1964	Engineering & procurement offices	Low	----
Plant 31	GAC	1965	Air test facility	Low	----
Plant 35	GAC	1966	Engineering offices	Low	----
Plant 37	GAC	1967	Warehouse	Low	----

Source: Grumman Aerospace Corporation (1971), Ohlmann (1987, 1988), RGH (1986), Kant (1994).  
 ---- Not applicable or no data available.  
 GAC Grumman Aerospace Corporation  
 Moderate Moderate potential for contamination based on building use.  
 Low Low potential for contamination based on building use



Table 2-1. Summary of Buildings Owned or Leased by the Grumman Aerospace Corporation, Bethpage, New York.

Building Name	Building Owner	Date of Initial Occupancy	Function or Operation	Estimated Contamination Potential	Comments
Plant 38	Country Capital Corp.	1967	Training center	Low	No longer in use
Plant 39	Servo Corp.	1968	Engineering; training center	Low	Leased by GAC
Plant 111/ Headquarters	GAC	—	Corporate headquarters	Low	---
Plant 113	---	---	Athletic club	Low	Sold, owned by Barco
Plant 117	---	1987	Offices	Low	Leased by GAC
Boces	GAC	1974	School	Low	Leased by Boces

Source: Grumman Aerospace Corporation (1971); Ohlmann (1987, 1988), RGH (1986), Kant (1994).  
 --- Not applicable or no data available.  
 GAC Grumman Aerospace Corporation.  
 High High potential for contamination based on building use.  
 Moderate Moderate potential for contamination based on building use.  
 Low Low potential for contamination based on building use.



Table 2-2. Monthly Grumman Production Well Data for 1993, Grumman Aerospace Corporation, Bethpage, New York.

Production Well Designation Grumman (Nassau County)	January 1993 Total Gallons Pumped	February 1993 Total Gallons Pumped	March 1993 Total Gallons Pumped	April 1993 Total Gallons Pumped	May 1993 Total Gallons Pumped	June 1993 Total Gallons Pumped	July 1993 Total Gallons Pumped	August 1993 Total Gallons Pumped	September 1993 Total Gallons Pumped	October 1993 Total Gallons Pumped	November 1993 Total Gallons Pumped	December 1993 Total Gallons Pumped	Total Pumpage 1993 (gallons)
1 (N8842)	53,962,000	42,796,000	43,157,000	33,585,000	53,885,000	43,083,000	41,915,000	54,112,000	43,385,000	42,903,000	48,664,000	47,217,000	548,664,000
2 (N8154)	0	0	0	0	0	0	0	18,600	0	23,700	0	0	42,300
3 (N8124)	0	0	0	0	661,000	1,950,000	21,013,000	7,937,000	52,000	7,252,000	33,000	0	38,898,000
4 (N1923)	0	0	0	0	0	0	0	0	13,900	5,400	0	0	19,300
5 (N7635)	0	0	0	0	0	0	0	33,000	14,000	6,000	0	0	53,000
6 (N7534)	0	0	0	0	2,539,000	0	0	0	4,000	237,000	0	0	2,780,000
8 (N7535)	0	0	0	317,000	0	0	0	96,600	4,300	4,800	0	0	422,700
9 (N7536)	0	0	0	30,000	11,828,000	28,446,000	78,665,000	49,332,000	21,796,000	13,588,000	0	0	153,685,000
10 (N7636)	108,000	699,000	347,000	2,930,000	56,711,000	52,668,000	53,170,000	63,730,000	48,077,000	13,671,000	0	0	292,111,000
11 (N7637)	80,924,000	5,662,000	1,672,000	15,237,000	42,464,000	33,854,000	33,844,000	38,539,000	23,838,000	26,862,000	29,194,000	20,346,000	352,436,000
13 (N8454)	29,124,000	32,813,000	29,727,000	32,931,000	43,638,000	37,111,000	35,473,000	58,181,000	37,533,000	32,988,000	9,394,000	4,545,000	382,958,000
14 (N8643)	0	2,000	0	409,000	0	0	0	25,000	16,000	8,000	0	0	460,000
15 (N8816)	1,437,000	1,941,000	1,476,000	15,535,000	25,348,000	2,332,000	0	15,320,000	1,513,000	18,508,000	1,513,000	480,000	85,403,000
16 (N7518)	19,755,000	13,833,000	10,775,000	14,863,000	15,533,000	32,022,000	34,962,000	35,522,000	45,948,000	46,400,000	48,334,000	53,758,000	371,705,000
<b>TOTAL MONTHLY PUMPAGE</b>	<b>185,310,000</b>	<b>97,746,000</b>	<b>87,154,000</b>	<b>115,837,000</b>	<b>252,607,000</b>	<b>231,466,000</b>	<b>299,042,000</b>	<b>322,846,200</b>	<b>222,194,200</b>	<b>202,456,900</b>	<b>137,132,000</b>	<b>126,346,000</b>	<b>2,229,637,300</b>



Table 2-3. Chronological History of Manufacturing Operations, Grumman Aerospace Corporation, Bethpage, New York.

Date	Manufacturing Operation/Activity
Early 1930s	<p>Grumman Aerospace Corporation is established at the Bethpage, New York location. The Grumman facility houses the Corporate Headquarters; the principal engineering, manufacturing, and primary assembly facility; and the research, development, and testing facilities.</p> <p>The NWIRP is established within the borders of the Grumman facility. The NWIRP is a government-owned, contractor operated (GO-CO) facility. Since start-up, the mission of the NWIRP has been design engineering, research prototyping, testing, fabrication, and primary and subassembly of various naval aircraft.</p>
Mid-to-late 1930s	<p>A series of naval carrier aircraft amphibious vehicles are developed.</p>
World War II (approx. 1940s to 1950s)	<p>The Wildcat and Hellcat fighter planes, as well as the Avenger torpedo/bomber/attack plane, are developed. Many buildings were constructed during this time. A description of the function, period of occupation, and assessment of the contamination potential of the buildings owned or leased by Grumman is provided in Table 2-1.</p>
Early 1960s	<p>The Orbiting Astronomical Observatory (OAO), the ECHO II Satellite, and the lunar module were developed under contract to the National Aeronautics and Space Administration (NASA).</p>
Late 1960s	<p>Production of the F-14A naval fighter plane begins.</p>
Early 1970s	<p>Deliveries of the last lunar module and OAO flight units are made. The first F-14 (Tomcat) deliveries are made, and work is begun on the EA-6B, A-6E, and E-2C (Hawkeye) naval aircrafts.</p>
Mid-1970s	<p>The first of six wing substructures for the space shuttle is delivered. Work on the F-214, TC-4C, and EF-111A naval aircraft begins.</p>
Late 1970s	<p>Modifications are made to naval aircraft.</p>
Early 1980s	<p>Production of the Super Tomcat begins, and the Joint Safety Review Board is formed to oversee Bethpage and Calverton, New York operations.</p>

Sources: RGH (1986).  
 Ohlmann (1988 and 1989).  
 NWIRP: Naval Weapons Industrial Reserve Plant.

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Table 2-4. Outside Solvent Storage Tanks to be Investigated During the Initial On-Site, Field Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Tank Number	Location of Tank	Material(s) Stored
T-1111	Plant 1	Paint water (chrome)
T-10	Plant 2	Trichloroethylene
T-594	Plant 2	Kolene
T-209A	Plant 15	Waste photographic solution

Source: Grumman Aerospace Corporation, (undated).



Table 2-5. Outside Solvent Storage Areas to be Investigated During the Initial On-Site Field Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Storage Area Number	Location of Storage Area	Material(s) Stored
S-14	Plant 1	Paint thinners and halogenated solvents
S-020	Plant 2	Turco 5351 thin stripper
S-022	Plant 2	Paint thinners, trichloroethylene, and halogenated solvents
S-41	Plant 4	Halogenated solvents, organic Solvents CEEBEE C50 and varsol, methylbutyl ketone, 1, 1, 1-trichloroethane, and monoethanolamine
S-42	Plant 4	Acrylic anti-corrosion solution
S-123	Plant 12	Halogenated solvents and ketones
S-125	Plant 12	Latex paint
S-126	Plant 12	Methylethyl ketone, methylene chloride, methanol, acetone, 1, 1, 1-trichloroethane, toluene, carbon tetrachloride, varsol (organic solvent), and laquer thinner
S-142	Plant 14	Isopropanol and halogenated solvents
S-151	Plant 15	Naptha perchloroethane

Source: Grumman Aerospace Corporation, (undated).



Table 2-5. Outside Solvent Storage Areas to be Investigated During the Initial On-Site Field Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Storage Area Number	Location of Storage Area	Material(s) Stored
S-261	Plant 26	Varsol (organic solvent), ketone, tichloroethylene, acetone, isopropanol, halogenated solvents, and 1, 1, 1- trichloroethane

Source: Grumman Aerospace Corporation, (undated).



Table 2-6. Waste Storage, Treatment, and Disposal Locations, Grumman Aerospace Corporation, Bethpage, New York.

Waste Storage, Treatment, or Disposal Locations	Owner	Operation and/or Process	Date	Wastes Stored, Treated, or Disposed	Estimated Quantity of Wastes Stored, Treated, or Disposed
Plant 02 IWTP	Grumman	Industrial waste-water treatment	Late 1940s to Present	Bethpage plant wastewater	50,000 to 250,000 gal/day
Plant 02 Waste Trichloroethylene Storage/Recycling Facility	Grumman	Storage/recycling of waste trichloroethylene	1940s to 1977	Waste trichloroethylene from degreasing tanks	Recycling Capacity of 50 gal/hour
South Recharge Basins	Grumman	Disposal of treated Bethpage plant wastewater	Mid-1940s to 1981	Treated Bethpage plant wastewater	50,000 to 250,000 gal/day

Source: RGH (1986); Ohlmann (1988); Myers (1985).

See Tables 2-4 and 2-5 for Summary of Outside Solvent Storage Tanks/Areas.

IWTP Industrial Waste Treatment Plant.

gal/day Gallons per day.

gal/hour Gallons per hour.



Table 3-1. Well Construction Details, Phase 2 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Well Designation	Well Diameter (inches)	Total Well Depth (feet below land surface)	Screen Interval (feet below land surface)	Gravel Pack Interval (feet below land surface)	Fine Sand Interval (feet below land surface)	Bentonite Seal Interval (feet below land surface)	Grout Interval (feet below land surface)	Drilling Methodology	Land Surface Elevation (feet relative to mean sea level)	Measuring Point Elevation (feet relative to mean sea level)
GM-11S	4	47	37-47 (1)	31-47	N/A	28-31	3-28	HSA	124.00	123.66
GM-22D	4	200	190-200 (1)	184-200	178-184	176-178	3-176	HSA, MR, RR	107.72	107.02
GM-31S	4	76	66-76 (1)	61-76	N/A	58-61	3-58	HSA	128.21	127.82
GM-32S	4	51	41-51 (1)	37-51	N/A	34-37	3-34	HSA	109.72	109.10
GM-33D2	4	520	500-520 (2)	488-520	474-488	470-474	3-474	MR, RR	107.51	106.85
GM-34D	2	324	309-319	N/I	N/I	N/I	N/I	RR	71.19	71.19
GM-34D2	4	525	510-520	N/I	N/I	N/I	N/I	RR	71.19	71.19
GM-35D2	4	530	510-530 (2)	505-530	498-505	496-498	3-496	HSA, MR	96.61	96.28
GM-36D	4	214	204-214 (1)	199-214	185-199	183-185	3-183	HSA, MR, RR	91.70	91.63
GM-36D2	4	540	520-540 (1)	515-540	508-515	506-508	3-506	HSA, MR, RR	91.64	91.60
GM-37D	4	262	242-262 (2)	237-262	222-237	220-222	3-220	MR	97.83	97.26
GM-37D2	4	390	370-390 (2)	360-390	345-340	343-345	3-343	HSA, MR	97.84	97.17
GM-38D	4	340	320-340 (2)	310-340	290-310	288-290	3-288	MR	92.07	91.75
GM-38D2	4	495	475-495 (2)	465-495	445-465	443-445	3-443	MR	92.18	91.56
10999	4	335	320-330	N/I	N/I	N/I	N/I	RR	83.80	83.80
11000	2	131	116-126	N/I	N/I	N/I	N/I	N/I	83.80	83.80

N/A Not applicable.

N/I No information

HSA Hollow-stem auger.

MR Mud rotary.

RR Reverse rotary.

(1) Screen constructed of Polyvinyl chloride, schedule 40, with slot size of 0.01 inches.

(2) Screen constructed of stainless steel, wire-wrapped.

All well casings are constructed of PVC, schedule 40.

Table 4 -1. Standards, Criteria, and Guidance Identified for the Grumman Aerospace Corporation, Bethpage, New York.

Parameters	Groundwater		Soil
	NYSDEC Standard (ug/L)	NYSDEC Guidance Value (ug/L)	NYSDEC Soil Cleanup Objectives (ppm)
<u>Inorganics</u>			
Aluminum	--	--	SB
Antimony	--	3	SB
Arsenic	25	--	7.5 or SB
Barium	1,000	--	300 or SB
Beryllium	--	3	0.16 or SB
Cadmium	10	--	1 or SB
Calcium	--	--	SB
Chromium	50	--	10 or SB
Cobalt	--	--	30 or SB
Copper	200	--	25 or SB
Iron	300 (1)	--	2000 or SB
Lead	25	--	SB
Magnesium	--	35,000	SB
Manganese	300 (1)	--	SB
Mercury	2	--	0.10
Nickel	--	--	13 or SB
Potassium	--	--	SB
Selenium	10	--	2 or SB
Silver	50	--	SB
Sodium	20,000	--	SB
Thallium	--	4	SB
Vanadium	--	--	150 or SB
Zinc	300	--	20 or SB
Cyanide	100	--	--

(1)	Sum of iron and manganese shall not exceed 500 micrograms per liter (ug/L).
SB	Site background.
NYSDEC	New York State Department of Environmental Conservation.
--	No standard/guidance value available.
ppm	Parts per million.
MDL	Method Detection Limit.
VOCs	Volatile Organic Compounds.
SVOCs	Semivolatile organic compounds.
N/A	Not available
PCBs	Polychlorinated biphenyls
Source:	NYSDEC (1993, 1994).



Table 4 -1. Standards, Criteria, and Guidance Identified for the Grumman Aerospace Corporation, Bethpage, New York.

Parameters	Groundwater	Soil
	NYSDEC Standard (ug/L)	NYSDEC Soil Cleanup Objectives (ppm)
<u>Volatile Organic Compounds</u>		
Chloromethane	5	--
Bromomethane	5	--
Vinyl chloride	2	0.2
Chloroethane	5	1.9
Methylene chloride	5	0.1
Acetone	50	0.2
Carbon disulfide	50	2.7
1, 1-Dichloroethene	5	0.4
1, 1-Dichloroethane	5	0.2
trans-1, 2-Dichloroethene	5	0.3
Chloroform	5	0.3
1, 2-Dichloroethane	5	0.1
2-Butanone	50	0.3
1, 1, 1-Trichloroethane	5	0.8
Carbon tetrachloride	5	0.6
Bromodichloromethane	50	--
1, 2-Dichloropropane	5	--
cis-1, 3-Dichloropropene	5	--
Trichloroethene	5	0.7
Dibromochloromethane	50	N/A
1, 1, 2-Trichloroethane	5	--
Benzene	0.7	0.06
trans-1, 3-Dichloropropene	5	--
Bromoform	50	--
4-Methyl-2-pentanone	50	1.0
2-Hexanone	50	--
Tetrachloroethene	5	1.4
1, 1, 2, 2-Tetrachloroethane	5	0.6
Toluene	5	1.5
Chlorobenzene	5	1.7
Ethylbenzene	5	5.5
Styrene	5	--
Xylene	5	1.2
Total VOCs	100	<10

- (1) Sum of iron and manganese shall not exceed 500 micrograms per liter (ug/L).  
 SB Site background.  
 NYSDEC New York State Department of Environmental Conservation.  
 -- No standard/guidance value available.  
 ppm Parts per million.  
 MDL Method Detection Limit.  
 VOCs Volatile Organic Compounds.  
 SVOCs Semivolatile organic compounds.  
 N/A Not available  
 PCBs Polychlorinated biphenyls  
 Source: NYSDEC (1993, 1994).





Parameters	Soil
	NYSDEC Soil Cleanup Objectives (ppm)
<u>Semivolatile Organic Compounds</u>	
Phenol	0.03 or MDL
bis(2-Chloroethyl)ether	--
2-Chlorophenol	0.8
1, 3-Dichlorobenzene	1.6
1, 4-Dichlorobenzene	8.5
1, 2-Dichlorobenzene	7.9
2-Methylphenol	0.100 or MDL
2, 2'-oxybis(1-Chloropropane)	--
4-Methylphenol	0.9
n-Nitroso-di-n-propylamine	--
Hexachloroethane	--
Nitrobenzene	0.200 or MDL
Isophorone	4.40
2-Nitrophenol	0.330 or MDL
2, 4-Dimethylphenol	--
Benzoic acid	2.7
bis(2-Chloroethoxy)methane	--
2, 4-Dichlorophenol	0.4
1, 2, 4-Trichlorobenzene	3.4
Naphthalene	13.0
4-Chloroaniline	0.220 or MDL
Hexachlorobutadiene	--
4-Chloro-3-methylphenol	0.240 or MDL
2-Methylnaphthalene	36.4
Hexachlorocyclopentadiene	--
2, 4, 6-Trichlorophenol	--
2, 4, 5-Trichlorophenol	0.1
2-Chloronaphthalene	--
2-Nitroaniline	0.430 or MDL
Dimethylphthalate	2.0
Acenaphthylene	41.0
2,6-Dinitrotoluene	1.0
3-Nitroaniline	0.500 or MDL
Acenaphthene	50.000

- (1) Sum of iron and manganese shall not exceed 500 micrograms per liter (ug/L).  
 SB Site background.  
 NYSDEC New York State Department of Environmental Conservation.  
 -- No standard/guidance value available.  
 ppm Parts per million.  
 MDL Method Detection Limit.  
 VOCs Volatile Organic Compounds.  
 SVOCs Semivolatile organic compounds.  
 N/A Not available  
 PCBs Polychlorinated biphenyls  
 Source: NYSDEC (1993, 1994).



Parameters	Soil
	NYSDEC Soil Cleanup Objectives (ppm)
<u>Semivolatile Organic Compounds</u>	
2, 4-Dinitrophenol	0.200 or MDL
4-Nitrophenol	0.100 or MDL
Dibenzofuran	6.2
2, 4-Dinitrotoluene	--
Diethylphthalate	7.1
4-Chlorophenyl-phenylether	--
Fluorene	50.0
4-Nitroaniline	--
4, 6-Dinitro-2-methylphenol	--
n-Nitrosodiphenylamine	--
4-Bromophenyl-phenylether	--
Hexachlorobenzene	0.41
Pentachlorophenol	1.0 or MDL
Phenanthrene	50.0
Anthracene	50.0
Carbazole	50.0
Di-n-butylphthalate	8.1
Fluoranthene	50.0
Pyrene	50.0
Butylbenzylphthalate	50.0
3, 3'-Dichlorobenzidine	N/A
Benzo(a)anthracene	0.224 or MDL
Chrysene	0.4
bis(2-Ethylhexyl)phthalate	50.0
Di-n-octylphthalate	50.0
Benzo(b)fluoranthene	1.1
Benzo(k)fluoranthene	1.1
Benzo(a)pyrene	0.061 or MDL
Indeno(1, 2, 3-cd)pyrene	3.2
Dibenzo(a, h)anthracene	0.014 or MDL
Benzo(g, h, i)perylene	50.0
Total SVOCs	<500
Individual SVOCs	<50

- (1) Sum of iron and manganese shall not exceed 500 micrograms per liter (ug/L).  
 SB Site background.  
 NYSDEC New York State Department of Environmental Conservation.  
 -- No standard/guidance value available.  
 ppm Parts per million.  
 MDL Method Detection Limit.  
 VOCs Volatile Organic Compounds.  
 SVOCs Semivolatile organic compounds.  
 N/A Not available  
 PCBs Polychlorinated biphenyls  
 Source: NYSDEC (1993, 1994).



Table 4 -1. Standards, Criteria, and Guidance Identified for the Grumman Aerospace Corporation, Bethpage, New York.

Parameters	Soil
	NYSDEC Soil Cleanup Objectives (ppm)
<u>Pesticides/PCBs:</u>	
alpha-BHC	0.11
beta-BHC	0.2
delta-BHC	0.3
gamma-BHC (Lindane)	0.06
Heptachlor	0.10
Aldrin	0.041
Heptachlor epoxide	0.02
Endosulfan I	0.9
Dieldrin	0.044
4, 4'-DDE	2.1
Endrin	0.10
Endrinsulfan II	0.9
4, 4'-DDD	2.9
Endosulfan sulfate	1.0
4, 4'-DDT	2.1
Methoxychlor	--
Endrin ketone	N/A
Endrin aldehyde	--
alpha-Chlordane	0.54
gamma-Chlordane	0.54
Toxaphene	--
Aroclor-1016	1.0 (Residential Use)-10(Industrial Use)
Aroclor-1221	1.0 (Residential Use)-10(Industrial Use)
Aroclor-1232	1.0 (Residential Use)-10(Industrial Use)
Aroclor-1242	1.0 (Residential Use)-10(Industrial Use)
Aroclor-1248	1.0 (Residential Use)-10(Industrial Use)
Aroclor-1254	1.0 (Residential Use)-10(Industrial Use)
Aroclor-1260	1.0 (Residential Use)-10(Industrial Use)
Total Pesticides:	<10

(1)	Sum of iron and manganese shall not exceed 500 micrograms per liter (ug/L).
SB	Site background.
NYSDEC	New York State Department of Environmental Conservation.
--	No standard/guidance value available.
ppm	Parts per million.
MDL	Method Detection Limit.
VOCs	Volatile Organic Compounds.
SVOCs	Semivolatile organic compounds.
N/A	Not available
PCBs	Polychlorinated biphenyls
Source:	NYSDEC (1993, 1994).



Table 4-2. Synoptic Water-Level Measurements Collected on April 30, 1993, Grumman Aerospace Corporation, Bethpage, New York.

Well Designation	Measuring Point Elevation (ft relative to mean sea level)	Depth to Water (ft)	Water-Level Elevation (ft relative to mean sea level)
1234	100.40	41.49	58.91
9079	118.85	49.15	69.70
9918	111.70	45.92	65.78
9921	94.23	32.22	62.01
9929	85.85	31.71	54.14
9931	119.05	50.26	68.76
9932	145.54	70.52	75.02
10590	134.78	60.98	73.80
10591	133.85	61.11	72.74
10592	104.82	34.87	69.95
10593	128.50	57.01	71.49
10594	126.66	55.22	71.44
10596	115.76	46.44	69.32
10597	109.85	41.90	67.95
10599	107.60	41.09	66.51
10600	102.41	38.82	63.59
10601	105.81	41.05	64.76
10602	97.66	35.87	61.79
10603	92.53	33.42	59.11
10625	115.95	47.67	68.28
10626	118.85	45.63	73.22
10627	93.70	31.95	61.75
10628	100.88	39.49	61.39
10629	116.04	46.48	69.56
10631	103.47	39.24	64.23
10632	103.85	38.60	65.25
10633	103.80	40.85	62.95
10634	101.20	39.89	61.31
10636	89.46	29.37	60.09
10636	96.41	32.31	64.10
10812	135.54	62.29	73.25
10813	99.01	36.65	62.36
10814	94.53	36.83	57.70
10816	92.54	33.99	58.55
10816	84.58	30.45	54.13

Footnotes on last page.



Table 4-2. Synoptic Water-Level Measurements Collected on April 30, 1993, Grumman Aerospace Corporation, Bethpage, New York.

Well Designation	Measuring Point Elevation (ft relative to mean sea level)	Depth to Water (ft)	Water-Level Elevation (ft relative to mean sea level)
10817	84.58	30.15	54.43
10818	88.59	32.44	56.16
10820	71.76	13.07	58.69
10821	91.56	33.21	58.37
10822	92.38	33.47	58.91
10977	100.34	42.49	57.85
10997(GM-34D2)	71.19	14.79	56.40
10998(GM-34D)	71.19	13.35	57.84
10999	83.80	30.01	53.79
11000	83.80	30.76	53.04
11067	100.22	40.86	59.36
GM-1S	140.47	66.66	73.81
GM-1I	140.43	66.71	73.72
GM-2S(10590)	134.78	60.98	73.80
GM-2I	134.08	61.35	72.73
GM-3S(10812)	135.54	62.29	73.25
GM-3I	133.78	61.46	72.32
GM-4S(S-1)	133.21	58.19	75.02
GM-4I (S-2)	133.21	60.80	72.41
GM-5S (T-1)	131.21	58.84	72.37
GM-5I (T-2)	131.37	59.34	72.03
GM-6S (P-3)	134.30	62.37	71.93
GM-6I	124.72	58.33	66.39
GM-7S	127.51	55.87	71.84
GM-7I	127.44	55.85	71.59
GM-7D	127.64	57.88	69.76
GM-8S	127.19	53.75	73.44
GM-8I	127.09	53.05	74.04
GM-9S (K-1)	130.56	58.97	71.59
GM-9I (K-2)	130.55	59.17	71.38
GM-10S (P-5)	122.70	52.49	70.21
GM10I	120.11	49.95	70.16
GM-11S	123.66	37.60*	86.06
GM-12S	120.55	50.57	69.98
GM-12I	120.51	51.13	69.38
GM-13S (10596)	115.76	46.44	69.32
GM-13I (10629)	116.04	46.48	69.56
GM-13D	113.97	46.39	67.58
GM-14S (10626)	115.95	47.67	68.28
GM-14I	113.91	45.79	68.12

Footnotes on last page.



Table 4-2. Synoptic Water-Level Measurements Collected on April 30, 1993, Grumman Aerospace Corporation, Bethpage, New York.

Well Designation	Measuring Point Elevation (ft relative to mean sea level)	Depth to Water (ft)	Water-Level Elevation (ft relative to mean sea level)
GM-15S (10626)	111.83	45.63	66.20
GM-15I	110.11	44.50	65.61
GM-16S	116.40	47.90	68.50
GM-16I	116.49	48.05	68.44
GM-17S	116.44	46.15	70.29
GM-18S (10599)	107.60	41.09	66.51
GM-18I	109.74	43.09	66.65
GM-19S	110.51	44.46	66.05
GM-19I	110.58	44.46	66.12
GM-20S (10632)	103.85	38.60	65.25
GM-20I	104.50	39.30	65.20
GM-20D	104.23	39.95	64.28
GM-21S (10601)	105.81	41.05	64.76
GM-21I	106.11	41.55	64.56
GM-22S	107.32	39.85	67.47
GM-22I	107.08	41.32	65.76
GM-22D	107.02	43.43	63.59
GM-23S	119.33	50.46	68.87
GM-23I	118.94	50.11	68.83
GM-31S	127.82	60.88	66.94 ✓
GM-32S	109.10	41.79	67.31
GM-35D2	96.28	37.84	58.44
GM-36D	91.63	33.68	57.95
GM-36D2	91.60	35.57	56.03
GM-37D	97.26	37.51	59.75
GM-37D2	97.17	38.00	59.17
HN-8D	125.91	56.49	69.42
HN-24S	122.73	51.99	70.74
HN-24I	125.78	56.30	69.48
HN-24I1	120.46	50.75	69.71
HN-24I2	122.69	53.30	69.59
HN-25S	125.69	54.65	71.04
HN-25I	125.51	55.03	70.48
HN-25D	124.82	56.68	68.14
HN-26S	125.00	51.94	73.06
HN-26I	124.84	53.10	71.74
HN-27S	128.21	55.31	72.90
HN-27S2	124.88	52.52	72.36

Footnotes on last page.



Table 4-2. Synoptic Water-Level Measurements Collected on April 30, 1993, Grumman Aerospace Corporation, Bethpage, New York.

Well Designation	Measuring Point Elevation (ft relative to mean sea level)	Depth to Water (ft)	Water-Level Elevation (ft relative to mean sea level)
HN-27I	128.59	55.21	73.38
HN-27I2	125.06	53.45	71.61
HN-28S	122.82	51.98	70.84
HN-28I	122.73	--	--
HN-29S	119.04	48.18	70.88
HN-29I	116.42	46.84	69.58
HN-29D	115.11	47.68	67.43
HN-30S	129.10	57.35	71.75
HN-30I	126.27	55.25	71.02
HN-40S	116.35	49.03	67.32
HN-40I	115.91	48.60	67.31
HN-41S	109.91	44.44	65.47
HN-41I	109.90	44.50	65.40
HN-42S	120.32	50.95	69.37
HN-42I	119.61	50.34	69.27

\* Water Level is suspect.

-- Well was not accessible.



Table 4-3. Synoptic Water-Level Measurements Collected on August 18, 1993, Grumman Aerospace Corporation, Bethpage, New York.

Well Designation	Measuring Point Elevation (ft relative to mean sea level)	Depth to Water (ft)	Water-Level Elevation (ft relative to mean sea level)
1234	100.40	43.66	56.74
9079	118.85	51.56	67.29
9918	111.70	47.85	63.85
9921	94.23	34.01	60.22
9929	85.85	35.19	50.66
9931	119.05	52.02	67.03
9932	145.54	72.77	72.77
10590	134.78	63.80	70.98
10591	133.85	63.43	70.42
10592	104.82	36.85	67.97
10593	128.50	60.32	68.18
10694	126.66	58.97	67.69
10595	115.76	48.32	67.44
10597	109.85	43.73	66.12
10599	107.60	42.80	64.80
10600	102.41	40.48	61.93
10601	105.81	39.15	66.66
10602	97.66	38.28	59.38
0603	92.53	35.86	56.67
10625	115.95	49.47	66.48
10626	118.85	47.12	71.73
10627	93.70	33.74	59.96
10628	100.88	41.61	59.27
10629	116.04	48.03	68.01
10631	103.47	40.60	62.87
10632	103.85	38.15	65.70
10633	103.80	42.04	61.76
10634	101.20	41.80	59.40
10635	89.46	31.76	57.70
10636	96.41	34.00	62.41
10812	135.54	66.00	69.54
10813	99.01	38.96	60.05
10814	94.53	39.71	54.82
10815	92.54	36.50	56.04
10816	84.58	33.78	50.80

See footnote on last page.





Table 4-3. Synoptic Water-Level Measurements Collected on August 18, 1993. Grumman Aerospace Corporation,  
Bethpage, New York.

Well Designation	Measuring Point Elevation (ft relative to mean sea level)	Depth to Water (ft)	Water-Level Elevation (ft relative to mean sea level)
10817	84.58	33.73	50.85
10818	88.59	35.46	53.13
10820	71.76	15.57	56.19
10821	91.58	36.34	55.24
10822	92.38	36.37	56.01
10977	100.34	44.64	55.70
10997 (GM-34D2)	71.19	17.57	53.62
10998 (GM-34D)	71.19	15.85	55.34
10999	83.80	33.93	49.87
11000	83.80	33.00	50.80
11067	100.22	43.48	56.74
GM-1S	140.47	69.45	71.02
GM-1I	140.43	69.41	71.02
GM-2S (10590)	134.78	63.80	70.98
GM-2I	134.08	63.95	70.13
GM-3S (10812)	135.54	66.00	69.54
GM-3I	133.78	64.55	69.23
GM-4S (S-1)	133.21	62.03	71.18
GM-4I (S-2)	133.21	64.13	69.08
M-5S (T-1)	131.21	62.52	68.69
GM-5I (T-2)	131.37	62.82	68.55
GM-6S (P-3)	134.30	65.73	68.57
GM-6I	124.72	61.27	63.45
GM-7S	127.51	57.45	70.06
GM-7I	127.44	57.60	69.84
GM-7D	127.64	59.97	67.67
GM-8S	127.19	53.90	73.29
GM-8I	127.09	54.57	72.52
GM9S (K-1)	130.56	62.46	68.10
GM-9I (K-2)	130.55	62.56	67.99
GM-10S (P-6)	122.70	54.16	68.54
GM-10I	120.11	52.42	67.69
GM-11S	123.66	Dry	--
GM-12S	120.55	52.98	67.57
GM-12I	120.51	53.45	67.06
GM-13S (10595)	115.76	48.03	67.73
GM-13I (10629)	116.04	48.32	67.72
GM-13D	113.97	48.23	65.74

See footnote on last page.



Table 4-3. Synoptic Water-Level Measurements Collected on August 18, 1993, Grumman Aerospace Corporation,  
Bethpage, New York.

Well Designation	Measuring Point Elevation (ft relative to mean sea level)	Depth to Water (ft)	Water-Level Elevation (ft relative to mean sea level)
GM-14S (10625)	115.95	49.47	66.48
GM-14I	113.91	47.49	66.42
GM-15S (10626)	111.83	47.12	64.71
GM-15I	110.11	46.34	63.77
GM-16S	116.40	49.37	67.03
GM-16I	116.49	49.60	66.89
GM-17S	116.44	45.27	71.17
GM-18S (10599)	107.60	42.80	64.80
GM-18I	109.74	44.00	65.74
GM-19S	110.51	45.29	65.22
GM-19I	110.58	45.68	64.90
GM-20S (10632)	103.85	38.15	65.70
GM-20I	104.50	39.98	64.52
GM-20D	104.23	40.75	63.48
GM-21S (10601)	105.81	39.15	66.66
GM-21I	106.11	40.85	65.26
GM-22S	107.32	41.87	65.45
GM-22I	107.08	42.15	64.93
GM-22D	107.02	44.37	62.65
GM-23S	119.33	52.54	66.79
M-23I	118.94	52.14	66.80
GM-31S	127.82	63.99	63.83 ✓
GM-32S	109.10	42.99	66.11
GM-33D2	106.85	46.78	60.07
GM-35D2	96.28	40.61	55.67
GM-36D	91.63	36.58	55.05
GM-36D2	91.60	38.42	53.18
GM-37D	97.26	40.62	56.64
GM-37D2	97.17	40.71	56.46
GM-38D	91.75	39.19	52.56
GM-38D2	91.56	40.19	51.37
HN-8D	125.91	57.71	68.20
HN-24S	122.73	54.50	68.23
HN-24I	125.78	59.03	66.75
HN-25S	125.69	56.92	68.77
HN-25I	125.51	56.97	68.54
HN-25D	124.82	58.86	65.96
HN-26S	125.00	50.92	74.08

See footnote on last page.



Table 4-3. Synoptic Water-Level Measurements Collected on August 18, 1993, Grumman Aerospace Corporation, Bethpage, New York.

Well Designation	Measuring Point Elevation (ft relative to mean sea level)	Depth to Water (ft)	Water-Level Elevation (ft relative to mean sea level)
HN-26I	124.84	53.61	71.23
HN-27S	128.21	53.76	74.45
HN-27I	128.59	53.95	74.64
HN-27I2	125.06	53.01	72.05
HN-28S	122.82	52.54	70.28
HN-28I	122.73	54.21	68.52
HN-29S	119.04	48.91	70.13
HN-29I	116.42	48.25	68.17
HN-29D	115.11	49.21	65.90
HN-30S	129.10	57.65	71.45
HN-30I	126.27	56.92	69.35
HN-40S	116.35	50.90	65.45
HN-40I	115.91	50.60	65.31
HN-41S	109.91	46.45	63.46
HN-41I	109.90	47.61	62.29
HN-42S	120.32	52.75	67.57
HN-42I	119.61	52.75	66.86

- Well was dry so no water level was available.



Table 4-4. Vertical Hydraulic Gradients, Phase 2 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Well Designation	Calculation (1)		Vertical Hydraulic Gradient
GM-7S	$\frac{70.06-67.67}{74.2-(-86.73)}$	=	$\frac{2.39}{160.93}$ = 0.015
GM-7D			
GM-13S	$\frac{67.73-65.74}{50.76-(-90.36)}$	=	$\frac{1.99}{141.12}$ = 0.014
GM-13D			
GM-20S	$\frac{65.70-63.48}{38.85-(-116.77)}$	=	$\frac{2.22}{155.62}$ = 0.014
GM-20D			
GM-22S	$\frac{65.45-62.65}{66.32-(-92.28)}$	=	$\frac{2.80}{158.6}$ = 0.018
GM-22D			

(1)  $\frac{\text{Water-Level Elevation (Shallow Well)} - \text{Water-Level Elevation (Deep Well)}}{\text{Elevation of Midpoint of Screen (Shallow Well)} - \text{Elevation of Midpoint of Screen (Deep Well)}}$

Calculations are based on a comparison of the shallow zone versus the deep zone.

Water levels were measured on August 18, 1993.

Positive vertical hydraulic gradient corresponds to a downward direction of groundwater flow.



Table 4-5. Results of Soil-Gas Survey, Phase 1 and 2 Remedial Investigations, Grumman Aerospace Corporation, Bethpage, New York.

Sample Identification (1)	Date Sampled	Vinyl Chloride (ppmv)	trans-1,2-Dichloroethene (ppmv)	cis-1,2-Dichloroethene (ppmv)	Trichloroethene (ppmv)	Tetrachloroethene (ppmv)	Unknown (number)
SG-1A	4/18/91	<0.9	<0.3	<0.4	<0.3	1	0
SG-1B	4/18/91	<0.9	<0.3	<0.4	<0.3	1	0
SG-1C	4/18/91	<0.9	<0.3	<0.4	<0.3	1	0
SG-1D	4/18/91	<0.9	<0.3	<0.4	<0.3	3	0
SG-1E	4/18/91	<0.9	<0.3	<0.4	<0.3	2	0
SG-1F	4/18/91	<0.9	<0.3	<0.4	<0.3	3	0
SG-2A	4/17/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-2B	4/17/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-2C	4/17/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-3A	4/23/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-3B	4/23/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-3C	4/23/91	<0.9	<0.3	<0.4	1	1	0
SG-3D	4/23/91	<0.9	<0.3	<0.4	0.3	0.2	0
SG-3E	4/23/91	<0.9	<0.3	<0.4	0.8	0.7	0
SG-3F	4/23/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-3G	4/23/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-3H	4/23/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-3I	4/23/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-3J	4/23/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-3K	4/23/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-3L	4/23/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-3M	4/23/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-3N	4/23/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-3O	4/23/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-4A	4/29/91	<0.9	<0.3	9	100	0.5	0
SG-4B	4/29/91	<0.9	<0.3	10	100	<0.2	0
SG-4C	4/29/91	<0.9	<0.3	5	100	<0.2	0
SG-4D	4/29/91	<0.9	<0.3	10	60	<0.2	0
SG-5A (2)	4/16/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-5B	4/16/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-5C	4/16/91	<0.9	<0.3	<0.4	<0.3	<0.2	3
SG-5D	4/16/91	<0.9	<0.3	<0.4	<0.3	<0.2	2
SG-5E	4/16/91	<0.9	<0.3	<0.4	<0.3	<0.2	2
SG-5F	4/17/91	<0.9	<0.3	<0.4	1	<0.2	0
SG-5G	4/17/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-7A	4/25/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-7B	4/25/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-7C	4/25/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-7D	4/25/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-7E	4/25/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-7F	4/25/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-7G	4/25/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-7H	4/25/91	<0.9	<0.3	<0.4	<0.3	<0.2	0

ppmv Parts per million by volume.

- (1) Site SG-12 was not investigated due to access problems.
- (2) Samples designated SG-5 include sites SG-5 and SG-6.

All samples were analyzed by a portable gas chromatograph.



Table 4-5. Results of Soil-Gas Survey, Phase 1 and 2 Remedial Investigations, Grumman Aerospace Corporation, Bethpage, New York.

Sample Identification (1)	Date Sampled	Vinyl Chloride (ppmv)	trans-1,2-Dichloroethene (ppmv)	cis-1,2-Dichloroethene (ppmv)	Trichloroethene (ppmv)	Tetrachloroethene (ppmv)	Unknown (number)
SG-7I	4/25/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-7J	4/25/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-7K	4/25/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-7L	4/25/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-7M	4/25/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-7N	4/25/91	<0.9	<0.3	<0.4	0.3	<0.2	0
SG-7O	4/25/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-8A	4/26/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-8B	4/26/91	<0.9	<0.3	<0.4	<0.3	<0.2	1
SG-8C	4/26/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-8D	4/26/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-8E	4/26/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-8F	4/26/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-8G	4/26/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-8H	4/26/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-9A	4/19/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-9B	4/19/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-9C	4/19/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-9D	4/19/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-9E	4/19/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-9F	4/19/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-9G	4/19/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-9H	4/19/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-9I	4/19/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-9J	4/19/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-9K	4/19/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-9L	4/19/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-9M	4/19/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-9N	4/19/91	<0.9	<0.3	<0.4	<0.3	<0.2	0
SG-10A	4/18/91	<0.9	<0.3	0.4	3	400	1
SG-10B	4/18/91	<0.9	<0.3	<0.4	2	300	0
SG-10C	4/24/91	<0.9	<0.3	<0.4	0.3	10	0
SG-11A	4/26/91	<0.9	<0.3	<0.4	<0.3	1	0
SG-11B	4/26/91	<0.9	<0.3	<0.4	<0.3	3	0
SG-11C	4/26/91	<0.9	<0.3	<0.4	<0.3	0.6	0
SG-13A	8/28/92	<0.9	<0.2	<0.3	<0.2	<0.2	0
SG-13B	8/28/92	<0.9	<0.2	<0.3	<0.2	<0.2	0
SG-13C	8/28/92	<0.9	<0.2	<0.3	<0.2	<0.2	0
SG-13D	8/28/92	<0.9	<0.2	<0.3	<0.2	<0.2	0
SG-13E	8/28/92	<0.9	<0.2	<0.3	<0.2	<0.2	0
SG-13F	8/28/92	<0.9	<0.2	<0.3	<0.2	<0.2	0
SG-13G	8/28/92	<0.9	<0.2	<0.3	<0.2	<0.2	0
SG-13H	8/28/92	<0.9	<0.2	<0.3	<0.2	<0.2	0
SG-13I	8/28/92	<0.9	<0.2	<0.3	<0.2	<0.2	0

ppmv Parts per million by volume.

- (1) Site SG-12 was not investigated due to access problems.
- (2) Samples designated SG-5 include sites SG-5 and SG-6.

All samples were analyzed by a portable gas chromatograph.



Table 4-6. Volatile Organic Compounds Detected in Soil Samples, Phase 1 and Phase 2 Remedial Investigations, Grumman Aerospace Corporation, Corporation, Bethpage, New York.

Parameter	Sample Designation: Sample Depth (feet): Sample Date: Laboratory: Units:	GMS-1S 20-22 2/13/91 IEA ug/kg	GMS-1I 55-57 2/6/91 IEA ug/kg	GMS-2I 25-27 2/19/91 IEA ug/kg	GMS-3I 50-52 3/25/91 IEA ug/kg	GMS-6I 20-22 2/27/91 IEA ug/kg	GMS-6I 25-27 2/27/91 IEA ug/kg
Chloromethane		<10	<10	<10	<11	<10	<10
Bromomethane		<10	<10	<10	<11	<10	<10
Vinyl chloride		<10	<10	<10	<11	<10	<10
Chloroethane		<10	<10	<10	<11	<10	<10
Methylene chloride		<7	<5	<8	<5	<5	<5
Acetone		<20	<12	<19	<10	<10 J	<10
Carbon disulfide		<5	<5	<5	<5	<5	<5
1,1-Dichloroethene		<5	<5	<5	<5	<5	<5
1,1-Dichloroethane		<5	<5	<5	<5	<5	<5
1,2-Dichloroethene (total)		<5	<5	<5	<5	<5	<5
Chloroform		<5	<5	<5	<5	<5	<5
1,2-Dichloroethane		<5	<5	<5	<5	<5	<5
2-Butanone		R	<10	<10	<5	<5	<5
1,1,1-Trichloroethane		<5	<5	4 J	<11	<10	<10
Carbon tetrachloride		<5	<5	<5	<5	<5	<5
Vinyl acetate		<10	<10	<10	<11	<10	<10
Bromodichloromethane		<5	<5	<5	<5	<5	<5
1,2-Dichloropropane		<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene		<5	<5	<5	<5	<5	<5
Trichloroethene		<5	<5	<5	<5	<5	<5
Dibromochloromethane		<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane		<5	<5	<5	<5	<5	<5
ene		<5	<5	<5	<5	<5	<5
-1,3-Dichloropropene		<5	<5	<5	<5	<5	<5
dromoform		<5	<5	<5	<5	<5	<5
4-Methyl-2-pentanone		<10	<10	<10	<11	<10	<10
2-Hexanone		<10	<10	<5	<11	<10	<10
Tetrachloroethene		<5	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane		<5	<5	<5	<5	<5	<5
Toluene		<5	<5	<5	<5	<5	4 J
Chlorobenzene		<5	<5	<5	<5	<5	<5
Ethylbenzene		<5	<5	<5	<5	<5	<5
Styrene		<5	<5	<5	<5	<5	<5
Xylene (total)		<5	<5	<5	<5	<5	<5
<b>Total VOCs:</b>		<b>0</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>4</b>

IEA Industrial and Environmental Analysts, Inc. Monroe, Connecticut.  
NET National Environmental Testing, Inc., Thorofare, New Jersey.  
ug/kg Micrograms per kilogram.  
ug/L Micrograms per liter.  
J Estimated value.  
R Unusable value.  
GMS Soil samples collected in boreholes converted to monitoring wells.  
FBS Field blank for soil.  
B-1, B-2, B-3 Samples collected in shallow soil borings.  
VOCs Volatile organic compounds.

(a) FBS-1 was broken in transit to the laboratory.



Table 4-6. Volatile Organic Compounds Detected in Soil Samples, Phase 1 and Phase 2 Remedial Investigations, Grumman Aerospace Corporation, Corporation, Bethpage, New York.

Sample Designation:	GMS-7S	GMS-7I	GMS-7D	GMS-8S	GMS-8I	GMS-10I
Sample Depth (feet):	30-32	40-42	20-22	20-22	40-42	40-42
Sample Date:	3/22/91	3/15/91	7/23/91	3/13/91	3/6/91	4/11/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Parameter						
Chloromethane	<10	<10	<10	<10	<10	<10
Bromomethane	<10	<10	<10	<10	<10	<10
Vinyl chloride	<10	<10	<10	<10	<10	<10
Chloroethane	<10	<10	<10	<10	<10	<10
Methylene chloride	<5	<5	<5	<5	<10	<10
Acetone	<10	<14	<10	<10	<7	<14
Carbon disulfide	<5	<5	<5	<5	<5	<5
1,1-Dichloroethene	<5	<5	<5	<5	<5	<5
1,1-Dichloroethane	<5	<5	<5	<5	<5	<5
1,2-Dichloroethene (total)	<5	<5	<5	<5	<5	<5
Chloroform	<5	<5	<5	<5	<5	<5
1,2-Dichloroethane	<5	<5	<5	<5	<5	<5
2-Butanone	<10	<10	<10	<10	<10	<10
1,1,1-Trichloroethane	<5	<5	<5	<5	<5	<5
Carbon tetrachloride	<5	<5	<5	<5	<5	<5
Vinyl acetate	<10	<10	<10	<10	<10	<10
Bromodichloromethane	<5	<5	<5	<5	<5	<5
1,2-Dichloropropane	<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	<5	<5	<5	<5	<5	<5
Trichloroethene	<5	<5	<5	<5	<5	<5
Dibromochloromethane	<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	<5	<5	<5	<5	<5	<5
zene	<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	<5	<5	<5	<5	<5	<5
Bromoform	<5	<5	<5	<5	<5	<5
4-Methyl-2-pentanone	<10	<10	<10	<10	<10	<10
2-Hexanone	<10	<10	<10	<10	<10	<10
Tetrachloroethene	<5	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	<5	<5	<5	<5	<5	<5
Toluene	<5	<5	<5	<5	<5	<5
Chlorobenzene	<5	<5	<5	<5	<5	<5
Ethylbenzene	<5	<5	<5	<5	<5	<5
Styrene	<5	<5	<5	<5	<5	<5
Xylene (total)	<5	<5	<5	<5	<5	<5
<b>Total VOCs:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

IEA	Industrial and Environmental Analysts, Inc., Monroe, Connecticut.
NET	National Environmental Testing, Inc., Thorofare, New Jersey.
ug/kg	Micrograms per kilogram.
ug/L	Micrograms per liter.
J	Estimated value.
R	Unusable value.
GMS	Soil samples collected in boreholes converted to monitoring wells.
FBS	Field blank for soil.
B-1, B-2, B-3	Samples collected in shallow soil borings.
VOCs	Volatile organic compounds.

(a) FBS-1 was broken in transit to the laboratory.





Table 4-6. Volatile Organic Compounds Detected in Soil Samples, Phase 1 and Phase 2 Remedial Investigations, Grumman Aerospace Corporation, Corporation, Bethpage, New York.

Sample Designation:	GMS-12S	GMS-12I	GMS-13D	GMS-14I	GMS-15I	GMS-16S
Sample Depth (feet):	20-22	30-32	40-42	30-32	30-32	20-22
Sample Date:	4/4/91	3/29/91	4/8/91	4/22/91	5/7/91	5/3/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Parameter						
Chloromethane	<10	<10	<11	<12	<10	<11
Bromomethane	<10	<10	<11	<12	<10	<11
Vinyl chloride	<10	<10	<11	<12	<10	<11
Chloroethane	<10	<10	<11	<12	<10	<11
Methylene chloride	<5	7	<6	<6	<5	<5
Acetone	<10	<42	<12	<12	<10	<11
Carbon disulfide	<5	<5	<6	<6	<5	<5
1,1-Dichloroethene	<5	<5	<6	<6	<5	<5
1,1-Dichloroethane	<5	<5	<6	<6	<5	<5
1,2-Dichloroethene (total)	<5	<5	<6	<6	<5	<5
Chloroform	<5	<5	<6	<6	<5	<5
1,2-Dichloroethane	<5	<5	<6	<6	<5	<5
2-Butanone	<10	R	<11	<12	<10	<11
1,1,1-Trichloroethane	<5	<5	<6	<6	<5	<5
Carbon tetrachloride	<5	<5	<6	<6	<5	<5
Vinyl acetate	<10	<10	<11	<12	<10	<11
Bromodichloromethane	<5	<5	<6	<6	<5	<5
1,2-Dichloropropane	<5	<5	<6	<6	<5	<5
cis-1,3-Dichloropropene	<5	<5	<6	<6	<5	<5
Trichloroethene	<5	<5	<6	<6	<5	<5
Dibromochloromethane	<5	<5	<6	<6	<5	<5
1,1,2-Trichloroethane	<5	<5	<6	<6	<5	<5
zene	<5	<5	<6	<6	<5	<5
cis-1,3-Dichloropropene	<5	<5	<6	<6	<5	<5
Bromoform	<5	<5	<6	<6	<5	<5
4-Methyl-2-pentanone	<10	<10	<11	<12	<10	<11
2-Hexanone	<10	<10	<11	<12	<10	<11
Tetrachloroethene	<5	<5	<6	<6	<5	<5
1,1,2,2-Tetrachloroethane	<5	<5	<6	<6	<5	<5
Toluene	2 J	1 J	<6	<6	<5	<5
Chlorobenzene	<5	<5	<6	<6	<5	<5
Ethylbenzene	<5	<5	<6	<6	<5	<5
Styrene	<5	<5	<6	<6	<5	<5
Xylene (total)	3 J	<5	<6	<6	<5	<5
<b>Total VOCs:</b>	<b>5</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.  
NET National Environmental Testing, Inc., Thorofare, New Jersey.  
ug/kg Micrograms per kilogram.  
ug/L Micrograms per liter.  
J Estimated value.  
R Unusable value.  
GMS Soil samples collected in boreholes converted to monitoring wells.  
FBS Field blank for soil.  
B-1, B-2, B-3 Samples collected in shallow soil borings.  
VOCs Volatile organic compounds.

(a) FBS-1 was broken in transit to the laboratory.



Table 4-6. Volatile Organic Compounds Detected in Soil Samples, Phase 1 and Phase 2 Remedial Investigations, Grumman Aerospace Corporation, Corporation, Bethpage, New York.

Parameter	Sample Designation: Sample Depth (feet): Sample Date: Laboratory: Units:	GMS-16I 10-12 4/29/91 IEA ug/kg	GMS-17S 30-32 6/18/91 IEA ug/kg	GMS-18I 30-32 6/4/91 IEA ug/kg	GMS-19S 20-22 5/22/91 IEA ug/kg	GMS-19I 30-32 5/16/91 IEA ug/kg	GMS-22S 20-22 6/14/91 IEA ug/kg
Chloromethane	<10	<12	<12	<11	<12	R	
Bromomethane	<10	<12	<12	<11	<12	R	
Vinyl chloride	<10	<12	<12	<11	<12	R	
Chloroethane	<10	<12	<12	<11	<12	R	
Methylene chloride	<5	<6	<6	<5	3 J	R	
Acetone	<10	<12	<12	<16	<27	R	
Carbon disulfide	<5	<6	<6	<5	<6	R	
1,1-Dichloroethene	<5	<6	<6	<5	<6	R	
1,1-Dichloroethane	<5	<6	<6	<5	<6	R	
1,2-Dichloroethene (total)	<5	<6	<6	<5	<6	R	
Chloroform	<5	<6	<6	<5	<6	R	
1,2-Dichloroethane	<5	<6	<6	<5	<6	R	
2-Butanone	<10	<12	<12	<11	<12	R	
1,1,1-Trichloroethane	<5	<6	<6	<5	<6	R	
Carbon tetrachloride	<5	<6	<6	<5	<6	R	
Vinyl acetate	<10	<12	<12	<11	<12	R	
Bromodichloromethane	<5	<6	<6	<5	<6	R	
1,2-Dichloropropane	<5	<6	<6	<5	<6	R	
cis-1,3-Dichloropropene	<5	<6	<6	<5	<6	R	
Trichloroethene	<5	<6	<6	<5	<6	R	
Dibromochloromethane	<5	<6	<6	<5	<6	R	
1,1,2-Trichloroethane	<5	<6	<6	<5	<6	R	
1,1,2,2-Tetrachloroethane	<5	<6	<6	<5	<6	R	
cis-1,3-Dichloropropene	<5	<6	<6	<5	<6	R	
Bromoform	<5	<6	<6	<5	<6	R	
4-Methyl-2-pentanone	<10	<12	<12	<11	<12	R	
2-Hexanone	<10	<12	<12	<11	<12	R	
Tetrachloroethene	<5	<6	<6	<5	<6	R	
1,1,2,2-Tetrachloroethane	<5	<6	<6	<5	<6	R	
Toluene	<5	<6	<6	<5	<6	R	
Chlorobenzene	<5	<6	<6	<5	<6	R	
Ethylbenzene	<5	<6	<6	<5	<6	R	
Styrene	<5	<6	<6	<5	<6	R	
Xylene (total)	<5	<6	<6	<5	<6	R	
<b>Total VOCs:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.  
NET National Environmental Testing, Inc., Thorofare, New Jersey.  
ug/kg Micrograms per kilogram.  
ug/L Micrograms per liter.  
J Estimated value.  
R Unusable value.  
GMS Soil samples collected in boreholes converted to monitoring wells.  
FBS Field blank for soil.  
B-1, B-2, B-3 Samples collected in shallow soil borings.  
VOCs Volatile organic compounds.

(a) FBS-1 was broken in transit to the laboratory.



Table 4-6. Volatile Organic Compounds Detected in Soil Samples, Phase 1 and Phase 2 Remedial Investigations, Grumman Aerospace Corporation, Corporation, Bethpage, New York.

Sample Designation:	GMS-22I	GMS-23S	GMS-23I	B-1	B-2	B-3
Sample Depth (feet):	30-32	30-32	40-42	8-10	2-4	0-2.5
Sample Date:	6/11/91	5/31/91	5/24/91	6/20/91	6/20/91	6/20/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Parameter						
Chloromethane	<10	<11	<11	<10	<10	<7,700 J
Bromomethane	<10	<11	<11	<10	<10	<7,700 J
Vinyl chloride	<10	<11	<11	<10	<10	<7,700 J
Chloroethane	<10	<11	<11	<10	<10	<7,700 J
Methylene chloride	<5	<6	<6	<5	<5	<3,800 J
Acetone	<13	<15	<29	13	7 J	<7,700 J
Carbon disulfide	<5	<6	<6	<5	<5	<3,800 J
1,1-Dichloroethene	<5	<6	<6	<5	<5	<3,800 J
1,1-Dichloroethane	<5	<6	<6	<5	<5	<3,800 J
1,2-Dichloroethene (total)	<5	<6	<6	<5	5	<3,800 J
Chloroform	<5	<6	<6	<5	<5	<3,800 J
1,2-Dichloroethane	<5	<6	<6	<5	<5	<3,800 J
2-Butanone	<10	<11	<11	<10	<10	R
1,1,1-Trichloroethane	<5	<6	<6	<5	<5	<3,800 J
Carbon tetrachloride	<5	<6	<6	<5	<5	<3,800 J
Vinyl acetate	<10	<11	<11	<10	<10	<7,700 J
Bromodichloromethane	<5	<6	<6	<5	<5	<3,800 J
1,2-Dichloropropane	<5	<6	<6	<5	<5	<3,800 J
cis-1,3-Dichloropropene	<5	<6	<6	<5	<5	<3,800 J
Trichloroethene	<5	<6	<6	48	44	130,000 J
Dibromochloromethane	<5	<6	<6	<5	<5	<3,800 J
1,2-Trichloroethane	<5	<6	<6	<5	<5	<3,800 J
1,1,1,2,2-Pentachloroethane	<5	<6	<6	<5	<5	<3,800 J
trans-1,3-Dichloropropene	<5	<6	<6	<5	<5	<3,800 J
Bromoform	<5	<6	<6	<5	<5	<3,800 J
4-Methyl-2-pentanone	<10	<11	<11	<10	<10	<7,700 J
2-Hexanone	<10	<11	<11	<10	<10	<7,700 J
Tetrachloroethene	<5	<6	<6	<5	<5	<3,800 J
1,1,1,2,2-Pentachloroethane	<5	<6	<6	<5	<5	<3,800 J
Toluene	<5	2 J	<6	<5	<5	<3,800 J
Chlorobenzene	<5	<6	<6	<5	<5	<3,800 J
Ethylbenzene	<5	<6	<6	<5	<5	<3,800 J
Styrene	<5	<6	<6	<5	<5	<3,800 J
Xylene (total)	<5	<6	<6	<5	<5	<3,800 J
<b>Total VOCs:</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>61</b>	<b>59</b>	<b>130,000</b>

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.  
NET National Environmental Testing, Inc., Thorofare, New Jersey.  
ug/kg Micrograms per kilogram.  
ug/L Micrograms per liter.  
J Estimated value.  
R Unusable value.  
GMS Soil samples collected in boreholes converted to monitoring wells.  
FBS Field blank for soil.  
B-1, B-2, B-3 Samples collected in shallow soil borings.  
VOCs Volatile organic compounds.

(a) FBS-1 was broken in transit to the laboratory.



Table 4-6. Volatile Organic Compounds Detected in Soil Samples, Phase 1 and Phase 2 Remedial Investigations, Grumman Aerospace Corporation, Corporation, Bethpage, New York.

Parameter	Sample Designation: Sample Depth (feet): Sample Date: Laboratory: Units:	B-4 4-6 8/21/92 NET ug/kg	B-5 0-2 8/25/92 NET ug/kg	B-5 8-10 8/25/92 NET ug/kg	B-5 18-20 8/25/92 NET ug/kg	B-6 6-8 8/24/92 EcoTest ug/kg	B-7 0-2 8/24/92 NET ug/kg
Chloromethane		<10	<5500	<71000	<52	<10	<11
Bromomethane		<10	<5500	<71000	<52	<10	<11
Vinyl chloride		<10	<5500	<71000	<52	<10	<11
Chloroethane		<10	<5500	<71000	<52	<10	<11
Methylene chloride		<10	<5500	<71000	<52	<10	<11
Acetone		<10	<5500	<71000	<52	<10	22 J
Carbon disulfide		<10	<5500	<71000	<52	<10	<11
1,1-Dichloroethene		<10	<5500	<71000	<52	<10	<11
1,1-Dichloroethane		<10	<5500	<71000	<52	<10	<11
1,2-Dichloroethene (total)		<10	1300 J	<71000	<52	<10	<11
Chloroform		<10	<5500	<71000	<52	<10	<11
1,2-Dichloroethane		<10	<5500	<71000	<52	<10	<11
2-Butanone		<10	R	R	<52	<10	<11
1,1,1-Trichloroethane		<10	<5500	<71000	<52	<10	1 J
Carbon Tetrachloride		<10	<5500	<71000	<52	<10	<11
Bromodichloromethane		<10	<5500	<71000	<52	<10	<11
1,2-Dichloropropane		<10	<5500	<71000	<52	<10	<11
cis-1,3-Dichloropropene		<10	<5500	<71000	<52	<10	<11
Trichloroethene		<10	36000	1200000	640	<10	29
Dibromochloromethane		<10	<5500	<71000	<52	<10	<11
1,1,2-Trichloroethane		<10	<5500	<71000	<52	<10	<11
Benzene		<10	<5500	<71000	<52	<10	<11
trans-1,3-Dichloropropene		<10	<5500	<71000	<52	<10	<11
Chloroform		<10	<5500	<71000	<52	<10	<11
4-Methyl-2-pentanone		<10	<5500	<71000	<52	<10	<11
2-Hexanone		<10	<5500	<71000	<52	<10	<11
Tetrachloroethene		<10	<5500	<71000	<52	<10	<11
1,1,2,2-Tetrachloroethane		<10	<5500	<71000	<52	<10	<11
Toluene		<10	<5500	<71000	<52	<10	<11
Chlorobenzene		<10	<5500	<71000	<52	<10	<11
Ethylbenzene		<10	<5500	<71000	<52	<10	<11
Styrene		<10	<5500	<71000	<52	<10	<11
Xylene (total)		<10	<5500	<71000	<52	<10	<11
<b>Total VOCs:</b>		<b>0</b>	<b>37,300</b>	<b>120,000</b>	<b>640</b>	<b>0</b>	<b>52</b>

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.  
NET National Environmental Testing, Inc., Thorofare, New Jersey.  
ug/kg Micrograms per kilogram.  
ug/L Micrograms per liter.  
J Estimated value.  
R Unusable value.  
GMS Soil samples collected in boreholes converted to monitoring wells.  
FBS Field blank for soil.  
B-1, B-2, B-3 Samples collected in shallow soil borings.  
VOCs Volatile organic compounds.

(a) FBS-1 was broken in transit to the laboratory.



Table 4-6. Volatile Organic Compounds Detected in Soil Samples, Phase 1 and Phase 2 Remedial Investigations, Grumman Aerospace Corporation, Corporation, Bethpage, New York.

Sample Designation: Sample Depth (feet): Sample Date: Laboratory: Units:	FBS-2(a)	FBS-3	FBS-4	FBS-5	FBS-6	FBS-7
	2/19/91	3/25/91	2/27/91	3/22/91	3/13/91	4/11/91
	IEA	IEA	IEA	IEA	IEA	IEA
Parameter	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Chloromethane	<10	<10	<10	<10	<10	<10
Bromomethane	<10	<10	<10	<10	<10	<10
Vinyl chloride	<10	<10	<10	<10	<10	<10
Chloroethane	<10	<10	<10	<10	<10	<10
Methylene chloride	<5	<5	<5	<5	<5	<5
Acetone	<20	<10	<10	<10	<10	<22
Carbon disulfide	<5	<5	<5	<5	<5	<5
1,1-Dichloroethene	<5	<5	<5	<5	<5	<5
1,1-Dichloroethane	<5	<5	<5	<5	<5	<5
1,2-Dichloroethene (total)	<5	<5	<5	<5	<5	<5
Chloroform	<5	<5	<5	<5	<5	<5
1,2-Dichloroethane	<5	<5	<5	<5	<5	<5
2-Butanone	R	R	R	R	R	<10
1,1,1-Trichloroethane	<5	<5	<5	<5	<5	<5
Carbon tetrachloride	<5	<5	<5	<5	<5	<5
Vinyl acetate	<10	<10	<10	<10	<10	<10
Bromodichloromethane	<5	<5	<5	<5	<5	<5
1,2-Dichloropropane	<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	<5	<5	<5	<5	<5	<5
Trichloroethene	<5	<5	<5	<5	<5	<5
Dibromochloromethane	<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	<5	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	<5	<5	<5	<5	<5	<5
trans-1,3-Dichloropropene	<5	<5	<5	<5	<5	<5
Bromoform	<5	<5	<5	<5	<5	<5
4-Methyl-2-pentanone	<10	<10	<10	<10	<10	<10
2-Hexanone	<10	<10	<10	<10	<10	<10
Tetrachloroethene	<5	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	<5	<5	<5	<5	<5	<5
Toluene	<5	<5	<5	<5	<5	<5
Chlorobenzene	<5	<5	<5	<5	<5	<5
Ethylbenzene	<5	<5	<5	<5	<5	<5
Styrene	<5	<5	<5	<5	<5	<5
Xylene (total)	<5	<5	<5	<5	<5	<5
<b>Total VOCs:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.  
NET National Environmental Testing, Inc., Thorofare, New Jersey.  
ug/kg Micrograms per kilogram.  
ug/L Micrograms per liter.  
J Estimated value.  
R Unusable value.  
GMS Soil samples collected in boreholes converted to monitoring wells.  
FBS Field blank for soil.  
B-1, B-2, B-3 Samples collected in shallow soil borings.  
VOCs Volatile organic compounds.

(a) FBS-1 was broken in transit to the laboratory.



Table 4-6. Volatile Organic Compounds Detected in Soil Samples, Phase 1 and Phase 2 Remedial Investigations, Grumman Aerospace Corporation, Corporation, Bethpage, New York.

Sample Designation:	FBS-8	FBS-9	FBS-10	FBS-11	FBS-12	FBS-13
Sample Depth (feet):						
Sample Date:	4/4/91	4/8/91	4/22/91	5/7/91	5/3/91	6/18/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameter						
Chloromethane	<10	<10	<10	<10	<10	<10
Bromomethane	<10	<10	<10	<10	<10	<10
Vinyl chloride	<10	<10	<10	<10	<10	<10
Chloroethane	<10	<10	<10	<10	<10	<10
Methylene chloride	<7	<13	<5	11	<14	<5
Acetone	<15	<24	<11	5 J	<10	12 J
Carbon disulfide	<5	<5	<5	<5	<5	<5
1,1-Dichloroethene	<5	<5	<5	<5	<5	<5
1,1-Dichloroethane	<5	<5	<5	<5	<5	<5
1,2-Dichloroethene (total)	<5	<5	<5	<5	<5	<5
Chloroform	<5	<5	<5	<5	<5	<5
1,2-Dichloroethane	<5	<5	<5	<5	<5	<5
2-Butanone	<10	R	R	R	R	R
1,1,1-Trichloroethane	<5	<5	<5	<5	<5	<5
Carbon tetrachloride	<5	<5	<5	<5	<5	<5
Vinyl acetate	<10	<10	<10	<10	<10	<10
Bromodichloromethane	<5	<5	<5	<5	<5	<5
1,2-Dichloropropane	<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	<5	<5	<5	<5	<5	<5
Trichloroethene	<5	<5	<5	<5	<5	<5
Dibromochloromethane	<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	<5	<5	<5	<5	<5	<5
zene	<5	<5	<5	<5	<5	<5
s-1,3-Dichloropropene	<5	<5	<5	<5	<5	<5
chloroform	<5	<5	<5	<5	<5	<5
4-Methyl-2-pentanone	<10	<10	<10	<10	<10	<10
2-Hexanone	<10	<10	<10	<10	<10	<10
Tetrachloroethene	<5	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	<5	<5	<5	<5	<5	<5
Toluene	<5	<5	<5	<5	<5	<5
Chlorobenzene	<5	<5	<5	<5	<5	<5
Ethylbenzene	<5	<5	<5	<5	<5	<5
Styrene	<5	<5	<5	<5	<5	<5
Xylene (total)	<5	<5	<5	<5	<5	<5
<b>Total VOCs:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>16</b>	<b>0</b>	<b>12</b>

IEA	Industrial and Environmental Analysts, Inc., Monroe, Connecticut.
NET	National Environmental Testing, Inc., Thorofare, New Jersey.
ug/kg	Micrograms per kilogram.
ug/L	Micrograms per liter.
J	Estimated value.
R	Unusable value.
GMS	Soil samples collected in boreholes converted to monitoring wells.
FBS	Field blank for soil.
B-1, B-2, B-3	Samples collected in shallow soil borings.
VOCs	Volatile organic compounds.

(a) FBS-1 was broken in transit to the laboratory.



Table 4-6. Volatile Organic Compounds Detected in Soil Samples, Phase 1 and Phase 2 Remedial Investigations, Grumman Aerospace Corporation, Corporation, Bethpage, New York.

Sample Designation:	FBS-14	FBS-15	FBS-18	FBS-19	FBS-20	Field Blank
Sample Depth (feet):						
Sample Date:	6/4/91	5/22/91	6/14/91	5/31/91	6/20/91	8/21/92
Laboratory:	IEA	IEA	IEA	IEA	IEA	NET
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameter						
Chloromethane	<10	<10	R	<10	<10	<10
Bromomethane	<10	<10	R	<10	<10	<10
Vinyl chloride	<10	<10	R	<10	<10	<10
Chloroethane	<10	<10	R	<10	<10	<10
Methylene chloride	<5	<5	R	<5	5	2 J
Acetone	<17	<10	25 J	<10	<10	<10
Carbon disulfide	<5	<5	R	<5	<5	<10
1,1-Dichloroethene	<5	<5	R	<5	<5	<10
1,1-Dichloroethane	<5	<5	R	<5	<5	<10
1,2-Dichloroethene (total)	<5	<5	R	<5	<5	<10
Chloroform	<5	<5	R	<5	<5	2 J
1,2-Dichloroethane	<5	<5	R	<5	<5	<10
2-Butanone	R	<10	R	R	R	<10
1,1,1-Trichloroethane	<5	<5	R	<5	<5	<10
Carbon tetrachloride	<5	<5	R	<5	<5	<10
Vinyl acetate	<10	<10	R	<10	<10	-
Bromodichloromethane	<5	<5	R	<5	<5	<10
1,2-Dichloropropane	<5	<5	R	<5	<5	<10
cis-1,3-Dichloropropene	<5	<5	R	<5	<5	<10
Trichloroethene	<5	<5	R	<5	<5	<10
Dibromochloromethane	<5	<5	R	<5	<5	<10
1,1,2-Trichloroethane	<5	<5	R	<5	<5	<10
trans-1,3-Dichloropropene	<5	<5	R	<5	<5	<10
Bromoform	<5	<5	R	<5	<5	<10
4-Methyl-2-pentanone	<10	<10	R	<10	<10	<10
2-Hexanone	<10	<10	R	<10	<10	<10
Tetrachloroethene	<5	<5	R	<5	<5	<10
1,1,2,2-Tetrachloroethane	<5	<5	R	<5	<5	<10
Toluene	<5	<5	R	<5	<5	1 J
Chlorobenzene	<5	<5	R	<5	<5	<10
Ethylbenzene	<5	<5	R	<5	<5	<10
Styrene	<5	<5	R	<5	<5	1 J
Xylene (total)	<5	<5	R	<5	<5	<10
<b>Total VOCs:</b>	<b>0</b>	<b>0</b>	<b>25</b>	<b>0</b>	<b>5</b>	<b>6</b>

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

NET National Environmental Testing, Inc., Thorofare, New Jersey.

ug/kg Micrograms per kilogram.

ug/L Micrograms per liter.

J Estimated value.

R Unusable value.

GMS Soil samples collected in boreholes converted to monitoring wells.

FBS Field blank for soil.

B-1, B-2, B-3 Samples collected in shallow soil borings.

VOCs Volatile organic compounds.

(a) FBS-1 was broken in transit to the laboratory.



Table 4-6. Volatile Organic Compounds Detected in Soil Samples, Phase 1 and Phase 2 Remedial Investigations, Grumman Aerospace Corporation, Corporation, Bethpage, New York.

Parameter	Sample Designation: Sample Depth (feet): Sample Date: Laboratory: Units:	Field Blank 8/24/92 NET ug/L	Field Blank 8/25/92 NET ug/L	Trip Blank 2/6/91 IEA ug/L	Trip Blank 2/13/91 IEA ug/L	Trip Blank 2/19/91 IEA ug/L	Trip Blank 2/27/91 IEA ug/L
Chloromethane		<10	<10	<10	<10	<10	<10
Bromomethane		<10	<10	<10	<10	<10	<10
Vinyl chloride		<10	<10	<10	<10	<10	<10
Chloroethane		<10	<10	<10	<10	<10	<10
Methylene chloride		1 J	<10	<5	2 J	<5	<5
Acetone		<10	<10	10 J	<10	<18	19 J
Carbon disulfide		<10	<10	<5	<5	<5	<5
1,1-Dichloroethene		<10	<10	<5	<5	<5	<5
1,1-Dichloroethane		<10	<10	<5	<5	<5	<5
1,2-Dichloroethene (total)		<10	<10	<5	<5	<5	<5
Chloroform		<10	<10	<5	<5	<5	<5
1,2-Dichloroethane		<10	<10	<5	<5	<5	<5
2-Butanone		<10	<10	R	R	R	R
1,1,1-Trichloroethane		<10	<10	<5	<5	<5	<5
Carbon tetrachloride		<10	<10	<5	<5	<5	<5
Vinyl acetate				<10	<10	<10	<10
Bromodichloromethane		<10	<10	<5	<5	<5	<5
1,2-Dichloropropane		<10	<10	<5	<5	<5	<5
cis-1,3-Dichloropropene		<10	<10	<5	<5	<5	<5
Trichloroethene		<10	<10	<5	<5	<5	<5
Dibromochloromethane		<10	<10	<5	<5	<5	<5
1,1,2-Trichloroethane		<10	<10	<5	<5	<5	<5
Benzene		<10	<10	<5	<5	<5	<5
cis-1,3-Dichloropropene		<10	<10	<5	<5	<5	<5
Bromoform		<10	<10	<5	<5	<5	<5
4-Methyl-2-pentanone		<10	<10	<10	<10	<10	<10
2-Hexanone		<10	<10	<10	<10	<10	<10
Tetrachloroethene		<10	<10	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane		<10	<10	<5	<5	<5	<5
Toluene		<10	<10	<5	<5	<5	<5
Chlorobenzene		<10	<10	<5	<5	<5	<5
Ethylbenzene		<10	<10	<5	<5	<5	<5
Styrene		<10	<10	<5	<5	<5	<5
Xylene (total)		<10	<10	<5	<5	<5	<5
<b>Total VOCs:</b>		<b>0</b>	<b>0</b>	<b>10</b>	<b>2</b>	<b>0</b>	<b>19</b>

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.  
NET National Environmental Testing, Inc., Thorofare, New Jersey.  
ug/kg Micrograms per kilogram.  
ug/L Micrograms per liter.  
J Estimated value.  
R Unusable value.  
GMS Soil samples collected in boreholes converted to monitoring wells.  
FBS Field blank for soil.  
B-1, B-2, B-3 Samples collected in shallow soil borings.  
VOCs Volatile organic compounds.

(a) FBS-1 was broken in transit to the laboratory.





Table 4-6. Volatile Organic Compounds Detected in Soil Samples, Phase 1 and Phase 2 Remedial Investigations, Grumman Aerospace Corporation, Corporation, Bethpage, New York.

Sample Designation: Sample Depth (feet): Sample Date: Laboratory: Units:	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank
	3/6/91	3/13/91	3/15/91	3/22/91	3/25/91	3/29/91
	IEA	IEA	IEA	IEA	IEA	IEA
	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameter						
Chloromethane	<10	<10	<10	<10	<10	<10
Bromomethane	<10	<10	<10	<10	<10	<10
Vinyl chloride	<10	<10	<10	<10	<10	<10
Chloroethane	<10	<10	<10	<10	<10	<10
Methylene chloride	<5	<5	<5	<5	<5	<5
Acetone	<10	<10	<10	<10	<10	<10
Carbon disulfide	<5	<5	<5	<5	<5	<5
1,1-Dichloroethene	<5	<5	<5	<5	<5	<5
1,1-Dichloroethane	<5	<5	<5	<5	<5	<5
1,2-Dichloroethene (total)	<5	<5	2 J	<5	<5	<5
Chloroform	<5	<5	<5	<5	<5	<5
1,2-Dichloroethane	<5	<5	<5	<5	<5	<5
2-Butanone	R	R	R	R	R	R
1,1,1-Trichloroethane	<5	<5	<5	<5	<5	<5
Carbon tetrachloride	<5	<5	<5	<5	<5	<5
Vinyl acetate	<10	<10	<10	<10	<10	<10
Bromodichloromethane	<5	<5	<5	<5	<5	<5
1,2-Dichloropropane	<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	<5	<5	<5	<5	<5	<5
Trichloroethene	<5	<5	<5	<5	<5	<5
Dibromochloromethane	<5	<5	<5	<5	<5	<5
2-Trichloroethane	<5	<5	<5	<5	<5	<5
...zene	<5	<5	<5	<5	<5	<5
trans-1,3-Dichloropropene	<5	<5	<5	<5	<5	<5
Bromoform	<5	<5	<5	<5	<5	<5
4-Methyl-2-pentanone	<10	<10	<10	<10	<10	<10
2-Hexanone	<10	<10	<10	<10	<10	<10
Tetrachloroethene	<5	<5	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	<5	<5	<5	<5	<5	<5
Toluene	<5	<5	<5	<5	<5	<5
Chlorobenzene	<5	<5	<5	<5	<5	<5
Ethylbenzene	<5	<5	<5	<5	<5	<5
Styrene	<5	<5	<5	<5	<5	<5
Xylene (total)	<5	<5	<5	<5	<5	<5
<b>Total VOCs:</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>

IEA	Industrial and Environmental Analysts, Inc., Monroe, Connecticut.
NET	National Environmental Testing, Inc., Thorofare, New Jersey.
ug/kg	Micrograms per kilogram.
ug/L	Micrograms per liter.
J	Estimated value.
R	Unusable value.
GMS	Soil samples collected in boreholes converted to monitoring wells.
FBS	Field blank for soil.
B-1, B-2, B-3	Samples collected in shallow soil borings.
VOCs	Volatile organic compounds.

(a) FBS-1 was broken in transit to the laboratory.



Table 4-6. Volatile Organic Compounds Detected in Soil Samples, Phase 1 and Phase 2 Remedial Investigations, Grumman Aerospace Corporation, Corporation, Bethpage, New York.

Parameter	Sample Designation: Sample Depth (feet): Sample Date: Laboratory: Units:	Trip Blank 4/4/91 IEA ug/L	Trip Blank 4/6/91 IEA ug/L	Trip Blank 4/11/91 IEA ug/L	Trip Blank 4/22/91 IEA ug/L	Trip Blank 4/29/91 IEA ug/L	Trip Blank 5/3/91 IEA ug/L
Chloromethane		<10	<10	<10	<10	<10	<10
Bromomethane		<10	<10	<10	<10	<10	<10
Vinyl chloride		<10	<10	<10	<10	<10	<10
Chloroethane		<10	<10	<10	<10	<10	<10
Methylene chloride		<5	<5	<5	<5	<5	<5
Acetone		<14	<17	4 J	<10	<10	<10
Carbon disulfide		<5	<5	<5	<5	<5	<5
1,1-Dichloroethene		<5	<5	<5	<5	<5	<5
1,1-Dichloroethane		<5	<5	<5	<5	<5	<5
1,2-Dichloroethene (total)		<5	<5	<5	<5	<5	<5
Chloroform		<5	<5	<5	<5	<5	<5
1,2-Dichloroethane		<5	<5	<5	<5	<5	<5
2-Butanone		5 J	R	<10	R	R	R
1,1,1-Trichloroethane		<5	<5	<5	<5	<5	<5
Carbon tetrachloride		<5	<5	<5	<5	<5	<5
Vinyl acetate		<10	<10	<10	<10	<10	<10
Bromodichloromethane		<5	<5	<5	<5	<5	<5
1,2-Dichloropropane		<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene		<5	<5	<5	<5	<5	<5
Trichloroethene		<5	<5	<5	<5	<5	<5
Dibromochloromethane		<5	<5	<5	<5	<5	<5
2-Trichloroethane		<5	<5	<5	<5	<5	<5
1,1,1-Trichloroethane		<5	<5	<5	<5	<5	<5
trans-1,3-Dichloropropene		<5	<5	<5	<5	<5	<5
Bromoform		<5	<5	<5	<5	<5	<5
4-Methyl-2-pentanone		<10	11	<10	<10	<10	<10
2-Hexanone		<10	8 J	<10	<10	<10	<10
Tetrachloroethene		<5	<5	<5	<5	<5	<5
1,1,1,2,2-Tetrachloroethane		<5	<5	<5	<5	<5	<5
Toluene		<5	0.9 J	<5	<5	<5	<5
Chlorobenzene		<5	<5	<5	<5	<5	<5
Ethylbenzene		<5	<5	<5	<5	<5	<5
Styrene		<5	<5	<5	<5	<5	<5
Xylene (total)		<5	<5	<5	<5	<5	<5
<b>Total VOCs:</b>		<b>6</b>	<b>19.9</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>

IEA	Industrial and Environmental Analysts, Inc., Monroe, Connecticut.
NET	National Environmental Testing, Inc., Thorofare, New Jersey.
ug/kg	Micrograms per kilogram.
ug/L	Micrograms per liter.
J	Estimated value.
R	Unusable value.
GMS	Soil samples collected in boreholes converted to monitoring wells.
FBS	Field blank for soil.
B-1, B-2, B-3	Samples collected in shallow soil borings.
VOCs	Volatile organic compounds.

(a) FBS-1 was broken in transit to the laboratory.



Table 4-6. Volatile Organic Compounds Detected in Soil Samples, Phase 1 and Phase 2 Remedial Investigations, Grumman Aerospace Corporation, Corporation, Bethpage, New York.

Sample Designation: Sample Depth (feet): Sample Date: Laboratory: Units:	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank	Trip Blank
	5/7/91	5/16/91	5/22/91	5/24/91	5/31/91	6/4/91
	IEA	IEA	IEA	IEA	IEA	IEA
	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameter						
Chloromethane	<10	<10	<10	<10	<10	<10
Bromomethane	<10	<10	<10	<10	<10	<10
Vinyl chloride	<10	<10	<10	<10	<10	<10
Chloroethane	<10	<10	<10	<10	<10	<10
Methylene chloride	<5	<5	<5	<5	<5	<5
Acetone	<10	<10	<10	<10	<10	<10
Carbon disulfide	<5	<5	<5	0.4 J	<5	<5
1,1-Dichloroethene	<5	<5	<5	<5	<5	<5
1,1-Dichloroethane	<5	<5	<5	<5	<5	<5
1,2-Dichloroethene (total)	<5	<5	<5	<5	<5	<5
Chloroform	<5	<5	<5	<5	<5	<5
1,2-Dichloroethane	<5	<5	<5	<5	<5	<5
2-Butanone	R	R	<10	<10	R	R
1,1,1-Trichloroethane	<5	<5	<5	<5	<5	<5
Carbon tetrachloride	<5	<5	<5	<5	<5	<5
Vinyl acetate	<10	<10	<10	<10	<10	<10
Bromodichloromethane	<5	<5	<5	<5	<5	<5
1,2-Dichloropropane	<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	<5	<5	<5	<5	<5	<5
Trichloroethene	<5	<5	<5	<5	<5	<5
Dibromochloromethane	<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	<5	<5	<5	<5	<5	<5
Benzene	<5	<5	<5	<5	<5	<5
trans-1,3-Dichloropropene	<5	<5	<5	<5	<5	<5
Bromoform	<5	<5	<5	<5	<5	<5
4-Methyl-2-pentanone	<10	<10	<10	<10	<10	<10
2-Hexanone	<10	<10	<10	<10	<10	<10
Tetrachloroethene	<5	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	<5	<5	<5	<5	<5	<5
Toluene	<5	<5	<5	<5	<5	<5
Chlorobenzene	<5	<5	<5	<5	<5	<5
Ethylbenzene	<5	<5	<5	<5	<5	<5
Styrene	<5	<5	<5	<5	<5	<5
Xylene (total)	<5	<5	<5	<5	<5	<5
<b>Total VOCs:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.4</b>	<b>0</b>	<b>0</b>

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.  
NET National Environmental Testing, Inc., Thorofare, New Jersey.  
ug/kg Micrograms per kilogram.  
ug/L Micrograms per liter.  
J Estimated value.  
R Unusable value.  
GMS Soil samples collected in boreholes converted to monitoring wells.  
FBS Field blank for soil.  
B-1, B-2, B-3 Samples collected in shallow soil borings.  
VOCs Volatile organic compounds.

(a) FBS-1 was broken in transit to the laboratory.



Table 4-6. Volatile Organic Compounds Detected in Soil Samples, Phase 1 and Phase 2 Remedial Investigations, Grumman Aerospace Corporation, Corporation, Bethpage, New York.

Sample Designation: Sample Depth (feet): Sample Date: Laboratory: Units:	Trip Blank 6/11/91 IEA ug/L	Trip Blank 6/14/91 IEA ug/L	Trip Blank 6/19/91 IEA ug/L	Trip Blank 6/20/91 IEA ug/L	Trip Blank 7/23/91 IEA ug/L	Trip Blank 8/21/92 NET ug/L
Parameter						
Chloromethane	<10	R	<10	<10	<10	<10
Bromomethane	<10	R	<10	<10	<10	<10
Vinyl chloride	<10	R	<10	<10	<10	<10
Chloroethane	<10	R	<10	<10	<10	<10
Methylene chloride	<5	R	<5	<5	<5	<10
Acetone	<10	R	<10	<10	<10	<10
Carbon disulfide	<5	R	<5	<5	<5	<10
1,1-Dichloroethene	<5	R	<5	<5	<5	<10
1,1-Dichloroethane	<5	R	<5	<5	<5	<10
1,2-Dichloroethene (total)	<5	R	<5	<5	<5	<10
Chloroform	<5	R	<5	<5	<5	<10
1,2-Dichloroethane	<5	R	<5	<5	<5	<10
2-Butanone	R	R	R	R	R	<10
1,1,1-Trichloroethane	<5	R	<5	<5	<5	<10
Carbon tetrachloride	<5	R	<5	<5	<5	<10
Vinyl acetate	<10	R	<10	<10	<10	<10
Bromodichloromethane	<5	R	<5	<5	<5	<10
1,2-Dichloropropane	<5	R	<5	<5	<5	<10
cis-1,3-Dichloropropene	<5	R	<5	<5	<5	<10
Trichloroethene	<5	R	<5	<5	<5	<10
Dibromochloromethane	<5	R	<5	<5	<5	<10
1,1,2-Trichloroethane	<5	R	<5	<5	<5	<10
1,2-Dichlorobenzene	<5	R	<5	<5	<5	<10
trans-1,3-Dichloropropene	<5	R	<5	<5	<5	<10
Bromoform	<5	R	<5	<5	<5	<10
4-Methyl-2-pentanone	<10	R	<10	<10	<10	<10
2-Hexanone	<10	R	<10	<10	<10	<10
Tetrachloroethene	<5	R	<5	<5	<5	<10
1,1,1,2-Tetrachloroethane	<5	R	<5	<5	<5	<10
Toluene	<5	R	<5	<5	<5	<10
Chlorobenzene	<5	R	<5	<5	<5	<10
Ethylbenzene	<5	R	<5	<5	<5	<10
Styrene	<5	R	<5	<5	<5	<10
Xylene (total)	<5	R	<5	<5	<5	<10
<b>Total VOCs:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

IEA	Industrial and Environmental Analysts, Inc., Monroe, Connecticut.
NET	National Environmental Testing, Inc., Thorofare, New Jersey.
ug/kg	Micrograms per kilogram.
ug/L	Micrograms per liter.
J	Estimated value.
R	Unusable value.
GMS	Soil samples collected in boreholes converted to monitoring wells.
FBS	Field blank for soil.
B-1, B-2, B-3	Samples collected in shallow soil borings.
VOCs	Volatile organic compounds.

(a) FBS-1 was broken in transit to the laboratory.



Table 4-6. Volatile Organic Compounds Detected in Soil Samples, Phase 1 and Phase 2 Remedial Investigations, Grumman Aerospace Corporation, Corporation, Bethpage, New York.

Sample Designation:	Trip Blank	Trip Blank
Sample Depth (feet):		
Sample Date:	8/24/92	8/25/92
Laboratory:	NET	NET
Units:	ug/L	ug/L
Parameter		
Chloromethane	<10	<10
Bromomethane	<10	<10
Vinyl chloride	<10	<10
Chloroethane	<10	<10
Methylene chloride	<10	<10
Acetone	<10	<10
Carbon disulfide	<10	<10
1,1-Dichloroethene	<10	<10
1,1-Dichloroethane	<10	<10
1,2-Dichloroethene (total)	<10	<10
Chloroform	3 J	3 J
1,2-Dichloroethane	<10	<10
2-Butanone	<10	<10
1,1,1-Trichloroethane	<10	<10
Carbon tetrachloride	<10	<10
Vinyl acetate	--	--
Bromodichloromethane	<10	<10
1,2-Dichloropropane	<10	<10
cis-1,3-Dichloropropene	<10	<10
Trichloroethene	<10	<10
Dibromochloromethane	<10	<10
1,1,2-Trichloroethane	<10	<10
1,1,1-Trichloroethane	<10	<10
trans-1,3-Dichloropropene	<10	<10
Bromoform	<10	<10
4-Methyl-2-pentanone	<10	<10
2-Hexanone	<10	<10
Tetrachloroethene	<10	<10
1,1,1,2-Tetrachloroethane	<10	<10
Toluene	<10	<10
Chlorobenzene	<10	<10
Ethylbenzene	<10	<10
Styrene	<10	<10
Xylene (total)	<10	<10
<b>Total VOCs:</b>	<b>3</b>	<b>3</b>

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.  
NET National Environmental Testing, Inc., Thorofare, New Jersey.  
ug/kg Micrograms per kilogram.  
ug/L Micrograms per liter.  
J Estimated value.  
R Unusable value.  
GMS Soil samples collected in boreholes converted to monitoring wells.  
FBS Field blank for soil.  
B-1, B-2, B-3 Samples collected in shallow soil borings.  
VOCs Volatile organic compounds.

(a) FBS-1 was broken in transit to the laboratory.



Table 4-7. Semivolatile Organic Compounds Detected in Soil Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	GMS-1S	GMS-1I	GMS-2I	GMS-3I	GMS-6I	GMS-6I
Sample Depth (feet):	20-22	55-57	25-27	50-52	20-22	25-27
Sample Date:	2/13/91	2/6/91	2/19/91	3/25/91	2/27/91	2/27/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Parameter						
Phenol	<350	<340 J	<340	<350	<340	<340
bis(2-Chloroethyl)ether	<350	<340 J	<340	<350	<340	<340
2-Chlorophenol	<350	<340 J	<340	<350	<340	<340
1,3-Dichlorobenzene	<350	<340 J	<340	<350	<340	<340
1,4-Dichlorobenzene	<350	<340 J	<340	<350	<340	<340
Benzyl alcohol	<350	<340 J	<340	<350	<340	<340
1,2-Dichlorobenzene	<350	<340 J	<340	<350	<340	<340
2-Methylphenol	<350	<340 J	<340	<350	<340	<340
bis(2-Chloroisopropyl)ether	<350	<340 J	<340	<350	<340	<340
4-Methylphenol	<350	<340 J	<340	<350	<340	<340
N-Nitroso-di-n-propylamine	<350	<340 J	<340	<350	<340	<340
Hexachloroethane	<350	<340 J	<340	<350	<340	<340
Nitrobenzene	<350	<340 J	<340	<350	<340	<340
Isophorone	<350	<340 J	<340	<350	<340	<340
2-Nitrophenol	<350	<340 J	<340	<350	<340	<340
2,4-Dimethylphenol	<350	<340 J	<340	<350	<340	<340
Benzoic acid	<1700	<1600 J	<1600	<1700	<1700	<1600
bis(2-Chloroethoxy)methane	<350	<340 J	<340	<350	<340	<340
2,4-Dichlorophenol	<350	<340 J	<340	<350	<340	<340
1,2,4-Trichlorobenzene	<350	<340 J	<340	<350	<340	<340
Naphthalene	<350	<340 J	<340	<350	<340	<340
4-Chloroaniline	<350	<340 J	<340	<350	<340	<340
Hexachlorobutadiene	<350	<340 J	<340	<350	<340	<340
4-Chloro-3-methylphenol	<350	<340 J	<340	<350	<340	<340
2-Methylnaphthalene	<350	<340 J	<340	<350	<340	<340
Hexachlorocyclopentadiene	<350	<340 J	<340	<350	<340	<340
2,4,6-Trichlorophenol	<350	<340 J	<340	<350	<340	<340
2,4,5-Trichlorophenol	<1700	<1600 J	<1600	<1700	<1700	<1600
2-Chloronaphthalene	<350	<340 J	<340	<350	<340	<340
2-Nitroaniline	<1700	<1600 J	<1600	<1700	<1700	<1600
Dimethylphthalate	<350	<340 J	<340	<350	<340	<340
Acenaphthylene	<350	<340 J	<340	<350	<340	<340
2,6-Dinitrotoluene	<350	<340 J	<340	<350	<340	<340

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.  
ug/kg Micrograms per kilogram.  
ug/L Micrograms per liter.  
J Estimated value.  
R Unusable value.  
GMS Soil samples collected in boreholes converted to monitoring wells.  
FBS Field blank for soil.  
B-1, B-2, B-3 Samples collected in shallow soil borings.  
BNAs Base neutral/acid extractable compounds.

(1) Cannot be separated from diphenylamine.



Table 4-7. Semivolatile Organic Compounds Detected in Soil Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	GMS-1S	GMS-1I	GMS-2I	GMS-3I	GMS-6I	GMS-6I
Sample Depth (feet):	20-22	55-57	25-27	50-52	20-22	25-27
Sample Date:	2/13/91	2/6/91	2/19/91	3/25/91	2/27/91	2/27/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Parameter						
3-Nitroaniline	R	<1600 J	<1600	<1700	R	R
Acenaphthene	<350	<340 J	<340	<350	<340	<340
2,4-Dinitrophenol	<1700	<1600 J	<1600	<1700	<1700	<1600
4-Nitrophenol	<1700	<1600 J	<1600	<1700	<1700	<1600
Dibenzofuran	<350	<340 J	<340	<350	<340	<340
2,4-Dinitrotoluene	<350	<340 J	<340	<350	<340	<340
Diethylphthalate	<350	18 J	<340	<350	17 J	<340
4-Chlorophenyl-phenylether	<350	<340 J	<340	<350	<340	<340
Fluorene	<350	<340 J	<340	<350	<340	<340
4-Nitroaniline	<1700	<1600 J	<1600	<1700	<1700	<1600
4,6-Dinitro-2-methylphenol	<1700	<1600 J	<1600	<1700	<1700	<1600
N-Nitrosodiphenylamine (1)	<350	<340 J	<340	<350	<340	<340
4-Bromophenyl-phenylether	<350	<340 J	<340	<350	<340	<340
Hexachlorobenzene	<350	<340 J	<340	<350	<340	<340
Pentachlorophenol	<1700	<1600 J	<1600	<1700	<1700	<1600
Phenanthrene	<350	<340 J	<340	<350	<340	<340
Anthracene	<350	<340 J	<340	<350	<340	<340
Di-n-butylphthalate	<350	<340 J	<340	54 J	<340	<340
Fluoranthene	<350	<340 J	<340	<350	<340	20 J
Pyrene	<350	<340 J	<340	<350	<340	<340
Butylbenzylphthalate	<350	<340 J	<340	<350	<340	<340
3,3'-Dichlorobenzidine	<690	<680 J	<680	<700	<690	14 J
Benzo(a)anthracene	<350	<340 J	<340	<350	<340	<680
Chrysene	<350	<340 J	<340	<350	<340	<340
bis(2-Ethylhexyl)phthalate	<480	<340 J	<340	<350	<340	<340
Di-n-octylphthalate	<350	22 J	<340	<350	<460	<420
Benzo(b)fluoranthene	<350	<340 J	<340	<350	<340	<340
Benzo(k)fluoranthene	<350	<340 J	<340	<350	<340	<340
Benzo(a)pyrene	<350	<340 J	<340	<350	<340	<340
Indeno(1,2,3-cd)pyrene	<350	<340 J	<340	<350	<340	<340
Dibenzo(a,h)anthracene	<350	<340 J	<340	<350	<340	<340
Benzo(g,h,i)perylene	<350	<340 J	<340	<350	<340	<340
<b>Total BNAs:</b>	<b>0</b>	<b>40</b>	<b>0</b>	<b>54</b>	<b>17</b>	<b>34</b>

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.  
ug/kg Micrograms per kilogram.  
ug/L Micrograms per liter.  
J Estimated value.  
R Unusable value.  
GMS Soil samples collected in boreholes converted to monitoring wells.  
FBS Field blank for soil.  
B-1, B-2, B-3 Samples collected in shallow soil borings.  
BNAs Base neutral/acid extractable compounds.

(1) Cannot be separated from diphenylamine.



Table 4-7. Semivolatile Organic Compounds Detected in Soil Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	GMS-7S	GMS-7I	GMS-7D	GMS-8S	GM-8I	GMS-10I
Sample Depth (feet):	30-32	40-42	20-22	20-22	40-42	40-42
Sample Date:	3/22/91	3/15/91	7/23/91	3/13/91	3/6/91	4/11/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Parameter						
Phenol	<340	<360	<350	<340	<340	<340
bis(2-Chloroethyl)ether	<340	<360	<350	<340	<340	<340
2-Chlorophenol	<340	<360	<350	<340	<340	<340
1,3-Dichlorobenzene	<340	<360	<350	<340	<340	<340
1,4-Dichlorobenzene	<340	<360	<350	<340	<340	<340
Benzyl alcohol	<340	<360	<350	<340	<340	<340
1,2-Dichlorobenzene	<340	<360	<350	<340	<340	<340
2-Methylphenol	<340	<360	<350	<340	<340	<340
bis(2-Chloroisopropyl)ether	<340	<360	<350	<340	<340	<340
4-Methylphenol	<340	<360	<350	<340	<340	<340
N-Nitroso-di-n-propylamine	<340	<360	<350	<340	<340	<340
Hexachloroethane	<340	<360	<350	<340	<340	<340
Nitrobenzene	<340	<360	<350	<340	<340	<340
Isophorone	<340	<360	<350	<340	<340	<340
2-Nitrophenol	<340	<360	<350	<340	<340	<340
2,4-Dimethylphenol	<340	<360	<350	<340	<340	<340
Benzoic acid	<1600	<1800	<1700	<1600	<1600	<1700
bis(2-Chloroethoxy)methane	<340	<360	<350	<340	<340	<340
2,4-Dichlorophenol	<340	<360	<350	<340	<340	<340
1,2,4-Trichlorobenzene	<340	<360	<350	<340	<340	<340
Naphthalene	<340	<360	<350	<340	<340	<340
4-Chloroaniline	<340	<360	<350	<340	<340	<340
Hexachlorobutadiene	<340	<360	<350	<340	<340	<340
4-Chloro-3-methylphenol	<340	<360	<350	<340	<340	<340
2-Methylnaphthalene	<340	<360	<350	<340	<340	<340
Hexachlorocyclopentadiene	<340	<360	<350	<340	<340	<340
2,4,6-Trichlorophenol	<340	<360	<350	<340	<340	<340
2,4,5-Trichlorophenol	<1600	<1800	<1700	<1600	<1600	<1700
2-Chloronaphthalene	<340	<360	<350	<340	<340	<340
2-Nitroaniline	<1600	<1800	<1700	<1600	<1600	<1700
Dimethylphthalate	<340	<360	<350	<340	<340	<340
Acenaphthylene	<340	<360	<350	<340	<340	<340
2,6-Dinitrotoluene	<340	<360	<350	<340	<340	<340

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

ug/kg Micrograms per kilogram.

ug/L Micrograms per liter.

J Estimated value.

R Unusable value.

GMS Soil samples collected in boreholes converted to monitoring wells.

FBS Field blank for soil.

B-1, B-2, B-3 Samples collected in shallow soil borings.

BNAs Base neutral/acid extractable compounds.

(1) Cannot be separated from diphenylamine.





Table 4-7. Semivolatile Organic Compounds Detected in Soil Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	GMS-7S	GMS-7I	GMS-7D	GMS-8S	GM-8I	GMS-10I
Sample Depth (feet):	30-32	40-42	20-22	20-22	40-42	40-42
Sample Date:	3/22/91	3/15/91	7/23/91	3/13/91	3/6/91	4/11/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Parameter						
3-Nitroaniline	<1600	R	R	R	R	<1700
Acenaphthene	<340	<360	<350	<340	<340	<340
2,4-Dinitrophenol	<1600	<1800	<1700	<1600	<1600	<1700
4-Nitrophenol	<1600	<1800	<1700	<1600	<1600	<1700
Dibenzofuran	<340	<360	<350	<340	<340	<340
2,4-Dinitrotoluene	<340	<360	<350	<340	<340	<340
Diethylphthalate	<340	<360	71 J	<340	<340	<340
4-Chlorophenyl-phenylether	<340	<360	<350	<340	<340	<340
Fluorene	<340	<360	<350	<340	<340	<340
4-Nitroaniline	<1600	<1800	<1700	<1600	<1600	<1700
4,6-Dinitro-2-methylphenol	<1600	<1800	<1700	<1600	<1600	<1700
N-Nitrosodiphenylamine (1)	<340	<360	<350	<340	<340	<340
4-Bromophenyl-phenylether	<340	<360	<350	<340	<340	<340
Hexachlorobenzene	<340	<360	<350	<340	<340	<340
Pentachlorophenol	<1600	<1800	<1700	<1600	<1600	<1700
Phenanthrene	<340	<360	<350	<340	<340	<340
Anthracene	<340	<360	<350	<340	<340	<340
Di-n-butylphthalate	21 J	<360	<350	<340	<340	<340
Fluoranthene	<340	<360	<350	<340	<340	<340
Pyrene	<340	<360	<350	<340	<340	<340
Butylbenzylphthalate	<340	<360	<350	<340	<340	<340
3,3'-Dichlorobenzidine	<670	<730	<690	<680	4 J	<690
Benzo(a)anthracene	<340	<360	<350	<340	<340	<340
Chrysene	<340	<360	<350	<340	<340	<340
bis(2-Ethylhexyl)phthalate	<380	<360	<350	<340	<340	<340
Di-n-octylphthalate	<340	<360	<350	<340	<340	<610
Benzo(b)fluoranthene	<340	<360	<350	<340	<340	9 J
Benzo(k)fluoranthene	<340	<360	<350	<340	<340	<340
Benzo(a)pyrene	<340	<360	<350	<340	<340	<340
Indeno(1,2,3-cd)pyrene	<340	<360	<350	<340	<340	<340
Dibenzo(a,h)anthracene	<340	<360	<350	<340	<340	<340
Benzo(g,h,i)perylene	<340	<360	<350	<340	<340	<340
<b>Total BNAs:</b>	<b>21</b>	<b>0</b>	<b>71</b>	<b>0</b>	<b>4</b>	<b>9</b>

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

ug/kg Micrograms per kilogram.

ug/L Micrograms per liter.

J Estimated value.

R Unusable value.

GMS Soil samples collected in boreholes converted to monitoring wells.

FBS Field blank for soil.

B-1, B-2, B-3 Samples collected in shallow soil borings.

BNAs Base neutral/acid extractable compounds.

(1) Cannot be separated from diphenylamine.



Table 4-7. Semivolatile Organic Compounds Detected in Soil Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	GMS-12S	GMS-12I	GMS-13D	GMS-14I	GMS-15I	GMS-16S
Sample Depth (feet):	20-22	30-32	40-42	30-32	30-32	20-22
Sample Date:	4/4/91	3/29/91	4/8/91	4/22/91	5/7/91	5/3/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Parameter						
Phenol	<340	<360	<350	<420	<340	<350
bis(2-Chloroethyl)ether	<340	<360	<350	<420	<340	<350
2-Chlorophenol	<340	<360	<350	<420	<340	<350
1,3-Dichlorobenzene	<340	<360	<350	<420	<340	<350
1,4-Dichlorobenzene	<340	<360	<350	<420	<340	<350
Benzyl alcohol	<340	<360	<350	<420	<340	<350
1,2-Dichlorobenzene	<340	<360	<350	<420	<340	<350
2-Methylphenol	<340	<360	<350	<420	<340	<350
bis(2-Chloroisopropyl)ether	<340	<360	<350	<420	<340	<350
4-Methylphenol	<340	<360	<350	<420	<340	<350
N-Nitroso-di-n-propylamine	<340	<360	<350	<420	<340	<350
Hexachloroethane	<340	<360	<350	<420	<340	<350
Nitrobenzene	<340	<360	<350	<420	<340	<350
Isophorone	<340	<360	<350	<420	<340	<350
2-Nitrophenol	<340	<360	<350	<420	<340	<350
2,4-Dimethylphenol	<340	<360	<350	<420	<340	<350
Benzoic acid	<1600	<1800	<1700	<2000	<340	<350
bis(2-Chloroethoxy)methane	<340	<360	<350	<420	<1700	16 J
2,4-Dichlorophenol	<340	<360	<350	<420	<340	<350
1,2,4-Trichlorobenzene	<340	<360	<350	<420	<340	<350
Naphthalene	<340	<360	<350	<420	<340	<350
4-Chloroaniline	<340	<360	<350	<420	<340	<350
Hexachlorobutadiene	<340	<360	<350	<420	<340	<350
4-Chloro-3-methylphenol	<340	<360	<350	<420	<340	<350
2-Methylnaphthalene	<340	<360	<350	<420	<340	<350
Hexachlorocyclopentadiene	<340	<360	<350	<420	<340	<350
2,4,6-Trichlorophenol	<340	<360	<350	<420	<340	<350
2,4,5-Trichlorophenol	<1600	<1800	<1700	<2000	<1700	<1700
2-Chloronaphthalene	<340	<360	<350	<420	<340	<350
2-Nitroaniline	<1600	<1800	<1700	<2000	<1700	<1700
Dimethylphthalate	<340	<360	<350	<420	<340	<350
Acenaphthylene	<340	<360	<350	<420	<340	<350
2,6-Dinitrotoluene	<340	<360	<350	<420	<340	<350

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

ug/kg Micrograms per kilogram.

ug/L Micrograms per liter.

J Estimated value.

R Unusable value.

GMS Soil samples collected in boreholes converted to monitoring wells.

FBS Field blank for soil.

B-1, B-2, B-3 Samples collected in shallow soil borings.

BNAs Base neutral/acid extractable compounds.

(1) Cannot be separated from diphenylamine.



Table 4-7. Semivolatile Organic Compounds Detected in Soil Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	GMS-12S	GMS-12I	GMS-13D	GMS-14I	GMS-15I	GMS-16S
Sample Depth (feet):	20-22	30-32	40-42	30-32	30-32	20-22
Sample Date:	4/4/91	3/29/91	4/8/91	4/22/91	5/7/91	5/3/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Parameter						
3-Nitroaniline	<1600	<1800	<1700	R	<1700	<1700
Acenaphthene	<340	<360	<350	<420	<340	<350
2,4-Dinitrophenol	<1600	<1800	<1700	<2000	<1700	<1700
4-Nitrophenol	<1600	<1800	<1700	<2000	<1700	<1700
Dibenzofuran	<340	<360	<350	<420	<340	<350
2,4-Dinitrotoluene	<340	<360	<350	<420	<340	<350
Diethylphthalate	<340	<360	12 J	<420	<340	<350
4-Chlorophenyl-phenylether	<340	<360	<350	<420	<340	42 J
Fluorene	<340	<360	<350	<420	<340	<350
4-Nitroaniline	<1600	<1800	<1700	<2000	<1700	<350
4,6-Dinitro-2-methylphenol	<1600	<1800	<1700	<2000	<1700	<1700
N-Nitrosodiphenylamine (1)	<340	<360	<350	<420	<340	<1700
4-Bromophenyl-phenylether	<340	<360	<350	<420	<340	<350
Hexachlorobenzene	<340	<360	<350	<420	<340	<350
Pentachlorophenol	<1600	<1800	<1700	<2000	<1700	<350
Phenanthrene	<340	<360	<350	<420	<340	<1700
Anthracene	<340	<360	<350	<420	<340	17 J
Di-n-butylphthalate	<340	<360	<350	<420	<340	<350
Fluoranthene	<340	<360	<350	<420	<340	<350
Pyrene	<340	<360	<350	<420	<340	<350
Butylbenzylphthalate	<340	<360	<350	<420	<340	31 J
3,3'-Dichlorobenzidine	<670	<730	<710	<840	<690	<350
Benzo(a)anthracene	<340	<360	<350	<420	<340	<690
Chrysene	<340	<360	<350	<420	<340	<350
bis(2-Ethylhexyl)phthalate	<340	<360	<350	<420	<340	<350
Di-n-octylphthalate	<340	<360	<350	<470	<340	<350
Benzo(b)fluoranthene	<340	<360	<350	<420	<340	<350
Benzo(k)fluoranthene	<340	<360	<350	<420	<340	<350
Benzo(a)pyrene	<340	<360	<350	<420	<340	<350
Indeno(1,2,3-cd)pyrene	<340	<360	<350	<420	<340	<350
Dibenzo(a,h)anthracene	<340	<360	<350	<420	<340	<350
Benzo(g,h,i)perylene	<340	<360	<350	<420	<340	<350
<b>Total BNAs:</b>	<b>0</b>	<b>0</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>106</b>

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

ug/kg Micrograms per kilogram.

ug/L Micrograms per liter.

J Estimated value.

R Unusable value.

GMS Soil samples collected in boreholes converted to monitoring wells.

FBS Field blank for soil.

B-1, B-2, B-3 Samples collected in shallow soil borings.

BNAs Base neutral/acid extractable compounds.

(1) Cannot be separated from diphenylamine.



Table 4-7. Semivolatile Organic Compounds Detected in Soil Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	GMS-16I	GMS-17S	GMS-18I	GMS-19S	GMS-19I	GMS-22S
Sample Depth (feet):	10-12	30-32	30-32	20-22	30-32	20-22
Sample Date:	4/29/91	6/18/91	6/4/91	5/22/91	5/16/91	6/14/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Parameter						
Phenol	<340	<340	<340	<340	<340	<370
bis(2-Chloroethyl)ether	<340	<340	<340	<340	<340	<370
2-Chlorophenol	<340	<340	<340	<340	<340	<370
1,3-Dichlorobenzene	<340	<340	<340	<340	<340	<370
1,4-Dichlorobenzene	<340	<340	<340	<340	<340	<370
Benzyl alcohol	<340	<340	<340	<340	<340	<370
1,2-Dichlorobenzene	<340	<340	<340	<340	<340	<370
2-Methylphenol	<340	<340	<340	<340	<340	<370
bis(2-Chloroisopropyl)ether	<340	<340	<340	<340	<340	<370
4-Methylphenol	<340	<340	<340	<340	<340	<370
N-Nitroso-di-n-propylamine	<340	<340	<340	<340	<340	<370
Hexachloroethane	<340	<340	<340	<340	<340	<370
Nitrobenzene	<340	<340	<340	<340	<340	<370
Isophorone	<340	<340	<340	<340	<340	<370
2-Nitrophenol	<340	<340	<340	<340	<340	<370
2,4-Dimethylphenol	<340	<340	<340	<340	<340	<370
Benzoic acid	<1700	<1600	<1600	<1600	<1600	<1800
bis(2-Chloroethoxy)methane	<340	<340	<340	<340	<340	<370
2,4-Dichlorophenol	<340	<340	<340	<340	<340	<370
1,2,4-Trichlorobenzene	<340	<340	<340	<340	<340	<370
Naphthalene	<340	<340	<340	<340	<340	<370
4-Chloroaniline	<340	<340	<340	<340	<340	<370
Hexachlorobutadiene	<340	<340	<340	<340	<340	<370
4-Chloro-3-methylphenol	<340	<340	<340	<340	<340	<370
2-Methylnaphthalene	<340	<340	<340	<340	<340	<370
Hexachlorocyclopentadiene	<340	<340	<340	<340	<340	<370
2,4,6-Trichlorophenol	<340	<340	<340	<340	<340	<370
2,4,5-Trichlorophenol	<1700	<1600	<1600	<1600	<1600	<1800
2-Chloronaphthalene	<340	<340	<340	<340	<340	<370
2-Nitroaniline	<1700	<1600	<1600	<1600	<1600	<1800
Dimethylphthalate	<340	<340	<340	<340	<340	<370
Acenaphthylene	<340	<340	<340	<340	<340	<370
2,6-Dinitrotoluene	<340	<340	<340	<340	<340	<370

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

ug/kg Micrograms per kilogram.

ug/L Micrograms per liter.

J Estimated value.

R Unusable value.

GMS Soil samples collected in boreholes converted to monitoring wells.

FBS Field blank for soil.

B-1, B-2, B-3 Samples collected in shallow soil borings.

BNAs Base neutral/acid extractable compounds.

(1) Cannot be separated from diphenylamine.



Table 4-7. Semivolatile Organic Compounds Detected in Soil Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	GMS-16I	GMS-17S	GMS-18I	GMS-19S	GMS-19I	GMS-22S
Sample Depth (feet):	10-12	30-32	30-32	20-22	30-32	20-22
Sample Date:	4/29/91	6/18/91	6/4/91	5/22/91	5/16/91	6/14/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Parameter						
3-Nitroaniline	<1700	<1600	<1600	<1600	<1600	<1800
Acenaphthene	<340	<340	<340	<340	<340	<370
2,4-Dinitrophenol	<1700	<1600	<1600	<1600	<1600	<1800
4-Nitrophenol	<1700	<1600	<1600	<1600	<1600	<1800
Dibenzofuran	<340	<340	<340	<340	<340	<370
2,4-Dinitrotoluene	<340	<340	<340	<340	<340	<370
Diethylphthalate	38 J	<340	<340	<340	<340	<370
4-Chlorophenyl-phenylether	<340	<340	<340	<340	<340	120 J
Fluorene	<340	<340	<340	<340	<340	<370
4-Nitroaniline	<1700	<1600	<1600	<1600	<1600	<370
4,6-Dinitro-2-methylphenol	<1700	<1600	<1600	<1600	<1600	<1800
N-Nitrosodiphenylamine (1)	<340	<340	<340	<340	<1600	<1800
4-Bromophenyl-phenylether	<340	<340	<340	<340	<340	<370
Hexachlorobenzene	<340	<340	<340	<340	<340	<370
Pentachlorophenol	<1700	<1600	<1600	<340	<340	<370
Phenanthrene	<340	<340	<340	<1600	<1600	<1800
Anthracene	<340	<340	<340	<340	<340	<370
Di-n-butylphthalate	<340	<340	<340	<340	<340	<370
Fluoranthene	28 J	<340	<340	<340	<340	<370
Pyrene	35 J	<340	<340	<340	<340	<370
Butylbenzylphthalate	<340	<340	<340	<340	<340	<370
3,3'-Dichlorobenzidine	<690	<670	<680	<340	<340	<370
Benzo(a)anthracene	27 J	<340	<340	<680	<670	<740
Chrysene	<340	<340	<340	<340	<340	<370
bis(2-Ethylhexyl)phthalate	<420	<340	<340	<340	<340	<370
Di-n-octylphthalate	<340	<340	<340	<340	<340	<370
Benzo(b)fluoranthene	<340	<340	<340	<340	<340	<370
Benzo(k)fluoranthene	<340	<340	<340	<340	<340	<370
Benzo(a)pyrene	<340	<340	<340	<340	<340	<370
Indeno(1,2,3-cd)pyrene	<340	<340	<340	<340	<340	<370
Dibenzo(a,h)anthracene	<340	<340	<340	<340	<340	<370
Benzo(g,h,i)perylene	<340	<340	<340	<340	<340	<370
<b>Total BNAs:</b>	<b>128</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>120</b>

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.  
 ug/kg Micrograms per kilogram.  
 ug/L Micrograms per liter.  
 J Estimated value.  
 R Unusable value.  
 GMS Soil samples collected in boreholes converted to monitoring wells.  
 FBS Field blank for soil.  
 B-1, B-2, B-3 Samples collected in shallow soil borings.  
 BNAs Base neutral/acid extractable compounds.

(1) Cannot be separated from diphenylamine.



Table 4-7. Semivolatile Organic Compounds Detected in Soil Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	GMS-22I	GMS-23S	GMS-23I	B-1	B-2	B-3
Sample Depth (feet):	30-32	30-32	40-42	8-10	2-4	0-2.5
Sample Date:	6/11/91	5/31/91	5/24/91	6/20/91	6/20/91	6/20/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Parameter						
Phenol	<400	<400	<390	<340	<360	<370
bis(2-Chloroethyl)ether	<400	<400	<390	<340	<360	<370
2-Chlorophenol	<400	<400	<390	<340	<360	<370
1,3-Dichlorobenzene	<400	<400	<390	<340	<360	<370
1,4-Dichlorobenzene	<400	<400	<390	<340	<360	<370
Benzyl alcohol	<400	<400	<390	<340	<360	<370
1,2-Dichlorobenzene	<400	<400	<390	<340	<360	<370
2-Methylphenol	<400	<400	<390	<340	<360	<370
bis(2-Chloroisopropyl)ether	<400	<400	<390	<340	<360	<370
4-Methylphenol	<400	<400	<390	<340	<360	<370
N-Nitroso-di-n-propylamine	<400	<400	<390	<340	<360	<370
Hexachloroethane	<400	<400	<390	<340	<360	<370
Nitrobenzene	<400	<400	<390	<340	<360	<370
Isophorone	<400	<400	<390	<340	<360	<370
2-Nitrophenol	<400	<400	<390	<340	<360	<370
2,4-Dimethylphenol	<400	<400	<390	<340	<360	<370
Benzoic acid	<1900	<1900	<1900	<1700	<1800	<1800
bis(2-Chloroethoxy)methane	<400	<400	<390	<340	<360	<370
2,4-Dichlorophenol	<400	<400	<390	<340	<360	<370
1,2,4-Trichlorobenzene	<400	<400	<390	<340	<360	<370
Naphthalene	<400	<400	<390	<340	<360	<370
4-Chloroaniline	<400	<400	<390	<340	<360	<370
Hexachlorobutadiene	<400	<400	<390	<340	<360	<370
4-Chloro-3-methylphenol	<400	<400	<390	<340	<360	<370
2-Methylnaphthalene	<400	<400	<390	<340	<360	<370
Hexachlorocyclopentadiene	<400	<400	<390	<340	<360	<370
2,4,6-Trichlorophenol	<400	<400	<390	<340	<360	<370
2,4,5-Trichlorophenol	<1900	<1900	<1900	<1700	<1800	<1800
2-Chloronaphthalene	<400	<400	<390	<340	<360	<370
2-Nitroaniline	<1900	<1900	<1900	<1700	<1800	<1800
Dimethylphthalate	<400	<400	<390	<340	<360	<370
Acenaphthylene	<400	<400	<390	<340	15 J	<370
2,6-Dinitrotoluene	<400	<400	<390	<340	<360	<370

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

ug/kg Micrograms per kilogram.

ug/L Micrograms per liter.

J Estimated value.

R Unusable value.

GMS Soil samples collected in boreholes converted to monitoring wells.

FBS Field blank for soil.

B-1, B-2, B-3 Samples collected in shallow soil borings.

BNAs Base neutral/acid extractable compounds.

(1) Cannot be separated from diphenylamine.



Table 4-7. Semivolatile Organic Compounds Detected in Soil Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	GMS-22I	GMS-23S	GMS-23I	B-1	B-2	B-3
Sample Depth (feet):	30-32	30-32	40-42	8-10	2-4	0-2.5
Sample Date:	6/11/91	5/31/91	5/24/91	6/20/91	6/20/91	6/20/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Parameter						
3-Nitroaniline	<1900	<1900	<1900	<1700	<1800	<1800
Acenaphthene	<400	<400	<390	<340	<360	<370
2,4-Dinitrophenol	<1900	<1900	<1900	<1700	<1800	<1800
4-Nitrophenol	<1900	<1900	<1900	<1700	<1800	<1800
Dibenzofuran	<400	<400	<390	<340	<360	<370
2,4-Dinitrotoluene	<400	<400	<390	<340	<360	<370
Diethylphthalate	180 J	510	<390	46 J	22 J	70 J
4-Chlorophenyl-phenylether	<400	<400	<390	<340	<360	<370
Fluorene	<400	<400	<390	<340	<360	<370
4-Nitroaniline	<1900	<1900	<1900	<1700	<1800	<1800
4,6-Dinitro-2-methylphenol	<1900	<1900	<1900	<1700	<1800	<1800
N-Nitrosodiphenylamine (1)	<400	<400	<390	<340	<360	<370
4-Bromophenyl-phenylether	<400	<400	<390	<340	<360	<370
Hexachlorobenzene	<400	<400	<390	<340	<360	<370
Pentachlorophenol	<1900	<1900	<1900	<1700	<1800	<1800
Phenanthrene	<400	<400	<390	<340	27 J	11 J
Anthracene	<400	<400	<390	<340	<360	<370
Di-n-butylphthalate	<400	<400	<390	<340	<360	<370
Fluoranthene	<400	<400	<390	<340	64 J	53 J
Pyrene	<400	<400	<390	<340	50 J	46 J
Butylbenzylphthalate	<400	<400	<390	<340	<360	<370
3,3'-Dichlorobenzidine	<800	<800	<780	<690	<730	<730
Benzo(a)anthracene	<400	<400	<390	<340	<360	25 J
Chrysene	<400	<400	<390	<340	160 J	52 J
bis(2-Ethylhexyl)phthalate	<400	<400	<390	<340	<360	<370
Di-n-octylphthalate	<400	<400	<390	<340	23 J	<370
Benzo(b)fluoranthene	<400	<400	<390	<340	270 J	80 J
Benzo(k)fluoranthene	<400	<400	<390	<340	100 J	<370
Benzo(a)pyrene	<400	<400	<390	<340	<360	<370
Indeno(1,2,3-cd)pyrene	<400	<400	<390	<340	140 J	46 J
Dibenzo(a,h)anthracene	<400	<400	<390	<340	<360	<370
Benzo(g,h,i)perylene	<400	<400	<390	<340	<360	<370
<b>Total BNAs:</b>	<b>180</b>	<b>510</b>	<b>0</b>	<b>46</b>	<b>871</b>	<b>383</b>

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.  
ug/kg Micrograms per kilogram.  
ug/L Micrograms per liter.  
J Estimated value.  
R Unusable value.  
GMS Soil samples collected in boreholes converted to monitoring wells.  
FBS Field blank for soil.  
B-1, B-2, B-3 Samples collected in shallow soil borings.  
BNAs Base neutral/acid extractable compounds.

(1) Cannot be separated from diphenylamine.



Table 4-7. Semivolatile Organic Compounds Detected in Soil Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	FBS-1	FBS-2	FBS-3	FBS-4	FBS-5	FBS-6
Sample Depth (feet):						
Sample Date:	2/13/91	2/19/91	3/25/91	2/27/91	3/22/91	3/13/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameter						
Phenol	3 J	<10	<10	<10	<10	<10
bis(2-Chloroethyl)ether	<10	<10	<10	<10	<10	<10
2-Chlorophenol	<10	<10	<10	<10	<10	<10
1,3-Dichlorobenzene	<10	<10	<10	<10	<10	<10
1,4-Dichlorobenzene	<10	<10	<10	<10	<10	<10
Benzyl alcohol	<10	<10	<10	<10	<10	<10
1,2-Dichlorobenzene	<10	<10	<10	<10	<10	<10
2-Methylphenol	<10	<10	<10	<10	<10	<10
bis(2-Chloroisopropyl)ether	<10	<10	<10	<10	<10	<10
4-Methylphenol	<10	<10	<10	<10	<10	<10
N-Nitroso-di-n-propylamine	<10	<10	<10	<10	<10	<10
Hexachloroethane	<10	<10	<10	<10	<10	<10
Nitrobenzene	<10	<10	<10	<10	<10	<10
isophorone	<10	<10	<10	<10	<10	<10
2-Nitrophenol	<10	<10	<10	<10	<10	<10
2,4-Dimethylphenol	<10	<10	<10	<10	<10	<10
Benzoic acid	<50	<50	<50	<50	<50	<50
bis(2-Chloroethoxy)methane	<10	<10	<10	<10	<10	<10
2,4-Dichlorophenol	<10	<10	<10	<10	<10	<10
1,2,4-Trichlorobenzene	<10	<10	<10	<10	<10	<10
Naphthalene	<10	<10	<10	<10	<10	<10
4-Chloroaniline	<10	<10	<10	<10	<10	<10
Hexachlorobutadiene	<10	<10	<10	<10	<10	<10
4-Chloro-3-methylphenol	<10	<10	<10	<10	<10	<10
2-Methylnaphthalene	<10	<10	<10	<10	<10	<10
Hexachlorocyclopentadiene	<10	<10	<10	<10	<10	<10
2,4,6-Trichlorophenol	<10	<10	<10	<10	<10	<10
2,4,5-Trichlorophenol	<50	<50	<50	<50	<50	<50
2-Chloronaphthalene	<10	<10	<10	<10	<10	<10
2-Nitroaniline	<50	<50	<50	<50	<50	<50
Dimethylphthalate	<10	<10	<10	<10	<10	<10
Acenaphthylene	<10	<10	<10	<10	<10	<10
2,6-Dinitrotoluene	<10	<10	<10	<10	<10	<10

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.  
 ug/kg Micrograms per kilogram.  
 ug/L Micrograms per liter.  
 J Estimated value.  
 R Unusable value.  
 GMS Soil samples collected in boreholes converted to monitoring wells.  
 FBS Field blank for soil.  
 B-1, B-2, B-3 Samples collected in shallow soil borings.  
 BNAs Base neutral/acid extractable compounds.

(1) Cannot be separated from diphenylamine.





Table 4-7. Semivolatile Organic Compounds Detected in Soil Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	FBS-1	FBS-2	FBS-3	FBS-4	FBS-5	FBS-6
Sample Depth (feet):						
Sample Date:	2/13/91	2/19/91	3/25/91	2/27/91	3/22/91	3/13/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameter						
3-Nitroaniline	<50	<50	<50	R	<50	<50
Acenaphthene	<10	<10	<10	<10	<10	<10
2,4-Dinitrophenol	<50	<50	<50	<50	<50	<50
4-Nitrophenol	<50	<50	<50	<50	<50	<50
Dibenzofuran	<10	<10	<10	<10	<10	<10
2,4-Dinitrotoluene	<10	<10	<10	<10	<10	<10
Diethylphthalate	<10	<10	<10	<10	<10	<10
4-Chlorophenyl-phenylether	<10	<10	<10	<10	<10	<10
Fluorene	<10	<10	<10	<10	<10	<10
4-Nitroaniline	<50	<50	<50	<50	<50	<50
4,6-Dinitro-2-methylphenol	<50	<50	<50	<50	<50	<50
N-Nitrosodiphenylamine (1)	<10	2 J	<10	<10	<10	<10
4-Bromophenyl-phenylether	<10	<10	<10	<10	<10	<10
Hexachlorobenzene	<10	<10	<10	<10	<10	<10
Pentachlorophenol	<50	<50	<50	<50	<50	<50
Phenanthrene	<10	<10	<10	<10	<10	<10
Anthracene	<10	<10	<10	<10	<10	<10
Di-n-butylphthalate	<10	<10	<10	<10	<10	<10
Fluoranthene	<10	0.6 J	<10	<10	<10	<10
Pyrene	<10	<10	<10	<10	<10	<10
Butylbenzylphthalate	<10	<10	<10	<10	<10	<10
3,3'-Dichlorobenzidine	<20	<20	<20	<20	<20	<20
Benzo(a)anthracene	<10	<10	<10	<10	<10	<10
Chrysene	<10	<10	<10	<10	<10	<10
bis(2-Ethylhexyl)phthalate	<13	21	<10	<10	<10	<10
Di-n-octylphthalate	<10	2 J	<10	<10	<10	<10
Benzo(b)fluoranthene	<10	<10	<10	<10	<10	<10
Benzo(k)fluoranthene	<10	<10	<10	<10	<10	<10
Benzo(a)pyrene	<10	<10	<10	<10	<10	<10
Indeno(1,2,3-cd)pyrene	<10	<10	<10	<10	<10	<10
Dibenzo(a,h)anthracene	<10	<10	<10	<10	<10	<10
Benzo(g,h,i)perylene	<10	<10	<10	<10	<10	<10
<b>Total BNAs:</b>	<b>3</b>	<b>25.6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.  
 ug/kg Micrograms per kilogram.  
 ug/L Micrograms per liter.  
 J Estimated value.  
 R Unusable value.  
 GMS Soil samples collected in boreholes converted to monitoring wells.  
 FBS Field blank for soil.  
 B-1, B-2, B-3 Samples collected in shallow soil borings.  
 BNAs Base neutral/acid extractable compounds.

(1) Cannot be separated from diphenylamine.



Table 4-7. Semivolatile Organic Compounds Detected in Soil Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	FBS-7	FBS-8	FBS-9	FBS-10	FBS-11	FBS-12
Sample Depth (feet):						
Sample Date:	4/11/91	4/4/91	4/8/91	4/22/91	5/7/91	5/3/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameter						
Phenol	<12	<b>2 J</b>	<10	<10	<10	<10
bis(2-Chloroethyl)ether	<12	<10	<10	<10	<10	<10
2-Chlorophenol	<12	<10	<10	<10	<10	<10
1,3-Dichlorobenzene	<12	<10	<10	<10	<10	<10
1,4-Dichlorobenzene	<12	<10	<10	<10	<10	<10
Benzyl alcohol	<12	<10	<10	<10	<10	<10
1,2-Dichlorobenzene	<12	<10	<10	<10	<10	<10
2-Methylphenol	<12	<10	<10	<10	<10	<10
bis(2-Chloroisopropyl)ether	<12	<10	<10	<10	<10	<10
4-Methylphenol	<12	<10	<10	<10	<10	<10
N-Nitroso-di-n-propylamine	<12	<10	<10	<10	<10	<10
Hexachloroethane	<12	<10	<10	<10	<10	<10
Nitrobenzene	<12	<10	<10	<10	<10	<10
Isophorone	<12	<10	<10	<10	<10	<10
2-Nitrophenol	<12	<10	<10	<10	<10	<10
2,4-Dimethylphenol	<12	<10	<10	<10	<10	<10
Benzoic acid	<b>0.9 J</b>	<50	<50	<50	<50	<50
bis(2-Chloroethoxy)methane	<12	<10	<10	<10	<10	<10
2,4-Dichlorophenol	<12	<10	<10	<10	<10	<10
1,2,4-Trichlorobenzene	<12	<10	<10	<10	<10	<10
Naphthalene	<12	<10	<10	<10	<10	<10
4-Chloroaniline	<12	<10	<10	<10	<10	<10
Hexachlorobutadiene	<12	<10	<10	<10	<10	<10
4-Chloro-3-methylphenol	<12	<10	<10	<10	<10	<10
2-Methylnaphthalene	<12	<10	<10	<10	<10	<10
Hexachlorocyclopentadiene	<12	<10	<10	<10	<10	<10
2,4,6-Trichlorophenol	<12	<10	<10	<10	<10	<10
2,4,5-Trichlorophenol	<59	<50	<50	<50	<50	<50
2-Chloronaphthalene	<12	<10	<10	<10	<10	<10
2-Nitroaniline	<59	<50	<50	<50	<50	<50
Dimethylphthalate	<12	<10	<10	<10	<10	<10
Acenaphthylene	<12	<10	<10	<10	<10	<10
2,6-Dinitrotoluene	<12	<10	<10	<10	<10	<10

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

ug/kg Micrograms per kilogram.

ug/L Micrograms per liter.

J Estimated value.

R Unusable value.

GMS Soil samples collected in boreholes converted to monitoring wells.

FBS Field blank for soil.

B-1, B-2, B-3 Samples collected in shallow soil borings.

BNAs Base neutral/acid extractable compounds.

(1) Cannot be separated from diphenylamine.



Table 4-7. Semivolatile Organic Compounds Detected in Soil Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	FBS-7	FBS-8	FBS-9	FBS-10	FBS-11	FBS-12
Sample Depth (feet):						
Sample Date:	4/11/91	4/4/91	4/8/91	4/22/91	5/7/91	5/3/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameter						
3-Nitroaniline	<59	<50	<50	R	<50	<50
Acenaphthene	<12	<10	<10	<10	<10	<10
2,4-Dinitrophenol	<59	<50	<50	<50	<50	<50
4-Nitrophenol	<59	<50	<50	<50	<50	<50
Dibenzofuran	<12	<10	<10	<10	<10	<10
2,4-Dinitrotoluene	<12	<10	<10	<10	<10	<10
Diethylphthalate	2 J	<10	<10	<10	<10	<10
4-Chlorophenyl-phenylether	<12	<10	<10	<10	<10	<10
Fluorene	<12	<10	<10	<10	<10	<10
4-Nitroaniline	<59	<50	<50	<50	<50	<50
4,6-Dinitro-2-methylphenol	<59	<50	<50	<50	<50	<50
N-Nitrosodiphenylamine (1)	<12	<10	<10	<10	<10	<10
4-Bromophenyl-phenylether	<12	<10	<10	<10	<10	<10
Hexachlorobenzene	<12	<10	<10	<10	<10	<10
Pentachlorophenol	<59	<50	<50	<50	<50	<50
Phenanthrene	<12	<10	<10	<10	<10	<10
Anthracene	<12	<10	<10	<10	<10	<10
Di-n-butylphthalate	0.8 J	<10	<10	<10	<10	<10
Fluoranthene	<12	<10	<10	<10	<10	<10
Pyrene	<12	<10	<10	<10	<10	<10
Butylbenzylphthalate	<12	<10	<10	<10	<10	<10
3,3'-Dichlorobenzidine	<24	<20	<20	<20	<20	<20
Benzo(a)anthracene	<12	<10	<10	<10	<10	<10
Chrysene	<12	<10	<10	<10	<10	<10
bis(2-Ethylhexyl)phthalate	<36	<10	<10	<10	<18	<10
Di-n-octylphthalate	<12	<10	<10	<10	5 J	<10
Benzo(b)fluoranthene	<12	<10	<10	<10	<10	<10
Benzo(k)fluoranthene	<12	<10	<10	<10	<10	<10
Benzo(a)pyrene	<12	<10	<10	<10	<10	<10
Indeno(1,2,3-cd)pyrene	<12	<10	<10	<10	<10	<10
Dibenzo(a,h)anthracene	<12	<10	<10	<10	<10	<10
Benzo(g,h,i)perylene	<12	<10	<10	<10	<10	<10
<b>Total BNAs:</b>	<b>3.7</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>0</b>

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.  
 ug/kg Micrograms per kilogram.  
 ug/L Micrograms per liter.  
 J Estimated value.  
 R Unusable value.  
 GMS Soil samples collected in boreholes converted to monitoring wells.  
 FBS Field blank for soil.  
 B-1, B-2, B-3 Samples collected in shallow soil borings.  
 BNAs Base neutral/acid extractable compounds.

(1) Cannot be separated from diphenylamine.



Table 4-7. Semivolatile Organic Compounds Detected in Soil Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	FBS-13	FBS-14	FBS-15	FBS-18	FBS-19	FBS-20
Sample Depth (feet):						
Sample Date:	6/18/91	6/4/91	5/22/91	6/14/91	5/31/91	6/20/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameter						
Phenol	<10	<10	<10	<10	<10	<10
bis(2-Chloroethyl)ether	<10	<10	<10	<10	<10	<10
2-Chlorophenol	<10	<10	<10	<10	<10	<10
1,3-Dichlorobenzene	<10	<10	<10	<10	<10	<10
1,4-Dichlorobenzene	<10	<10	<10	<10	<10	<10
Benzyl alcohol	<10	<10	<10	<10	<10	<10
1,2-Dichlorobenzene	<10	<10	<10	<10	<10	<10
2-Methylphenol	<10	<10	<10	<10	<10	<10
bis(2-Chloroisopropyl)ether	<10	<10	<10	<10	<10	<10
4-Methylphenol	<10	<10	<10	<10	<10	<10
N-Nitroso-di-n-propylamine	<10	<10	<10	<10	<10	<10
Hexachloroethane	<10	<10	<10	<10	<10	<10
Nitrobenzene	<10	<10	<10	<10	<10	<10
Isophorone	<10	<10	<10	<10	<10	<10
2-Nitrophenol	<10	<10	<10	<10	<10	<10
2,4-Dimethylphenol	<10	<10	<10	<10	<10	<10
Benzoic acid	<50	<50	<50	<51	<50	<50
bis(2-Chloroethoxy)methane	<10	<10	<10	<10	<10	<10
2,4-Dichlorophenol	<10	<10	<10	<10	<10	<10
1,2,4-Trichlorobenzene	<10	<10	<10	<10	<10	<10
Naphthalene	<10	<10	<10	<10	<10	<10
4-Chloroaniline	<10	<10	<10	<10	<10	<10
Hexachlorobutadiene	<10	<10	<10	<10	<10	<10
4-Chloro-3-methylphenol	<10	<10	<10	<10	<10	<10
2-Methylnaphthalene	<10	<10	<10	<10	<10	<10
Hexachlorocyclopentadiene	<10	<10	<10	<10	<10	<10
2,4,6-Trichlorophenol	<10	<10	<10	<10	<10	<10
2,4,5-Trichlorophenol	<50	<50	<50	<51	<50	<50
2-Chloronaphthalene	<10	<10	<10	<10	<10	<10
2-Nitroaniline	<50	<50	<50	<51	<50	<50
Dimethylphthalate	<10	<10	<10	<10	<10	<10
Acenaphthylene	<10	<10	<10	<10	<10	<10
2,6-Dinitrotoluene	<10	<10	<10	<10	<10	<10

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

ug/kg Micrograms per kilogram.

ug/L Micrograms per liter.

J Estimated value.

R Unusable value.

GMS Soil samples collected in boreholes converted to monitoring wells.

FBS Field blank for soil.

B-1, B-2, B-3 Samples collected in shallow soil borings.

BNAs Base neutral/acid extractable compounds.

(1) Cannot be separated from diphenylamine.



Table 4-7. Semivolatile Organic Compounds Detected in Soil Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	FBS-13	FBS-14	FBS-15	FBS-18	FBS-19	FBS-20
Sample Depth (feet):						
Sample Date:	6/18/91	6/4/91	5/22/91	6/17/91	5/31/91	6/20/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameter						
3-Nitroaniline	<50	<50	<50	<51	<50	<50
Acenaphthene	<10	<10	<10	<10	<10	<10
2,4-Dinitrophenol	<50	<50	<50	<51	<50	<50
4-Nitrophenol	<50	<50	<50	<51	<50	<50
Dibenzofuran	<10	<10	<10	<10	<10	<10
2,4-Dinitrotoluene	<10	<10	<10	<10	<10	<10
Diethylphthalate	<10	<10	<10	<10	<10	<10
4-Chlorophenyl-phenylether	<10	<10	<10	<10	<10	<10
Fluorene	<10	<10	<10	<10	<10	<10
4-Nitroaniline	<50	<50	<50	<51	<50	<50
4,6-Dinitro-2-methylphenol	<50	<50	<50	<51	<50	<50
N-Nitrosodiphenylamine (1)	<10	<10	<10	<10	<10	<10
4-Bromophenyl-phenylether	<10	<10	<10	<10	<10	<10
Hexachlorobenzene	<10	<10	<10	<10	<10	<10
Pentachlorophenol	<50	<50	<50	<51	<50	<50
Phenanthrene	<10	<10	<10	<10	<10	<10
Anthracene	<10	<10	<10	<10	<10	<10
Di-n-butylphthalate	<10	<10	<10	<10	<10	<10
Fluoranthene	<10	<10	<10	<10	<10	<10
Pyrene	<10	<10	<10	<10	<10	<10
Butylbenzylphthalate	<10	<10	<10	<10	<10	<10
3,3'-Dichlorobenzidine	<20	<20	<20	<20	<20	<20
Benzo(a)anthracene	<10	<10	<10	<10	<10	<10
Chrysene	<10	<10	<10	<10	<10	<10
bis(2-Ethylhexyl)phthalate	<10	<10	<11	<10	<10	<10
Di-n-octylphthalate	<10	<10	<10	<10	<10	<10
Benzo(b)fluoranthene	<10	<10	<10	<10	<10	<10
Benzo(k)fluoranthene	<10	<10	<10	<10	<10	<10
Benzo(a)pyrene	<10	<10	<10	<10	<10	<10
Indeno(1,2,3-cd)pyrene	<10	<10	<10	<10	<10	<10
Dibenzo(a,h)anthracene	<10	<10	<10	<10	<10	<10
Benzo(g,h,i)perylene	<10	<10	<10	<10	<10	<10
<b>Total BNAs:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.  
 ug/kg Micrograms per kilogram.  
 ug/L Micrograms per liter.  
 J Estimated value.  
 R Unusable value.  
 GMS Soil samples collected in boreholes converted to monitoring wells.  
 FBS Field blank for soil.  
 B-1, B-2, B-3 Samples collected in shallow soil borings.  
 BNAs Base neutral/acid extractable compounds.

(1) Cannot be separated from diphenylamine.



Table 4-8. Pesticides and PCBs Detected in Soil Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	GMS-1S	GMS-1I	GMS-2I	GMS-3I	GMS-6I	GMS-6I
Sample Depth (feet):	20-22	55-57	25-27	30-32	20-22	25-27
Sample Date:	2/13/91	2/6/91	2/19/91	3/25/91	2/27/91	2/27/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Parameter						
alpha-BHC	<8.4	<8.2	<8.2	<8.5	<8.3	<8.2
beta-BHC	<8.4	<8.2	<8.2	<8.5	<8.3	<8.2
delta-BHC	<8.4	<8.2	<8.2	<8.5	<8.3	<8.2
gamma-BHC (Lindane)	<8.4	<8.2	<8.2	<8.5	<8.3	<8.2
Heptachlor	<8.4	<8.2	<8.2	<8.5	<8.3	<8.2
Aldrin	<8.4	<8.2	<8.2	<8.5	<8.3	<8.2
Heptachlor epoxide	<8.4	<8.2	<8.2	<8.5	<8.3	<8.2
Endosulfan I	<8.4	<8.2	<8.2	<8.5	<8.3	<8.2
Dieldrin	<17	<16	<16	<17	<17	<16
4,4'-DDE	<17	<16	<16	<17	<17	<16
Endrin	<17	<16	<16	<17	<17	<16
Endosulfan II	<17	<16	<16	<17	<17	<16
4,4'-DDD	<17	<16	<16	<17	<17	<16
Endosulfan sulfate	<17	<16	<16	<17	<17	<16
4,4'-DDT	<17	<16	<16	<17	<17	<16
Methoxychlor	<84	<82	<82	<85	<83	<82
Endrin ketone	<17	<16	<16	<17	<17	<16
alpha-Chlordane	<84	<82	<82	<85	<83	<82
gamma-Chlordane	<84	<82	<82	<85	<83	<82
Toxaphene	<170	<160	<160	<170	<170	<160
Aroclor-1016	<84	<82	<82	<85	<83	<82
Aroclor-1221	<84	<82	<82	<85	<83	<82
Aroclor-1232	<84	<82	<82	<85	<83	<82
Aroclor-1242	<84	<82	<82	<85	<83	<82
Aroclor-1248	<84	<82	<82	<85	<83	<82
Aroclor-1254	<170	<160	<160	<170	<170	<160
Aroclor-1260	<170	<160	<160	<170	<170	<160

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.  
ug/kg Micrograms per kilogram.  
ug/L Micrograms per liter.  
J Estimated value.  
GMS Soil samples collected in boreholes converted to monitoring wells.  
FBS Field blank for soil.  
B-1, B-2, B-3 Samples collected in shallow soil borings.  
PCBs Polychlorinated biphenyls.



Table 4-8. Pesticides and PCBs Detected in Soil Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	GMS-7S	GMS-7I	GMS-7D	GMS-8S	GM-8I	GMS-10I
Sample Depth (feet):	30-32	40-42	20-22	20-22	40-42	40-42
Sample Date:	3/22/91	3/15/91	7/23/91	3/13/91	3/6/91	4/11/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Parameter						
alpha-BHC	<8.2	<8.8	<8.4	<8.2	<8.2	<8.3
beta-BHC	<8.2	<8.8	<8.4	<8.2	<8.2	<8.3
delta-BHC	<8.2	<8.8	<8.4	<8.2	<8.2	<8.3
gamma-BHC (Lindane)	<8.2	<8.8	<8.4	<8.2	<8.2	<8.3
Heptachlor	<8.2	<8.8	<8.4	<8.2	<8.2	<8.3
Aldrin	<8.2	<8.8	<8.4	<8.2	<8.2	<8.3
Heptachlor epoxide	<8.2	<8.8	<8.4	<8.2	<8.2	<8.3
Endosulfan I	<8.2	<8.8	<8.4	<8.2	<8.2	<8.3
Dieldrin	<16	<18	<17	<16	<16	<17
4,4'-DDE	<16	<18	<17	<16	<16	<17
Endrin	<16	<18	<17	<16	<16	<17
Endosulfan II	<16	<18	<17	<16	<16	<17
4,4'-DDD	<16	<18	<17	<16	<16	<17
Endosulfan sulfate	<16	<18	<17	<16	<16	<17
4,4'-DDT	<16	<18	<17	<16	<16	<17
Methoxychlor	<82	<88	<84	<82	<82	<83
Endrin ketone	<16	<18	<17	<16	<16	<17
alpha-Chlordane	<82	<88	<84	<82	<82	<83
gamma-Chlordane	<82	<88	<84	<82	<82	<83
Toxaphene	<160	<180	<170	<160	<160	<170
Aroclor-1016	<82	<88	<84	<82	<82	<83
Aroclor-1221	<82	<88	<84	<82	<82	<83
Aroclor-1232	<82	<88	<84	<82	<82	<83
Aroclor-1242	<82	<88	<84	<82	<82	<83
Aroclor-1248	<82	<88	<84	<82	<82	<83
Aroclor-1254	<160	<180	<170	<160	<160	<170
Aroclor-1260	<160	<180	<170	<160	<160	<170

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.  
ug/kg Micrograms per kilogram.  
ug/L Micrograms per liter.  
J Estimated value.  
GMS Soil samples collected in boreholes converted to monitoring wells.  
FBS Field blank for soil.  
B-1, B-2, B-3 Samples collected in shallow soil borings.  
PCBs Polychlorinated biphenyls.



Table 4-8. Pesticides and PCBs Detected in Soil Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	GMS-12S	GMS-12I	GMS-13D	GMS-14I	GMS-15I	GMS-16S
Sample Depth (feet):	20-22	30-32	40-42	30-32	30-32	20-22
Sample Date:	4/4/91	3/29/91	4/8/91	4/22/91	5/7/91	5/3/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Parameter						
alpha-BHC	<8.2	<8.8	<8.6	<10	<8.3	<8.4
beta-BHC	<8.2	<8.8	<8.6	<10	<8.3	<8.4
delta-BHC	<8.2	<8.8	<8.6	<10	<8.3	<8.4
gamma-BHC (Lindane)	<8.2	<8.8	<8.6	<10	<8.3	<8.4
Heptachlor	<8.2	<8.8	<8.6	<10	<8.3	<8.4
Aldrin	<8.2	<8.8	<8.6	<10	<8.3	<8.4
Heptachlor epoxide	<8.2	<8.8	<8.6	<10	<8.3	<8.4
Endosulfan I	<8.2	<8.8	<8.6	<10	<8.3	<8.4
Dieldrin	<16	<18	<17	<20	<17	<17
4,4'-DDE	<16	<18	<17	<20	<17	<17
Endrin	<16	<18	<17	<20	<17	<17
Endosulfan II	<16	<18	<17	<20	<17	<17
4,4'-DDD	<16	<18	<17	<20	<17	<17
Endosulfan sulfate	<16	<18	<17	<20	<17	<17
4,4'-DDT	<16	<18	<17	<20	<17	<17
Methoxychlor	<82	<88	<86	<100	<83	<84
Endrin ketone	<16	<18	<17	<20	<17	<17
alpha-Chlordane	<82	<88	<86	<100	<83	<84
gamma-Chlordane	<82	<88	<86	<100	<83	<84
Toxaphene	<160	<180	<170	<200	<170	<170
Aroclor-1016	<82	<88	<86	<100	<83	<84
Aroclor-1221	<82	<88	<86	<100	<83	<84
Aroclor-1232	<82	<88	<86	<100	<83	<84
Aroclor-1242	<82	<88	<86	<100	<83	<84
Aroclor-1248	<82	<88	<86	<100	<83	<84
Aroclor-1254	<160	<180	<170	<200	<170	<170
Aroclor-1260	<160	<180	<170	<200	<170	<170

IEA	Industrial and Environmental Analysts, Inc., Monroe, Connecticut.
ug/kg	Micrograms per kilogram.
ug/L	Micrograms per liter.
J	Estimated value.
GMS	Soil samples collected in boreholes converted to monitoring wells.
FBS	Field blank for soil.
B-1, B-2, B-3	Samples collected in shallow soil borings.
PCBs	Polychlorinated biphenyls.





Table 4-8. Pesticides and PCBs Detected in Soil Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	GMS-16I	GMS-17S	GMS-18I	GMS-19S	GMS-19I	GMS-22S
Sample Depth (feet):	10-12	30-32	30-32	20-22	30-32	20-22
Sample Date:	4/29/91	6/18/91	6/4/91	5/22/91	5/16/91	6/14/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Parameter						
alpha-BHC	<8.3	<8.2	<8.2	<8.2	<8.3	<9.0
beta-BHC	<8.3	<8.2	<8.2	<8.2	<8.3	<9.0
delta-BHC	<8.3	<8.2	<8.2	<8.2	<8.3	<9.0
gamma-BHC (Lindane)	2.7 J	<8.2	<8.2	<8.2	<8.3	<9.0
Heptachlor	<8.3	<8.2	<8.2	<8.2	<8.3	<9.0
Aldrin	<8.3	<8.2	<8.2	<8.2	<8.3	<9.0
Heptachlor epoxide	<8.3	<8.2	<8.2	<8.2	<8.3	<9.0
Endosulfan I	<8.3	<8.2	<8.2	<8.2	<8.3	<9.0
Dieldrin	<17	<16	<16	<16	<17	<18
4,4'-DDE	<17	<16	<16	<16	<17	<18
Endrin	<17	<16	<16	<16	<17	<18
Endosulfan II	<17	<16	<16	<16	<17	<18
4,4'-DDD	<17	<16	<16	<16	<17	<18
Endosulfan sulfate	<17	<16	<16	<16	<17	<18
4,4'-DDT	1.0 J	<16	<16	<16	<17	<18
Methoxychlor	<83	<82	<82	<82	<83	<90
Endrin ketone	<17	<16	<16	<16	<17	<18
alpha-Chlordane	<83	<82	<82	<82	<83	<90
gamma-Chlordane	<83	<82	<82	<82	<83	<90
Toxaphene	<170	<160	<160	<160	<170	<180
Aroclor-1016	<83	<82	<82	<82	<83	<90
Aroclor-1221	<83	<82	<82	<82	<83	<90
Aroclor-1232	<83	<82	<82	<82	<83	<90
Aroclor-1242	<83	<82	<82	<82	<83	<90
Aroclor-1248	<83	<82	<82	<82	<83	<90
Aroclor-1254	<170	<160	<160	<160	<170	<180
Aroclor-1260	<170	<160	<160	<160	<170	<180

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.  
ug/kg Micrograms per kilogram.  
ug/L Micrograms per liter.  
J Estimated value.  
GMS Soil samples collected in boreholes converted to monitoring wells.  
FBS Field blank for soil.  
B-1, B-2, B-3 Samples collected in shallow soil borings.  
PCBs Polychlorinated biphenyls.



Table 4-8. Pesticides and PCBs Detected in Soil Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York

Sample Designation:	GMS-22I	GMS-23S	GMS-23I	B-1	B-2	B-3
Sample Depth (feet):	30-32	30-32	40-42	8-10	2-4	0-2.5
Sample Date:	6/11/91	5/31/91	5/24/91	6/20/91	6/20/91	6/20/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Parameter						
alpha-BHC	<9.8	<9.6	<9.4	<8.3	<8.8	<8.9
beta-BHC	<9.8	<9.6	<9.4	<8.3	<8.8	<8.9
delta-BHC	<9.8	<9.6	<9.4	<8.3	<8.8	<8.9
gamma-BHC (Lindane)	<9.8	<9.6	<9.4	<8.3	<8.8	<8.9
Heptachlor	<9.8	<9.6	<9.4	<8.3	<8.8	<8.9
Aldrin	<9.8	<9.6	<9.4	<8.3	<8.8	<8.9
Heptachlor epoxide	<9.8	<9.6	<9.4	<8.3	<8.8	<8.9
Endosulfan I	<9.8	<9.6	<9.4	<8.3	<8.8	<8.9
Dieldrin	<20	<19	<19	<17	<18	<18
4,4'-DDE	<20	<19	<19	<17	<18	<18
Endrin	<20	<19	<19	<17	<18	<18
Endosulfan II	<20	<19	<19	<17	<18	<18
4,4'-DDD	<20	<19	<19	<17	<18	<18
Endosulfan sulfate	<20	<19	<19	<17	<18	<18
4,4'-DDT	<20	<19	<19	<17	<18	<18
Methoxychlor	<98	<96	<94	<83	<88	<89
Endrin ketone	<20	<19	<19	<17	<18	<18
alpha-Chlordane	<98	<96	<94	<83	<88	<89
gamma-Chlordane	<98	<96	<94	<83	<88	<89
Toxaphene	<200	<190	<190	<170	<180	<180
Aroclor-1016	<98	<96	<94	<83	<88	<89
Aroclor-1221	<98	<96	<94	<83	<88	<89
Aroclor-1232	<98	<96	<94	<83	<88	<89
Aroclor-1242	<98	<96	<94	<83	<88	<89
Aroclor-1248	<98	<96	<94	<83	<88	<89
Aroclor-1254	<200	<190	<190	<170	<180	<180
Aroclor-1260	<200	<190	<190	<170	<180	<180

IEA	Industrial and Environmental Analysts, Inc., Monroe, Connecticut.
ug/kg	Micrograms per kilogram.
ug/L	Micrograms per liter.
J	Estimated value.
GMS	Soil samples collected in boreholes converted to monitoring wells.
FBS	Field blank for soil.
B-1, B-2, B-3	Samples collected in shallow soil borings.
PCBs	Polychlorinated biphenyls.



Table 4-8. Pesticides and PCBs Detected in Soil Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	FBS-1	FBS-2	FBS-3	FBS-4	FBS-5	FBS-6
Sample Depth (feet):						
Sample Date:	2/13/91	2/19/91	3/25/91	2/27/91	3/22/91	3/13/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameter						
alpha-BHC	<0.053	<0.050	<0.050	<0.050	<0.050	<0.050
beta-BHC	<0.053	<0.050	<0.050	<0.050	<0.050	<0.050
delta-BHC	<0.053	<0.050	<0.050	<0.050	<0.050	<0.050
gamma-BHC (Lindane)	<0.053	<0.050	<0.050	<0.050	<0.050	<0.050
Heptachlor	<0.053	<0.050	<0.050	<0.050	<0.050	<0.050
Aldrin	<0.053	<0.050	<0.050	<0.050	<0.050	<0.050
Heptachlor epoxide	<0.053	<0.050	<0.050	<0.050	<0.050	<0.050
Endosulfan I	<0.053	<0.050	<0.050	<0.050	<0.050	<0.050
Dieldrin	<0.11	<0.10	<0.10	<0.10	<0.10	<0.10
4,4'-DDE	<0.11	<0.10	<0.10	<0.10	<0.10	<0.10
Endrin	<0.11	<0.10	<0.10	<0.10	<0.10	<0.10
Endosulfan II	<0.11	<0.10	<0.10	<0.10	<0.10	<0.10
4,4'-DDD	<0.11	<0.10	<0.10	<0.10	<0.10	<0.10
Endosulfan sulfate	<0.11	<0.10	<0.10	<0.10	<0.10	<0.10
4,4'-DDT	<0.11	<0.10	<0.10	<0.10	<0.10	<0.10
Methoxychlor	<0.53	<0.50	<0.50	<0.50	<0.50	<0.50
Endrin ketone	<0.11	<0.10	<0.10	<0.10	<0.10	<0.10
alpha-Chlordane	<0.53	<0.50	<0.50	<0.50	<0.50	<0.50
gamma-Chlordane	<0.53	<0.50	<0.50	<0.50	<0.50	<0.50
Toxaphene	<1.1	<1.0	<1.0	<1.0	<1.0	<1.0
Aroclor-1016	<0.53	<0.50	<0.50	<0.50	<0.50	<0.50
Aroclor-1221	<0.53	<0.50	<0.50	<0.50	<0.50	<0.50
Aroclor-1232	<0.53	<0.50	<0.50	<0.50	<0.50	<0.50
Aroclor-1242	<0.53	<0.50	<0.50	<0.50	<0.50	<0.50
Aroclor-1248	<0.53	<0.50	<0.50	<0.50	<0.50	<0.50
Aroclor-1254	<1.1	<1.0	<1.0	<1.0	<1.0	<1.0
Aroclor-1260	<1.1	<1.0	<1.0	<1.0	<1.0	<1.0

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.  
ug/kg Micrograms per kilogram.  
ug/L Micrograms per liter.  
J Estimated value.  
GMS Soil samples collected in boreholes converted to monitoring wells.  
FBS Field blank for soil.  
B-1, B-2, B-3 Samples collected in shallow soil borings.  
PCBs Polychlorinated biphenyls.



Table 4-8. Pesticides and PCBs Detected in Soil Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York

Sample Designation:	FBS-7	FBS-8	FBS-9	FBS-10	FBS-11	FBS-12
Sample Depth (feet):						
Sample Date:	4/11/91	4/4/91	4/8/91	4/22/91	5/7/91	5/3/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameter						
alpha-BHC	<0.062	<0.050	<0.050	<0.050	<0.050	<0.050
beta-BHC	<0.062	<0.050	<0.050	<0.050	<0.050	<0.050
delta-BHC	<0.062	<0.050	<0.050	<0.050	<0.050	<0.050
gamma-BHC (Lindane)	<0.062	<0.050	<0.050	<0.050	<0.050	<0.050
Heptachlor	<0.062	<0.050	<0.050	<0.050	<0.050	<0.050
Aldrin	<0.062	<0.050	<0.050	<0.050	<0.050	<0.050
Heptachlor epoxide	<0.062	<0.050	<0.050	<0.050	<0.050	<0.050
Endosulfan I	<0.062	<0.050	<0.050	<0.050	<0.050	<0.050
Dieldrin	<0.13	<0.10	<0.10	<0.10	<0.10	<0.10
4,4'-DDE	<0.13	<0.10	<0.10	<0.10	<0.10	<0.10
Endrin	<0.13	<0.10	<0.10	<0.10	<0.10	<0.10
Endosulfan II	<0.13	<0.10	<0.10	<0.10	<0.10	<0.10
4,4'-DDD	<0.13	<0.10	<0.10	<0.10	<0.10	<0.10
Endosulfan sulfate	<0.13	<0.10	<0.10	<0.10	<0.10	<0.10
4,4'-DDT	<0.13	<0.10	<0.10	<0.10	<0.10	<0.10
Methoxychlor	<0.62	<0.50	<0.50	<0.50	<0.50	<0.50
Endrin ketone	<0.13	<0.10	<0.10	<0.10	<0.10	<0.10
alpha-Chlordane	<0.62	<0.50	<0.50	<0.50	<0.50	<0.50
gamma-Chlordane	<0.62	<0.50	<0.50	<0.50	<0.50	<0.50
Toxaphene	<1.2	<1.0	<1.0	<1.0	<1.0	<1.0
Aroclor-1016	<0.62	<0.50	<0.50	<0.50	<0.50	<0.50
Aroclor-1221	<0.62	<0.50	<0.50	<0.50	<0.50	<0.50
Aroclor-1232	<0.62	<0.50	<0.50	<0.50	<0.50	<0.50
Aroclor-1242	<0.62	<0.50	<0.50	<0.50	<0.50	<0.50
Aroclor-1248	<0.62	<0.50	<0.50	<0.50	<0.50	<0.50
Aroclor-1254	<1.2	<1.0	<1.0	<1.0	<1.0	<1.0
Aroclor-1260	<1.2	<1.0	<1.0	<1.0	<1.0	<1.0

IEA	Industrial and Environmental Analysts, Inc., Monroe, Connecticut.
ug/kg	Micrograms per kilogram.
ug/L	Micrograms per liter.
J	Estimated value.
GMS	Soil samples collected in boreholes converted to monitoring wells.
FBS	Field blank for soil.
B-1, B-2, B-3	Samples collected in shallow soil borings.
PCBs	Polychlorinated biphenyls.



Table 4-8. Pesticides and PCBs Detected in Soil Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	FBS-13	FBS-14	FBS-15	FBS-18	FBS-19	FBS-20
Sample Depth (feet):						
Sample Date:	6/18/91	6/4/91	5/22/91	6/14/91	5/31/91	6/20/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameter						
alpha-BHC	<0.053	<0.053	<0.050	<0.050	<0.10	<0.053
beta-BHC	<0.053	<0.053	<0.050	<0.050	<0.10	<0.053
delta-BHC	<0.053	<0.053	<0.050	<0.050	<0.10	<0.053
gamma-BHC (Lindane)	<0.053	<0.053	<0.050	<0.050	<0.10	<0.053
Heptachlor	<0.053	<0.053	<0.050	<0.050	<0.10	<0.053
Aldrin	<0.053	<0.053	<0.050	<0.050	<0.10	<0.053
Heptachlor epoxide	<0.053	<0.053	<0.050	<0.050	<0.10	<0.053
Endosulfan I	<0.053	<0.053	<0.050	<0.050	<0.10	<0.053
Dieldrin	<0.11	<0.11	<0.10	<0.10	<0.20	<0.11
4,4'-DDE	<0.11	<0.11	<0.10	<0.10	<0.20	<0.11
Endrin	<0.11	<0.11	<0.10	<0.10	<0.20	<0.11
Endosulfan II	<0.11	<0.11	<0.10	<0.10	<0.20	<0.11
4,4'-DDD	<0.11	<0.11	<0.10	<0.10	<0.20	<0.11
Endosulfan sulfate	<0.11	<0.11	<0.10	<0.10	<0.20	<0.11
4,4'-DDT	<0.11	<0.11	<0.10	<0.10	<0.20	<0.11
Methoxychlor	<0.53	<0.53	<0.50	<0.50	<1.0	<0.53
Endrin ketone	<0.11	<0.11	<0.10	<0.10	<0.20	<0.11
alpha-Chlordane	<0.53	<0.53	<0.50	<0.50	<1.0	<0.53
gamma-Chlordane	<0.53	<0.53	<0.50	<0.50	<1.0	<0.53
Toxaphene	<1.1	<1.1	<1.0	<1.0	<2.0	<1.1
Aroclor-1016	<0.53	<0.53	<0.50	<0.50	<1.0	<0.53
Aroclor-1221	<0.53	<0.53	<0.50	<0.50	<1.0	<0.53
Aroclor-1232	<0.53	<0.53	<0.50	<0.50	<1.0	<0.53
Aroclor-1242	<0.53	<0.53	<0.50	<0.50	<1.0	<0.53
Aroclor-1248	<0.53	<0.53	<0.50	<0.50	<1.0	<0.53
Aroclor-1254	<1.1	<1.1	<1.0	<1.0	<2.0	<1.1
Aroclor-1260	<1.1	<1.1	<1.0	<1.0	<2.0	<1.1

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.  
ug/kg Micrograms per kilogram.  
ug/L Micrograms per liter.  
J Estimated value.  
GMS Soil samples collected in boreholes converted to monitoring wells.  
FBS Field blank for soil.  
B-1, B-2, B-3 Samples collected in shallow soil borings.  
PCBs Polychlorinated biphenyls.



Table 4-9. Inorganic Parameters Detected in Soil Samples, Phase 1 and Phase 2 Remedial Investigations, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	GMS-1S	GMS-1I	GMS-2I	GMS-3I	GMS-6I	GMS-6I
Sample Depth (feet):	20-22	55-57	25-27	50-52	20-22	25-27
Sample Date:	2/13/91	2/6/91	2/19/91	3/25/91	2/27/91	2/27/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Parameter						
Aluminum	2070	246	773	797	1310	1210
Antimony	<3.9	<4.7	<5.3	<4.4	<5.1	<5.1
Arsenic	0.95 B <sub>J</sub>	7.0	0.99 B	2.4	0.54 B	2.2
Barium	10.0 B	2.3 B	<6.9	3.5 B	9.7 B	8.5 B
Beryllium	0.24 B	<0.18	<0.20	<0.17	<0.20	<0.19
Cadmium	<0.30	<0.36	<0.40	<0.34	<0.39	<0.39
Calcium	241 B <sub>J</sub>	247 B <sub>J</sub>	<90.2	<67.7	<104	<92.8
Chromium	10.5	1.6 B	1.7 B	3.8	2.3	6.0
Cobalt	1.5 B	<0.54	0.78 B	0.78 B	<0.59	0.59 B
Copper	2.8 B	<2.2	<2.4	4.7	<2.6	<3.5
Iron	6320	2730	2150	4600	2650	4630
Lead	4.8	3.5	0.80 B	1.3	0.93	1.3
Magnesium	346 B	53.7 B	217 B	<17.5	<288	<287
Manganese	86.2	<3.4	39.3	5.8	38.5	30.9
Mercury	<0.07	<0.09	<0.10	<0.09	<0.08	<0.10
Nickel	2.7 B	<2.3	<2.6	<2.2	2.7 B	<2.5
Potassium	202 B	<103	<115	<97.3	<112	180 B
Selenium	<0.18 J	<0.16 J	<0.19	<0.19	<0.17	<0.16
Silver	<0.44	<0.54	<0.61	<0.51	<0.59	<0.58
Sodium	<28.6	<18.4	<29.2	<14.6	<37.2	<38.2
Thallium	<0.35 J	<0.32 J	<0.38	<0.39	<0.34	<0.33
Vanadium	4.8 B	<2.9	2.8 B	5.7 B	3.4 B	1.4 B
Zinc	<7.7	<1.7	3.6 B	<3.0	5.6	5.7
Cyanide	<1.3	<2.5	<2.6	<2.7	<2.5	<2.5
Hexavalent chromium	0.410	<0.100	<0.100	0.110	<0.100	<0.100
pH	6.13	6.70	6.72	6.60	6.16	6.30

IEA	Industrial and Environmental Analysts, Inc., Monroe, Connecticut.
NET	National Environmental Testing, Inc., Thorofare, New Jersey.
mg/kg	Milligrams per kilogram.
ug/L	Micrograms per liter.
B	Concentration is between the instrument detection limit and the contract required detection limit.
J	Estimated value.
GMS	Soil samples collected in boreholes converted to monitoring wells.
FBS	Field blank for soil.
B-1, B-2, B-3	Samples collected in shallow soil borings.



Table 4-9. Inorganic Parameters Detected in Soil Samples, Phase 1 and Phase 2 Remedial Investigations, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	GMS-7S	GMS-7I	GMS-7D	GMS-8S	GM-8I	GMS-10I
Sample Depth (feet):	30-32	40-42	20-22	20-22	40-42	40-42
Sample Date:	3/22/91	3/15/19	7/23/91	3/13/91	3/6/91	4/11/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Parameter						
Aluminum	1160	674	1280	1620	1640	350
Antimony	<4.7	<5.2	<3.7	<4.7	<4.8	<4.2
Arsenic	1.1 B	<2.4	0.63 BJ	<1.7	8.4	<1.2
Barium	6.8 B	3.6 B	8.2 B	5.7 B	<4.2	<3.0
Beryllium	<0.18	<0.20	<0.17	0.19 B	0.42 B	<0.17
Cadmium	<0.36	<0.40	0.32 B	<0.36	0.58 B	<0.33
Calcium	<68.4	<113	<80.4	<92.4	<45.3	<15.0
Chromium	4.5	3.1	3.3	9.0	14.7	<3.9
Cobalt	0.66 B	<0.60	0.91 B	1.3 B	0.66 B	<0.50
Copper	3.5 B	5.5	<4.0	5.9	<2.7	<2.3
Iron	3390	4799	3540	5110	15300	1820
Lead	1.6	2.2	1.1	1.9	2.9	1.1
Magnesium	<167	<17.5	<304	<499	<88.4	<12.9
Manganese	38.8	17.0	63.0	47.4	56.5	<6.3
Mercury	<0.08	<0.09	0.14	<0.09	<0.10	<0.09 J
Nickel	<2.3	<2.6	1.8 B	2.7 B	4.4 B	<1.5
Potassium	<103	<115	134 B	127 B	<105	<89.8
Selenium	<0.17	<0.18	<0.35	<0.18	<0.18	<0.34
Silver	<0.54	<0.60	<0.50	<0.54	<0.55	<0.50
Sodium	<17	<17.8	<21.8	<20.9	<13.5	10.7 B
Thallium	<0.34	<0.36	<0.18	<0.36	<0.36 J	<0.34
Vanadium	3.6 B	6.6 B	1.6 B	3.2 B	20.1 J	2.9 B
Zinc	<3.8	<3.3	<6.3	<7.0	<11.3	<2.3
Cyanide	<2.5	<2.7	<2.5	<2.6	<2.6	<2.5
Hexavalent chromium	<0.100	<0.110	0.64	<0.100	<0.100	<0.100
pH	6.35	6.16	7.66	5.93	6.46	6.57

IEA	Industrial and Environmental Analysts, Inc., Monroe, Connecticut.
NET	National Environmental Testing, Inc., Thorofare, New Jersey.
mg/kg	Milligrams per kilogram.
ug/L	Micrograms per liter.
B	Concentration is between the instrument detection limit and the contract required detection limit.
J	Estimated value.
GMS	Soil samples collected in boreholes converted to monitoring wells.
FBS	Field blank for soil.
B-1, B-2, B-3	Samples collected in shallow soil borings.



Table 4-9. Inorganic Parameters Detected in Soil Samples, Phase 1 and Phase 2 Remedial Investigations, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	GMS-12S	GMS-12I	GMS-13D	GMS-14I	GMS-15I	GMS-16S
Sample Depth (feet):	20-22	30-32	40-42	30-32	30-32	20-22
Sample Date:	4/4/91	3/29/91	4/8/91	4/22/91	5/7/91	5/3/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Parameter						
Aluminum	1160	1010	358	5910 J	946	2640
Antimony	<4.3	<4.4	<4.4	<5.7	<5.1	<4.8
Arsenic	0.58 B	2.0	0.49 B	2.3 B	<0.85	1.5 B
Barium	7.1 B	6.0 B	<3.1	25.9 B	8.2 B	12.3 B
Beryllium	<0.17	<0.17	<0.17	0.39 B	<0.20	0.27 B
Cadmium	<0.34	<0.34	<0.35	<0.46	<0.40	<0.39
Calcium	<73.5	<48.7	<79.6	409 BJ	<43.1	<465
Chromium	3.9	4.1	1.1 B	10.5	3.1	5.3
Cobalt	1.2 B	0.55 B	<0.52	3.5 B	<0.61	1.5 B
Copper	2.5 B	2.1 B	<2.4	6.3	<2.8	3.3 B
Iron	3720	4810	901	11300	2700	5960
Lead	1.3	1.3	2.7	3.4	<0.48	2.0
Magnesium	<253	<191	<12.1	1060 BJ	88.5 B	571 B
Manganese	71.8	62.4	7.6	234	31.9	104
Mercury	<0.09 J	<0.10	<0.10 J	<0.10	<0.09	<0.09
Nickel	2.1 B	<2.2	<1.6	<6.7	<1.8	3.4 B
Potassium	193 B	138 B	<93.7	639 B	<109	392 B
Selenium	<0.34	<0.18	<0.36	<0.47 J	<0.19	<0.40
Silver	<0.51	<0.50	<0.52	<0.69	<0.16	<0.58
Sodium	<19.6	<17.1	<14.9	<71.8	<39.4	<58.1
Thallium	0.55 BJ	<0.36	<0.36 J	<0.24	<0.19	<0.20
Vanadium	3.2 B	3.6 B	3.0 B	17.3	3.0 B	5.3 B
Zinc	4.2	5.1	<2.4	<18.4	<5.9	11.2
Cyanide	<2.5	<2.8	<2.7	<2.7	<2.5	<2.5
Hexavalent chromium	<0.100	<0.120	<0.110	<0.120	<0.100	<0.100
pH	7.02	8.90	7.21	4.89	6.41	7.80

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

NET National Environmental Testing, Thorofare, New Jersey.

mg/kg Milligrams per kilogram.

ug/L Micrograms per liter.

B Concentration is between the instrument detection limit and the contract required detection limit.

J Estimated value.

GMS Soil samples collected in boreholes converted to monitoring wells.

FBS Field blank for soil.

B-1, B-2, B-3 Samples collected in shallow soil borings.





Table 4-9. Inorganic Parameters Detected in Soil Samples, Phase 1 and Phase 2 Remedial Investigations, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	GMS-16I	GMS-17S	GMS-18I	GMS-19S	GMS-19I	GMS-22S
Sample Depth (feet):	10-12	30-32	30-23	20-22	30-32	20-22
Sample Date:	4/29/91	6/18/91	6/4/91	5/22/91	5/16/91	6/17/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Parameter						
Aluminum	854	1340	1500	1630 J	1620	2270
Antimony	<4.5	<4.6	<4.0	<4.8	<5.1	<4.9
Arsenic	0.44 B	0.91 B	1.7 B	1.8 B	5.0	0.86 B
Barium	4.2 B	4.6 B	4.0	9.0 B	4.4 B	7.1 B
Beryllium	<0.18	0.41 B	<0.16	<0.19	0.22 B	<0.19
Cadmium	<0.36	1.0	<0.32	<0.38	0.48 B	1.2
Calcium	<117	<75.2	<45.0	<32.7	<48.7	<43.4
Chromium	2.6	9.5	6.9	7.4	14.6	9.7
Cobalt	0.60 B	0.59 B	<0.48	0.81 B	<0.61	1.9 B
Copper	2.5 B	<2.6	<2.3	2.8 B	<2.8	3.9 B
Iron	3190	14600	5490	4460	13700	6710
Lead	0.71 B	<1.4	1.2 BJ	2.3	3.4 J	1.8
Magnesium	154 B	190 B	<258	<149	124 B	<308
Manganese	35.5	46.1	43.7	64.6	49.2	93.7
Mercury	<0.08	0.08	<0.09	0.33	<0.09	<0.09
Nickel	3.3 B	2.3 B	1.8	<1.7	<1.8	2.8 B
Potassium	133 B	<97.8	<104	<186	<109	<420
Selenium	<0.38	<0.37	0.38 BJ	<0.38	<0.39	<0.35
Silver	24.3	<0.55	<0.48	<0.58	<0.61	<0.58
Sodium	<47.4	<41.0	<20.7	<24.4	<46.0	<33.2
Thallium	<0.19	<0.19	<0.17	<0.19	<0.20	<0.17
Vanadium	<1.1	7.3 B	6.6 B	5.2 B	16.4	6.6 B
Zinc	5.3	10.0	<4.3	5.4	9.5	7.9
Cyanide	<2.2	<2.4	<2.5	<2.6	<2.6	<2.7
Hexavalent chromium	<0.100	0.17	1.00	<0.100	<0.100	<0.110
pH	6.51	6.42	6.65	6.08	6.43	5.88

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

NET National Environmental Testing, Thorofare, New Jersey.

mg/kg Milligrams per kilogram.

ug/L Micrograms per liter.

B Concentration is between the instrument detection limit and the contract required detection limit.

J Estimated value.

GMS Soil samples collected in boreholes converted to monitoring wells.

FBS Field blank for soil.

B-1, B-2, B-3 Samples collected in shallow soil borings.



Table 4-9. Inorganic Parameters Detected in Soil Samples, Phase 1 and Phase 2 Remedial Investigations, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	GMS-22I	GMS-23S	GMS-23I	B-1	B-2	B-3
Sample Depth (feet):	30-32	30-32	40-42	8-10	2-4	0-2.5
Sample Date:	6/11/91	5/31/91	5/24/91	6/20/91	6/20/91	6/20/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Parameter						
Aluminum	818	2190	1720 J	1020	5230	5170
Antimony	<5.4	<4.9	<5.0	<4.1	<4.8	<5.3
Arsenic	0.51 B	3.0	2.3	0.90 B	2.2	7.3
Barium	<3.9	3.8 B	13.9 B	3.5 B	32.8 B	33.4 B
Beryllium	<0.22	<0.20	0.35 B	<0.16	0.20 B	0.33 B
Cadmium	<0.43	<0.39	<0.40	<0.33	<0.38	1.6
Calcium	<69.8	<45.0	<271	<116	356 B	2960
Chromium	5.7	6.4	2.4	2.5	7.1	18.6
Cobalt	0.73 B	1.2 B	0.78 B	0.99 B	1.3 B	2.8 B
Copper	7.1	3.5 B	4.8 B	4.1	7.4	11.5
Iron	3760	6180	5420	3870	6730	8760
Lead	0.77 B	0.68 B	4.7	1.9	23.1	48.5
Magnesium	<83.9	<79.9	<66.5	148 B	533 B	554 B
Manganese	40.3	55.6	39.6	69.3 J	293 J	194 J
Mercury	<0.09	<0.12	<0.10	<0.10	0.09	0.11
Nickel	3.5 B	<1.8	<1.8	<1.5	2.8 B	8.3 B
Potassium	<116	<161	<244	150 B	356 B	188 B
Selenium	<0.41	<0.41 J	<0.42	<0.38 J	<0.41	0.56 BJ
Silver	<0.65	<0.59	<0.60	<0.49	<0.56	<0.64
Sodium	<44.9	<15.2	<39.5	<30.2	<35.7	<56.4
Thallium	<0.20	<0.21	<0.21	<0.19	0.20 B	<0.22
Vanadium	5.5 B	11.6	10.7	1.5 B	7.5 B	14
Zinc	14.2 J	4.5	3.8	5.0 J	18.9 J	42.7 J
Cyanide	<2.9	<1.5	<2.9	<2.5	<2.7	<2.8
Hexavalent chromium	<0.100	<0.122	<0.120	<0.210	<0.220	<0.230
pH	6.10	6.22	6.35	7.51	6.00	7.16

IEA	Industrial and Environmental Analysts, Inc., Monroe, Connecticut.
NET	National Environmental Testing, Inc., Thorofare, New Jersey.
mg/kg	Milligrams per kilogram.
ug/L	Micrograms per liter.
B	Concentration is between the instrument detection limit and the contract required detection limit.
J	Estimated value.
GMS	Soil samples collected in boreholes converted to monitoring wells.
FBS	Field blank for soil.
B-1, B-2, B-3	Samples collected in shallow soil borings.



Table 4-9. Inorganic Parameters Detected in Soil Samples, Phase 1 and Phase 2 Remedial Investigations, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:						
Sample Depth (feet):	B-4	B-5	B-5	B-5	B-6	B-7
Sample Date:	4-6	0-2	8-10	18-20	6-8	0-2
Laboratory:	8/21/92	8/25/92	8/25/92	8/25/92	8/24/92	8/24/92
Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Parameter						
Aluminum	2110	3210	2070	689	708	4150
Antimony	<3.80	<4.10 J	4.60 BJ	3.50 BJ	<3.30 J	<3.90 J
Arsenic	1.20 B	6.20	7.80	1.10 B	0.40 B <i>Below Est</i>	1.70 B
Barium	7.50 B	32.40 B	26.70 B	3.50 B	3.80 B	16.30 B
Beryllium	<0.63	<0.69	<0.73	<0.52	<0.55	<0.65
Cadmium	<0.42	<0.46	<0.49	<0.35	<0.37	<0.43
Calcium	331 B	1110 B	2830	66.20 B	<41.00	5540
Chromium	3.80	17.50	25.50	1.00 B	<0.73	4.10
Cobalt	1.50 B	1.80 B	2.20 B	<0.69	<0.73	0.87 B
Copper	2.70 B	9.40	18.80	1.40 B	0.73 B	4.80 B
Iron	7570	5940	4750	1490	2300	6960
Lead	1.70	28.70	17.90	1.20	0.99	20.50
Magnesium	609 B	293 B	300 B	117 B	99.10 B	458 B
Manganese	105 J	360	44.10	35.80	109 <i>above SB</i>	58.10
Mercury	<0.07	0.32	0.18	<0.10	<0.10	<0.11
Nickel	1.90 B	3.00 B	4.20 B	<1.20	<1.30	<1.50
Potassium	257 B	<160	<130	<89.90	<97.30	<178
Selenium	0.21 BJ	0.46 BJ	0.47 BJ	<0.18 J	<0.20 J	<0.21 J
Silver	<2.10	<2.30	<2.40	<1.70	<1.80	<2.20
Sodium	<29.30	634 B	52.60 B	<18.40	<17.90	61.50 B
Thallium	<0.21	<0.23	<0.23	<0.18	<0.20	<0.21
Vanadium	5.00 B	9.40 B	12.50	1.20 B	0.91 B	7.20 B
Zinc	6.10	19.50	23.70	1.00 B	<0.73	9.30
Cyanide	<1.00	1.20	<1.50	<1.00	<1.00	<1.10
Hexavalent chromium	<1.0	1.0	<1.0	<1.0	<1.0	<1.0
pH						

IEA	Industrial and Environmental Analysts, Inc., Monroe, Connecticut.
NET	National Environmental Testing, Inc., Thorofare, New Jersey.
mg/kg	Milligrams per kilogram.
ug/L	Micrograms per liter.
B	Concentration is between the instrument detection limit and the contract required detection limit.
J	Estimated value.
GMS	Soil samples collected in boreholes converted to monitoring wells.
FBS	Field blank for soil.
B-1, B-2, B-3	Samples collected in shallow soil borings.



Table 4-9. Inorganic Parameters Detected in Soil Samples, Phase 1 and Phase 2 Remedial Investigations, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	FBS-1	FBS-2	FBS-3	FBS-4	FBS-5	FBS-6
Sample Depth (feet):						
Sample Date:	2/27/91	2/19/91	3/25/91	2/27/91	3/22/91	3/13/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameter						
Aluminum	<35.0	<66.9	<35.0	<128	57.6 B	74.6 B
Antimony	<26.0	<26.0	<26.0	<26.0	<26.0	<26.0
Arsenic	<1.0	<1.0	<1.0	<1.0	<1.0	4.5 B
Barium	<2.0	<2.0	<2.0	2.2 B	<2.0	<2.0
Beryllium	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Calcium	<422	<568	2150 B	<2880	952 B	1110 B
Chromium	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Cobalt	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Copper	<12.0	<12.0	<12.0	<12.0	<12.0	<12.0
Iron	368	302	76.2 B	<374	128	596
Lead	<1.0	<1.0	<1.0	<1.0 J	<1.0	<1.0
Magnesium	<65.8	<69.8	2040 B	2240 B	785 B	905 B
Manganese	5.9 B	<4.0	2.0 B	<5.6	4.1 B	9.6 B
Mercury	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Nickel	<13.0	<13.0	<13.0	<13.0	<13.0	<13.0
Potassium	<570	<570	<570	<570	<570	<570
Selenium	<1.1	<1.0 J	<1.0	<1.0	<1.0	<1.0
Silver	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Sodium	208 B	275 B	4620 B	4820 B	1930 B	2070 B
Thallium	<2.0	<2.0	<2.0	<2.0	<2.0	3.0 BJ
Vanadium	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Zinc	13.3 B	<15.2	20.0 B	<19.3	14.4 B	15.2 B
Cyanide	<10.0	<11.1 J	<10.0	<10.0	<10.0	<10.0
Hexavalent chromium	<10.0	<10.0	<10.0	<10.0	50.0	<10.0
pH	5.87	5.71	7.08	6.42	7.02	7.25

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

NET National Environmental Testing, Inc., Thorofare, New Jersey.

mg/kg Milligrams per kilogram.

ug/L Micrograms per liter.

B Concentration is between the instrument detection limit and the contract required detection limit.

J Estimated value.

GMS Soil samples collected in boreholes converted to monitoring wells.

FBS Field blank for soil.

B-1, B-2, B-3 Samples collected in shallow soil borings.



Table 4-9. Inorganic Parameters Detected in Soil Samples, Phase 1 and Phase 2 Remedial Investigations, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	FBS-7	FBS-8	FBS-9	FBS-10	FBS-11	FBS-12
Sample Depth (feet):						
Sample Date:	4/12/91	4/4/91	4/8/91	4/23/91	5/7/91	5/3/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameter						
Aluminum	<60.6	23.4 B	39.2 B	<14.0	<46.7	131 B
Antimony	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Arsenic	<1.0	<1.0	<1.0	<1.0	1.3 B	<1.0
Barium	<18.0	<18.0	<18.0	<18.0	<18.0	<18.0
Beryllium	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Calcium	335 B	1110 B	354 B	202 B	164 B	745 B
Chromium	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Cobalt	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Copper	<14.0	<14.0	<14.0	<14.0	<14.0	<14.0
Iron	293	126	130	117	278	1020
Lead	<1.0	<1.0	<1.0	<1.0	1.0 B	<1.0
Magnesium	89.1 B	968 B	38.3 B	58.0 B	33.5 B	49.8 B
Manganese	8.2 B	6.0 B	2.0 B	28.1	4.8 B	13.2 B
Mercury	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Nickel	<9.0	<9.0	<9.0	12.7 B	<9.0	<9.0
Potassium	<537	<537	<537	<537	<537	<537
Selenium	2.7 B	<2.0	<2.0	<3.0	<1.0	<2.0
Silver	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Sodium	<219	2220 B	202 B	428 B	243 B	176 B
Thallium	<2.0	<2.0 J	<2.0 J	<1.0	<1.0	<1.0
Vanadium	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0
Zinc	<14.0	<14.0	<14.0	23.5	<14.0	<16.0
Cyanide	<10.0	<15.4	<10.0	<10.0	<11.1	<11.1
Hexavalent chromium	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
pH	7.31	7.67	8.68	6.67	6.77	6.49

IEA	Industrial and Environmental Analysts, Inc., Monroe, Connecticut.
NET	National Environmental Testing, Inc., Thorofare, New Jersey.
mg/kg	Milligrams per kilogram.
ug/L	Micrograms per liter.
B	Concentration is between the instrument detection limit and the contract required detection limit.
J	Estimated value.
GMS	Soil samples collected in boreholes converted to monitoring wells.
FBS	Field blank for soil.
B-1, B-2, B-3	Samples collected in shallow soil borings.



Table 4-9. Inorganic Parameters Detected in Soil Samples, Phase 1 and Phase 2 Remedial Investigations, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	FBS-13	FBS-14	FBS-15	FBS-18	FBS-19	FBS-20
Sample Depth (feet):						
Sample Date:	6/18/91	6/4/91	5/22/91	6/17/91	5/31/91	6/20/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameter						
Aluminum	<42.8	<48.9	<14.0	<54.5	<74.4	147 B
Antimony	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Arsenic	<1.0	<1.5	1.2 B	<1.0	<1.6	<1.0
Barium	<18.0	<18.0	<18.0	<18.0	<18.0	<18.0
Beryllium	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Calcium	165 B	1900 B	2730 B	2780 B	2950 B	291 B
Chromium	<3.0	<3.0	<3.0	4.2 B	<3.0	<3.0
Cobalt	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Copper	<14.0	<14.0	<14.0	<14.0	<14.0	<14.0
Iron	293	164	<54.0	986	1490	536
Lead	2.0 BJ	<1.0	<1.0	<1.0 J	<1.0	<1.0 J
Magnesium	32.6 B	1320 B	2030 B	1990 B	2110 B	32.6 B
Manganese	4.6 B	5.6 B	1.7 B	17.4	35.2	8.4 B
Mercury	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Nickel	<9.0	<9.0	<9.0	<9.0	<9.0	<9.0
Potassium	<537	4400 B	6040	6250	6320	<836
Selenium	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Silver	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Sodium	336 B	395 B	333 B	566 B	433 B	410 B
Thallium	<1.0	<1.0	<1.0	<1.0	<1.6	<1.0
Vanadium	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0
Zinc	<14.0	<14.0	<14.0	<14.0	<14.0	<15.3
Cyanide	<10.0	<10.6	<10.0	<10.0	<10.0	<10.0
Hexavalent chromium	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
pH	7.07	7.52	7.46	7.02	6.99	6.79

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

NET National Environmental Testing, Inc., Thorofare, New Jersey.

mg/kg Milligrams per kilogram.

ug/L Micrograms per liter.

B Concentration is between the instrument detection limit and the contract required detection limit.

J Estimated value.

GMS Soil samples collected in boreholes converted to monitoring wells.

FBS Field blank for soil.

B-1, B-2, B-3 Samples collected in shallow soil borings.



Table 4-9. Inorganic Parameters Detected in Soil Samples, Phase 1 and Phase 2 Remedial Investigations, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	Field Blank	Field Blank	Field Blank
Sample Depth (feet):			
Sample Date:	8/21/92	8/24/92	8/25/92
Laboratory:	NET	NET	NET
Units:	ug/L	ug/L	ug/L
Parameter			
Aluminum	<18.00	<18.00	<18.00
Antimony	<18.00	<18.00	<18.00
Arsenic	<1.00	<1.00	<1.00
Barium	<6.00	<6.00	<6.00
Beryllium	<3.00	<3.00	<3.00
Cadmium	<2.00	<2.00	<2.00
Calcium	<b>29.00 B</b>	<b>38.00 B</b>	<b>28.00 B</b>
Chromium	<4.00	<4.00	<4.00
Cobalt	<4.00	<4.00	<4.00
Copper	<3.00	<3.00	<3.00
Iron	<24.00	<b>29.00 B</b>	<24.00
Lead	<1.00	<1.00	<b>1.00 B</b>
Magnesium	<26.00	26.00	<26.00
Manganese	<3.00	<3.00	<3.00
Mercury	<0.20	<0.20	<0.20
Nickel	<7.00	<7.00	<7.00
Potassium	<155	<183	<141
Selenium	<1.00	<1.00	<1.00
Silver	<10.00	<10.00	<10.00
Sodium	<25.00	<b>28.00 B</b>	<25.00
Thallium	<1.00	<1.00	<1.00
Vanadium	<3.00	<3.00	<3.00
Zinc	<b>4.00 B</b>	<4.00	<4.00
Cyanide	<10.00	<10.00	<10.00
Hexavalent chromium	<10	10	<10
pH			

IEA	Industrial and Environmental Analysts, Inc., Monroe, Connecticut.
NET	National Environmental Testing, Inc., Thorofare, New Jersey.
mg/kg	Milligrams per kilogram.
ug/L	Micrograms per liter.
B	Concentration is between the instrument detection limit and the contract required detection limit.
J	Estimated value.
GMS	Soil samples collected in boreholes converted to monitoring wells.
FBS	Field blank for soil.
B-1, B-2, B-3	Samples collected in shallow soil borings.



Table 4-10. Inorganic Background Subsurface Soil Concentrations, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	GMS-1S	GMS-1I	GMS-2I	GMS-3I	GMS-6I	GMS-6I
Sample Depth (feet):	20-22	55-57	25-27	50-52	20-22	25-27
Sample Date:	2/13/91	2/6/91	2/19/91	3/25/91	2/27/91	2/27/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Parameter						
Aluminum	2070	246	773	797	1310	1210
Antimony	<3.9	<4.7	<5.3	<4.4	<5.1	<5.1
Arsenic	0.95 BJ	7.0	0.99 B	2.4	0.54 B	2.2
Barium	10.0 B	2.3 B	<6.9	3.5 B	9.7 B	8.5 B
Beryllium	0.24 B	<0.18	<0.20	<0.17	<0.20	<0.19
Cadmium	<0.30	<0.36	<0.40	<0.34	<0.39	<0.39
Calcium	241 BJ	247 BJ	<90.2	<67.7	<104	<92.8
Chromium	10.5	1.6 B	1.7 B	3.8	2.3	6.0
Cobalt	1.5 B	<0.54	0.78 B	0.78 B	<0.59	0.59 B
Copper	2.8 B	<2.2	<2.4	4.7	<2.6	<3.5
Iron	6320	2730	2150	4600	2650	4630
Lead	4.8	3.5	0.80 B	1.3	0.93	1.3
Magnesium	346 B	53.7 B	217 B	<17.5	<288	<287
Manganese	86.2	<3.4	39.3	5.8	38.5	30.9
Mercury	<0.07	<0.09	<0.10	<0.09	<0.08	<0.10
Nickel	2.7 B	<2.3	<2.6	<2.2	2.7 B	<2.5
Potassium	202 B	<103	<115	<97.3	<112	180 B
Selenium	<0.18 J	<0.16 J	<0.19	<0.19	<0.17	<0.16
Silver	<0.44	<0.54	<0.61	<0.51	<0.59	<0.58
Sodium	<28.6	<18.4	<29.2	<14.6	<37.2	<38.2
Thallium	<0.35 J	<0.32 J	<0.38	<0.39	<0.34	<0.33
Vanadium	4.8 B	<2.9	2.8 B	5.7 B	3.4 B	1.4 B
Zinc	<7.7	<1.7	3.6 B	<3.0	5.6	5.7
Cyanide	<1.3	<2.5	<2.6	<2.7	<2.5	<2.5
Hexavalent chromium	0.410	<0.100	<0.100	0.110	<0.100	<0.100
pH	6.13	6.70	6.72	6.60	6.16	6.30

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

mg/kg Milligrams per kilogram.

ppm Parts per million.

B Concentration is between the instrument detection limit and the contract required detection limit.

J Estimated value.

GMS Soil samples collected in boreholes converted to monitoring wells.

(1) Background levels for lead vary widely. Average levels in underdeveloped, rural areas may range from 4 to 61 ppm.

Average background levels in metropolitan or suburban areas, or near highways, are much higher and typically range from 200 to 500 ppm

N/A Not available.

ND Not detected above method detection limit.





Table 4-10. Inorganic Background Subsurface Soil Concentrations, Grumman Aerospace Corporation, Bethpage, New York.

Parameter	Sample Designation: Sample Depth (feet): Sample Date: Laboratory: Units:	GMS-7S 30-32 3/22/91 IEA mg/kg	GMS-8S 20-22 3/13/91 IEA mg/kg	GM-8I 40-42 3/6/91 IEA mg/kg	Range of Background Concentration at Grumman (mg/kg)	Eastern U.S.A. Background Concentration (ppm)
Aluminum		1160	1620	1640	246 - 2070	33,000
Antimony		<4.7	<4.7	<4.8	ND	N/A
Arsenic		1.1 B	<1.7	8.4	0.54 - 8.4	3 - 12
Barium		6.8 B	5.7 B	<4.2	ND - 10.0	15 - 600
Beryllium		<0.18	0.19 B	0.42 B	ND - 0.42	0 - 1.75
Cadmium		<0.36	<0.36	0.58 B	ND - 0.58	0.1 - 1
Calcium		<68.4	<92.4	<45.3	ND - 247	130 - 35,000
Chromium		4.5	9.0	14.7	1.6 - 14.7	1.5 - 40
Cobalt		0.66 B	1.3 B	0.66 B	ND - 1.5	2.5 - 60
Copper		3.5 B	5.9	<2.7	ND - 5.9	1 - 50
Iron		3390	5110	15300	2150 - 15,300	2,000 - 550,000
Lead		1.6	1.9	2.9	0.80 - 4.8	(1)
Magnesium		<167	<499	<88.4	ND - 346	100 - 5,000
Manganese		38.8	47.4	56.5	ND - 86.2	50 - 5,000
Mercury		<0.08	<0.09	<0.10	ND	0.001 - 0.2
Nickel		<2.3	2.7 B	4.4 B	ND - 4.4	0.5 - 2.5
Potassium		<103	127 B	<105	ND - 202	8,500 - 43,000
Selenium		<0.17	<0.18	<0.18	ND	0.1-3.9
Silver		<0.54	<0.54	<0.55	ND	N/A
Sodium		<17	<20.9	<13.5	ND	6,000 - 8,000
Thallium		<0.34	<0.36	<0.36 J	ND	N/A
Vanadium		3.6 B	3.2 B	20.1 J	1.4 - 20.1	1 - 300
Zinc		<3.8	<7.0	<11.3	ND - 5.6	9-50
Cyanide		<2.5	<2.6	<2.6	ND	N/A
Hexavalent chromium		<0.100	<0.100	<0.100	ND - 0.41	N/A
pH		6.35	5.93	6.46	5.93 - 6.72	N/A

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

mg/kg Milligrams per kilogram.

ppm Parts per million.

B Concentration is between the instrument detection limit and the contract required detection limit.

J Estimated value.

GMS Soil samples collected in boreholes converted to monitoring wells.

(1) Background levels for lead vary widely. Average levels in underdeveloped, rural areas may range from 4 to 61 ppm.

Average background levels in metropolitan or suburban areas, or near highways, are much higher and typically range from 200 to 500 ppm.

N/A Not available.

ND Not detected above method detection limit.



Table 4-11. Volatile Organic Compounds Detected in Recharge Basin Water and Bottom Sediment Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Parameters	Sample Designation: Sample Date: Laboratory: Units:	RW-1A 3/5/91 IEA ug/L	RW-1B 3/5/91 IEA ug/L	RW-1C 3/5/91 IEA ug/L	RW-1D 3/5/91 IEA ug/L	RW-2A 3/5/91 IEA ug/L
Chloromethane		<10	<10	<10	<10	<10
Bromomethane		<10	<10	<10	<10	<10
Vinyl chloride		<10	<10	<10	<10	<10
Chloroethane		<10	<10	<10	<10	<10
Methylene chloride		<5	<5	<5	<5	<5
Acetone		<10	<10	<10	<10	<10
Carbon disulfide		<5	<5	<5	<5	<5
1,1-Dichloroethene		<5	<5	<5	<5	<5
1,1-Dichloroethane		<5	<5	<5	<5	<5
1,2-Dichloroethene (total)		<5	<5	<5	<5	<5
Chloroform		<5	<5	<5	<5	<5
1,2-Dichloroethane		<5	<5	<5	<5	<5
2-Butanone	R	R	R	R	R	R
1,1,1-Trichloroethane		<5	<5	<5	<5	<5
Carbon tetrachloride		<5	<5	<5	<5	<5
Vinyl acetate		<10	<10	<10	<10	<10
Bromodichloromethane		<5	<5	<5	<5	<5
1,2-Dichloropropane		<5	<5	<5	<5	<5
cis-1,3-Dichloropropene		<5	<5	<5	<5	<5
Trichloroethene		<5	<5	<5	<5	<5
Dibromochloromethane		<5	<5	<5	<5	<5
1,1,2-Trichloroethane		<5	<5	<5	<5	<5
Benzene		<5	<5	<5	<5	<5
trans-1,3-Dichloropropene		<5	<5	<5	<5	<5
Bromoform		<5	<5	<5	<5	<5
4-Methyl-2-pentanone		<10	<10	<10	<10	<10
2-Hexanone		<10	<10	<10	<10	<10
Tetrachloroethene		<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane		<5	<5	<5	<5	<5
Toluene		<5	<5	<5	<5	<5
Chlorobenzene		<5	<5	<5	<5	<5
Ethylbenzene		<5	<5	<5	<5	<5
Styrene		<5	<5	<5	<5	<5
Xylene (total)		<5	<5	<5	<5	<5
<b>Total VOCs:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

VOCs Volatile organic compounds.  
 IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.  
 ug/kg Micrograms per kilogram.  
 ug/L Micrograms per liter.  
 BS Bottom sediment sample.  
 RW Recharge basin water sample.  
 J Estimated value.  
 R Unusable value.  
 Rep Replicate sample.



Table 4-11. Volatile Organic Compounds Detected in Recharge Basin Water and Bottom Sediment Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Parameters	Sample Designation:	RW-2A Rep	RW-2B	RW-2C	RW-2D	Field Blank
	Sample Date:	3/5/91	3/5/91	3/5/91	3/5/91	RW-1
	Laboratory:	IEA	IEA	IEA	IEA	IEA
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L
Chloromethane	<10	<10	<10	<10	<10	<10
Bromomethane	<10	<10	<10	<10	<10	<10
Vinyl chloride	<10	<10	<10	<10	<10	<10
Chloroethane	<10	<10	<10	<10	<10	<10
Methylene chloride	<5	<5	<5	<5	<5	<5
Acetone	<10	<10	<10	<10	<10	<10
Carbon disulfide	<5	<5	<5	<5	<5	<5
1,1-Dichloroethene	<5	<5	<5	<5	<5	<5
1,1-Dichloroethane	<5	<5	<5	<5	<5	<5
1,2-Dichloroethene (total)	<5	<5	<5	<5	<5	<5
Chloroform	<5	<5	<5	<5	<5	<5
1,2-Dichloroethane	<5	<5	<5	<5	<5	<5
2-Butanone	R	R	R	R	R	R
1,1,1-Trichloroethane	<5	<5	<5	<5	<5	<5
Carbon tetrachloride	<5	<5	<5	<5	<5	<5
Vinyl acetate	<10	<10	<10	<10	<10	<10
Bromodichloromethane	<5	<5	<5	<5	<5	<5
1,2-Dichloropropane	<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	<5	<5	<5	<5	<5	<5
Trichloroethene	<5	<5	<5	<5	<5	<5
Dibromochloromethane	<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	<5	<5	<5	<5	<5	<5
Benzene	<5	<5	<5	<5	<5	<5
trans-1,3-Dichloropropene	<5	<5	<5	<5	<5	<5
Bromoform	<5	<5	<5	<5	<5	<5
4-Methyl-2-pentanone	<10	<10	<10	<10	<10	<10
2-Hexanone	<10	<10	<10	<10	<10	<10
Tetrachloroethene	<5	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	<5	<5	<5	<5	<5	<5
Toluene	<5	<5	<5	<5	<5	<5
Chlorobenzene	<5	<5	<5	<5	<5	<5
Ethylbenzene	<5	<5	<5	<5	<5	<5
Styrene	<5	<5	<5	<5	<5	<5
Xylene (total)	<5	<5	<5	<5	<5	<5
<b>Total VOCs:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

VOCs Volatile organic compounds.  
 IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.  
 ug/kg Micrograms per kilogram.  
 ug/L Micrograms per liter.  
 BS Bottom sediment sample.  
 RW Recharge basin water sample.  
 J Estimated value.  
 R Unusable value.  
 Rep Replicate sample.



Table 4-11. Volatile Organic Compounds Detected in Recharge Basin Water and Bottom Sediment Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Parameters	Sample Designation: Sample Date: Laboratory: Units:	BS-1A 3/5/91 IEA ug/kg	BS-1B 3/5/91 IEA ug/kg	BS-1C 3/5/91 IEA ug/kg	BS-1D 3/5/91 IEA ug/kg	BS-2A 3/5/91 IEA ug/kg
Chloromethane		<13	<13	<13	<17	<12
Bromomethane		<13	<13	<13	<17	<12
Vinyl chloride		<13	<13	<13	<17	<12
Chloroethane		<13	<13	<13	<17	<12
Methylene chloride		<7	<7	<6	<8	<6
Acetone		<17	<22	<27	<39	<28
Carbon disulfide		<7	<7	<6	<8	<6
1,1-Dichloroethene		<7	<7	<6	<8	<6
1,1-Dichloroethane		<7	<7	<6	<8	<6
1,2-Dichloroethene (total)		<7	<7	<6	<8	<6
Chloroform		<7	<7	<6	<8	<6
1,2-Dichloroethane		<7	<7	<6	<8	<6
2-Butanone		<13	4 J	<13	<17	<12
1,1,1-Trichloroethane		<7	<7	<6	<8	<6
Carbon tetrachloride		<7	<7	<6	<8	<6
Vinyl acetate		<13	<13	<13	<17	<12
Bromodichloromethane		<7	<7	<6	<8	<6
1,2-Dichloropropane		<7	<7	<6	<8	<6
cis-1,3-Dichloropropene		<7	<7	<6	<8	<6
Trichloroethene		<7	<7	3 J	<8	<6
Dibromochloromethane		<7	<7	<6	<8	<6
1,1,2-Trichloroethane		<7	<7	<6	<8	<6
Benzene		<7	<7	<6	<8	<6
trans-1,3-Dichloropropene		<7	<7	<6	<8	<6
Bromoform		<7	<7	<6	<8	<6
4-Methyl-2-pentanone		<13	<13	<13	<17	<12
2-Hexanone		<13	<13	<13	<17	<12
Tetrachloroethene		4 J	<7	<6	<8	<6
1,1,2,2-Tetrachloroethane		<7	<7	<6	<8	<6
Toluene		<7	5 J	<6	<8	<6
Chlorobenzene		<7	<7	<6	<8	<6
Ethylbenzene		<7	<7	<6	<8	<6
Styrene		<7	<7	<6	<8	<6
Xylene (total)		<7	<7	<6	<8	<6
<b>Total VOCs:</b>		<b>4</b>	<b>9</b>	<b>3</b>	<b>0</b>	<b>0</b>

VOCs Volatile organic compounds.  
 IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.  
 ug/kg Micrograms per kilogram.  
 ug/L Micrograms per liter.  
 BS Bottom sediment sample.  
 RW Recharge basin water sample.  
 J Estimated value.  
 R Unusable value.  
 Rep Replicate sample.



Table 4-11. Volatile Organic Compounds Detected in Recharge Basin Water and Bottom Sediment Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Parameters	Sample Designation: Sample Date: Laboratory: Units:	BS-2B 3/5/91 IEA ug/kg	BS-2C 3/5/91 IEA ug/kg	BS-2D 3/5/91 IEA ug/kg	BS-3A 3/5/91 IEA ug/kg	BS-3B 3/5/91 IEA ug/kg
Chloromethane		<12	<12	<12	<10	<11
Bromomethane		<12	<12	<12	<10	<11
Vinyl chloride		<12	<12	<12	<10	<11
Chloroethane		<12	<12	<12	<10	<11
Methylene chloride		<6	<6	<6	<5	<5
Acetone		<18	<23	<28	<10	<11
Carbon disulfide		<6	<6	<6	<5	<5
1,1-Dichloroethene		<6	<6	<6	<5	<5
1,1-Dichloroethane		<6	<6	<6	<5	<5
1,2-Dichloroethene (total)		<6	<6	<6	<5	<5
Chloroform		<6	<6	<6	<5	<5
1,2-Dichloroethane		<6	<6	<6	<5	<5
2-Butanone		<12	<12	<12	<10	<11
1,1,1-Trichloroethane		<6	<6	<6	<5	<5
Carbon tetrachloride		<6	<6	<6	<5	<5
Vinyl acetate		<12	<12	<12	<10	<11
Bromodichloromethane		<6	<6	<6	<5	<5
1,2-Dichloropropane		<6	<6	<6	<5	<5
cis-1,3-Dichloropropene		<6	<6	<6	<5	<5
Trichloroethene		<6	<6	<6	<5	<5
Dibromochloromethane		<6	<6	<6	<5	<5
1,1,2-Trichloroethane		<6	<6	<6	<5	<5
Benzene		<6	<6	<6	<5	<5
trans-1,3-Dichloropropene		<6	<6	<6	<5	<5
Bromoform		<6	<6	<6	<5	<5
4-Methyl-2-pentanone		<12	<12	<12	<10	<11
2-Hexanone		<12	<12	<12	<10	<11
Tetrachloroethene		<6	<6	<6	<5	<5
1,1,2,2-Tetrachloroethane		<6	<6	<6	<5	<5
Toluene		<6	<6	<6	2 J	<5
Chlorobenzene		<6	<6	<6	<5	<5
Ethylbenzene		<6	<6	<6	<5	<5
Styrene		<6	<6	<6	<5	<5
Xylene (total)		<6	<6	<6	<5	<5
<b>Total VOCs:</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>

VOCs Volatile organic compounds.  
 IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.  
 ug/kg Micrograms per kilogram.  
 ug/L Micrograms per liter.  
 BS Bottom sediment sample.  
 RW Recharge basin water sample.  
 J Estimated value.  
 R Unusable value.  
 Rep Replicate sample.



Table 4-11. Volatile Organic Compounds Detected in Recharge Basin Water and Bottom Sediment Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Parameters	Sample Designation: Sample Date: Laboratory: Units:	BS-3C 3/5/91 IEA ug/kg	BS-3D 3/5/91 IEA ug/kg	BS-4A 3/5/91 IEA ug/kg	BS-4B 3/5/91 IEA ug/kg	BS-4C 3/5/91 IEA ug/kg
Chloromethane		<10	<10	<10	<10	<10
Bromomethane		<10	<10	<10	<10	<10
Vinyl chloride		<10	<10	<10	<10	<10
Chloroethane		<10	<10	<10	<10	<10
Methylene chloride		<5	<5	<5	<6	<7
Acetone		<11	<10	<19	<12	<20
Carbon disulfide		<5	<5	<5	<5	<5
1,1-Dichloroethene		<5	<5	<5	<5	<5
1,1-Dichloroethane		<5	<5	<5	<5	<5
1,2-Dichloroethene (total)		<5	<5	<5	<5	<5
Chloroform		<5	<5	<5	<5	<5
1,2-Dichloroethane		<5	<5	<5	<5	<5
2-Butanone		<10	<10	<10	<10	<10
1,1,1-Trichloroethane		<5	<5	<5	<5	<5
Carbon tetrachloride		<5	<5	<5	<5	<5
Vinyl acetate		<10	<10	<10	<10	<10
Bromodichloromethane		<5	<5	<5	<5	<5
1,2-Dichloropropane		<5	<5	<5	<5	<5
cis-1,3-Dichloropropene		<5	<5	<5	<5	<5
Trichloroethene		<5	<5	<5	<5	<5
Dibromochloromethane		<5	<5	<5	<5	<5
1,1,2-Trichloroethane		<5	<5	<5	<5	<5
Benzene		<5	<5	<5	<5	<5
trans-1,3-Dichloropropene		<5	<5	<5	<5	<5
Bromoform		<5	<5	<5	<5	<5
4-Methyl-2-pentanone		<10	<10	<10	<10	<10
2-Hexanone		<10	<10	<10	<10	<10
Tetrachloroethene		<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane		<5	<5	<5	<5	<5
Toluene		<5	<5	2 J	<5	<5
Chlorobenzene		<5	<5	<5	<5	<5
Ethylbenzene		<5	<5	<5	<5	<5
Styrene		<5	<5	<5	<5	<5
Xylene (total)		<5	<5	<5	<5	<5
<b>Total VOCs:</b>		<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>

VOCs Volatile organic compounds.  
 IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.  
 ug/kg Micrograms per kilogram.  
 ug/L Micrograms per liter.  
 BS Bottom sediment sample.  
 RW Recharge basin water sample.  
 J Estimated value.  
 R Unusable value.  
 Rep Replicate sample.



Table 4-11. Volatile Organic Compounds Detected in Recharge Basin Water and Bottom Sediment Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Parameters	Sample Designation:	BS-4D	Field Blank	Trip	Trip
	Sample Date:	3/5/91	BS-1	Blank	Blank
	Laboratory:	IEA	3/5/91	3/5/91	3/6/91
	Units:	ug/kg	IEA	IEA	IEA
		ug/L	ug/L	ug/L	ug/L
Chloromethane	<10	<10	<10	<10	
Bromomethane	<10	<10	<10	<10	
Vinyl chloride	<10	<10	<10	<10	
Chloroethane	<10	<10	<10	<10	
Methylene chloride	<7	<5	<5	<5	
Acetone	<10	<10	<10	<10	
Carbon disulfide	<5	<5	<5	<5	
1,1-Dichloroethene	<5	<5	<5	<5	
1,1-Dichloroethane	<5	<5	<5	<5	
1,2-Dichloroethene (total)	<5	<5	<5	<5	
Chloroform	<5	<5	<5	<5	
1,2-Dichloroethane	<5	<5	<5	<5	
2-Butanone	<10	R	<10	R	
1,1,1-Trichloroethane	<5	<5	<5	<5	
Carbon tetrachloride	<5	<5	<5	<5	
Vinyl acetate	<10	<10	<10	<10	
Bromodichloromethane	<5	<5	<5	<5	
1,2-Dichloropropane	<5	<5	<5	<5	
cis-1,3-Dichloropropene	<5	<5	<5	<5	
Trichloroethene	<5	<5	<5	<5	
Dibromochloromethane	<5	<5	<5	<5	
1,1,2-Trichloroethane	<5	<5	<5	<5	
Benzene	<5	<5	<5	<5	
trans-1,3-Dichloropropene	<5	<5	<5	<5	
Bromoform	<5	<5	<5	<5	
4-Methyl-2-pentanone	<10	<10	<10	<10	
2-Hexanone	<10	<10	<10	<10	
Tetrachloroethene	<5	<5	<5	<5	
1,1,2,2-Tetrachloroethane	<5	<5	<5	<5	
Toluene	<5	<5	<5	<5	
Chlorobenzene	<5	<5	<5	<5	
Ethylbenzene	<5	<5	<5	<5	
Styrene	<5	<5	<5	<5	
Xylene (total)	<5	<5	<5	<5	
<b>Total VOCs:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	

VOCs Volatile organic compounds.  
 IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.  
 ug/kg Micrograms per kilogram.  
 ug/L Micrograms per liter.  
 BS Bottom sediment sample.  
 RW Recharge basin water sample.  
 J Estimated value.  
 R Unusable value.  
 Rep Replicate sample.



Table 4-12. Semivolatile Organic Compounds Detected in Recharge Basin Water and Bottom Sediment Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Parameters	Sample Designation:	RW-1	RW-2	RW-2 Rep	Field Blank	BS-1
	Sample Date:	3/5/91	3/5/91	3/5/91	RW-1 3/5/91	3/5/91
	Laboratory:	IEA	IEA	IEA	IEA	IEA
	Units:	ug/L	ug/L	ug/L	ug/L	ug/kg
Phenol		<10	<10	<10	<11	<430
bis(2-Chloroethyl)ether		<10	<10	<10	<11	<430
2-Chlorophenol		<10	<10	<10	<11	<430
1,3-Dichlorobenzene		<10	<10	<10	<11	<430
1,4-Dichlorobenzene		<10	<10	<10	<11	<430
Benzyl alcohol		<10	<10	<10	<11	<430
1,2-Dichlorobenzene		<10	<10	<10	<11	<430
2-Methylphenol		<10	<10	<10	<11	<430
bis(2-Chloroisopropyl)ether		<10	<10	<10	<11	<430
4-Methylphenol		<10	<10	<10	<11	<430
N-Nitroso-di-n-propylamine		<10	<10	<10	<11	<430
Hexachloroethane		<10	<10	<10	<11	<430
Nitrobenzene		<10	<10	<10	<11	<430
isophorone		<10	<10	<10	<11	<430
2-Nitrophenol		<10	<10	<10	<11	<430
2,4-Dimethylphenol		<10	<10	<10	<11	<430
Benzoic acid		<50	<50	<50	<53	120 J
bis(2-Chloroethoxy)methane		<10	<10	<10	<11	<430
2,4-Dichlorophenol		<10	<10	<10	<11	<430
1,2,4-Trichlorobenzene		<10	<10	<10	<11	<430
Naphthalene		<10	<10	<10	<11	<430
4-Chloroaniline		<10	<10	<10	<11	<430
Hexachlorobutadiene		<10	<10	<10	<11	<430
4-Chloro-3-methylphenol		<10	<10	<10	<11	<430
2-Methylnaphthalene		<10	<10	<10	<11	<430
Hexachlorocyclopentadiene		<10	<10	<10	<11	<430
2,4,6-Trichlorophenol		<10	<10	<10	<11	<430
2,4,5-Trichlorophenol		<50	<50	<50	<53	<2100
2-Chloronaphthalene		<10	<10	<10	<11	<430
2-Nitroaniline		<50	<50	<50	<53	<2100
Dimethylphthalate		<10	<10	<10	<11	<430
Acenaphthylene		<10	<10	<10	<11	<430
2,6-Dinitrotoluene		<10	<10	<10	<11	<430

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

ug/L Micrograms per liter.

ug/kg Micrograms per kilogram.

Rep Replicate sample.

BS Bottom sediment sample.

RW Recharge basin water sample.

J Estimated value.

R Unusable value.

BNAs Base neutral/acid extractable compounds.





Table 4-12. Semivolatile Organic Compounds Detected in Recharge Basin Water and Bottom Sediment Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Parameters	Sample Designation:	RW-1	RW-2	RW-2 Rep	Field Blank	
	Sample Date:	3/5/91	3/5/91	3/5/91	RW-1	BS-1
	Laboratory:	IEA	IEA	IEA	IEA	IEA
	Units:	ug/L	ug/L	ug/L	ug/L	ug/kg
3-Nitroaniline	R		R	R	R	<2100
Acenaphthene	<10	<10	<10	<10	<11	<430
2,4-Dinitrophenol	<50	<50	<50	<50	<53	<2100
4-Nitrophenol	<50	<50	<50	<50	<53	<2100
Dibenzofuran	<10	<10	<10	<10	<11	<430
2,4-Dinitrotoluene	<10	<10	<10	<10	<11	<430
Diethylphthalate	<10	<10	<10	<10	<11	20 J
4-Chlorophenyl-phenylether	<10	<10	<10	<10	<11	<430
Fluorene	<10	<10	<10	<10	<11	<430
4-Nitroaniline	<50	<50	<50	<50	<53	<2100
4,6-Dinitro-2-methylphenol	<50	<50	<50	<50	<53	<2100
N-Nitrosodiphenylamine	<10	<10	<10	<10	<11	<430
4-Bromophenyl-phenylether	<10	<10	<10	<10	<11	<430
Hexachlorobenzene	<10	<10	<10	<10	<11	<430
Pentachlorophenol	<50	<50	<50	<50	<53	<2100
Phenanthrene	<10	<10	<10	<10	<11	110 J
Anthracene	<10	<10	<10	<10	<11	13 J
Di-n-butylphthalate	<10	<10	<10	<10	<11	<430
Fluoranthene	<10	<10	<10	<10	<11	200 J
Pyrene	<10	<10	<10	<10	<11	200 J
Butylbenzylphthalate	<10	<10	<10	<10	<11	100 J
3,3'-Dichlorobenzidine	<20	<20	<20	<20	<21	<860
Benzo(a)anthracene	<10	<10	<10	<10	<11	61 J
Chrysene	<10	<10	<10	<10	<11	120 J
bis(2-Ethylhexyl)phthalate	<10	<10	<10	<10	<11	<430
Di-n-octylphthalate	<10	<10	<10	<10	<11	40 J
Benzo(b)fluoranthene	<10	<10	<10	<10	<11	130 J
Benzo(k)fluoranthene	<10	<10	<10	<10	<11	36 J
Benzo(a)pyrene	<10	<10	<10	<10	<11	95 J
Indeno(1,2,3-cd)pyrene	<10	<10	<10	<10	<11	69 J
Dibenzo(a,h)anthracene	<10	<10	<10	<10	<11	<430
Benzo(g,h,i)perylene	<10	<10	<10	<10	<11	61 J
<b>Total BNAs:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1375</b>

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

ug/L Micrograms per liter.

ug/kg Micrograms per kilogram.

Rep Replicate sample.

BS Bottom sediment sample.

RW Recharge basin water sample.

J Estimated value.

R Unusable value.

BNAs Base neutral/acid extractable compounds.



Table 4-12. Semivolatile Organic Compounds Detected in Recharge Basin Water and Bottom Sediment Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

	Sample Designation:	BS-2	BS-3	BS-4	Field Blank
	Sample Date:	3/5/91	3/5/91	3/5/91	BS-1 3/5/91
	Laboratory:	IEA	IEA	IEA	IEA
	Units:	ug/kg	ug/kg	ug/kg	ug/L
Parameters					
Phenol		<400	<340	<340	<11
bis(2-Chloroethyl)ether		<400	<340	<340	<11
2-Chlorophenol		<400	<340	<340	<11
1,3-Dichlorobenzene		<400	<340	<340	<11
1,4-Dichlorobenzene		<400	<340	<340	<11
Benzyl alcohol		<400	<340	<340	<11
1,2-Dichlorobenzene		<400	<340	<340	<11
2-Methylphenol		<400	<340	<340	<11
bis(2-Chloroisopropyl)ether		<400	<340	<340	<11
4-Methylphenol		<400	<340	<340	<11
N-Nitroso-di-n-propylamine		<400	<340	<340	<11
Hexachloroethane		<400	<340	<340	<11
Nitrobenzene		<400	<340	<340	<11
Isophorone		<400	<340	<340	<11
2-Nitrophenol		<400	<340	<340	<11
2,4-Dimethylphenol		<400	<340	<340	<11
Benzoic acid		<1900	<1600	<1600	<53
bis(2-Chloroethoxy)methane		<400	<340	<340	<11
2,4-Dichlorophenol		<400	<340	<340	<11
1,2,4-Trichlorobenzene		<400	<340	<340	<11
Naphthalene		29 J	<340	<340	<11
4-Chloroaniline		<400	<340	<340	<11
Hexachlorobutadiene		<400	<340	<340	<11
4-Chloro-3-methylphenol		<400	<340	<340	<11
2-Methylnaphthalene		<400	<340	<340	<11
Hexachlorocyclopentadiene		<400	<340	<340	<11
2,4,6-Trichlorophenol		<400	<340	<340	<11
2,4,5-Trichlorophenol		<1900	<1600	<1600	<53
2-Chloronaphthalene		<400	<340	<340	<11
2-Nitroaniline		<1900	<1600	<1600	<53
Dimethylphthalate		61 J	<340	<340	<11
Acenaphthylene		<400	<340	<340	<11
2,6-Dinitrotoluene		<400	<340	<340	<11

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.  
 ug/L Micrograms per liter.  
 ug/kg Micrograms per kilogram.  
 Rep Replicate sample.  
 BS Bottom sediment sample.  
 RW Recharge basin water sample.  
 J Estimated value.  
 R Unusable value.  
 BNAs Base neutral/acid extractable compounds.



Table 4-12. Semivolatile Organic Compounds Detected in Recharge Basin Water and Bottom Sediment Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Parameters	Sample Designation:	BS-2	BS-3	BS-4	Field Blank
	Sample Date:	3/5/91	3/5/91	3/5/91	BS-1 3/5/91
	Laboratory:	IEA	IEA	IEA	IEA
	Units:	ug/kg	ug/kg	ug/kg	ug/L
3-Nitroaniline		<1900	R	R	R
Acenaphthene		140 J	<340	<340	<11
2,4-Dinitrophenol		<1900	<1600	<1600	<53
4-Nitrophenol		<1900	<1600	<1600	<53
Dibenzofuran		63 J	<340	<340	<11
2,4-Dinitrotoluene		<400	<340	<340	<11
Diethylphthalate		<400	<340	<340	<11
4-Chlorophenyl-phenylether		<400	<340	<340	<11
Fluorene		110 J	<340	<340	<11
4-Nitroaniline		<1900	<1600	<1600	<53
4,6-Dinitro-2-methylphenol		<1900	<1600	<1600	<53
N-Nitrosodiphenylamine		<400	<340	<340	<11
4-Bromophenyl-phenylether		<400	<340	<340	<11
Hexachlorobenzene		<400	<340	<340	<11
Pentachlorophenol		<1900	<1600	<1600	<53
Phenanthrene		1300	48 J	25 J	<11
Anthracene		180 J	<340	<340	<11
Di-n-butylphthalate		<400	<340	<340	<11
Fluoranthene		1800	110 J	51 J	<11
Pyrene		1900	90 J	42 J	<11
Butylbenzylphthalate		680	54 J	28 J	<11
3,3'-Dichlorobenzidine		<800	<680	<670	<21
Benzo(a)anthracene		750	28 J	<340	<11
Chrysene		1100	62 J	30 J	<11
bis(2-Ethylhexyl)phthalate		1400	<340	<340	<11
Di-n-octylphthalate		140 J	<340	8 J	<11
Benzo(b)fluoranthene		730	61 J	34 J	<11
Benzo(k)fluoranthene		280 J	19 J	11 J	<11
Benzo(a)pyrene		990	43 J	20 J	<11
Indeno(1,2,3-cd)pyrene		410	45 J	25 J	<11
Dibenzo(a,h)anthracene		70 J	8 J	<340	<11
Benzo(g,h,i)perylene		320 J	46 J	24 J	<11
<b>Total BNAs:</b>		<b>12453</b>	<b>614</b>	<b>298</b>	<b>0</b>

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.  
 ug/L Micrograms per liter.  
 ug/kg Micrograms per kilogram.  
 Rep Replicate sample.  
 BS Bottom sediment sample.  
 RW Recharge basin water sample.  
 J Estimated value.  
 R Unusable value.  
 BNAs Base neutral/acid extractable compounds.



Table 4-13. Pesticides and PCBs Detected in Recharge Basin Water and Bottom Sediment Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Parameters	Sample Designation:	RW-1	RW-2	RW-2 Rep	Field Blank	BS-1
	Sample Date:	3/5/91	3/5/91	3/5/91	RW-1 3/5/91	3/5/91
	Laboratory:	IEA	IEA	IEA	IEA	IEA
	Units:	ug/L	ug/L	ug/L	ug/L	ug/kg
alpha-BHC		<0.051	<0.056	<0.050	<0.056	<10
beta-BHC		<0.051	<0.056	<0.050	<0.056	<10
delta-BHC		<0.051	<0.056	<0.050	<0.056	<10
gamma-BHC		<0.051	<0.056	<0.050	<0.056	<10
Heptachlor		<0.051	<0.056	<0.050	<0.056	<10
Aldrin		<0.051	<0.056	<0.050	<0.056	<10
Heptachlor epoxide		<0.051	<0.056	<0.050	<0.056	<10
Endosulfan I		<0.051	<0.056	<0.050	<0.056	<10
Dieldrin		<0.10	<0.11	<0.10	<0.11	<21
4,4'-DDE		<0.10	<0.11	<0.10	<0.11	<21
Endrin		<0.10	<0.11	<0.10	<0.11	<21
Endosulfan II		<0.10	<0.11	<0.10	<0.11	<21
4,4'-DDD		<0.10	<0.11	<0.10	<0.11	<21
Endosulfan sulfate		<0.10	<0.11	<0.10	<0.11	<21
4,4'-DDT		<0.10	<0.11	<0.10	<0.11	<21
Methoxychlor		<0.51	<0.56	<0.50	<0.56	<100
Endrin ketone		<0.10	<0.11	<0.10	<0.11	<21
alpha-Chlordane		<0.51	<0.56	<0.50	<0.56	<100
gamma-Chlordane		<0.51	<0.56	<0.50	<0.56	<100
Toxaphene		<1.0	<1.1	<1.0	<1.1	<210
Aroclor-1016		<0.51	<0.56	<0.50	<0.56	<100
Aroclor-1221		<0.51	<0.56	<0.50	<0.56	<100
Aroclor-1232		<0.51	<0.56	<0.50	<0.56	<100
Aroclor-1242		<0.51	<0.56	<0.50	<0.56	<100
Aroclor-1248		<0.51	<0.56	<0.50	<0.56	<100
Aroclor-1254		<1.0	<1.1	<1.0	<1.1	640
Aroclor-1260		<1.0	<1.1	<1.0	<1.1	380

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.  
 ug/L Micrograms per liter.  
 ug/kg Micrograms per kilogram.  
 Rep Replicate sample.  
 BS Bottom sediment sample.  
 RW Recharge basin water sample.  
 J Estimated value.  
 PCBs Polychlorinated biphenyls.



Table 4-13. Pesticides and PCBs Detected in Recharge Basin Water and Bottom Sediment Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Parameters	Sample Designation:	BS-2	BS-3	BS-4	Field Blank
	Sample Date:	3/5/91	3/5/91	3/5/91	BS-1 3/5/91
	Laboratory:	IEA	IEA	IEA	IEA
	Units:	ug/kg	ug/kg	ug/kg	ug/L
alpha-BHC	<9.6	<8.2	<8.2	<0.056	
beta-BHC	<9.6	<8.2	<8.2	<0.056	
delta-BHC	<9.6	<8.2	<8.2	<0.056	
gamma-BHC	<9.6	<8.2	<8.2	<0.056	
Heptachlor	<9.6	<8.2	<8.2	<0.056	
Aldrin	<9.6	<8.2	<8.2	<0.056	
Heptachlor epoxide	<9.6	<8.2	<8.2	<0.056	
Endosulfan I	<9.6	<8.2	<8.2	<0.056	
Dieldrin	<19	<16	<16	<0.11	
4,4'-DDE	<19	<16	<16	<0.11	
Endrin	<19	<16	<16	<0.11	
Endosulfan II	<19	<16	<16	<0.11	
4,4'-DDD	<19	<16	<16	<0.11	
Endosulfan sulfate	<19	<16	<16	<0.11	
4,4'-DDT	<19	<16	<16	<0.11	
Methoxychlor	<96	<82	<82	<0.56	
Endrin ketone	<19	<16	<16	<0.11	
alpha-Chlordane	<96	<82	<82	<0.56	
gamma-Chlordane	<96	<82	<82	<0.56	
Toxaphene	<190	<160	<160	<1.1	
Aroclor-1016	<96	<82	<82	<0.56	
Aroclor-1221	<96	<82	<82	<0.56	
Aroclor-1232	<96	<82	<82	<0.56	
Aroclor-1242	<96	<82	<82	<0.56	
Aroclor-1248	140	52 J	69 J	<0.56	
Aroclor-1254	72 J	40 J	100 J	<1.1	
Aroclor-1260	<190	<160	<160	<1.1	

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.  
 ug/L Micrograms per liter.  
 ug/kg Micrograms per kilogram.  
 Rep Replicate sample.  
 BS Bottom sediment sample.  
 RW Recharge basin water sample.  
 J Estimated value.  
 PCBs Polychlorinated biphenyls.



Table 4-14. Inorganic Parameters Detected in Recharge Basin Water and Bottom Sediment Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	RW-1 (Total)	RW-1 (Dissolved)	RW-2 (Total)	RW-2 (Dissolved)
Sample Date:	3/5/91	3/5/91	3/5/91	3/5/91
Laboratory:	IEA	IEA	IEA	IEA
Units:	ug/L	ug/L	ug/L	ug/L
Parameters				
Aluminum	<187	<35.0	<227	<35.0
Antimony	<26.0	<26.0	<26.0	<26.0
Arsenic	<1.0	<1.0	<1.0	<1.0
Barium	6.2 B	6.2 B	6.2 B	5.3 B
Beryllium	<1.0	<1.0	<1.0	<1.0
Cadmium	<2.0	<2.0	<2.0	<2.0
Calcium	4390 B	3890 B	4190 B	3680 B
Chromium	5.1 B	<4.0	<4.0	<4.0
Cobalt	<3.0	<3.0	<3.0	<3.0
Copper	23.3 B	14.4 B	14.1 B	<12.0
Iron	302	<60.0	290	63.1 B
Lead	7.3	<1.0 J	9.1	<1.0
Magnesium	1320 B	1260 B	1160 B	1080 B
Manganese	<4.9	4.4 B	7.1 B	3.7 B
Mercury	<0.20	<0.20	<0.20	<0.20
Nickel	<13.0	<13.0	<13.0	<13.0
Potassium	614 B	620 B	<570	<570
Selenium	<1.0	<1.0	<1.0	<1.0
Silver	<3.0	<3.0	<3.0	<3.0
Sodium	7280	7310	6430	6170
Thallium	<2.0	<2.0	<2.0	<2.0
Vanadium	<2.0	2.6 B	<2.0	<2.0
Zinc	<37.8	<36.6	<49.7	<42
Cyanide	<10.0	NA	<10.0	NA
pH	7.34	NA	6.78	NA
Hexavalent chromium	<0.010 (a)	NA	<0.010 (a)	NA

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

ug/L Micrograms per liter.

mg/kg Milligrams per kilogram.

Rep Replicate sample.

BS Bottom sediment sample.

RW Recharge basin water sample.

NA Not analyzed.

J Estimated value.

B Concentration is between the instrument detection limit and the contract required detection limit.

(a) This parameter was resampled on March 20, 1991, due to laboratory exceeding holding time on original sample.



Table 4-14. Inorganic Parameters Detected in Recharge Basin Water and Bottom Sediment Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Parameters	Sample Designation:	RW-2 Rep	RW-2 Rep	Field Blank	Field Blank
	Sample Date:	(Total)	(Dissolved)	RW-1	RW-1
	Laboratory:	3/5/91	3/5/91	(Total)	(Dissolved)
	Units:	IEA	IEA	IEA	IEA
		ug/L	ug/L	ug/L	ug/L
Aluminum		291	41 B	<45.2	<35.0
Antimony		<26.0	<26.0	<26.0	<26.0
Arsenic		<1.0	1.1 B	<1.0	<1.0
Barium		6.2 B	5.3 B	<2.0	<2.0
Beryllium		<1.0	<1.0	<1.0	<1.0
Cadmium		<2.0	<2.0	<2.0	<2.0
Calcium		4080 B	3760 B	<781	<354
Chromium		5.3 B	<4.0	<4.0	<4.0
Cobalt		<3.0	<3.0	<3.0	<3.0
Copper		27.4	<12.0	<12.0	<12.0
Iron		494	<60.0	<60.0	<60.0
Lead		11.1	<1.0	<1.0	<1.0
Magnesium		1180 B	1080 B	<60.5	<31.4
Manganese		9.4 B	3.7 B	1 B	<1.0
Mercury		<0.20	<0.20	<0.20	<0.20
Nickel		<13.0	<13.0	<13	<13.0
Potassium		583 B	<570	<570	<570
Selenium		<1.0	<1.0	<1.0	<1.0
Silver		<3.0	<3.0	<3.0	<3.0
Sodium		6340	6240	222 B	122 B
Thallium		<2.0	<2.0	<2.0	<2.0
Vanadium		<2.0	<2.0	<2.0	<2.0
Zinc		<47.7	<54.4	<19.1	<16.7
Cyanide		<10.0	NA	<10.0	NA
pH		6.69	NA	6.91	NA
Hexavalent chromium		<0.010 (a)	NA	<0.010 (a)	NA

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

ug/L Micrograms per liter.

mg/kg Milligrams per kilogram.

Rep Replicate sample.

BS Bottom sediment sample.

RW Recharge basin water sample.

NA Not analyzed.

J Estimated value.

B Concentration is between the instrument detection limit and the contract required detection limit.

(a) This parameter was resampled on March 20, 1991, due to laboratory exceeding holding time on original sample.



Table 4-14. Inorganic Parameters Detected in Recharge Basin Water and Bottom Sediment Samples, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Parameters	Sample Designation: Sample Date: Laboratory: Units:	BS-1 3/5/91 IEA mg/kg	BS-2 3/5/91 IEA mg/kg	BS-3 3/5/91 IEA mg/kg	BS-4 3/5/91 IEA mg/kg	Field Blank BS-1 3/5/91 IEA ug/L
Aluminum		2810	1030	4190	1870	<40.5
Antimony		<6.7	<5.9	<5.1	<4.1	<26.0
Arsenic		1.1 B	1.4 B	1.6 B	1.1 B	<1.0
Barium		13.2 B	<3.5	10.7 B	<5.7	<2.0
Beryllium		<0.26	<0.23	0.38 B	0.2 B	<1.0
Cadmium		1.0 B	<0.45	0.98	0.44 B	<2.0
Calcium		424 B	<85.3	<149	<54.0	<387
Chromium		121 J	21.8 J	41.9 J	40.1 J	<4.0
Cobalt		2.3 B	0.71 B	3.8 B	0.91 B	<3.0
Copper		275	71.4	130	50.5	<12.0
Iron		4840 J	3940 J	12100 J	9510 J	<60.0
Lead		51.0 J	25.1 J	23.0 J	15.8 J	<1.0
Magnesium		523 B	141 B	411 B	219 B	<31.4
Manganese		29.5	22.9	112	33.9	<1.0
Mercury		0.15	<0.13	<0.10	<0.10	<0.20
Nickel		13.0	3.2 B	5.8 B	3.3 B	<13.0
Potassium		151 B	<129	158 B	99.0 B	<570
Selenium		<0.20	<0.18	<0.18	<0.16	<1.0 J
Silver		21.8	3.9	5.2	11.3	<3.0
Sodium		<58.1	<18.4	<22.1	<20.0	361 B
Thallium		<0.40	<0.37	<0.36	<0.33 J	<2.0
Vanadium		10.4 B	6.5 BJ	14.2 J	9.8 J	<2.0
Zinc		<77.3	<9.8	<34.2	<10.7	86
Cyanide		<3.2	<3.2	<2.6	<2.5	<10.0
pH		6.76	6.79	6.98	5.00	7.07
Hexavalent chromium		<0.310	<0.130	0.26	0.37	NA

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

ug/L Micrograms per liter.

mg/kg Milligrams per kilogram.

Rep Replicate sample.

BS Bottom sediment sample.

RW Recharge basin water sample.

NA Not analyzed.

J Estimated value.

B Concentration is between the instrument detection limit and the contract required detection limit.

(a) This parameter was resampled on March 20, 1991, due to laboratory exceeding holding time on original sample.





Table 4-15. Well Construction Details, Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Westbury, New York.

Well Designation	Well Diameter (inches)	Total Well Depth (ft below land surface)	Screen Interval (ft below land surface)	Gravel Pack Interval (ft below land surface)	Fine Sand Interval (ft below land surface)	Bentonite Seal Interval (ft below land surface)	Grout Interval (ft below land surface)	Drilling Methodology	Land Surface Elevation (ft relative to mean sea level)	Measuring Point Elevation (ft relative to mean sea level)
GM-1S	4	73	63 - 73	59 - 73	55 - 59	50 - 55	3 - 50	HSA	141.20	140.47
GM-1I	4	125	115 - 125	109 - 125	106 - 109	101 - 106	3 - 101	HSA	141.21	140.43
GM-2S (N-10590)	2	76	73 - 76	N/I	N/I	N/I	N/I	N/I	N/I	134.78
GM-2I	4	115	105 - 115	100 - 115	97 - 100	93 - 97	3 - 93	HSA	134.82	134.08
GM-3S (N-10812)	2	93	89 - 93	N/I	N/I	N/I	N/I	N/I	N/I	135.54
GM-3I	4	120	110 - 120	103.5 - 120	100 - 103.5	95 - 100	3 - 95	HSA	134.45	133.78
GM-4S (S-1)	2	70	55 - 70	51 - 71	N/A	48.5 - 51	0 - 48.5	HSA	N/I	133.21
GM-4I (S-2)	2	130	120 - 130	117 - 131	N/A	112 - 117	0 - 112	HSA	N/I	133.21
GM-5S (T-1)	2	68	53 - 68	50.1 - 70.5	N/A	48.1 - 50.1	0 - 48.1	HSA	N/I	131.21
GM-5I (T-2)	2	129.1	119.1 - 129.1	116.5 - 130.2	N/A	112.5 - 116	0 - 112.5	HSA	N/I	131.37
GM-6S (P-3)	2	77.7	N/I	N/I	N/I	N/I	N/I	N/I	N/I	134.30
GM-6I	4	143	133 - 143	128 - 143	124 - 128	119 - 124	3 - 119	HSA	125.62	124.72
GM-7S	4	59	49 - 59	45 - 59	42 - 45	38 - 42	3 - 38	HSA	128.20	127.51
GM-7I	4	105	105 - 115	100 - 115	96 - 100	92 - 96	3 - 92	HSA	128.08	127.44
GM-7D	4	220	210 - 220	197 - 220	189 - 197	184 - 189	3 - 184	HSA, MR, RR	128.27	127.64
GM-8S	4	58	48 - 58	43.5 - 58	40.5 - 43.5	35 - 40.5	3 - 35	HSA	127.97	127.19
GM-8I	4	115	105 - 115	100 - 115	96 - 100	92 - 96	3 - 92	HSA	127.94	127.09
GM-9S (K-1)	2	68	53 - 68	50.6 - 69	N/A	49 - 50.6	0 - 49	HSA	N/I	130.56
GM-9I (K-2)	2	130	120 - 130	115.8 - 131.5	N/A	110 - 115.8	0 - 110	HSA	N/I	130.55
GM-10S (P-5)	4	67.7	N/I	N/I	N/I	N/I	N/I	N/I	N/I	122.70
GM-10I	4	120	110 - 120	104 - 120	100 - 104	95 - 100	3 - 95	HSA	120.70	120.11
GM-12S	4	55	45 - 55	39.5 - 55	35.5 - 39.5	30 - 35.5	3 - 30	HSA	121.21	120.55
GM-12I	4	116	106 - 116	101 - 106	96.5 - 101	92 - 96.5	3 - 92	HSA	121.07	120.51
GM-13S (N - 10595)	2	67	63 - 67	N/I	N/I	N/I	N/I	N/A	N/I	115.76
GM-13I (N - 10629)	2	109	105 - 109	N/I	N/I	N/I	N/I	N/A	117	116.04
GM-13D	4	210	200 - 210	189 - 210	185 - 189	175 - 185	3 - 175	HSA, MR, RR	114.64	113.97
GM-14S (N-10625)	2	67	63 - 67	N/I	N/I	N/I	N/I	HSA	116	115.95
GM-14I	4	110	100 - 110	95 - 100	91 - 95	86 - 91	3 - 91	HSA	114.79	113.91
GM-15S (N-10626)	2	67	63 - 67	N/I	N/I	N/I	N/I	N/I	N/I	111.83
GM-15I	4	105	95 - 105	89 - 95	85 - 89	80 - 85	3 - 80	HSA	110.11	109.29
GM-16S	4	53	43 - 53	38 - 53	35 - 38	30 - 35	3 - 30	HSA	116.40	115.77
GM-16I	4	145	135 - 145	129 - 145	125 - 129	120 - 125	3 - 120	HSA	116.49	115.81
GM-17S	4	48	38 - 48	33.5 - 48	29.5 - 33.5	24 - 29.5	3 - 24	HSA	116.44	115.66
GM-18S (N-10599)	2	67	63 - 67	N/I	N/I	N/I	N/I	N/I	N/I	107.60
GM-18I	4	105	95 - 105	87 - 105	82 - 87	77 - 82	3 - 77	HSA	109.74	109.03
GM-19S	4	53	38 - 43, 48 - 53	33 - 53	30 - 33	27 - 30	3 - 27	HSA	110.51	109.86
GM-19I	4	140	130 - 140	125 - 140	120 - 125	115 - 120	3 - 115	HSA	110.53	109.86
GM-20S (N-10632)	2	67	63 - 67	N/I	N/I	N/I	N/I	N/I	N/I	103.85
GM-20I	4	105	95 - 105	90 - 105	85 - 90	80 - 85	3 - 80	HSA	104.50	103.88
GM-20D	4	226	216 - 226	200 - 226	193 - 200	188 - 193	3 - 188	HSA, MR, RR	104.23	103.92
GM-21S (N-10601)	2	67	63 - 67	N/I	N/I	N/A	N/A	N/I	N/I	105.81
GM-21I	4	140	130 - 140	127.3 - 140	124 - 127.3	120 - 124	3 - 120	HSA	106.11	105.72
GM-22S	4	46	36 - 46	32.7 - 46	30 - 32.7	25 - 30	3 - 25	HSA	107.32	106.56
GM-22I	4	100	90 - 100	85.6 - 100	82 - 85.6	77 - 82	3 - 77	HSA	107.08	106.27
GM-23S	4	56	46 - 56	42.5 - 46	38.5 - 42.5	33 - 38.5	3 - 33	HSA	119.96	119.33
GM-23I	4	120	110 - 120	104 - 120	100 - 104	95 - 100	3 - 95	HSA	120.01	118.94

MR Mud rotary.  
ft Feet.  
HSA Hollow-stem auger.

GM Grumman well designation.  
S, T, K, P, N Existing wells.  
RR Reverse rotary.

N/A Not applicable.  
N/I No information.

WELLCONS XLS

Table 4 -16. Volatile Organic Compounds Detected in Groundwater Samples During the Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Parameter	-----Replicate-----							
	Sample Designation:	GM-1S *	GM-REP 1 *	GM-11 *	GM-2S	GM-2I	GM-3S *	GM-3I *
	Sample Date:	10/21/91	10/21/91	10/21/91	10/24/91	10/24/91	10/21/91	10/22/91
	Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	
Chloromethane	<10	<10	<10	<10	<10	<10	<10	<10
Bromomethane	<10	<10	<10	<10	<10	<10	<10	<10
Vinyl chloride	<10	<10	<10	<10	<10	<10	<10	<10
Chloroethane	<10	<10	<10	<10	<10	<10	<10	<10
Methylene chloride	<5	<5	<5	<5	<5	<5	<5	<5
Acetone	<10	<10	<10	<10	<10	<10	<10	<10
Carbon disulfide	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethene	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethane	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroethene (total)	<5	<5	<5	<5	<5	<5	<5	<5
Chloroform	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroethane	<5	<5	<5	<5	<5	<5	<5	<5
2-Butanone	<10	<10	<10	R	R	<10	<10	R
1,1,1-Trichloroethane	<5	<5	3 J	<5	<5	<5	<5	1 J
Carbon tetrachloride	<5	<5	<5	<5	<5	<5	<5	<5
Vinyl acetate	<10	<10	<10	<10	<10	<10	<10	<10
Bromodichloromethane	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloropropane	<5	<5	<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	<5	<5	<5	<5	<5	<5	<5	<5
Trichloroethene	<5	<5	<5	<5	<5	<5	<5	2 J
Dibromochloromethane	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	<5	<5	<5	<5	<5	<5	<5	<5
Benzene	<5	<5	<5	<5	<5	<5	<5	<5
trans-1,3-Dichloropropene	<5	<5	<5	<5	<5	<5	<5	<5
Bromoform	<5	<5	<5	<5	<5	<5	<5	<5
4-Methyl-2-pentanone	<10	<10	<10	<10	<10	<10	<10	<10
2-Hexanone	<10	<10	<10	<10	<10	<10	<10	<10
Tetrachloroethene	<5	<5	<5	<5	<5	<5	<5	5
1,1,2,2-Tetrachloroethane	<5	<5	<5	<5	<5	<5	<5	<5
Toluene	<5	<5	<5	<5	<5	<5	<5	<5
Chlorobenzene	<5	<5	<5	<5	<5	<5	<5	<5
Ethylbenzene	<5	<5	<5	<5	<5	<5	<5	<5
Styrene	<5	<5	<5	<5	<5	<5	<5	<5
Xylene (total)	<5	<5	<5	<5	<5	<5	<5	<5
<b>Total VOCs:</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>8</b>

VOCs Volatile organic compounds

ug/L Micrograms per liter.

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

J Estimated value.

R Unusable value.

\* Groundwater sample split with New York State Department of Environmental Conservation. The results for these samples were reviewed qualitatively for the following: (1) analysis of holding times, (2) calibration results, (3) blank results, (4) and spike recoveries.



Table 4 -16. Volatile Organic Compounds Detected in Groundwater Samples During the Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Parameter	Sample Designation: Sample Date: Laboratory: Units:	GM-4S 10/23/91 IEA ug/L	GM-4i 10/23/91 IEA ug/L	GM-5S 10/23/91 IEA ug/L	GM-5i 10/23/91 IEA ug/L	GM-6S 10/24/91 IEA ug/L	GM-6i 10/25/91 IEA ug/L	GM-7S * 10/22/91 IEA ug/L
Chloromethane		<10	<10	<10	<10	<10	<10	<10
Bromomethane		<10	<10	<10	<10	<10	<10	<10
Vinyl chloride		<10	<10	<10	<10	<10	<10	<10
Chloroethane		<10	<10	<10	<10	<10	<10	<10
Methylene chloride		<5	<5	<5	<5	<5	<5	<5
Acetone		<10	<10	<10	<10	<10	<10	<10
Carbon disulfide		<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethene		<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethane		<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroethene (total)		<5	<5	<5	<5	<5	<5	<5
Chloroform		<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroethane		<5	<5	<5	<5	<5	<5	<5
2-Butanone		R	<10	<10	<10	R	R	R
1,1,1-Trichloroethane		<5	4 J	<5	<5	<5	<5	4 J
Carbon tetrachloride		<5	<5	<5	<5	<5	<5	<5
Vinyl acetate		<10	<10	<10	<10	<10	<10	<10
Bromodichloromethane		<5	<5	<5	<5	<5	<5	<5
1,2-Dichloropropane		<5	<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene		<5	<5	<5	<5	<5	<5	<5
Trichloroethene		<5	2 J	<5	<5	<5	3 J	6
Dibromochloromethane		<5	<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane		<5	<5	<5	<5	<5	<5	<5
Benzene		<5	<5	<5	<5	<5	<5	<5
trans-1,3-Dichloropropene		<5	<5	<5	<5	<5	<5	<5
Bromoform		<5	<5	<5	<5	<5	<5	<5
4-Methyl-2-pentanone		<10	<10	<10	<10	<10	<10	<10
2-Hexanone		<10	<10	<10	<10	<10	<10	<10
Tetrachloroethene		8	10	<5	17	<5	<5	<5
1,1,1,2-Tetrachloroethane		<5	<5	<5	<5	<5	<5	<5
Toluene		<5	<5	<5	<5	<5	<5	<5
Chlorobenzene		<5	<5	<5	<5	<5	<5	<5
Ethylbenzene		<5	<5	<5	<5	<5	<5	<5
Styrene		<5	<5	<5	<5	<5	<5	<5
Xylene (total)		<5	<5	<5	<5	<5	<5	<5
<b>Total VOCs:</b>		<b>8</b>	<b>16</b>	<b>0</b>	<b>17</b>	<b>0</b>	<b>3</b>	<b>10</b>

VOCs Volatile organic compounds

ug/L Micrograms per liter.

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

J Estimated value.

R Unusable value.

\* Groundwater sample split with New York State Department of Environmental Conservation. The results for these samples were reviewed qualitatively for the following: (1) analysis of holding times, (2) calibration results, (3) blank results, (4) and spike recoveries.



Table 4 -16. Volatile Organic Compounds Detected in Groundwater Samples During the Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	GM-7I *	GM-7D *	GM-8S	GM-8I	GM-9S *	GM-9I	GM-10S
Sample Date:	10/22/91	10/22/91	10/25/91	10/25/91	10/23/91	10/23/91	10/24/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameter							
Chloromethane	<10	<10	<10	<10	<10	<10	<10
Bromomethane	<10	<10	<10	<10	<10	<10	<10
Vinyl chloride	<10	<10	<10	<10	<10	5 J	<10
Chloroethane	<10	<10	<10	<10	<10	<10	<10
Methylene chloride	<5	<5	<5	<5	<5	<5	<5
Acetone	<10	<10	<10	<10	<10	<10	<10
Carbon disulfide	<5	<5	<5	<5	<5	1 J	<5
1,1-Dichloroethene	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethane	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroethene (total)	<5	<5	<5	<5	<5	<5	<5
Chloroform	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroethane	<5	<5	<5	<5	<5	<5	<5
2-Butanone	R	<10	R	R	R	R	R
1,1,1-Trichloroethane	2 J	2 J	<5	2 J	<5	<5	<5
Carbon tetrachloride	<5	<5	<5	<5	<5	<5	<5
Vinyl acetate	<10	<10	<10	<10	<10	<10	<10
Bromodichloromethane	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloropropane	<5	<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	<5	<5	<5	<5	<5	<5	<5
Trichloroethene	11	8	<5	6	<5	<5	<5
Dibromochloromethane	<5	<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	<5	<5	<5	<5	<5	<5	<5
Benzene	<5	<5	<5	<5	<5	<5	<5
trans-1,3-Dichloropropene	<5	<5	<5	<5	<5	<5	<5
Bromoform	<5	<5	<5	<5	<5	<5	<5
4-Methyl-2-pentanone	<10	<10	<10	<10	<10	<10	<10
2-Hexanone	<10	<10	<10	<10	<10	<10	<10
Tetrachloroethene	3 J	<5	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	<5	<5	<5	<5	<5	<5	<5
Toluene	<5	<5	<5	<5	<5	<5	<5
Chlorobenzene	<5	<5	<5	<5	<5	<5	<5
Ethylbenzene	<5	<5	<5	<5	<5	3 J	<5
Styrene	<5	<5	<5	<5	<5	<5	<5
Xylene (total)	<5	<5	<5	<5	<5	1 J	<5
<b>Total VOCs:</b>	<b>16</b>	<b>10</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>10</b>	<b>0</b>

VOCs Volatile organic compounds

ug/L Micrograms per liter.

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

J Estimated value.

R Unusable value.

\* Groundwater sample split with New York State Department of Environmental Conservation. The results for these samples were reviewed qualitatively for the following: (1) analysis of holding times, (2) calibration results, (3) blank results, (4) and spike recoveries.



Table 4 -16. Volatile Organic Compounds Detected in Groundwater Samples During the Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Parameter	-----Replicate-----							
	Sample Designation:	GM-10I	GM-REP2	GM-12S	GM-12I	GM-13S *	GM-13I *	GM-13D *
	Sample Date:	10/25/91	10/25/91	10/28/91	10/28/91	10/22/91	10/22/91	10/23/91
	Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	
Chloromethane	<10	<10	<10	<200	<10	<10	<20	
Bromomethane	<10	<10	<10	<200	<10	<10	<20	
Vinyl chloride	<10	<10	<10	<200	<10	<10	<20	
Chloroethane	<10	<10	<10	<200	<10	<10	<20	
Methylene chloride	<5	<5	<5	<100	<5	<5	<20	
Acetone	<12	<10	<10	<200	<10	<10	3 J	
Carbon disulfide	<5	<5	<5	<100	<5	<5	<10	
1,1-Dichloroethene	2 J	3 J	<5	<100	2 J	5	73	
1,1-Dichloroethane	<5	<5	<5	<100	5	8	36	
1,2-Dichloroethene (total)	3 J	3 J	6	<100	11	23	140	
Chloroform	<5	<5	<5	<100	<5	<5	<10	
1,2-Dichloroethane	<5	<5	<5	<100	<5	<5	<10	
2-Butanone	R	R	<10	<200	<10	<10	R	
1,1,1-Trichloroethane	7	10	<5	<100	26	52	82	
Carbon tetrachloride	<5	<5	<5	<100	<5	<5	<10	
Vinyl acetate	<10	<10	<10	<200	<10	<10	<20	
Bromodichloromethane	<5	<5	<5	<100	<5	<5	<10	
1,2-Dichloropropane	<5	<5	<5	<100	<5	<5	<10	
cis-1,3-Dichloropropene	<5	<5	<5	<100	<5	<5	<10	
Trichloroethene	25	32	45	3100	37	36	260	
Dibromochloromethane	<5	<5	<5	<100	<5	<5	<10	
1,1,2-Trichloroethane	<5	<5	<5	<100	<5	<5	<10	
Benzene	<5	<5	<5	<100	<5	<5	<10	
trans-1,3-Dichloropropene	<5	<5	<5	<100	<5	<5	<10	
Bromoform	<5	<5	<5	<100	<5	<5	<10	
4-Methyl-2-pentanone	<10	<10	<10	<200	<10	<10	<20	
2-Hexanone	<10	<10	<10	<200	<10	<10	<20	
Tetrachloroethene	6	7	<5	<100	110	110	37	
1,1,2,2-Tetrachloroethane	<5	<5	<5	<100	<5	<5	<10	
Toluene	<5	<5	<5	<100	<5	<5	<10	
Chlorobenzene	<5	<5	<5	<100	<5	<5	<10	
Ethylbenzene	<5	<5	<5	<100	<5	<5	<10	
Styrene	<5	<5	<5	<100	<5	<5	<10	
Xylene (total)	<5	<5	<5	<100	<5	<5	<10	
<b>Total VOCs:</b>	<b>43</b>	<b>55</b>	<b>51</b>	<b>3100</b>	<b>191</b>	<b>234</b>	<b>631</b>	

VOCs Volatile organic compounds

ug/L Micrograms per liter.

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

J Estimated value.

R Unusable value.

\* Groundwater sample split with New York State Department of Environmental Conservation. The results for these samples were reviewed qualitatively for the following: (1) analysis of holding times, (2) calibration results, (3) blank results, (4) and spike recoveries.



**Table 4 -16. Volatile Organic Compounds Detected in Groundwater Samples During the Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.**

Parameter	Sample Designation: GM-14S Sample Date: 10/24/91 Laboratory: IEA Units: ug/L	GM-14I 10/28/91 IEA ug/L	GM-15S 10/24/91 IEA ug/L	GM-15I 10/28/91 IEA ug/L	GM-16S 10/29/91 IEA ug/L	GM-16I 10/29/91 IEA ug/L	GM-17S * 10/24/91 IEA ug/L
Chloromethane	<10	<100	<10	<10	<10	<10	<10
Bromomethane	<10	<100	<10	<10	<10	<10	<10
Vinyl chloride	<10	<100	<10	<10	<10	<10	<10
Chloroethane	<10	<100	<10	<10	<10	<10	<10
Methylene chloride	<5	<50	<5	<5	<5	<5	<5
Acetone	<10	64 J	<10	<10	<10	<10	<10
Carbon disulfide	<5	<50	<5	<5	<5	<5	<5
1,1-Dichloroethene	<5	86	<5	<5	<5	<5	<5
1,1-Dichloroethane	<5	49 J	<5	<5	<5	<5	<5
1,2-Dichloroethene (total)	<5	130	<5	<5	<5	<5	<5
Chloroform	<5	<50	<5	<5	<5	<5	<5
1,2-Dichloroethane	<5	<50	<5	<5	<5	<5	<5
2-Butanone	R	<100	R	<10	<10	<10	R
1,1,1-Trichloroethane	<5	210	<5	<5	<5	<5	<5
Carbon tetrachloride	<5	<50	<5	<5	<5	<5	<5
Vinyl acetate	<10	<100	<10	<10	<10	<10	<10
Bromodichloromethane	<5	<50	<5	<5	<5	<5	<5
1,2-Dichloropropane	<5	<50	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	<5	<50	<5	<5	<5	<5	<5
Trichloroethene	<5	770	<5	<5	<5	<5	<5
Dibromochloromethane	<5	<50	<5	<5	<5	11	8
1,1,2-Trichloroethane	<5	<50	<5	<5	<5	<5	<5
Benzene	<5	<50	<5	<5	<5	<5	<5
trans-1,3-Dichloropropene	<5	<50	<5	<5	<5	<5	<5
Bromoform	<5	<50	<5	<5	<5	<5	<5
4-Methyl-2-pentanone	<10	<100	<10	<10	<10	<10	<10
2-Hexanone	<10	<100	<10	<10	<10	<10	<10
Tetrachloroethene	<5	700	<5	<5	<5	<5	3 J
1,1,1,2-Tetrachloroethane	<5	<50	<5	<5	<5	<5	<5
Toluene	<5	<50	<5	<5	<5	<5	<5
Chlorobenzene	<5	<50	<5	<5	<5	<5	<5
Ethylbenzene	<5	<50	<5	<5	<5	<5	<5
Styrene	<5	<50	<5	<5	<5	<5	<5
Xylene (total)	<5	<50	<5	<5	<5	<5	<5
<b>Total VOCs:</b>	<b>0</b>	<b>2009</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>11</b>	<b>11</b>

VOCs Volatile organic compounds  
 ug/L Micrograms per liter.  
 IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.  
 J Estimated value.  
 R Unusable value.

\* Groundwater sample split with New York State Department of Environmental Conservation. The results for these samples were reviewed qualitatively for the following: (1) analysis of holding times, (2) calibration results, (3) blank results, (4) and spike recoveries.



Table 4 -16. Volatile Organic Compounds Detected in Groundwater Samples During the Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Parameter	Sample Designation: Sample Date: Laboratory: Units:	GM-18S 10/24/91 IEA ug/L	GM-18I 10/29/91 IEA ug/L	GM-19S 10/29/91 IEA ug/L	GM-19I 10/29/91 IEA ug/L	GM-20S 10/22/91 IEA ug/L	GM-20I 10/23/91 IEA ug/L	GM-20D 10/23/91 IEA ug/L
Chloromethane		<10	<10	<10	<10	<10	<10	<10
Bromomethane		<10	<10	<10	<10	<10	<10	<10
Vinyl chloride		<10	<10	<10	<10	<10	<10	<10
Chloroethane		<10	<10	<10	<10	<10	<10	<10
Methylene chloride		<5	<5	<5	<5	<5	<5	<5
Acetone		<10	<10	<10	<10	<10	<10	<10
Carbon disulfide		<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethene		<5	<5	<5	19	<5	<5	<5
1,1-Dichloroethane		<5	<5	<5	5	<5	<5	<5
1,2-Dichloroethene (total)		<5	<5	<5	<5	<5	<5	<5
Chloroform		<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroethane		<5	<5	<5	<5	<5	<5	<5
2-Butanone		R	<10	5 J	4 J	<10	R	<10
1,1,1-Trichloroethane		<5	<5	<5	46	<5	1 J	<5
Carbon tetrachloride		<5	<5	<5	<5	<5	<5	<5
Vinyl acetate		<10	<10	<10	<10	<10	<10	<10
Bromodichloromethane		<5	<5	<5	<5	<5	<5	<5
1,2-Dichloropropane		<5	<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene		<5	<5	<5	<5	<5	<5	<5
Trichloroethene		27	9	<5	4 J	8	18	<5
Dibromochloromethane		<5	<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane		<5	<5	<5	<5	<5	<5	<5
Benzene		<5	<5	<5	<5	<5	<5	<5
trans-1,3-Dichloropropene		<5	<5	<5	<5	<5	<5	<5
Bromoform		<5	<5	<5	<5	<5	<5	<5
4-Methyl-2-pentanone		<10	<10	<10	<10	<10	<10	<10
2-Hexanone		<10	<10	<10	<10	<10	<10	<10
Tetrachloroethene		4 J	5	<5	7	2 J	4 J	<5
1,1,2,2-Tetrachloroethane		<5	<5	<5	<5	<5	<5	<5
Toluene		<5	<5	<5	3 J	<5	<5	<5
Chlorobenzene		<5	<5	<5	<5	<5	<5	<5
Ethylbenzene		<5	<5	<5	<5	<5	<5	<5
Styrene		<5	<5	<5	<5	<5	<5	<5
Xylene (total)		<5	<5	<5	<5	<5	<5	<5
<b>Total VOCs:</b>		<b>31</b>	<b>14</b>	<b>5</b>	<b>88</b>	<b>10</b>	<b>23</b>	<b>0</b>

VOCs Volatile organic compounds

ug/L Micrograms per liter.

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

J Estimated value.

R Unusable value.

\* Groundwater sample split with New York State Department of Environmental Conservation. The results for these samples were reviewed qualitatively for the following: (1) analysis of holding times, (2) calibration results, (3) blank results, (4) and spike recoveries.



Table 4 -16. Volatile Organic Compounds Detected in Groundwater Samples During the Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Parameter	Sample Designation: Sample Date: Laboratory: Units:	GM-21S * 10/22/91 IEA ug/L	GM-21I * 10/23/91 IEA ug/L	GM-22S 10/30/91 IEA ug/L	GM-22I 10/30/91 IEA ug/L	GM-23S * 10/24/91 IEA ug/L	GM-23I * 10/24/91 IEA ug/L	Field Blank 1 10/22/91 IEA ug/L
Chloromethane		<10	<10	<10	<10	<10	<10	<10
Bromomethane		<10	<10	<10	<10	<10	<10	<10
Vinyl chloride		<10	<10	<10	<10	<10	<10	<10
Chloroethane		<10	<10	<10	<10	<10	<10	<10
Methylene chloride		<5	<5	<5	<5	<5	<5	<5
Acetone		<10	<10	<10	<10	<10	<10	<5
Carbon disulfide		<5	<5	<5	<5	<5	<5	4 J
1,1-Dichloroethene		<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethane		<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroethene (total)		<5	<5	<5	<5	<5	<5	<5
Chloroform		<5	<5	<5	<5	<5	5	<5
1,2-Dichloroethane		<5	<5	<5	<5	<5	<5	<5
2-Butanone	R	<10	<10	<10	<10	R	R	<10
1,1,1-Trichloroethane		<5	<5	<5	<5	<5	<5	<5
Carbon tetrachloride		<5	<5	<5	<5	<5	<5	<5
Vinyl acetate		<10	<10	<10	<10	<10	<10	<10
Bromodichloromethane		<5	<5	<5	<5	<5	<5	<5
1,2-Dichloropropane		<5	<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene		<5	<5	<5	<5	<5	<5	<5
Trichloroethene		5	14	<5	25	<5	9	<5
Dibromochloromethane		<5	<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane		<5	<5	<5	<5	<5	<5	<5
Benzene		<5	<5	<5	<5	<5	<5	<5
trans-1,3-Dichloropropene		<5	<5	<5	<5	<5	<5	<5
Bromoform		<5	<5	<5	<5	<5	<5	<5
4-Methyl-2-pentanone		<10	<10	<10	<10	<10	<10	<10
2-Hexanone		<10	<10	<10	<10	<10	<10	<10
Tetrachloroethene		2 J	3 J	<5	6	<5	13	<5
1,1,2,2-Tetrachloroethane		<5	<5	<5	<5	<5	<5	<5
Toluene		<5	<5	<5 J	<5	<5	<5	<5
Chlorobenzene		<5	<5	<5	<5	<5	<5	<5
Ethylbenzene		<5	<5	<5	<5	<5	<5	<5
Styrene		<5	<5	<5	<5	<5	<5	<5
Xylene (total)		<5	<5	<5	<5	<5	<5	<5
<b>Total VOCs:</b>		<b>7</b>	<b>17</b>	<b>1</b>	<b>31</b>	<b>0</b>	<b>27</b>	<b>4</b>

VOCs Volatile organic compounds

ug/L Micrograms per liter.

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

J Estimated value.

R Unusable value.

\* Groundwater sample split with New York State Department of Environmental Conservation. The results for these samples were reviewed qualitatively for the following: (1) analysis of holding times, (2) calibration results, (3) blank results, (4) and spike recoveries.





Table 4 -16. Volatile Organic Compounds Detected in Groundwater Samples During the Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	Field Blank 2	Field Blank 3	Trip Blank	Trip Blank A	Trip Blank	Trip Blank	Trip Blank A
Sample Date:	10/23/91	10/24/91	10/21/91	10/22/91	10/22/91	10/23/91	10/23/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameter							
Chloromethane	<10	<10	<10	<10	<10	<10	<10
Bromomethane	<10	<10	<10	<10	<10	<10	<10
Vinyl chloride	<10	<10	<10	<10	<10	<10	<10
Chloroethane	<10	<10	<10	<10	<10	<10	<10
Methylene chloride	<5	<5	<5	<5	<5	<5	<5
Acetone	<10	<10	<10	<10	<10	<10	<10
Carbon disulfide	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethene	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethane	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroethene (total)	<5	<5	<5	<5	<5	<5	<5
Chloroform	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroethane	<5	<5	<5	<5	<5	<5	<5
2-Butanone	<10	<10	<10	<10	R	<10	<10
1,1,1-Trichloroethane	<5	<5	<5	<5	<5	<5	<5
Carbon tetrachloride	<5	<5	<5	<5	<5	<5	<5
Vinyl acetate	<10	<10	<10	<10	<10	<10	<10
Bromodichloromethane	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloropropane	<5	<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	<5	<5	<5	<5	<5	<5	<5
Trichloroethene	<5	<5	<5	<5	<5	<5	<5
Dibromochloromethane	<5	<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	<5	<5	<5	<5	<5	<5	<5
Benzene	<5	<5	<5	<5	<5	<5	<5
trans-1,3-Dichloropropene	<5	<5	<5	<5	<5	<5	<5
Bromoform	<5	<5	<5	<5	<5	<5	<5
4-Methyl-2-pentanone	<10	<10	<10	<10	<10	<10	<10
2-Hexanone	<10	<10	<10	<10	<10	<10	<10
Tetrachloroethene	<5	<5	<5	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	<5	<5	<5	<5	<5	<5	<5
Toluene	<5	<5	<5	<5	<5	<5	<5
Chlorobenzene	<5	<5	<5	<5	<5	<5	<5
Ethylbenzene	<5	<5	<5	<5	<5	<5	<5
Styrene	<5	<5	<5	<5	<5	<5	<5
Xylene (total)	<5	<5	<5	<5	<5	<5	<5
<b>Total VOCs:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

VOCs Volatile organic compounds

ug/L Micrograms per liter.

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

J Estimated value.

R Unusable value.

\* Groundwater sample split with New York State Department of Environmental Conservation. The results for these samples were reviewed qualitatively for the following: (1) analysis of holding times, (2) calibration results, (3) blank results, (4) and spike recoveries.



Table 4 -16. Volatile Organic Compounds Detected in Groundwater Samples During the Phase 1 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	Trip Blank	Trip Blank A	Trip Blank	Trip Blank A	Trip Blank	Trip Blank
Sample Date:	10/24/91	10/24/91	10/25/91	10/28/91	10/29/91	10/30/91
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameter						
Chloromethane	<10	<10	<10	<10	<10	<10
Bromomethane	<10	<10	<10	<10	<10	<10
Vinyl chloride	<10	<10	<10	<10	<10	<10
Chloroethane	<10	<10	<10	<10	<10	<10
Methylene chloride	<5	<5	<5	<5	<5	<5
Acetone	<10	<10	<10	<10	<10	<10
Carbon disulfide	<5	<5	<5	<5	<5	<5
1,1-Dichloroethene	<5	<5	<5	<5	<5	<5
1,1-Dichloroethane	<5	<5	<5	<5	<5	<5
1,2-Dichloroethene (total)	<5	<5	<5	<5	<5	<5
Chloroform	<5	<5	1 J	<5	<5	<5
1,2-Dichloroethane	<5	<5	<5	<5	<5	<5
2-Butanone	<10	<10	R	4 J	<10	<10
1,1,1-Trichloroethane	<5	<5	<5	<5	<5	<5
Carbon tetrachloride	<5	<5	<5	<5	<5	<5
Vinyl acetate	<10	<10	<10	<10	<10	<10
Bromodichloromethane	<5	<5	<5	<5	<5	<5
1,2-Dichloropropane	<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	<5	<5	<5	<5	<5	<5
Trichloroethene	<5	<5	<5	<5	<5	<5
Dibromochloromethane	<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	<5	<5	<5	<5	<5	<5
Benzene	<5	<5	<5	<5	<5	<5
trans-1,3-Dichloropropene	<5	<5	<5	<5	<5	<5
Bromoform	<5	<5	<5	<5	<5	<5
4-Methyl-2-pentanone	<10	<10	<10	<10	<10	<10
2-Hexanone	<10	<10	<10	<10	<10	<10
Tetrachloroethene	<5	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	<5	<5	<5	<5	<5	<5
Toluene	<5	<5	<5	<5	<5	<5
Chlorobenzene	<5	<5	<5	<5	<5	<5
Ethylbenzene	<5	<5	<5	<5	<5	<5
Styrene	<5	<5	<5	<5	<5	<5
Xylene (total)	<5	<5	<5	<5	<5	<5
<b>Total VOCs:</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>4</b>	<b>0</b>	<b>0</b>

VOCs Volatile organic compounds

ug/L Micrograms per liter.

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

J Estimated value.

R Unusable value.

\* Groundwater sample split with New York State Department of Environmental Conservation. The results for these samples were reviewed qualitatively for the following: (1) analysis of holding times, (2) calibration results, (3) blank results, (4) and spike recoveries.



Table 4-17. Volatile Organic Compounds Detected in Groundwater Samples During the Phase 2 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Parameter	Sample Designation:	GM-1S	GM-1I	GM-2S	---Replicate---		GM-3S	GM-3I
	Sample Date:	8/25/93	8/25/93	8/25/93	GM-2I	GM-Rep 1	8/25/93	8/26/93
	Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA	IEA
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Chloromethane	<10	<10	<10	<10	<10	<10	<10 J	<10
Bromomethane	<10	<10	<10	<10	<10	<10	<10	<10
Vinyl chloride	<10	<10	<10	<10	<10	<10	<10	<10
Chloroethane	<10	<10	<10	<10	<10	<10	<10	<10
Methylene chloride	<10	<10	<10	<10	<10	<10	<10	<10
Acetone	<10	<10	<10	<10	<10	<10	<14 J	2 J
Carbon disulfide	<10	<10	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	<10	<10	<10	<10	<10	<10	<10	<10
1,1-Dichloroethane	<10	<10	<10	<10	<10	<10	<10	<10
1,2-Dichloroethene (total)	<10	<10	<10	<10	<10	<10	<10	<10
Chloroform	<10	<10	<10	<10	<10	<10	<10	<10
1,2-Dichloroethane	<10	<10	<10	<10	<10	<10	<10	<10
2-Butanone	<10	<10	<10	<10	<10	<10	<10	<10
1,1,1-Trichloroethane	<10	<10	<10	<10	<10	<10	<10	<10
Carbon tetrachloride	<10 J	<10 J	<10	<10 J	<10 J	<10	<10	<10 J
Bromodichloromethane	<10	<10	<10	<10	<10	<10	<10	<10
1,2-Dichloropropane	<10	<10	<10	<10	<10	<10	<10	<10
cis-1,3-Dichloropropene	<10	<10	<10	<10	<10	<10	<10	<10
Trichloroethene	<10	<10	<10	<10	<10	<10	<10	2 J
Dibromochloromethane	<10	<10	<10	<10	<10	<10	<10	<10
1,1,2-Trichloroethane	<10	<10	<10	<10	<10	<10	<10	<10
1,1,2,2-Tetrachloroethane	<10	<10	<10	<10	<10	<10	<10	<10
trans-1,3-Dichloropropene	<10	<10	<10	<10	<10	<10	<10	<10
Bromoform	<10	<10	<10	<10	<10	<10	<10	<10
4-Methyl-2-pentanone	<10	<10	<10	<10	<10	<10	<10	<10
2-Hexanone	<10	<10	<10	<10	<10	<10	<10	<10
Tetrachloroethene	<10	<10	<10	<10	<10	<10	<10	7 J
1,1,2,2-Tetrachloroethane	<10	<10	<10	<10	<10	<10	<10	<10
Toluene	<10	<10	<10	<10	<10	<10	<10	<10
Chlorobenzene	<10	<10	<10	<10	<10	<10	<10	<10
Ethylbenzene	<10	<10	<10	<10	<10	<10	<10	<10
Styrene	<10	<10	<10	<10	<10	<10	<10	<10
Xylene (total)	<10	<10	<10	<10	<10	<10	<10	<10
<b>Total HVOCs:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>9</b>
<b>Total VOCs:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>11</b>

HVOCs Halogenated volatile organic compounds.

VOCs Volatile organic compounds.

ug/L Micrograms per liter.

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

J Estimated value.

\* Groundwater sample split with New York State Department of Environmental Conservation.

\*\* Analyzed by U.S. Environmental Protection Agency Method 502.2.

NA Not analyzed.

Eco Test Eco Test laboratories, Inc., North Babylon, New York.



Table 4-17. Volatile Organic Compounds Detected in Groundwater Samples During the Phase 2 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Parameter	Sample Designation:	GM-4S	GM-4I	GM-5S	GM-5I	GM-6S*	---Replicate---	
	Sample Date:	8/24/93	8/24/93	8/24/93	8/24/93	8/23/93	GM-6I*	GM-Rep 2
	Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA	IEA
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Chloromethane	<10	<10 J	<10	<10 J	<10	<10	<10	<10
Bromomethane	<10	<10	<10	<10	<10	<10	<10	<10
Vinyl chloride	<10	<10	<10	<10	<10	<10	<10	<10
Chloroethane	<10	<10	<10	<10	<10	<10	<10	<10
Methylene chloride	<10	<10	<10	<10	<10	<10	<10	<10
Acetone	<10 J	<10 J	<10 J	<11 J	<10	<10	<10	<10
Carbon disulfide	<10	<10	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	<10	<10	<10	<10	<10	<10	1 J	1 J
1,1-Dichloroethane	<10	<10	<10	<10	<10	<10	<10	<10
1,2-Dichloroethene (total)	<10	<10	<10	<10	<10	<10	<10	<10
Chloroform	<10	<10	<10	<10	<10	<10	<10	<10
1,2-Dichloroethane	<10	<10	<10	<10	<10	<10	<10	<10
2-Butanone	<10	<10	<10	<10	<10	<10	<10	<10
1,1,1-Trichloroethane	<10	4 J	<10	<10	<10	<10	2 J	2 J
Carbon tetrachloride	<10	<10	<10	<10	<10	<10	<10	<10
Bromodichloromethane	<10	<10	<10	<10	<10	<10	<10	<10
1,2-Dichloropropane	<10	<10	<10	<10	<10	<10	<10	<10
cis-1,3-Dichloropropene	<10	<10	<10	<10	<10	<10	<10	<10
Trichloroethene	<10	2 J	<10	<10	<10	<10	<10	<10
Dibromochloromethane	<10	<10	<10	<10	<10	<10	<10	<10
1,2-Trichloroethane	<10	<10	<10	<10	<10	<10	<10	<10
1,1,2,2-Tetrachloroethane	<10	<10	<10	<10	<10	<10	<10	<10
trans-1,3-Dichloropropene	<10	<10	<10	<10	<10	<10	<10	<10
Bromoform	<10	<10	<10	<10	<10	<10	<10	<10
4-Methyl-2-pentanone	<10	<10	<10	<10	<10	<10	<10	<10
2-Hexanone	<10	<10	<10	<10	<10	<10	<10	<10
Tetrachloroethene	18	9 J	<10	20	<10	<10	<10	<10
1,1,2,2-Tetrachloroethane	<10	<10	<10	<10	<10	<10	<10	<10
Toluene	<10	<10	<10	<10	<10	<10	<10	<10
Chlorobenzene	<10	<10	<10	<10	<10	<10	<10	<10
Ethylbenzene	<10	<10	<10	<10	<10	<10	<10	<10
Styrene	<10	<10	<10	<10	<10	<10	<10	<10
Xylene (total)	<10	<10	<10	<10	<10	<10	<10	<10
<b>Total HVOCs:</b>	<b>18</b>	<b>15</b>	<b>0</b>	<b>20</b>	<b>0</b>	<b>3</b>	<b>3</b>	<b>3</b>
<b>Total VOCs:</b>	<b>18</b>	<b>15</b>	<b>0</b>	<b>20</b>	<b>0</b>	<b>3</b>	<b>3</b>	<b>3</b>

HVOCs Halogenated volatile organic compounds.

VOCs Volatile organic compounds.

ug/L Micrograms per liter.

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

J Estimated value.

\* Groundwater sample split with New York State Department of Environmental Conservation.

\*\* Analyzed by U.S. Environmental Protection Agency Method 502.2.

NA Not analyzed.

Eco Test Eco Test laboratories, Inc., North Babylon, New York.



Table 4-17. Volatile Organic Compounds Detected in Groundwater Samples During the Phase 2 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	GM-7S	GM-7I	GM-7D	GM-8S	GM-8I	GM-9S*	GM-9I*
Sample Date:	8/26/93	8/26/93	8/26/93	8/25/93	8/27/93	8/24/93	8/23/93
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameter							
Chloromethane	<10 J	<10	<10	<10	<10 J	<10	<10
Bromomethane	<10	<10	<10	<10	<10	<10	<10
Vinyl chloride	<10	<10	<10	<10	<10 J	<10	<10
Chloroethane	<10	<10	<10	<10	<10	<10	<10
Methylene chloride	<10	<10	<10	<10	<10	<10	<10
Acetone	<10	<10	<10	<10	<15	<10 J	<10 J
Carbon disulfide	<10	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	<10	<10	<10	<10	<10	<10	<10
1,1-Dichloroethane	<10	<10	<10	<10	<10	<10	<10
1,2-Dichloroethene (total)	<10	<10	<10	<10	<10	<10	<10
Chloroform	<10	<10	<10	<10	<10	<10	<10
1,2-Dichloroethane	<10	<10	<10	<10	<10	<10	<10
2-Butanone	<10 J	<10	<10	<10	<10	<10	<10
1,1,1-Trichloroethane	<10	4 J	3 J	<10	<10	<10	<10
Carbon tetrachloride	<10	<10	<10 J	<10 J	<10	<10	<10
Bromodichloromethane	<10	<10	<10	<10	<10	<10	<10
1,2-Dichloropropane	<10	<10	<10	<10	<10 J	<10	<10
cis-1,3-Dichloropropene	<10	<10	<10	<10	<10	<10	<10
Trichloroethene	<10	21	16	<10	<10	<10	<10
Dibromochloromethane	<10	<10	<10	<10	<10	<10	<10
1,2-Trichloroethane	<10	<10	<10	<10	<10	<10	<10
1,1,2,2-Tetrachloroethane	<10	<10	<10	<10	<10	<10	<10
trans-1,3-Dichloropropene	<10	<10	<10	<10	<10	<10	<10
Bromoform	<10	<10	<10	<10	<10	<10	<10
4-Methyl-2-pentanone	<10 J	<10	<10	<10	<10 J	<10	<10
2-Hexanone	<10 J	<10	<10	<10	<10 J	<10	<10
Tetrachloroethene	<10	2 J	3 J	2 J	<10	<10	<10
1,1,1,2-Tetrachloroethane	<10	<10	<10	<10	<10	<10	<10
Toluene	<10	<10	<10	<10	<10 J	<10	<10
Chlorobenzene	<10	<10	<10	<10	<10	<10	<10
Ethylbenzene	<10	<10	<10	<10	<10	<10	<10
Styrene	<10	<10	<10	<10	<10	<10	<10
Xylene (total)	<10	<10	<10	<10	<10	<10	<10
<b>Total HVOCs:</b>	<b>0</b>	<b>27</b>	<b>22</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total VOCs:</b>	<b>0</b>	<b>27</b>	<b>22</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>

HVOCs Halogenated volatile organic compounds.

VOCs Volatile organic compounds.

ug/L Micrograms per liter.

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

J Estimated value.

\* Groundwater sample split with New York State Department of Environmental Conservation.

\*\* Analyzed by U.S. Environmental Protection Agency Method 502.2.

NA Not analyzed.

Eco Test Eco Test laboratories, Inc., North Babylon, New York.



Table 4-17. Volatile Organic Compounds Detected in Groundwater Samples During the Phase 2 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Parameter	Sample Designation: GM-10S	GM-10I	GM-12S	GM-12I	GM-13S*	GM-13I	GM-13D
	Sample Date: 8/25/93	8/27/93	8/27/93	8/27/93	8/23/93	8/31/93	8/27/93
	Laboratory: IEA	IEA	IEA	IEA	IEA	IEA	IEA
	Units: ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Chloromethane	<10 J	<10 J	<10 J	<100	<50	<10	<20 J
Bromomethane	<10	<10	<10	<100	<50	<10	<20
Vinyl chloride	<10	<10 J	<10 J	<100	<50	<10	<20
Chloroethane	<10	<10	<10	<100	<50	<10	<20
Methylene chloride	<10	<10	1 J	<100	<50	<10	<20
Acetone	<10 J	<10	<10	<200	59 J	<10 J	<25
Carbon disulfide	<10	<10	<10	<100	<50	<10	<20
1,1-Dichloroethene	<10	3 J	<10	<100	62	5 J	99
1,1-Dichloroethane	<10	<10	<10	<100	110	5 J	42
1,2-Dichloroethene (total)	<10	<10	<10	<100	210	16	260
Chloroform	<10	<10	<10	<100	<50	<10	<20
1,2-Dichloroethane	<10	<10	<10	<100	<50	<10	<20
2-Butanone	<10	<10	<10	<100	<50	<10 J	<20 J
1,1,1-Trichloroethane	<10	5 J	<10	<100	760	32	92
Carbon tetrachloride	<10	<10	<10	<100	<50	<10	<20
Bromodichloromethane	<10	<10	<10	<100	<50	<10	<20
1,2-Dichloropropane	<10	<10 J	<10 J	<100	<50	<10	<20
cis-1,3-Dichloropropene	<10	<10	<10	<100	<50	<10	<20
Trichloroethene	4 J	19	20	1,000	140	28	340
Dibromochloromethane	<10	<10	<10	<100	<50	<10	<20
1,2-Trichloroethane	<10	<10	<10	<100	<50	<10	<20
1,1,1,2-Tetrachloroethane	<10	<10	<10	<100	<50	<10	<20
trans-1,3-Dichloropropene	<10	<10	<10	<100	<50	<10	<20
Bromoform	<10	<10	<10	<100	<50	<10	<20
4-Methyl-2-pentanone	<10	<10 J	<10 J	<100	<50	<10	<20 J
2-Hexanone	<10	<10 J	<10 J	<100	<50	<10	<20 J
Tetrachloroethene	2 J	6 J	<10	<100	600	87	64
1,1,1,2,2-Pentachloroethane	<10	<10	<10	<100	<50	<10	<20
Toluene	<10	<10 J	<10 J	13 J	<50	<10	<20
Chlorobenzene	<10	<10	<10	<100	<50	<10	<20
Ethylbenzene	<10	<10	<10	<100	<50	<10	<20
Styrene	<10	<10	<10	<100	<50	<10	<20
Xylene (total)	<10	<10	<10	<100	<50	<10	<20
<b>Total HVOCs:</b>	<b>6</b>	<b>33</b>	<b>21</b>	<b>1,000</b>	<b>1,882</b>	<b>173</b>	<b>897</b>
<b>Total VOCs:</b>	<b>6</b>	<b>33</b>	<b>21</b>	<b>1,013</b>	<b>1,941</b>	<b>173</b>	<b>897</b>

HVOCs Halogenated volatile organic compounds.

VOCs Volatile organic compounds.

ug/L Micrograms per liter.

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

J Estimated value.

\* Groundwater sample split with New York State Department of Environmental Conservation.

\*\* Analyzed by U.S. Environmental Protection Agency Method 502.2.

NA Not analyzed.

Eco Test Eco Test laboratories, Inc., North Babylon, New York.



Table 4-17. Volatile Organic Compounds Detected in Groundwater Samples During the Phase 2 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	GM-14S	GM-14I	GM-15S	GM-15I	GM-16S	GM-16I
Sample Date:	8/26/93	8/30/93	8/26/93	8/31/93	8/26/93	9/1/93
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameter						
Chloromethane	<10 J	<40	<10	<10	<10 J	<10
Bromomethane	<10	<40	<10	<10	<10	<10
Vinyl chloride	<10 J	<40	<10	<10	<10 J	<10
Chloroethane	<10	<40	<10	<10	<10 J	<10
Methylene chloride	<10	8 J	<10	<10	<10	<10
Acetone	<10	<43 J	<21	<10 J	<10	<10 J
Carbon disulfide	<10	<40	<10	<10	<10	<10
1,1-Dichloroethene	<10	50	<10	<10	<10	2 J
1,1-Dichloroethane	<10	29 J	<10	<10	<10	<10
1,2-Dichloroethene (total)	<10	98	<10	<10	<10	8 J
Chloroform	<10	<40	<10	<10	<10	<10
1,2-Dichloroethane	<10	<40	<10	<10	<10	<10
2-Butanone	<10	<40 J	2 J	<10 J	<10	<10 J
1,1,1-Trichloroethane	<10	56	<10	<10	<10	5 J
Carbon tetrachloride	<10	<40	<10	<10	<10	<10
Bromodichloromethane	<10	<40	<10	<10	<10	<10
1,2-Dichloropropane	<10 J	<40	<10	<10	<10 J	<10
cis-1,3-Dichloropropene	<10	<40	<10	<10	<10	<10
Trichloroethene	<10	320	<10	<10	<10	58
Dibromochloromethane	<10	<40	<10	<10	<10	<10
2-Trichloroethane	<10	<40	<10	<10	<10	<10
trans-1,3-Dichloropropene	<10	<40	<10	<10	<10	<10
Bromoform	<10	<40	<10	<10	<10	<10
4-Methyl-2-pentanone	<10 J	<40	<10	<10	<10 J	<10
2-Hexanone	<10 J	<40	<10	<10	<10 J	<10
Tetrachloroethene	2 J	380	<10	<10	<10	8 J
1,1,2,2-Tetrachloroethane	<10	<40	<10	<10	<10	<10
Toluene	<10 J	<40	<10	<10	<10 J	<10
Chlorobenzene	<10	<40	<10	<10	<10	<10
Ethylbenzene	<10	<40	<10	<10	<10	<10
Styrene	<10	<40	<10	<10	<10	<10
Xylene (total)	<10	<40	<10	<10	<10	<10
<b>Total HVOCs:</b>	<b>2</b>	<b>933</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>81</b>
<b>Total VOCs:</b>	<b>2</b>	<b>941</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>81</b>

HVOCs Halogenated volatile organic compounds.

VOCs Volatile organic compounds.

ug/L Micrograms per liter.

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

J Estimated value.

\* Groundwater sample split with New York State Department of Environmental Conservation.

\*\* Analyzed by U.S. Environmental Protection Agency Method 502.2.

NA Not analyzed.

Eco Test Eco Test laboratories, Inc., North Babylon, New York.



Table 4-17. Volatile Organic Compounds Detected in Groundwater Samples During the Phase 2 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Parameter	---Replicate---							
	Sample Designation:	GM-17S	GM-Rep-3	GM-18S*	GM-18I*	GM-19S	GM-19I	GM-20S*
	Sample Date:	8/27/93	8/27/93	8/23/93	8/23/93	8/30/93	8/30/93	8/23/93
	Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	
Chloromethane	<10 J	<10 J	<10	<10	<10	<10	<10	<10
Bromomethane	<10	<10	<10	<10	<10	<10	<10	<10
Vinyl chloride	<10 J	<10 J	<10	<10	<10	<10	<10	<10
Chloroethane	<10	<10	<10	<10	<10	<10	<10	<10
Methylene chloride	<10	<10	<10	<10	<10	<10	<10	<10
Acetone	<10	<10	5 J	<10	<10 J	<10 J	<10	<10
Carbon disulfide	<10	<10	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	<10	<10	<10	<10	<10	10	<10	<10
1,1-Dichloroethane	<10	<10	<10	<10	<10	2 J	<10	<10
1,2-Dichloroethene (total)	<10	<10	<10	<10	<10	<10	<10	<10
Chloroform	<10	<10	<10	<10	<10	<10	<10	<10
1,2-Dichloroethane	<10	<10	<10	<10	<10	<10	<10	<10
2-Butanone	<10	<10	<10	<10	<10 J	<10 J	<10	<10
1,1,1-Trichloroethane	<10	<10	2 J	<10	<10	16	<10	<10
Carbon tetrachloride	<10	<10	<10	<10	<10	<10	<10	<10
Bromodichloromethane	<10	<10	<10	<10	<10	<10	<10	<10
1,2-Dichloropropane	<10 J	<10 J	<10	<10	<10	<10	<10	<10
cis-1,3-Dichloropropene	<10	<10	<10	<10	<10	<10	<10	<10
Trichloroethene	<10	<10	8 J	5 J	<10	1 J	<10	<10
Dibromochloromethane	<10	<10	<10	<10	<10	<10	<10	<10
1,1,2-Trichloroethane	<10	<10	<10	<10	<10	<10	<10	<10
1,1,2,2-Tetrachloroethane	<10	<10	<10	<10	<10	<10	<10	<10
trans-1,3-Dichloropropene	<10	<10	<10	<10	<10	<10	<10	<10
Bromoform	<10	<10	<10	<10	<10	<10	<10	<10
4-Methyl-2-pentanone	<10 J	<10 J	<10	<10	<10	<10	<10	<10
2-Hexanone	<10 J	<10 J	<10	<10	<10	<10	<10	<10
Tetrachloroethene	<10	<10	8 J	2 J	<10	9 J	<10	<10
1,1,2,2-Tetrachloroethane	<10	<10	<10	<10	<10	<10	<10	<10
Toluene	<10 J	<10 J	<10	<10	<10	<10	<10	<10
Chlorobenzene	<10	<10	<10	<10	<10	<10	<10	<10
Ethylbenzene	<10	<10	<10	<10	<10	<10	<10	<10
Styrene	<10	<10	<10	<10	<10	<10	<10	<10
Xylene (total)	<10	<10	<10	<10	<10	<10	<10	<10
<b>Total HVOCs:</b>	<b>0</b>	<b>0</b>	<b>18</b>	<b>7</b>	<b>0</b>	<b>38</b>	<b>0</b>	<b>0</b>
<b>Total VOCs:</b>	<b>0</b>	<b>0</b>	<b>23</b>	<b>7</b>	<b>0</b>	<b>38</b>	<b>0</b>	<b>0</b>

HVOCs Halogenated volatile organic compounds.

VOCs Volatile organic compounds.

ug/L Micrograms per liter.

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

J Estimated value.

\* Groundwater sample split with New York State Department of Environmental Conservation.

\*\* Analyzed by U.S. Environmental Protection Agency Method 502.2.

NA Not analyzed.

Eco Test Eco Test laboratories, inc., North Babylon, New York.





Table 4-17. Volatile Organic Compounds Detected in Groundwater Samples During the Phase 2 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Parameter	Sample Designation:	GM-20I*	GM-20D	GM-21S	GM-21I	GM-22S	----Replicate----	
	Sample Date:	8/24/93	8/31/93	8/25/93	9/1/93	8/26/93	GM-22I	GM-Rep 4
	Laboratory:	IEA	IEA	IEA	IEA	IEA	8/27/93	8/27/93
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Chloromethane	<10	<10	<10 J	<10 J	<10 J	<10 J	<10 J	<10 J
Bromomethane	<10	<10	<10	<10	<10	<10	<10	<10
Vinyl chloride	<10	<10	<10	<10 J	<10 J	<10 J	<10 J	<10 J
Chloroethane	<10	<10	<10	<10	<10	<10	<10	<10
Methylene chloride	<10	<10	<10	<10	<10	<10	<10	<10
Acetone	<20 J	<10 J	<10 J	<10	<10	<10	<10	<10
Carbon disulfide	<10	<10	<10	<10	<10	<10	<10	<10
1,1-Dichloroethane	<10	<10	<10	<10	<10	<10	<10	<10
1,1-Dichloroethane	<10	<10	<10	<10	<10	<10	<10	<10
1,2-Dichloroethane (total)	<10	<10	<10	<10	<10	<10	<10	<10
Chloroform	<10	<10	<10	<10	<10	<10	<10	<10
1,2-Dichloroethane	<10	<10	<10	<10	<10	<10	<10	<10
2-Butanone	<10	<10	<10	<10	<10	<10	<10	<10
1,1,1-Trichloroethane	<10	<10	<10	<10	<10	<10	<10	<10
Carbon tetrachloride	<10	<10	<10	<10	<10	<10	<10	<10
Bromodichloromethane	<10	<10	<10	<10	<10	<10	<10	<10
1,2-Dichloropropane	<10	<10	<10	<10	<10 J	<10 J	<10 J	<10 J
cis-1,3-Dichloropropene	<10	<10	<10	<10	<10	<10	<10	<10
Trichloroethene	4 J	<10	<10	1 J	<10	4 J	4 J	4 J
Dibromochloromethane	<10	<10	<10	<10	<10	<10	<10	<10
1,2-Trichloroethane	<10	<10	<10	<10	<10	<10	<10	<10
1,1,2,2-Tetrachloroethane	<10	<10	<10	<10	<10	<10	<10	<10
trans-1,3-Dichloropropene	<10	<10	<10	<10	<10	<10	<10	<10
Bromoform	<10	<10	<10	<10	<10	<10	<10	<10
4-Methyl-2-pentanone	<10	<10	<10	<10	<10 J	<10 J	<10 J	<10 J
2-Hexanone	<10	<10	<10	<10	<10 J	<10 J	<10 J	<10 J
Tetrachloroethene	<10	<10	<10	<10	<10	<10	<10	1 J
1,1,2,2-Tetrachloroethane	<10	<10	<10	<10	<10	<10	<10	<10
Toluene	<10	<10	<10	0.5 J	<10 J	<10 J	<10 J	<10 J
Chlorobenzene	<10	<10	<10	<10	<10	<10	<10	<10
Ethylbenzene	<10	<10	<10	<10	<10	<10	<10	<10
Styrene	<10	<10	<10	<10	<10	<10	<10	<10
Xylene (total)	<10	<10	<10	<10	<10	<10	<10	<10
<b>Total HVOCs:</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>4</b>	<b>5</b>
<b>Total VOCs:</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>1.5</b>	<b>0</b>	<b>4</b>	<b>4</b>	<b>5</b>

HVOCs Halogenated volatile organic compounds.

VOCs Volatile organic compounds.

ug/L Micrograms per liter.

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

J Estimated value.

\* Groundwater sample split with New York State Department of Environmental Conservation.

\*\* Analyzed by U.S. Environmental Protection Agency Method 502.2.

NA Not analyzed.

Eco Test Eco Test laboratories, Inc., North Babylon, New York.



Table 4-17. Volatile Organic Compounds Detected in Groundwater Samples During the Phase 2 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	GM-22D*	GM-23S*	GM-23I*	GM-31S	GM-32S	GM-33D2*	GM-34D
Sample Date:	8/24/93	8/23/93	8/24/93	9/1/93	9/1/93	8/24/93	8/30/93
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameter							
Chloromethane	<10 J	<10	<10	<10	<10	<10	<10
Bromomethane	<10	<10	<10	<10	<10	<10	<10
Vinyl chloride	<10	<10	<10	<10	<10	<10	<10
Chloroethane	<10	<10	<10	<10	<10	<10	<10
Methylene chloride	<10	<10	<10	<10	<10	<10	<10
Acetone	<10 J	<10	<10	<10 J	<10 J	<10 J	<10
Carbon disulfide	<10	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	<10	<10	<10	<10	<10	<10	<10
1,1-Dichloroethane	<10	<10	<10	<10	<10	<10	4 J
1,2-Dichloroethene (total)	1 J	<10	3 J	<10	<10	<10	2 J
Chloroform	<10	<10	<10	<10	11	<10	2 J
1,2-Dichloroethane	<10	<10	<10	<10	<10	<10	<10
2-Butanone	<10	<10	<10	<10	<10	<10	<10
1,1,1-Trichloroethane	<10	<10	1 J	5 J	<10	<10	<10
Carbon tetrachloride	<10	<10	<10	<10	<10	<10	2 J
Bromodichloromethane	<10	<10	<10	<10	<10	<10	<10
1,2-Dichloropropane	<10	<10	<10	<10	<10	<10	<10
cis-1,3-Dichloropropene	<10	<10	<10	<10	<10	<10	<10
Trichloroethene	17	<10	20	<10	160	16	68
Dibromochloromethane	<10	<10	<10	<10	<10	<10	<10
1,2-Trichloroethane	<10	<10	<10	<10	<10	<10	<10
m-xylene	<10	<10	<10	<10	<10	<10	<10
trans-1,3-Dichloropropene	<10	<10	<10	<10	<10	<10	<10
Bromoform	<10	<10	<10	<10	<10	<10	<10
4-Methyl-2-pentanone	<10	<10	<10	<10	<10	<10	<10
2-Hexanone	<10	<10	<10	5 J	<10	<10	<10
Tetrachloroethene	5 J	<10	6 J	<10	<10	6 J	5 J
1,1,2,2-Tetrachloroethane	<10	<10	<10	<10	<10	<10	<10
Toluene	<10	<10	<10	<10	<10	<10	<10
Chlorobenzene	<10	<10	<10	<10	<10	<10	<10
Ethylbenzene	<10	<10	<10	<10	<10	<10	<10
Styrene	<10	<10	<10	<10	<10	<10	<10
Xylene (total)	<10	<10	<10	<10	<10	<10	<10
<b>Total HVOCs:</b>	<b>23</b>	<b>0</b>	<b>30</b>	<b>5</b>	<b>171</b>	<b>22</b>	<b>83</b>
<b>Total VOCs:</b>	<b>23</b>	<b>0</b>	<b>30</b>	<b>10</b>	<b>171</b>	<b>22</b>	<b>83</b>

HVOCs Halogenated volatile organic compounds.

VOCs Volatile organic compounds.

ug/L Micrograms per liter.

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

J Estimated value.

\* Groundwater sample split with New York State Department of Environmental Conservation.

\*\* Analyzed by U.S. Environmental Protection Agency Method 502.2.

NA Not analyzed.

Eco Test Eco Test laboratories, Inc., North Babylon, New York.



Table 4-17. Volatile Organic Compounds Detected in Groundwater Samples During the Phase 2 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	GM-34D2	GM-35D2	GM-36D*	GM-36D2*	GM-37D	GM-37D2	GM-38D
Sample Date:	8/30/93	8/24/93	8/23/93	8/23/93	8/25/93	8/25/93	8/26/93
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameter							
Chloromethane	<10	<10 J	<20 J	<10	<10	<10	<50
Bromomethane	<10	<10	<20	<10	<10	<10	<50
Vinyl chloride	<10	<10	<20 J	<10	<10	<10	<50
Chloroethane	<10	<10	<20	<10	<10	<10	<50
Methylene chloride	<10	<10	<20	<10	<10	<10	<50
Acetone	<10	<12 J	6 J	<10	<10	<10	<50
Carbon disulfide	<10	<10	<20	<10	<10	<10	<50
1,1-Dichloroethene	0.9 J	5 J	<20	<10	4 J	<10	<50
1,1-Dichloroethane	<10	<10	<20	<10	10	<10	<50
1,2-Dichloroethene (total)	<10	<10	<20	<10	<10	<10	5 J
Chloroform	<10	<10	<20	<10	<10	<10	<50
1,2-Dichloroethane	<10	<10	<20	<10	<10	<10	<50
2-Butanone	<10	<10	<20	<10	<10	<10	<50
1,1,1-Trichloroethane	<10	<10	3 J	<10	7 J	<10	<50
Carbon tetrachloride	<10	4 J	<20	<10	<10 J	<10 J	<50
Bromodichloromethane	<10	<10	<20	<10	<10	<10	<50
1,2-Dichloropropane	<10	<10	<20	<10	<10	<10	<50
cis-1,3-Dichloropropene	<10	<10	<20	<10	<10	<10	<50
Trichloroethene	35	29	220	<10	2 J	1 J	610
Dibromochloromethane	<10	<10	<20	<10	<10	<10	<50
2-Trichloroethane	<10	<10	<20	<10	<10	<10	<50
zene	<10	<10	<20	<10	<10	<10	<50
ans-1,3-Dichloropropene	<10	<10	<20	<10	<10	<10	<50
Bromoform	<10	<10	<20	<10	<10	<10	<50
4-Methyl-2-pentanone	<10	<10	<20	<10	<10	<10	<50
2-Hexanone	<10	<10	<20	<10	<10	<10	<50
Tetrachloroethene	2 J	<10	18 J	<10	<10	<10	<50
1,1,2,2-Tetrachloroethane	<10	<10	<20	<10	<10	<10	<50
Toluene	<10	<10	<20	0.5 J	<10	<10	<50
Chlorobenzene	<10	<10	<20	<10	<10	<10	<50
Ethylbenzene	<10	<10	<20	<10	<10	<10	<50
Styrene	<10	<10	<20	<10	<10	<10	<50
Xylene (total)	<10	<10	<20	<10	<10	<10	<50
<b>Total HVOCs:</b>	<b>37.9</b>	<b>38</b>	<b>241</b>	<b>0</b>	<b>23</b>	<b>1</b>	<b>615</b>
<b>Total VOCs:</b>	<b>37.9</b>	<b>38</b>	<b>247</b>	<b>0.5</b>	<b>23</b>	<b>1</b>	<b>615</b>

HVOCs Halogenated volatile organic compounds.

VOCs Volatile organic compounds.

ug/L Micrograms per liter.

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

J Estimated value.

\* Groundwater sample split with New York State Department of Environmental Conservation.

\*\* Analyzed by U.S. Environmental Protection Agency Method 502.2.

NA Not analyzed.

Eco Test Eco Test laboratories, Inc., North Babylon, New York.



Table 4-17. Volatile Organic Compounds Detected in Groundwater Samples During the Phase 2 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	GM-38D2	N-3876**	N-6915**	N-6916**	N-8004**	N-8767	N-8768
Sample Date:	8/26/93	9/2/93	9/2/93	9/2/93	9/2/93	9/2/93	9/20/93
Laboratory:	IEA	H2M	H2M	H2M	H2M	IEA	IEA
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameter							
Chloromethane	<50	<0.5	<0.5	<0.5	<0.5	<10 J	<10
Bromomethane	<50	<0.5	<0.5	<0.5	<0.5	<10	<10
Vinyl chloride	<50	<0.5	<0.5	<0.5	<0.5	<10 J	<10 J
Chloroethane	<50	<0.5	<0.5	<0.5	<0.5	<10	<10
Methylene chloride	<50	<0.5	<0.5	<0.5	<0.5	<10	<10
Acetone	<50	NA	NA	NA	NA	<10	<10 J
Carbon disulfide	<50	NA	NA	NA	NA	<10	<10
1,1-Dichloroethene	<50	4.2	<0.5	<0.5	<0.5	<10	<10
1,1-Dichloroethane	<50	<0.5	<0.5	<0.5	<0.5	<10	<10
1,2-Dichloroethene (total)	8 J	1.7	<1.0	<1.0	<1.0	<10	<10
Chloroform	<50	0.6	<0.5	<0.5	<0.5	<10	<10
1,2-Dichloroethane	<50	<0.5	<0.5	<0.5	<0.5	<10	<10
2-Butanone	<50	NA	NA	NA	NA	<10	<10
1,1,1-Trichloroethane	<50	2.4	<0.5	<0.5	<0.5	<10	<10
Carbon tetrachloride	<50	<0.5	<0.5	<0.5	<0.5	<10	<10
Bromodichloromethane	<50	<0.5	<0.5	<0.5	<0.5	<10	<10
1,2-Dichloropropane	<50	NA	NA	NA	NA	<10	<10
cis-1,3-Dichloropropene	<50	<0.5	<0.5	<0.5	<0.5	<10	<10
Trichloroethene	770	200	<0.5	<0.5	<0.5	<10	<10
Dibromochloromethane	<50	<0.5	<0.5	<0.5	<0.5	<10	<10
2-Trichloroethane	<50	<0.5	<0.5	<0.5	<0.5	<10	<10
trans-1,3-Dichloropropene	<50	<0.5	<0.5	<0.5	<0.5	<10	<10
Bromoform	<50	<0.5	<0.5	<0.5	<0.5	<10	<10
4-Methyl-2-pentanone	<50	NA	NA	NA	NA	<10	<10
2-Hexanone	<50	NA	NA	NA	NA	<10	<10
Tetrachloroethene	<50	6.5	<0.5	<0.5	<0.5	<10	<10
1,1,2,2-Tetrachloroethane	<50	<0.5	<0.5	<0.5	<0.5	<10	<10
Toluene	<50	<0.5	<0.5	<0.5	<0.5	<10	<10
Chlorobenzene	<50	<0.5	<0.5	<0.5	<0.5	<10	<10
Ethylbenzene	<50	<0.5	<0.5	<0.5	<0.5	<10	<10
Styrene	<50	<0.5	<0.5	<0.5	<0.5	<10	<10
Xylene (total)	<50	<1.5	<1.5	<1.5	<1.5	<10	<10
<b>Total HVOCs:</b>	<b>778</b>	<b>215.4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total VOCs:</b>	<b>778</b>	<b>215.4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

HVOCs Halogenated volatile organic compounds.

VOCs Volatile organic compounds.

ug/L Micrograms per liter.

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

J Estimated value.

\* Groundwater sample split with New York State Department of Environmental Conservation.

\*\* Analyzed by U.S. Environmental Protection Agency Method 502.2.

NA Not analyzed.

Eco Test Eco Test laboratories, Inc., North Babylon, New York.



Table 4-17. Volatile Organic Compounds Detected in Groundwater Samples During the Phase 2 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Parameter	Sample Designation: N-8941**	N-10816	N-10999	N-11000	GP-1	GP-2	GP-5
	Sample Date: 9/2/93	8/30/93	8/30/93	8/30/93	8/24/93	8/30/93	8/30/93
	Laboratory: H2M	IEA	IEA	IEA	IEA	IEA	IEA
	Units: ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Chloromethane	<0.5	<10	<10	<10	<200 J	<200	<200
Bromomethane	<0.5	<10	<10	<10	<200	<200	<200
Vinyl chloride	<0.5	<10	<10	<10	<200	<200	<200
Chloroethane	<0.5	<10	<10	<10	<200	<200	<200
Methylene chloride	<0.5	<10	<10	<10	<200	<200	<200
Acetone	NA	<10	<10	<10	<200 J	<200 J	<200 J
Carbon disulfide	NA	<10	<10	<10	<200	<200	<200
1,1-Dichloroethene	<0.5	<10	<10	<10	<200	<200	<200
1,1-Dichloroethane	<0.5	<10	<10	4 J	<200	30 J	<200
1,2-Dichloroethene (total)	<1.0	<10	<10	<10	<200	<200	<200
Chloroform	<0.5	<10	<10	<10	<200	14 J	<200
1,2-Dichloroethane	<0.5	<10	<10	<10	<200	<200	<200
2-Butanone	NA	<10	<10	<10	<200	<200 J	<200 J
1,1,1-Trichloroethane	<0.5	<10	<10	<10	<200	24 J	<200
Carbon tetrachloride	<0.5	<10	<10	<10	<200	<200	<200
Bromodichloromethane	<0.5	<10	<10	<10	<200	<200	<200
1,2-Dichloropropane	NA	<10	<10	<10	<200	<200	<200
cis-1,3-Dichloropropene	<0.5	<10	<10	<10	<200	<200	<200
Trichloroethene	0.5	10	2 J	<10	2,800	3,000	23
Dibromochloromethane	<0.5	<10	<10	<10	<200	<200	<200
1,2-Trichloroethane	<0.5	<10	<10	<10	<200	<200	<200
trans-1,3-Dichloropropene	<0.5	<10	<10	<10	<200	<200	<200
Bromoform	<0.5	<10	<10	<10	<200	<200	<200
4-Methyl-2-pentanone	NA	<10	<10	<10	<200	<200	<200
2-Hexanone	NA	<10	<10	<10	<200	<200	<200
Tetrachloroethene	<0.5	<10	2 J	<10	<200	52 J	11
1,1,2,2-Tetrachloroethane	<0.5	<10	<10	<10	<200	<200	<200
Toluene	<0.5	<10	<10	<10	<200	<200	<200
Chlorobenzene	<0.5	<10	<10	<10	<200	<200	<200
Ethylbenzene	<0.5	<10	<10	<10	<200	<200	<200
Styrene	<0.5	<10	<10	<10	<200	<200	<200
Xylene (total)	<1.5	<10	<10	<10	<200	<200	<200
<b>Total HVOCs:</b>	<b>0.5</b>	<b>10</b>	<b>4</b>	<b>4</b>	<b>2,800</b>	<b>3,120</b>	<b>34</b>
<b>Total VOCs:</b>	<b>0.5</b>	<b>10</b>	<b>4</b>	<b>4</b>	<b>2,800</b>	<b>3,120</b>	<b>34</b>

HVOCs Halogenated volatile organic compounds.

VOCs Volatile organic compounds.

ug/L Micrograms per liter.

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

J Estimated value.

\* Groundwater sample split with New York State Department of Environmental Conservation.

\*\* Analyzed by U.S. Environmental Protection Agency Method 502.2.

NA Not analyzed.

Eco Test Eco Test laboratories, Inc., North Babylon, New York.



Table 4-17. Volatile Organic Compounds Detected in Groundwater Samples During the Phase 2 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Parameter	Sample Designation:	---Replicate---			Field	Field	Field	Field
	GP-6	GP-8	GP-Rep 5	GP-14	Blank 1	Blank 2	Blank 3	Blank 4
	Sample Date:	8/30/93	8/30/93	8/30/93	8/23/93	8/24/93	8/25/93	8/26/93
	Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA	IEA
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Chloromethane	<2	<50	<50	<20	<10 J	<10 J	<10	<10
Bromomethane	<2	<50	<50	<20	<10	<10	<10	<10
Vinyl chloride	550	<50	<50	370	<10 J	<10 J	<10	<10
Chloroethane	<2	<50	<50	<20	<10	<10	<10	<10
Methylene chloride	<2	<50	<50	<20	3 J	<10	<10	<10
Acetone	<20	<50 J	<50 J	<20 J	<10	<10	<10	<10
Carbon disulfide	<20	<50	<50	<20	<10	<10	<10	<10
1,1-Dichloroethene	6	290	420	5 J	<10	<10	<10	<10
1,1-Dichloroethane	3	11 J	<50	<20	<10	<10	<10	<10
1,2-Dichloroethene (total)	<2	<50	<50	8 J	<10	<10	<10	<10
Chloroform	<2	<50	9 J	<20	<10	<10	<10	<10
1,2-Dichloroethane	<2	<50	<50	<20	<10	<10	0.8 J	<10
2-Butanone	<20	<50 J	<50 J	<20 J	<10	<10	<10	<10
1,1,1-Trichloroethane	9	410	550	9 J	<10	<10	<10	<10
Carbon tetrachloride	<2	<50	<50	<20	<10	<10	<10	<10
Bromodichloromethane	<2	<50	<50	<20	<10	<10	<10	<10
1,2-Dichloropropane	2	<50	<50	<20	<10	<10	<10	<10
cis-1,3-Dichloropropene	<2	<50	<50	<20	<10	<10	<10	<10
Trichloroethene	160	180	240	92	<10	<10	<10	<10
Dibromochloromethane	<2	<50	<50	<20	<10	<10	<10	<10
1,2-Trichloroethane	<2	<50	<50	<20	<10	<10	<10	<10
1,1,1,2-Tetrachloroethane	<2	<50	<50	<20	<10	<10	<10	<10
trans-1,3-Dichloropropene	<2	<50	<50	<20	<10	<10	<10	<10
Bromoform	<2	<50	<50	<20	<10	<10	<10	<10
4-Methyl-2-pentanone	<20	<50	<50	<20	<10	<10	<10	<10
2-Hexanone	<20	<50	<50	<20	<10	<10	<10	<10
Tetrachloroethene	59	250	310	47	<10	<10	<10	<10
1,1,2,2-Tetrachloroethane	<2	<50	<50	<20	<10	<10	<10	<10
Toluene	<2	<50	<50	<20	<10	<10	0.5 J	<10
Chlorobenzene	<2	<50	<50	<20	<10	<10	<10	<10
Ethylbenzene	<2	<50	<50	<20	<10	<10	<10	<10
Styrene	<20	<50	<50	<20	<10	<10	<10	<10
Xylene (total)	<6	<50	<50	<20	<10	<10	<10	<10
<b>Total HVOCs:</b>	<b>789</b>	<b>1,141</b>	<b>1,529</b>	<b>531</b>	<b>3</b>	<b>0</b>	<b>1.3</b>	<b>0</b>
<b>Total VOCs:</b>	<b>789</b>	<b>1,141</b>	<b>1,529</b>	<b>531</b>	<b>3</b>	<b>0</b>	<b>1.3</b>	<b>0</b>

HVOCs Halogenated volatile organic compounds.

VOCs Volatile organic compounds.

ug/L Micrograms per liter.

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

J Estimated value.

\* Groundwater sample split with New York State Department of Environmental Conservation.

\*\* Analyzed by U.S. Environmental Protection Agency Method 502.2.

NA Not analyzed.

Eco Test Eco Test laboratories, Inc., North Babylon, New York.



Table 4-17. Volatile Organic Compounds Detected in Groundwater Samples During the Phase 2 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	Field Blank 5	Field Blank 6	Field Blank 7	Trip Blank 1	Trip Blank 2	Trip Blank 3	Trip Blank 4
Sample Date:	8/27/93	8/30/93	8/31/93	8/23/93	8/24/93	8/25/93	8/26/93
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameter							
Chloromethane	<10 J	<10	<10	<10 J	<10 J	<10	<10
Bromomethane	<10	<10	<10	<10	<10	<10	<10
Vinyl chloride	<10 J	<10	<10	<10 J	<10 J	<10	<10
Chloroethane	<10	<10	<10	<10	<10	<10	<10
Methylene chloride	<10	<10	<10	<10	<10	<10	<10
Acetone	<10	<10	<10 J	<10	<10	<10	<10
Carbon disulfide	<10	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	<10	<10	<10	<10	<10	<10	<10
1,1-Dichloroethane	<10	<10	<10	<10	<10	<10	<10
1,2-Dichloroethene (total)	<10	<10	<10	<10	<10	<10	<10
Chloroform	<10	<10	<10	0.9 J	<10	<10	1 J
1,2-Dichloroethane	<10	<10	<10	<10	<10	<10	<10
2-Butanone	<10	<10	<10 J	<10	<10	<10	<10
1,1,1-Trichloroethane	<10	<10	<10	<10	<10	<10	<10
Carbon tetrachloride	<10	<10	<10	<10	<10	<10 J	<10
Bromodichloromethane	<10	<10	<10	<10	<10	<10	<10
1,2-Dichloropropane	<10 J	<10	<10	<10	<10	<10	<10
cis-1,3-Dichloropropene	<10	<10	<10	<10	<10	<10	<10
Trichloroethene	<10	<10	<10	<10	<10	<10	<10
Dibromochloromethane	<10	<10	<10	<10	<10	<10	<10
2-Trichloroethane	<10	<10	<10	<10	<10	<10	<10
zene	<10	<10	<10	<10	<10	<10	<10
rans-1,3-Dichloropropene	<10	<10	<10	<10	<10	<10	<10
Bromoform	<10	<10	<10	<10	<10	<10	<10
4-Methyl-2-pentanone	<10 J	<10	<10	<10	<10	<10	<10
2-Hexanone	<10 J	<10	<10	<10	<10	<10	<10
Tetrachloroethene	<10	<10	<10	<10	<10	<10	<10
1,1,2,2-Tetrachloroethane	<10	<10	<10	<10	<10	<10	<10
Toluene	<10 J	<10	<10	<10	1 J	<10	<10
Chlorobenzene	<10	<10	<10	<10	<10	<10	<10
Ethylbenzene	<10	<10	<10	<10	<10	<10	<10
Styrene	<10	<10	<10	<10	<10	<10	<10
Xylene (total)	<10	<10	<10	<10	<10	<10	<10
<b>Total HVOCs:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.9</b>	<b>1</b>	<b>0</b>	<b>1</b>
<b>Total VOCs:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.9</b>	<b>1</b>	<b>0</b>	<b>1</b>

HVOCs Halogenated volatile organic compounds.

VOCs Volatile organic compounds.

ug/L Micrograms per liter.

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

J Estimated value.

\* Groundwater sample split with New York State Department of Environmental Conservation.

\*\* Analyzed by U.S. Environmental Protection Agency Method 502.2.

NA Not analyzed.

Eco Test Eco Test laboratories, Inc., North Babylon, New York.



Table 4-17. Volatile Organic Compounds Detected in Groundwater Samples During the Phase 2 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	Trip Blank 5	Trip Blank 6	Trip Blank 7	Trip Blank 8	Trip Blank 9	Trip Blank 10
Sample Date:	8/27/93	8/30/93	8/31/93	9/1/93	9/2/93	9/30/93
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameter						
Chloromethane	<10 J	<10 J	<10	<10	<10	<10
Bromomethane	<10	<10	<10	<10	<10	<10
Vinyl chloride	<10 J	<10	<10	<10	<10	<10 J
Chloroethane	<10	<10	<10	<10	<10	<10
Methylene chloride	2 J	<10	<10	<10	<10	<10
Acetone	<10	<10	<10 J	<10 J	<10 J	<10 J
Carbon disulfide	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	<10	<10	<10	<10	<10	<10
1,1-Dichloroethane	<10	<10	<10	<10	<10	<10
1,2-Dichloroethene (total)	<10	<10	<10	<10	<10	<10
Chloroform	<10	<10	1 J	<10	1 J	<10
1,2-Dichloroethane	<10	<10	<10	<10	<10	<10
2-Butanone	<10	<10 J	<10 J	<10 J	<10 J	<10
1,1,1-Trichloroethane	<10	<10	<10	<10	<10	<10
Carbon tetrachloride	<10	<10	<10	<10	<10	<10
Bromodichloromethane	<10	<10	<10	<10	<10	<10
1,2-Dichloropropane	<10 J	<10	<10	<10	<10	<10
cis-1,3-Dichloropropene	<10	<10	<10	<10	<10	<10
Trichloroethene	<10	<10	<10	<10	<10	<10
Dibromochloromethane	<10	<10	<10	<10	<10	<10
2-Trichloroethane	<10	<10	<10	<10	<10	<10
isene	<10	<10	<10	<10	<10	<10
rans-1,3-Dichloropropene	<10	<10	<10	<10	<10	<10
Bromoform	<10	<10	<10	<10	<10	<10
4-Methyl-2-pentanone	<10 J	<10 J	<10	<10	<10	<10
2-Hexanone	<10 J	<10 J	<10	<10	<10	<10
Tetrachloroethene	<10	<10	<10	<10	<10	<10
1,1,2,2-Tetrachloroethane	<10	<10	<10	<10	<10	<10
Toluene	<10 J	<10	<10	<10	<10	<10
Chlorobenzene	<10	<10	<10	<10	<10	<10
Ethylbenzene	<10	<10	<10	<10	<10	<10
Styrene	<10	<10	<10	<10	<10	<10
Xylene (total)	<10	<10	<10	<10	<10	<10
<b>Total HVOCs:</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>
<b>Total VOCs:</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>

HVOCs Halogenated volatile organic compounds.

VOCs Volatile organic compounds.

ug/L Micrograms per liter.

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

J Estimated value.

\* Groundwater sample split with New York State Department of Environmental Conservation.

\*\* Analyzed by U.S. Environmental Protection Agency Method 502.2.

NA Not analyzed.

Eco Test Eco Test laboratories, Inc., North Babylon, New York.





Table 4-18. Inorganic Parameters Detected in Groundwater Samples During the Phase 2 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	GM-1S Total	GM-1S Dissolved	GM-1I Total	GM-1I Dissolved	GM-4S Total	GM-4I Total
Sample Date:	8/25/93	8/25/93	8/25/93	8/25/93	8/24/93	8/24/93
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameters						
Aluminum	7,040	<16.0	51.5 B	<32.4	NA	NA
Antimony	<28.0	<28.0	<28.0	<28.0	NA	NA
Arsenic	25.6	<1.0	<1.0	<1.0	NA	NA
Barium	38.4 B	79.9 B	63.1 B	61.0 B	NA	NA
Beryllium	<1.0	<1.0	<1.0	<1.0	NA	NA
Cadmium	<2.4	<2.0	<2.0	<2.0	NA	NA
Calcium	938 B	8,110	16,800	16,700	NA	NA
Chromium	25.7	<4.0	<4.0	<4.0	NA	NA
Cobalt	5.0 B	<3.0	3.0 B	<3.0	NA	NA
Copper	63.1	<25.1	12.5 B	<30.7	NA	NA
Iron	31,500	<74.0	<74.0	<74.0	NA	NA
Lead	32.8 S	3.3	2.6 B	3.5	NA	NA
Magnesium	369 BJ	2,550 BJ	3,230 BJ	3,230 BJ	NA	NA
Manganese	142	37.8	80.5	82.4	NA	NA
Mercury	0.24	<0.20	<0.20	<0.20	NA	NA
Nickel	<8.0	<8.0	<8.0	<8.0	NA	NA
Potassium	1,690 B	2,140 B	2,980 B	3,050 B	NA	NA
Selenium	3.9 BJ	<2.0 J	<2.0	<2.0	NA	NA
Silver	<3.0	<3.0	<3.0	<3.0	NA	NA
Sodium	45,000	33,200	13,400	13,900	NA	NA
Thallium	<1.0	<1.0	<1.0	<1.0	NA	NA
Vanadium	79.6	<9.0	<9.0	<9.0	NA	NA
Zinc	57.7	<32.7	21.9	<30.8	NA	NA
Cyanide	<10.0	NA	<10.0	NA	NA	NA
Hexavalent chromium	NA	NA	NA	NA	<0.010	0.020

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

ug/L Micrograms per liter.

Rep Replicate sample.

NA Not analyzed.

B Concentration is between the instrument detection limit and the contract required detection limit.

E Reported value is estimated because of the presence of interference.

W Post-digest spike recovery furnace analysis was of the 85 to 115 percent control limit, while sample absorbance was less than 50 percent of spike absorbance.



Table 4-18. Inorganic Parameters Detected in Groundwater Samples During the Phase 2 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Parameters	Sample Designation:	GM-5S	GM-5I	GM-6S*	GM-6S	-----Replicate-----	
		Total	Total	Total	Dissolved	GM-6I*	GM-Rep 2
	Sample Date:	8/24/93	8/24/93	8/23/93	8/23/93	8/23/93	8/23/93
	Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Aluminum	NA	NA	3,320 J	<67.0	<15.0 J	<15.0 J	
Antimony	NA	NA	<28.0	<28.0	<28.0	<28.0	
Arsenic	NA	NA	<4.3	<1.0	<1.0	<1.0	
Barium	NA	NA	130 BJ	67.2 B	31.1 BJ	29.4 BJ	
Beryllium	NA	NA	<1.0	<1.0	<1.0	<1.0	
Cadmium	NA	NA	<2.0	<2.0	<2.0	<2.0	
Calcium	NA	NA	23,500	24800	9,120	8,880	
Chromium	NA	NA	166	<4.0	<4.0	<4.0	
Cobalt	NA	NA	<3.0	<3.0	<3.0	<3.0	
Copper	NA	NA	27.9	<14.0	13.7 B	<5.0	
Iron	NA	NA	14,300	<74.0	<74.0	<74.0	
Lead	NA	NA	4.3	1.0 B	1.8 B	<1.0 J	
Magnesium	NA	NA	8,860	9,110	2,650 B	2,560 B	
Manganese	NA	NA	35.5 J	16.2	4.0 BJ	3.4 BJ	
Mercury	NA	NA	<0.20	<0.20	<0.20	<0.20	
Nickel	NA	NA	<32.2	<11.1	<8.0	<8.0	
Potassium	NA	NA	3,280 B	2,030 B	1,720 B	1,530 B	
Selenium	NA	NA	<2.0 J	<1.0	<2.0	<2.0	
Silver	NA	NA	<3.0	<3.0	<3.0	<3.0	
Sodium	NA	NA	46,000	48,600	4,250 B	4,480 B	
Thallium	NA	NA	<1.0	<1.0	<1.0	<1.0	
Vanadium	NA	NA	21.8 B	<9.0	<9.0	<9.0	
Zinc	NA	NA	31.2	<59.9	16.6 B	7.6 B	
Cyanide	NA	NA	<10.0	NA	<10.0	<10.0	
Hexavalent chromium	<0.010	<0.010	<0.010	NA	<0.010	<0.010	

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

ug/L Micrograms per liter.

Rep Replicate sample.

NA Not analyzed.

B Concentration is between the instrument detection limit and the contract required detection limit.

E Reported value is estimated because of the presence of interference.

W Post-digest spike recovery furnace analysis was of the 85 to 115 percent control limit, while sample absorbance was less than 50 percent of spike absorbance.



Table 4-18. Inorganic Parameters Detected in Groundwater Samples During the Phase 2 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Parameters	-----Replicate-----					
	Sample Designation: GM-6I Dissolved Sample Date: 8/23/93 Laboratory: IEA Units: ug/L	GM-Rep 2 Dissolved 8/23/93 IEA ug/L	GM-7S Total 8/26/93 IEA ug/L	GM-7S Dissolved 8/26/93 IEA ug/L	GM-7I Total 8/26/93 IEA ug/L	GM-7I Dissolved 8/26/93 IEA ug/L
Aluminum	<15.0	<15.0	16,400	<15.0	31.2 B	<15.0
Antimony	<28.0	<28.0	<28.0	<28.0	<28.0	<28.0
Arsenic	<1.0	<1.0	2.2 B	<1.0	<1.0	<1.0
Barium	21.9 B	21.9 B	164 B	110 B	19.9 B	21.6 B
Beryllium	<1.0	<1.0	2.8 B	<1.0	<1.0	<1.0
Cadmium	<2.0	<2.0	2.4 B	2.1 B	<2.0	<2.0
Calcium	9,430	9,860	16,400	15,200	2,370	2,400 B
Chromium	<4.0	<4.0	72.2	<4.0	5.3 B	<4.0
Cobalt	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Copper	<14.8	<5.0	71.9	<5.0	15.7 B	<18.4
Iron	<74.0	<74.0	210,000	<74.0	<74.0	<74.0
Lead	2.0 B	<1.0 J	42.7	<1.0	1.9 B	<1.0
Magnesium	2,650 B	2,760 B	6420	5,740	821 B	821 B
Manganese	6.7 B	3.9 B	229	9.4 B	4.7 B	3.4 B
Mercury	<0.20	<0.20	0.50	<0.20	<0.20	<0.20
Nickel	<8.0	<8.0	8.6 B	<8.0	<8.0	<8.0
Potassium	1,440 B	1,860 B	4,490 B	3,060 B	3,240 B	2,590 B
Selenium	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Silver	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Sodium	4,600 B	4,680 B	25,200	25,200	22,200	22,700
Thallium	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vanadium	<9.0	<9.0	229	<9.0	<9.0	<9.0
Zinc	<56.8	<34.5	71.3	<19.7	17.2 B	<15.8
Cyanide	NA	NA	<10.0	NA	<10.0	NA
Hexavalent chromium	NA	NA	<0.010	NA	<0.010	NA

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.  
 ug/L Micrograms per liter.  
 Rep Replicate sample.  
 NA Not analyzed.  
 B Concentration is between the instrument detection limit and the contract required detection limit.  
 E Reported value is estimated because of the presence of interference.  
 W Post-digest spike recovery furnace analysis was of the 85 to 115 percent control limit, while sample absorbance was less than 50 percent of spike absorbance.



Table 4-18. Inorganic Parameters Detected in Groundwater Samples During the Phase 2 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Parameters	Sample Designation:	GM-7D	GM-7D	GM-8S	GM-8S	GM-8I	GM-8I
	Total	Total	Dissolved	Total	Dissolved	Total	Dissolved
	Sample Date:	8/26/93	8/26/93	8/25/93	8/25/93	8/27/93	8/27/93
	Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	
Aluminum	21.3 B	<15.0	6,390	<29.8	16.1 B	<15.0	
Antimony	<28.0	<28.0	<28.0	<28.0	<28.0	<28.0	
Arsenic	<1.0	<1.0	1.8 B	<1.0	<1.0	<1.0	
Barium	11.3 B	13.1 B	32.8 B	9.5 B	22.0 B	23.7 B	
Beryllium	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Cadmium	<2.0	<2.0	3.2 B	<2.0	<2.0	<2.0	
Calcium	2,520 B	2,540 B	4,810 B	4,430 B	7,650	8,100	
Chromium	<4.0	<4.0	17.8	<4.0	5.3 B	<4.0	
Cobalt	<3.0	<3.0	3.0 B	<3.0	<3.0	<3.0	
Copper	20.0 B	<6.1	39.3	<34.8	6.0 B	<5.0	
Iron	<74.0	<74.0	41,400	<74.0	<74.0	<74.0	
Lead	1.0 B	<1.0	6.5	1.6 B	1.3 B	<1.0	
Magnesium	812 B	836 B	1,570 BJ	1,360 BJ	2,490 B	2,630 B	
Manganese	2.5 B	<2.0	61.8	2.5 B	2.2 B	<2.0	
Mercury	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	
Nickel	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0	
Potassium	1,250 B	1,390 B	1,230 B	<932	1,360 B	1,100 B	
Selenium	<1.0	<1.0	<2.0	<2.0	<1.0	<1.0	
Silver	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	
Sodium	20,300	20,500	8,360	8,230	15,300	16,300	
Thallium	1.3 B	<1.0 W	<1.0 J	<1.0 J	<1.0	<1.0	
Vanadium	<9.0	<9.0	53.1	<9.0	<9.0	<9.0	
Zinc	32.5	<10.9	46.0	<34.5	11.3 B	<18.0	
Cyanide	<10.0	NA	<10.0	NA	<10.0	NA	
Hexavalent chromium	<0.010	NA	NA	NA	<0.010	NA	

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

ug/L Micrograms per liter.

Rep Replicate sample.

NA Not analyzed.

B Concentration is between the instrument detection limit and the contract required detection limit.

E Reported value is estimated because of the presence of interference.

W Post-digest spike recovery furnace analysis was of the 85 to 115 percent control limit, while sample absorbance was less than 50 percent of spike absorbance.



**Table 4-18. Inorganic Parameters Detected in Groundwater Samples During the Phase 2 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.**

Sample Designation:	GM-9S	GM-9I	GM-13S*	GM-13S	GM-13I	GM-13I
	Total	Total	Total	Dissolved	Total	Dissolved
Sample Date:	8/24/93	8/24/93	8/23/93	8/23/93	8/31/93	8/31/93
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameters						
Aluminum	NA	NA	10,500 J	<111	8,030 J	526 J
Antimony	NA	NA	<28.0	<28.0	<28.0	<28.0
Arsenic	NA	NA	10.3	<1.0	24.0	38.2
Barium	NA	NA	97.5 BJ	<2.0	43.5 B	<2.0
Beryllium	NA	NA	3.8 B	<1.0	<1.0	<1.0
Cadmium	NA	NA	4.3 B	<2.0	<2.0	<2.0
Calcium	NA	NA	9,210	2,090 B	1,090 B	<66.3
Chromium	NA	NA	31.8	<4.0	31.8	<4.0
Cobalt	NA	NA	14.8 B	<3.0	5.1 B	<3.0
Copper	NA	NA	838	11.4 B	61.2	<5.0
Iron	NA	NA	103,000	<347	35,200 J	<105
Lead	NA	NA	128 J	1.7 B	40.5	<1.1
Magnesium	NA	NA	3,030 B	597 B	434 B	<31.0
Manganese	NA	NA	1,720 J	7.3 B	156 J	2.5 BJ
Mercury	NA	NA	0.24	<0.20	0.24	<0.20
Nickel	NA	NA	132	<8.0	22.4 B	<8.0
Potassium	NA	NA	4,410 B	2,000 B	2,240 B	<932
Selenium	NA	NA	<2.0	<1.0	2.3 B	1.9 B
Silver	NA	NA	<3.0	<3.0	<3.0	<3.0
Sodium	NA	NA	88,400	90,000	47,300	42,800
Thallium	NA	NA	<1.0	<1.0	<1.0 J	<1.0 J
Vanadium	NA	NA	52.4	<9.0	84.6	22.1 B
Zinc	NA	NA	171	<31.5	60.8	<16.6
Cyanide	NA	NA	35.8	NA	70.5	NA
Hexavalent chromium	<0.010	<0.010	<0.010	NA	<0.010	NA

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

ug/L Micrograms per liter.

Rep Replicate sample.

NA Not analyzed.

B Concentration is between the instrument detection limit and the contract required detection limit.

E Reported value is estimated because of the presence of interference.

W Post-digest spike recovery furnace analysis was of the 85 to 115 percent control limit, while sample absorbance was less than 50 percent of spike absorbance.



Table 4-18. Inorganic Parameters Detected in Groundwater Samples During the Phase 2 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	GM-13D	GM-13D	GM-14S	GM-14S	GM-14I	GM-14I
	Total	Dissolved	Total	Dissolved	Total	Dissolved
Sample Date:	8/27/93	8/27/93	8/26/93	8/26/93	8/30/93	8/30/93
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameters						
Aluminum	<b>24.5 B</b>	<15.0	<b>6,330</b>	<15.0	<b>22.8 BJ</b>	<15.0
Antimony	<28.0	<28.0	<28.0	<28.0	<28.0	<28.0
Arsenic	<1.0	<1.0	<b>2.5 B</b>	<1.0	<1.0	<1.0
Barium	<b>22.0 B</b>	<b>23.7 B</b>	<b>286</b>	<b>164 B</b>	<2.0	<b>4.7 B</b>
Beryllium	<1.0	<1.0	<b>2.0 B</b>	<1.0	<1.0	<1.0
Cadmium	<2.0	<2.0	<b>3.0 B</b>	<2.0	<2.0	<2.0
Calcium	<b>5,020</b>	<b>5,010</b>	<b>19,400</b>	<b>17,500</b>	<b>773 B</b>	<b>735 B</b>
Chromium	<4.0	<4.0	<b>44.6</b>	<4.0	<4.0	<4.0
Cobalt	<b>10.9 B</b>	<b>11.3 B</b>	<b>11.6 B</b>	<b>3.9 B</b>	<b>13.1 B</b>	<b>13.9 B</b>
Copper	<b>11.1 B</b>	<5.0	<b>84.1</b>	<5.0	<b>6.0 B</b>	<5.0
Iron	<74.0	<74.0	<b>158,000</b>	<b>1,650</b>	<74.0	<74.0
Lead	<b>1.4 B</b>	<1.0	<b>46.5</b>	<1.0	<1.0 J	<1.0
Magnesium	<b>1,470 B</b>	<b>1,470 B</b>	<b>5270</b>	<b>4,770 B</b>	<b>352 B</b>	<b>316 B</b>
Manganese	<b>9.2 B</b>	<b>8.7 B</b>	<b>1110</b>	<b>567</b>	<b>5.0 BJ</b>	<b>5.0 BJ</b>
Mercury	<b>1.4</b>	<b>1.2</b>	<0.20	<0.20	<0.20	<0.20
Nickel	<8.0	<8.0	<b>51.3</b>	<8.0	<8.0	<8.0
Potassium	<b>1,060 B</b>	<932	<b>3,840 B</b>	<b>3,070 B</b>	<932	<b>1040 B</b>
Selenium	<b>1.2 B</b>	<1.0	<1.0	<1.0	<1.0 J	<1.0 J
Silver	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Sodium	<b>33,500</b>	<b>32,700</b>	<b>29,700</b>	<b>31,200</b>	<b>53,800</b>	<b>56,400</b>
Thallium	<1.0	<1.0	<b>1.5 B</b>	<1.0 J	<1.0 J	<1.0 J
Vanadium	<9.0	<9.0	<b>27.4 B</b>	<9.0	<9.0	<9.0
Zinc	<b>10.3 B</b>	<9.8	<b>137</b>	<23.6	<b>23.0</b>	<9.6
Cyanide	<b>11.0</b>	NA	<10.0	NA	<b>44.4</b>	NA
Hexavalent chromium	<0.010	NA	<0.010	NA	<0.010	NA

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

ug/L Micrograms per liter.

Rep Replicate sample.

NA Not analyzed.

B Concentration is between the instrument detection limit and the contract required detection limit.

E Reported value is estimated because of the presence of interference.

W Post-digest spike recovery furnace analysis was of the 85 to 115 percent control limit, while sample absorbance was less than 50 percent of spike absorbance.



Table 4-18. Inorganic Parameters Detected in Groundwater Samples During the Phase 2 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Parameters	Sample Designation:	GM-15S	GM-15S	GM-15I	GM-15I	GM-16S	GM-16S
		Total	Dissolved	Total	Dissolved	Total	Dissolved
	Sample Date:	8/26/93	8/26/93	8/31/93	8/31/93	8/26/93	8/26/93
	Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Aluminum		26,500	<15.0	27.2 B	<36.9	8,250	<15.0
Antimony		<28.0	<28.0	<28.0	<28.0	<28.0	<28.0
Arsenic		5.2 B	<1.0	<1.0 J	<1.0	3.3 B	<1.0
Barium		282	68.3 B	78.4 B	73.7 B	76.4 B	71.5 B
Beryllium		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium		4.5 B	<2.0	<2.0	<2.0	<2.0	<2.0
Calcium		24,100	20,400	17,800	18,400	27,700	20,800
Chromium		101	<4.0	<4.0	<4.0	14.1	<4.0
Cobalt		16.9 B	<3.0	<3.0	<3.0	3.1 B	<3.0
Copper		173	<5.0	<5.0	<22.9	29.4	<5.3
Iron		229,000	2,140	<74.0	<74.0	13,800	<74.0
Lead		169	<1.0	<1.0	1.2 B	10.9	<1.0
Magnesium		7,340	4,710 B	5,250	5,230	2,130 B	1,510 B
Manganese		1,030	273	11.0 B	9.4 B	222	6.7 B
Mercury		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Nickel		94.2	<8.0	<8.0	<9.5	<8.0	<8.0
Potassium		4,930 B	3,390 B	4,430 B	4,860 B	1,810 B	1,060 B
Selenium		<1.0	<1.0	2.0 BJ	<2.0 J	<1.0 J	<1.0
Silver		<3.0	<3.0	<3.0	3.0 B	<3.0	<3.0
Sodium		16,300	16,100	15,600	15,500	13,500	15,100
Thallium		<1.0	<1.0 W	<1.0	<1.0	<1.0	<1.0
Vanadium		105	<9.0	<9.0	<9.0	<9.0	<9.0
Zinc		300	<18.3	14.2 B	<24.6	56.4	<22.6
Cyanide		<10.0	NA	<10.0	NA	<10.0	NA
Hexavalent chromium		<0.010	NA	<0.010	NA	<0.010	NA

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

ug/L Micrograms per liter.

Rep Replicate sample.

NA Not analyzed.

B Concentration is between the instrument detection limit and the contract required detection limit.

E Reported value is estimated because of the presence of interference.

W Post-digest spike recovery furnace analysis was of the 85 to 115 percent control limit, while sample absorbance was less than 50 percent of spike absorbance.



Table 4-18. Inorganic Parameters Detected in Groundwater Samples During the Phase 2 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Parameters	Sample Designation: GM-16I		----Replicate----		----Replicate----	
	Total	Dissolved	GM-17S Total	GM-Rep 3 Total	GM-17S Dissolved	GM-Rep 3 Dissolved
	9/1/93	9/1/93	8/27/93	8/27/93	8/27/93	8/27/93
	IEA	IEA	IEA	IEA	IEA	IEA
	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Aluminum	9,440	561	8,220	9,070	<19.6	<15.0
Antimony	<28.0	<28.0	<28.0	<28.0	<28.0	<28.0
Arsenic	2.0 B	<1.0 J	9.3 B	8.2 B	<1.0	<1.0
Barium	22.3 B	4.7 B	32.2 B	30.5 B	7.9 B	7.4 B
Beryllium	<1.0	<1.0	1.2 B	1.2 B	<1.0	<1.0
Cadmium	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Calcium	2,720 B	1,800 B	8,270	6,380	4,660 B	4,590 B
Chromium	<4.0	<4.0	36.1	37.1	<4.0	<4.0
Cobalt	6.9 B	3.0 B	8.2 B	8.2 B	<3.0	<3.0
Copper	92.6	<36.2	106	114	<5.0	<5.0
Iron	8,670	404	49,900	53,500	<74.0	<74.0
Lead	3.8	3.8	11.8	6.6	1.7 B	1.0 B
Magnesium	637 B	296 B	1,410 B	1,410 B	1,170 B	1,170 B
Manganese	91.0	37.9	252	271	<2.0	<2.0
Mercury	1.0	0.31	<0.20	<0.20	<0.20	<0.20
Nickel	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0
Potassium	<932	<932	1,620 B	1,800 B	<932	<932
Selenium	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0
Silver	<3.0	<3.0	4.1 B	4.1 B	<3.0	<3.0
Sodium	97,300	96,000	8,380	8,360	8,400	8,340
Thallium	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vanadium	17.0 B	<9.0	26.4 B	25.6 B	<9.0	<9.0
Zinc	14.4 B	<21.6	53.6	55.3	<11.8	<8.7
Cyanide	70.0	NA	13.8	<10.0	NA	NA
Hexavalent chromium	0.120	NA	<0.010	<0.010	NA	NA

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

ug/L Micrograms per liter.

Rep Replicate sample.

NA Not analyzed.

B Concentration is between the instrument detection limit and the contract required detection limit.

E Reported value is estimated because of the presence of interference.

W Post-digest spike recovery furnace analysis was of the 85 to 115 percent control limit, while sample absorbance was less than 50 percent of spike absorbance.





Table 4-18. Inorganic Parameters Detected in Groundwater Samples During the Phase 2 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	GM-18S*	GM-18S	GM-18I	GM-18I	GM-19S	GM-19S
Sample Date:	Total 8/23/93	Dissolved 8/23/93	Total 8/23/93	Dissolved 8/23/93	Total 8/30/93	Dissolved 8/30/93
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameters						
Aluminum	2,470 J	<15.0	<15.0 J	<26.3	138 BJ	<79.2
Antimony	<28.0	<28.0	<28.0	<28.0	<28.0	<28.0
Arsenic	<2.1	<1.0	<1.3	<1.0	<1.0	<1.0
Barium	31.4 BJ	25.6 B	26.7 BJ	21.3 B	9.1 B	10.5 B
Beryllium	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Calcium	7,590	7,710	5,320	5,610	11,700	12,300
Chromium	8.9 B	<4.0	<4.0	<4.0	<4.0	<4.0
Cobalt	3.9 B	<3.0	<3.0	<3.0	<3.0	<3.0
Copper	45.6	<8.1	7.3 B	<9.2	9.4 B	<5.0
Iron	38,800	<267	<74.0	<74.0	<74.0	<74.0
Lead	113 J	7.2	1.4 BJ	2.9 B	2.1 B	<1.0
Magnesium	1,950 B	1,750 B	1,680 B	1,700 B	3,020 B	3,140 B
Manganese	433 J	271	8.0 BJ	8.1 B	27.8 J	28.3 J
Mercury	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Nickel	56.5	<9.7	<9.2	<8.0	<8.0	<8.0
Potassium	1,570 B	1,280 B	1,200 B	1,040 B	1,480 B	1,760 B
Selenium	<2.0	<1.0	<2.0	<1.0	<1.0 J	<1.0 J
Silver	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Sodium	11,100	11,900	10,800	11,300	31,600	32,800
Thallium	<1.0	<1.0	<1.3 J	<1.0	<1.0 J	<1.0 J
Vanadium	<9.0	<9.0	<9.0	<9.0	<9.0	<9.0
Zinc	76.6	<77.3	8.3 B	<24.0	51.6	<53.5
Cyanide	<10.0	NA	<10.0	NA	<10.0	NA
Hexavalent chromium	<0.010	NA	<0.010	NA	<0.010	NA

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

ug/L Micrograms per liter.

Rep Replicate sample.

NA Not analyzed.

B Concentration is between the instrument detection limit and the contract required detection limit.

E Reported value is estimated because of the presence of interference.

W Post-digest spike recovery furnace analysis was of the 85 to 115 percent control limit, while sample absorbance was less than 50 percent of spike absorbance.



Table 4-18. Inorganic Parameters Detected in Groundwater Samples During the Phase 2 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	GM-19I	GM-19I	GM-20S*	GM-20S	GM-20I*	GM-20I
	Total	Dissolved	Total	Dissolved	Total	Dissolved
Sample Date:	8/30/93	8/30/93	8/23/93	8/23/93	8/24/93	8/24/93
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameters						
Aluminum	40.7 BJ	<15.0	2,830 J	<15.0	19,400 J	892
Antimony	<28.0	<28.0	<28.0	<28.0	<28.0	<28.0
Arsenic	<1.0	<1.0	<1.0	<1.0	<1.0	8.3 B
Barium	33.9 B	27.3 B	41.0 BJ	10.7 B	120 BJ	32.0 B
Beryllium	<1.0	<1.0	<1.0	<1.0	1.2 B	<1.0
Cadmium	<2.0	<2.0	56.9	12.3	2.5 B	<2.0
Calcium	7,250	7,800	5,780	5,640	29,800	27,000
Chromium	<4.0	<4.0	30.4	<4.0	49.6	<15.5
Cobalt	<3.0	<3.0	<3.0	<3.0	5.5 B	<3.0
Copper	<5.0	<5.0	18.6 B	<5.0	33.2	<5.0
Iron	<74.0	<74.0	28,500	<74.0	29,200	<74.0
Lead	1.5 B	<1.4	46.8 J	<1.0 J	19.4 J	<1.0
Magnesium	2,740 B	2,940	2,160 B	1,880 B	838 B	<31.0
Manganese	3.8 BJ	3.3 BJ	270 J	52.1	111 J	<2.0
Mercury	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Nickel	<8.0	<8.0	<22.2	<8.0	<14.4	<8.0
Potassium	<932	1,390 B	1,310 B	957 B	41,800	40,800
Selenium	<1.0 J	<1.0 J	<2.0	<1.0	<2.0	<1.0
Silver	<3.0	<3.0	9.9 B	<3.0	<3.0	<3.0
Sodium	8,040	9,050	12,000	12,300	28,000	32,100
Thallium	<1.0 J	<1.0 J	<1.0	<1.0	<1.0	<1.0 J
Vanadium	<9.0	<9.0	<9.0	<9.0	107	26.6 B
Zinc	12.9 B	<14.7	107	<40.3	47.2	<17.3
Cyanide	<10.0	NA	<10.0	NA	<10.0	NA
Hexavalent chromium	<0.010	NA	<0.010	NA	<0.010	NA

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

ug/L Micrograms per liter.

Rep Replicate sample.

NA Not analyzed.

B Concentration is between the instrument detection limit and the contract required detection limit.

E Reported value is estimated because of the presence of interference.

W Post-digest spike recovery furnace analysis was of the 85 to 115 percent control limit, while sample absorbance was less than 50 percent of spike absorbance.



Table 4-18. Inorganic Parameters Detected in Groundwater Samples During the Phase 2 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Parameters	Sample Designation:	GM-20D	GM-20D	GM-22S	GM-22S	----Replicate----	
		Total	Dissolved	Total	Dissolved	GM-221	GM-Rep 4
	Sample Date:	8/31/93	8/31/93	8/26/93	8/26/93	Total	Total
	Laboratory:	IEA	IEA	IEA	IEA	8/27/93	8/27/93
Units:	ug/L	ug/L	ug/L	ug/L	IEA	IEA	
Aluminum	39.5 B	<33.6	7,100	<15.0	48.3 B	60.8 B	
Antimony	<28.0	<28.0	<28.0	<28.0	<28.0	<28.0	
Arsenic	<1.0	<1.0 J	2.6 B	<1.0	<1.0	<1.0	
Barium	13.1 B	15.3 B	26.5 B	38.9 B	17.2 B	19.4 B	
Beryllium	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Cadmium	<2.0	<2.0	6.9	4.1 B	<2.0	<2.0	
Calcium	4,800 B	5,220	8,740	7,940	4,920 B	5,020	
Chromium	34.3	33.9	31.6	11.9	8.7 B	8.9 B	
Cobalt	<3.0	<3.0	5.2 B	<3.0	<3.0	<3.0	
Copper	<5.0	<22.9	39.5	5.3 B	6.0 B	<5.0	
Iron	<74.0	<74.0	13,000	<74.0	<74.0	123	
Lead	<1.0	<1.0	13.6	<1.0	<1.0	1.2 B	
Magnesium	1,230 B	1,280 B	2,570 B	1,790 B	1,450 B	1,490 B	
Manganese	10.3 B	9.4 B	251	4.2 B	8.3 B	8.3 B	
Mercury	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	
Nickel	<8.0	<8.0	11.7 B	<8.0	8.4 B	<8.0	
Potassium	<932	<932	2,440 B	1,780 B	1,130 B	1,530 B	
Selenium	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	
Silver	<3.0	<3.0	9.8 B	<3.0	<3.0	<3.0	
Sodium	10,900	11,700	3,260 B	3,860 B	10,300	10,600	
Thallium	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Vanadium	<9.0	<9.0	14.9 B	<9.0	<9.0	<9.0	
Zinc	11.7 B	<42.1	57.7	26.3	89.2	90.7	
Cyanide	<10.0	NA	<10.0	NA	<10.0	<10.0	
Hexavalent chromium	0.030	NA	<0.010	NA	<0.010	<0.010	

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

ug/L Micrograms per liter.

Rep Replicate sample.

NA Not analyzed.

B Concentration is between the instrument detection limit and the contract required detection limit.

E Reported value is estimated because of the presence of interference.

W Post-digest spike recovery furnace analysis was of the 85 to 115 percent control limit, while sample absorbance was less than 50 percent of spike absorbance.



Table 4-18. Inorganic Parameters Detected in Groundwater Samples During the Phase 2 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Parameters	----Replicate----					
	Sample Designation: GM-22I Dissolved Sample Date: 8/27/93 Laboratory: IEA Units: ug/L	GM-Rep 4 Dissolved 8/27/93 IEA ug/L	GM-22D* Total 8/24/93 IEA ug/L	GM-22D Dissolved 8/24/93 IEA ug/L	GM-23S* Total 8/23/93 IEA ug/L	GM-23S Dissolved 8/23/93 IEA ug/L
Aluminum	<15.0	<15.0	28.2 BJ	<21.6	640 J	<65.6
Antimony	<28.0	<28.0	<28.0	<28.0	<28.0	<28.0
Arsenic	<1.0	<1.0	<1.0	<1.2	<1.0	<1.0
Barium	19.4 B	20.0 B	13.6 BJ	7.5 B	40.8 BJ	19.2 B
Beryllium	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Calcium	5,090	5,050	3,360 B	3,680 B	7,840	8,410
Chromium	6.9 B	6.6 B	<4.0	<4.0	8.0 B	<4.0
Cobalt	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Copper	<5.0	<5.0	<5.0	<5.0	7.5 B	<7.0
Iron	<74.0	<74.0	<74.0	<74.0	1,520	<74.0
Lead	<1.0	<1.0	1.3 BJ	3.5	2.9 B	<1.0
Magnesium	1,500 B	1,480 B	1,200 B	1,210 B	2,170 B	2,280 B
Manganese	8.1 B	9.2 B	2.3 BJ	2.5 B	44.1 J	21.7
Mercury	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Nickel	<8.0	<13.2	<8.6	<8.0	<8.0	<8.0
Potassium	<932	<932	2,940 B	3,270 B	11,400	12,000
Selenium	<1.0	<1.0	<2.0	<1.0	<2.0 J	<1.0
Silver	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Sodium	10,700	10,700	10,000	10,800	69,100	74,200
Thallium	<1.0	<1.0	<1.0	<1.0 J	<1.0	<1.0
Vanadium	<9.0	<9.0	<9.0	<9.0	<9.0	<9.0
Zinc	<86.8	<83.2	19.0 B	<25.9	10.8 B	<46.1
Cyanide	NA	NA	<10.0	NA	<10.0	NA
Hexavalent chromium	NA	NA	<0.010	NA	<0.010	NA

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.  
 ug/L Micrograms per liter.  
 Rep Replicate sample.  
 NA Not analyzed.  
 B Concentration is between the instrument detection limit and the contract required detection limit.  
 E Reported value is estimated because of the presence of interference.  
 W Post-digest spike recovery furnace analysis was of the 85 to 115 percent control limit, while sample absorbance was less than 50 percent of spike absorbance.



Table 4-18. Inorganic Parameters Detected in Groundwater Samples During the Phase 2 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	GM-23I*	GM-23I	GM-31S	GM-31S	GM-32S	GM-32S
	Total	Dissolved	Total	Dissolved	Total	Dissolved
Sample Date:	8/24/93	8/24/93	9/1/93	9/1/93	9/1/93	9/1/93
Laboratory:	IEA	IEA	IEA	IEA	IEA	IEA
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameters						
Aluminum	18.6 B	<15.0	18.8 B	<30.7	18.0 B	<15.9
Antimony	<28.0	<28.0	<28.0	<28.0	<28.0	<28.0
Arsenic	<1.0	<1.0	<1.0	<1.0 J	<1.0	<1.0
Barium	45.8 B	38.4 B	45.2 B	51.0 B	50.5 B	50.0 B
Beryllium	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Calcium	12,100	13,800	22,200	24,700	18,400	17,900
Chromium	<4.0	<4.0	10.2	<4.0	129	131
Cobalt	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Copper	<5.0	<5.0	<5.0	<18.5	<5.0	<5.0
Iron	<74.0	<74.0	<74.0	<83.0	<74.0	<74.0
Lead	2.9 B	1.2 B	<1.0	<1.0	<1.0	<1.0
Magnesium	4,330 BJ	4,470 BJ	4,830 B	5,260	1,890 B	1,840 B
Manganese	110	107	<2.0	3.8 B	<2.0	<2.0
Mercury	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Nickel	<8.0	<8.0	<8.0	<8.0	<8.0	<8.0
Potassium	3,010 B	2,820 B	2,670 B	3,460 B	4,050 B	4,040 B
Selenium	<2.0	<2.0	<2.0	<2.0	2.7 B	<2.0
Silver	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Sodium	22,500	22,900	29,000	31,000	13,300	13,500
Thallium	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vanadium	<9.0	<9.0	<9.0	<9.0	<9.0	<9.0
Zinc	18.6 B	<21.3	10.6 B	<15.0	19.4 B	<15.1
Cyanide	<10.0	NA	<10.0	NA	<10.0	NA
Hexavalent chromium	<0.009	NA	<0.010	NA	0.130	NA

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.  
 ug/L Micrograms per liter.  
 Rep Replicate sample.  
 NA Not analyzed.  
 B Concentration is between the instrument detection limit and the contract required detection limit.  
 E Reported value is estimated because of the presence of interference.  
 W Post-digest spike recovery furnace analysis was of the 85 to 115 percent control limit, while sample absorbance was less than 50 percent of spike absorbance.



Table 4-18. Inorganic Parameters Detected in Groundwater Samples During the Phase 2 Remedial Investigation, Grumman Aerospace Corporation, Bethpage, New York.

Parameters	Sample Designation: GM-33D2* Total Sample Date: 8/24/93 Laboratory: IEA Units: ug/L	GM-33D2 Dissolved 8/24/93 IEA ug/L	Field Blank Dissolved 8/30/93 IEA ug/L	Field Blank Dissolved 8/31/93 IEA ug/L
Aluminum	19.7 B	<15.0	19.4 BJ	24.6 B
Antimony	<28.0	<28.0	<28.0	<28.0
Arsenic	1.0 B	<1.0	<1.0	<1.0
Barium	13.1 B	6.9 B	<2.0	<2.0
Beryllium	<1.0	<1.0	<1.0	<1.0
Cadmium	<2.0	<2.0	<2.0	<2.0
Calcium	5,260	5,320	61.5 B	72.0 B
Chromium	4.1 B	<4.0	<4.0	<4.0
Cobalt	<3.0	<3.0	<3.0	<3.0
Copper	<5.0	<5.0	<5.0	19.8 B
Iron	<74.0	<74.0	<74.0	<103
Lead	2.4 B	<1.0	<1.0	<1.0
Magnesium	1,570 BJ	1,540 BJ	<31.0	<31.0
Manganese	10.3 B	8.4 B	<2.0	<2.0
Mercury	<0.20	<0.20	<0.20	<0.20
Nickel	<10.2	<8.0	<8.0	9.5 B
Potassium	5,450	5,070	<932	<932
Selenium	<2.0	<2.0	<1.0	<2.0
Silver	<3.0	<3.0	<3.0	<3.0
Sodium	11,300	11,600	<65.0	103 B
Thallium	<1.0	<1.0	<1.0 J	<1.0
Vanadium	<9.0	<9.0	<9.0	<9.0
Zinc	11.7 B	<45.1	10.1 B	20.3
Cyanide	<10.0	NA	NA	NA
Hexavalent chromium	<0.009	NA	NA	NA

IEA Industrial and Environmental Analysts, Inc., Monroe, Connecticut.

ug/L Micrograms per liter.

Rep Replicate sample.

NA Not analyzed.

B Concentration is between the instrument detection limit and the contract required detection limit.

E Reported value is estimated because of the presence of interference.

W Post-digest spike recovery furnace analysis was of the 85 to 115 percent control limit, while sample absorbance was less than 50 percent of spike absorbance.



Table 4-19. Volatile Organic Compounds Detected in Groundwater Samples During the Phase 2 Remedial Investigation, Naval Weapons Industrial Reserve Plant, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	HN-24S	HN-24I	HN24I1	HN-24I2	HN-27S3*	HN-27I	HN28I	HN29S
Sample Date:	3/93	3/93	3/93	3/93	12/1/92	3/93	3/93	3/93
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameter								
Chloromethane	<10	<620	<10	<1000		<10	<10	<83
Bromomethane	<10	<620	<10	<1000		<10	<10	<83
Vinyl chloride	<10	<620	<10	<1000		<10	<10	<83
Chloroethane	<10	<620	<10	<1000		<10	<10	<83
Methylene chloride	<10	<620	<10	<1000		<10	<10	<83
Acetone	10 J	<620	<10	<1000		<10	<10 J	83 J
Carbon disulfide	10 J	<620	<10	<1000		<10	10 J	83 J
1,1-Dichloroethene	<10	<620	<10	<1000	3.4	<10	<10	30 J
1,1-Dichloroethane	<10	<620	<10	<1000	6.3	<10	<10	120
1,2-Dichloroethene (total)	10 J	<620	<10	<1000	31.3	<10	10 J	220 J
Chloroform	<10	<620	<10	<1000		<10	<10	<83
1,2-Dichloroethane	<10	<620	<10	<1000		<10	<10	<83
2-Butanone	<10	<620	<10	<1000		<10	<10	<83
1,1,1-Trichloroethane	<10	<620	<10	<1000	113	<10	<10	690
Carbon tetrachloride	<10	<620	<10	<1000		<10	<10	<83
Bromodichloromethane	<10	<620	<10	<1000		<10	<10	<83
1,2-Dichloropropane	<10	<620	<10	<1000		<10	<10	<83
cis-1,3-Dichloropropene	<10	<620	<10	<1000		<10	<10	<83
Trichloroethene	16	9000	91	12000	141	4 J	9 J	340
Dibromochloromethane	<10	<620	<10	<1000		<10	<10	<83
1,1,2-Trichloroethane	<10	<620	<10	<1000		<10	<10	<83
1,1,2,2-Tetrachloroethane	<10	<620	<10	<1000		<10	<10	<83
1,1,2,2-Tetrachloroethane	7 J	<620	<10	<1000	637	<10	<10	1400
Toluene	<10	<620	<10	<1000		<10	<10	<83
Chlorobenzene	<10	<620	<10	<1000		<10	<10	<83
Ethylbenzene	<10	<620	<10	<1000		<10	<10	<83
Styrene	<10	<620	<10	<1000		<10	<10	<83
Xylene (total)	<10	<620	<10	<1000		<10	<10	<83
<b>Total HVOCs:</b>	<b>33</b>	<b>9000</b>	<b>91</b>	<b>12000</b>	<b>932</b>	<b>4</b>	<b>29</b>	<b>2800</b>
<b>Total VOCs:</b>	<b>63</b>	<b>9000</b>	<b>91</b>	<b>12000</b>	<b>932</b>	<b>4</b>	<b>49</b>	<b>3049</b>

HVOCs Halogenated volatile organic compounds.

VOCs Volatile organic compounds.

ug/L Micrograms per liter.

J Value is estimated because it is reported at a concentration less than the associated contract required quantitative limit (CRQL).

For results for trip blanks, field blanks, and duplicates, please see the Phase 2 Remedial Investigation Report for the Naval Weapons Industrial Reserve Plant.

- \* Results were obtained from a table in the Phase 2 Remedial Investigation Report for the Naval Weapons Industrial Reserve Plant. No laboratory data sheets for this well were included in the Navy report. Total HVOCs and Total VOCs are estimated. Blank spaces indicate that compound was not included with the table.



Table 4-19. Volatile Organic Compounds Detected in Groundwater Samples During the Phase 2 Remedial Investigation, Naval Weapons Industrial Reserve Plant, Grumman Aerospace Corporation, Bethpage, New York.

Sample Designation:	HN-29I	HN-29D	HN-40S	HN-40I	HN-41S	HN-41I	HN-42S	HN-42I
Sample Date:	3/93	3/93	3/93	3/93	3/93	3/93	3/93	3/93
Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Parameter								
Chloromethane	<10	<10	<10	<10	<10	<10	<10	<10
Bromomethane	<10	<10	<10	<10	<10	<10	<10	<10
Vinyl chloride	<10	<10	<10	<10	<10	<10	<10	<10
Chloroethane	<10	<10	<10	<10	<10	<10	<10	<10
Methylene chloride	<10	<10	<10	<10	<10	<10	<10	<10
Acetone	10 J	10 J	<10	<10	<10	<10	<10	<10
Carbon disulfide	10 J	10 J	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	<10	<10	<10	<10	<10	7 J	<10	<10
1,1-Dichloroethane	<10	<10	<10	<10	<10	14	<10	<10
1,2-Dichloroethene (total)	<10	10 J	<10	<10	<10	<10	<10	<10
Chloroform	<10	<10	<10	<10	<10	<10	<10	<10
1,2-Dichloroethane	<10	<10	<10	<10	<10	<10	<10	<10
2-Butanone	<10	<10	<10	<10	<10	<10	<10	<10
1,1,1-Trichloroethane	4 J	<10	<10	<10	<10	16	<10	<10
Carbon tetrachloride	<10	<10	<10	<10	<10	<10	<10	<10
Bromodichloromethane	<10	<10	<10	<10	<10	<10	<10	<10
1,2-Dichloropropane	<10	<10	<10	<10	<10	<10	<10	<10
cis-1,3-Dichloropropene	<10	<10	<10	<10	<10	<10	<10	<10
Trichloroethene	17	13	<10	7 J	<10	<10	<10	6 J
Dibromochloromethane	<10	<10	<10	<10	<10	<10	<10	<10
1,1,2-Trichloroethane	<10	<10	<10	<10	<10	<10	<10	<10
Benzene	<10	<10	<10	<10	<10	<10	<10	<10
trans-1,3-Dichloropropene	<10	<10	<10	<10	<10	<10	<10	<10
Bromoform	<10	<10	<10	<10	<10	<10	<10	<10
4-Methyl-2-pentanone	10 J	10 J	<10	<10	<10	<10	<10	<10
2-Hexanone	<10	<10	<10	<10	<10	<10	<10	<10
Tetrachloroethene	<10	26	<10	<10	<10	<10	<10	2 J
1,1,2,2-Tetrachloroethane	<10	<10	<10	<10	<10	<10	<10	<10
Toluene	<10	<10	4 J	7 J	7 J	8 J	4 J	3 J
Chlorobenzene	<10	<10	<10	<10	<10	<10	<10	<10
Ethylbenzene	<10	<10	<10	<10	<10	<10	<10	<10
Styrene	<10	<10	<10	<10	<10	<10	<10	<10
Xylene (total)	<10	<10	<10	<10	<10	<10	<10	<10
<b>Total HVOCs:</b>	<b>31</b>	<b>49</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>37</b>	<b>0</b>	<b>8</b>
<b>Total VOCs:</b>	<b>51</b>	<b>79</b>	<b>4</b>	<b>14</b>	<b>7</b>	<b>45</b>	<b>4</b>	<b>11</b>

HVOCs Halogenated volatile organic compounds.

VOCs Volatile organic compounds.

ug/L Micrograms per liter.

J Value is estimated because it is reported at a concentration less than the associated contract required quantitative limit (CRQL).

For results for trip blanks, field blanks, and duplicates, please see the Phase 2 Remedial Investigation Report for the Naval Weapons Industrial Reserve Plant.

- Results were obtained from a table in the Phase 2 Remedial Investigation Report for the Naval Weapons Industrial Reserve Plant. No laboratory data sheets for this well were included in the Navy report. Total HVOCs and Total VOCs are estimated. Blank spaces indicate that compound was not included with the table.





Table 4-20. Phase 2 Well Construction Details for U.S. Navy Wells, Grumman Aerospace Corporation, Bethpage, New York.

Well Designation	Well Diameter	Total Depth (feet below land surface)	Screened Interval (feet below land surface)	Drilling Method	Land Surface Elevation (feet relative to mean sea level)	Measuring Point Elevation (feet relative to mean sea level)
HN-8D	4	198.4	188-198	MR/RR	127.08	125.91
HN-24S	4	59	48.6-58.6	HSA	123.03	122.73
HN-24I	4	158	148-158	HSA	122.69	125.80
HN-24I1	4	159	149-150	HSA	121.20	120.46
HN-24I2	4	160	150-160	HSA	123.29	122.89
HN-25S	4	59.3	49-59	HSA	126.09	125.69
HN-25I	4	130.4	120-130	HSA	125.85	125.51
HN-25D	4	210	200-210	MR/RR	125.21	124.82
HN-26S	4	55	44-54	HSA	125.37	125.00
HN-26I	4	155	115.3-125.3	HSA	125.33	124.84
HN-27S1	4	54.3	44-54	HSA	125.50	128.21
HN-27S2	2	61	51-61	HSA	125.14	124.88
HN-27S3	2	61	51-61	HSA	124.67	124.39
HN-27I1	4	155	100-110	HSA	125.17	127.28
HN-27I2	8	135	110-135	HSA	125.53	125.06
HN-28S	4	54.3	44-54	HSA	123.26	122.82
HN-28I	4	155	131-141	HSA	122.95	122.73
HN-29S	4	49.3	39-49	HSA	116.93	119.04
HN-29I	4	130.4	120-130	HSA	117.07	116.42
HN-29D	4	220	210-220	MR/RR	115.66	115.11
HN-30S	4	57.3	47-57	HSA	127.18	129.10
HN-30I	4	155	110-120	HSA	126.72	126.27
HN-40S	4	59	49-59	HSA	116.64	116.35
HN-40I	4	118	108-118	HSA	116.51	115.91
HN-41S	4	55	45-55	HSA	110.23	109.91
HN-41I	4	113	103-113	HSA	110.29	109.90
HN-42S	4	60	50-60	HSA	120.59	120.32
HN-42I	4	110	100-110	HSA	119.98	119.61
HN-43I	4	151.31	141-151	HSA	127.89	127.55
USGS N-10623	2	72	68-72	HSA	121.25	120.84

HSA                      Hollow-stem auger method.  
MR/RR                    Mud rotary/reverse rotary methods.



Table 4-21. Volatile Organic Compounds Detected Above Applicable or Relevant and Appropriate Requirements in Phase 2 Groundwater Samples, Grumman Aerospace Corporation, Bethpage, New York.

Compound	Range of VOCs Detected (ug/L)	Well Where Maximum Concentration was Detected (ug/L)
1, 1-Dichloroethane	ND - 110	Well GM - 13S
1, 1-Dichloroethene	ND - 420	Well GP - 8
1, 2-Dichloroethene (total)	ND - 260	Well GM - 13D
Tetrachloroethene	ND - 600	Well GM - 13S
Toluene	ND - 13 J	Well GM - 12I
1, 1, 1-Trichloroethane	ND - 760	Well GM - 13S
Trichloroethene	ND - 3000	Well GP - 2
Vinyl chloride	ND - 370	Well GP - 14

- VOCs Volatile organic compounds.
- ND Not detected above method detection limits.
- ug/L Micrograms per liter.
- GM Grumman monitoring well.
- GP Grumman production well.



Table 5-1. Summary of Chemical Properties for the Organic Contaminants Detected During the Phase 1 and 2 Remedial Investigations at the Grumman Aerospace Corporation, Bethpage, New York.

Compound	Log K <sub>OW</sub>	Log K <sub>OC</sub>	Water Solubility (mg/L at 25°C)	K <sub>H</sub>	Vapor Pressure (mm at 25°C)
<u>VOCs</u>					
Acetone	-0.24	-0.43	miscible	$3.67 \times 10^{-5}$	231
1,1-Dichloroethane	1.79	1.48	5,060	$5.9 \times 10^{-3}$	227
1,1-Dichloroethene	2.13	1.81	273	0.021	591
trans-1,2- Dichloroethene	2.06	1.77	6,300	$6.7 \times 10^{-3}$	340
Tetrachloroethene	3.40	2.42	150	0.0149	18.5
Toluene	2.73	2.06	535	$5.9 \times 10^{-3}$	28.4
1,1,1-Trichloroethane	2.49	2.18	1,495	$8 \times 10^{-3}$	123.7
Trichloroethene	2.42	1.81	1,100	$1.03 \times 10^{-2}$	69
Vinyl chloride	0.60	0.39	1,100	2.78	2,660

Log K <sub>OW</sub>	n-Octanol/water partition coefficient.
Log K <sub>OC</sub>	Soil-sediment partition or sorption coefficient.
K <sub>H</sub>	Henry's Law constant/air-water partition coefficient (in atm-m <sup>3</sup> /mole* at 25°C).
mg/L	Milligrams per liter.
mm	Millimeters.
N/A	Insufficient data for calculation.
VOCs	Volatile organic compounds.
SVOCs	Semivolatile organic compounds.
PCBs	Polychlorinated biphenyls.
°C	Degrees Celsius.
atm-m <sup>3</sup> per mole	Atmosphere meter cubed per mole.



Table 5-1. Summary of Chemical Properties for the Organic Contaminants Detected During the Phase 1 and 2 Remedial Investigations at the Grumman Aerospace Corporation, Bethpage, New York.

Compound	Log K <sub>ow</sub>	Log K <sub>oc</sub>	Water Solubility (mg/L at 25°C)	K <sub>H</sub>	Vapor Pressure (mm at 25°C)
<u>SVOCs</u>					
Acenaphthene	3.92	1.25	3.5	1.5 x 10 <sup>-4</sup>	1.6 x 10 <sup>-3</sup>
Anthracene	4.45	4.27	1.3	1.4 x 10 <sup>-3</sup>	1.95 x 10 <sup>-4</sup>
Benzo(a)anthracene	5.61	6.14	0.014	6.6 x 10 <sup>-7</sup>	1.1 x 10 <sup>-7</sup>
Benzo(b)flouranthene	6.57	5.74	0.0012	1.2 x 10 <sup>-5</sup>	5 x 10 <sup>-7</sup>
Benzo(k)flouranthene	6.85	6.64	5.5 x 10 <sup>-4</sup>	1.04 x 10 <sup>-3</sup>	9.6 x 10 <sup>-11</sup>
Benzoic acid	1.87	2.26	3,400	7.02 x 10 <sup>-8</sup>	4.5 x 10 <sup>-3</sup>
Benzo(a)pyrene	5.99	5.60-6.29	0.0038	< 2.4 x 10 <sup>-6</sup>	5.5 x 10 <sup>-9</sup>
Benzo(g,h,i)perylene	7.10	6.89	2.6 x 10 <sup>-4</sup>	1.4 x 10 <sup>-7</sup>	1.01 x 10 <sup>-10</sup>

Sources: Montgomery 1991 & Howard 1991

Log K<sub>ow</sub> n-Octanol/water partition coefficient.

Log K<sub>oc</sub> Soil-sediment partition or sorption coefficient.

K<sub>H</sub> Henry's Law constant/air-water partition coefficient (in atm-m<sup>3</sup>/mole\* at 25°C).

mg/L Milligrams per liter.

mm Millimeters.

N/A Insufficient data for calculation.

VOCs Volatile organic compounds.

SVOCs Semivolatile organic compounds.

PCBs Polychlorinated biphenyls.

°C Degrees Celsius.

atm-m<sup>3</sup>

per mole Atmosphere meter cubed per mole.



Table 5-1. Summary of Chemical Properties for the Organic Contaminants Detected During the Phase 1 and 2 Remedial Investigations at the Grumman Aerospace Corporation, Bethpage, New York.

Compound	Log K <sub>ow</sub>	Log K <sub>oc</sub>	Water Solubility (mg/L at 25°C)	K <sub>H</sub>	Vapor Pressure (mm at 25°C)
<b>SVOCs</b>					
bis(2-Ethylhexyl) phthalate	4.20	5.0	0.4	1.1 x 10 <sup>-5</sup>	6.2 x 10 <sup>-8</sup>
Butylbenzylphthalate	N/A	N/A	N/A	N/A	N/A
Chrysene	5.60	5.39	0.006	7.3 x 10 <sup>-20</sup>	6.3 x 10 <sup>-9</sup>
Dibenz[a,h]anthracene	6.36	6.22	0.0005	7.3 x 10 <sup>-9</sup>	~ 10 <sup>-10</sup>
Dibenzofuran	4.17	3.91-4.10	10	N/A	N/A
Di-n-octylphthalate	N/A	N/A	N/A	N/A	N/A
Flouranthene	5.22	4.62	0.265	0.0169	0.01
Flourene	4.12	3.70	1.69	2.1 x 10 <sup>-4</sup>	0.001-0.01
Indeno(1,2,3-cd)pyrene	7.70	7.49	0.062	2.96 x 10 <sup>-20</sup>	1 x 10 <sup>-10</sup>

Sources: Montgomery 1991 & Howard 1991

Log K<sub>ow</sub> n-Octanol/water partition coefficient.

Log K<sub>oc</sub> Soil-sediment partition or sorption coefficient.

K<sub>H</sub> Henry's Law constant/air-water partition coefficient (in atm-m<sup>3</sup>/mole\* at 25°C).

mg/L Milligrams per liter.

mm Millimeters.

N/A Insufficient data for calculation.

VOCs Volatile organic compounds.

SVOCs Semivolatile organic compounds.

PCBs Polychlorinated biphenyls.

°C Degrees Celsius.

atm-m<sup>3</sup>  
per mole Atmosphere meter cubed per mole.



Table 5-1. Summary of Chemical Properties for the Organic Contaminants Detected During the Phase 1 and 2 Remedial Investigations at the Grumman Aerospace Corporation, Bethpage, New York.

Compound	Log K <sub>ow</sub>	Log K <sub>oc</sub>	Water Solubility (mg/L at 25°C)	K <sub>H</sub>	Vapor Pressure (mm at 25°C)
<u>SVOCs</u>					
Naphthalene	3.36	2.74	30	4.6 x 10 <sup>-4</sup>	0.23
Pyrene	4.88	4.66	0.16	1.09 x 10 <sup>-5</sup>	6.85 x 10 <sup>-7</sup>
<u>PCBs</u>					
Arochlor - 1248	6.11	5.64	0.060	3.5 x 10 <sup>-3</sup>	4.94 x 10 <sup>-4</sup>
Arochlor - 1254	6.47	5.61	0.057	2.7 x 10 <sup>-3</sup>	7.71 x 10 <sup>-5</sup>

Sources: Montgomery 1991 & Howard 1991

Log K<sub>ow</sub> n-Octanol/water partition coefficient.

Log K<sub>oc</sub> Soil-sediment partition or sorption coefficient.

K<sub>H</sub> Henry's Law constant/air-water partition coefficient (in atm-m<sup>3</sup>/mole\* at 25°C).

mg/L Milligrams per liter.

mm Millimeters.

N/A Insufficient data for calculation.

VOCs Volatile organic compounds.

SVOCs Semivolatile organic compounds.

PCBs Polychlorinated biphenyls.

°C Degrees Celsius.

atm-m<sup>3</sup>  
per mole Atmosphere meter cubed per mole.



Table 5-2. Summary of Oxidation/Reduction and Hydrolysis Information for Metals Detected at the Grumman Aerospace Corporation, Bethpage, New York.

<u>Important Oxidation/Reduction Forms</u>				
Metal	Oxidized	Reduced	Hydrolysis Constant	Solubility of Hydroxide (mg/L)
Arsenic	$\text{AsO}_4^{-3}$	$\text{As}_2\text{H}_3$	NA	--
Cadmium	$\text{Cd}^{+2}$	--	11.70	2.6
Chromium	$\text{Cr}_2\text{O}_7^{-2}$ or $\text{CrO}_4^{-2}$	$\text{Cr}^{+3}$	4.01 ( $\text{Cr}^{+3}$ )	Decomposes
Lead	$\text{Pb}^{+4}$	$\text{Pb}^{+2}$	7.78 ( $\text{Pb}^{+2}$ )	155
Mercury $\text{Hg}^{+2}$	$\text{Hg}^+$	3.70 ( $\text{Hg}^{+2}$ )		--

NA Not applicable; hydrolysis reaction occurs with positively charged ion.

-- No data or no hydroxide compound exists.

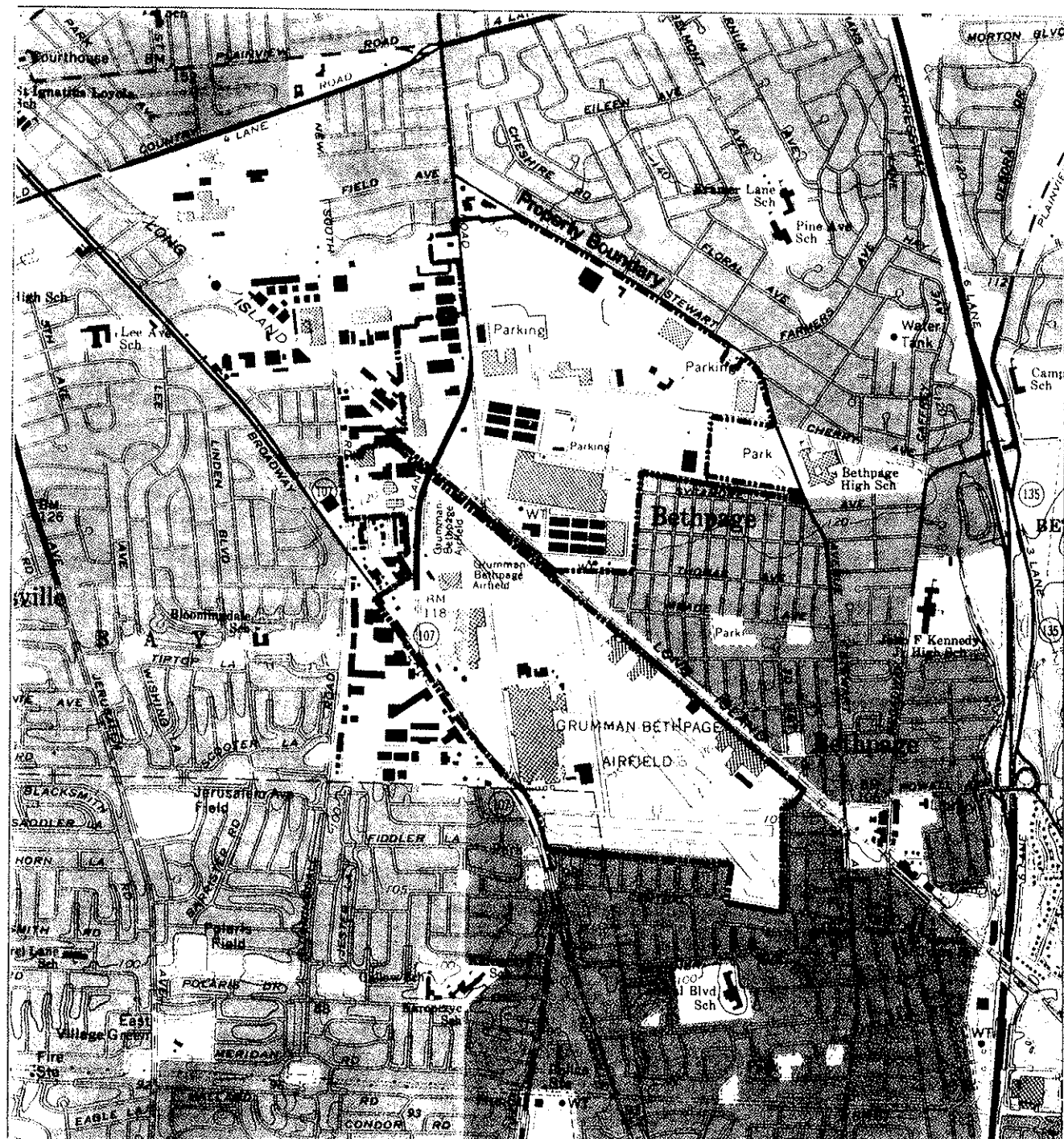
mg/L Milligrams per liter.

Source: Huheehy 1983.

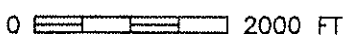
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DWG: 5-17-94 | PRJCT NO.: NY00080.40 | FILE: 1695 | DRAWING: 3 | CHECKED: J.S. | APPROVED: C.S.G. | DRAFTER: G



From Amityville, Freeport, Hicksville, Huntington, New York  
USGS Quadrangles, 1979.



QUADRANGLE LOCATION

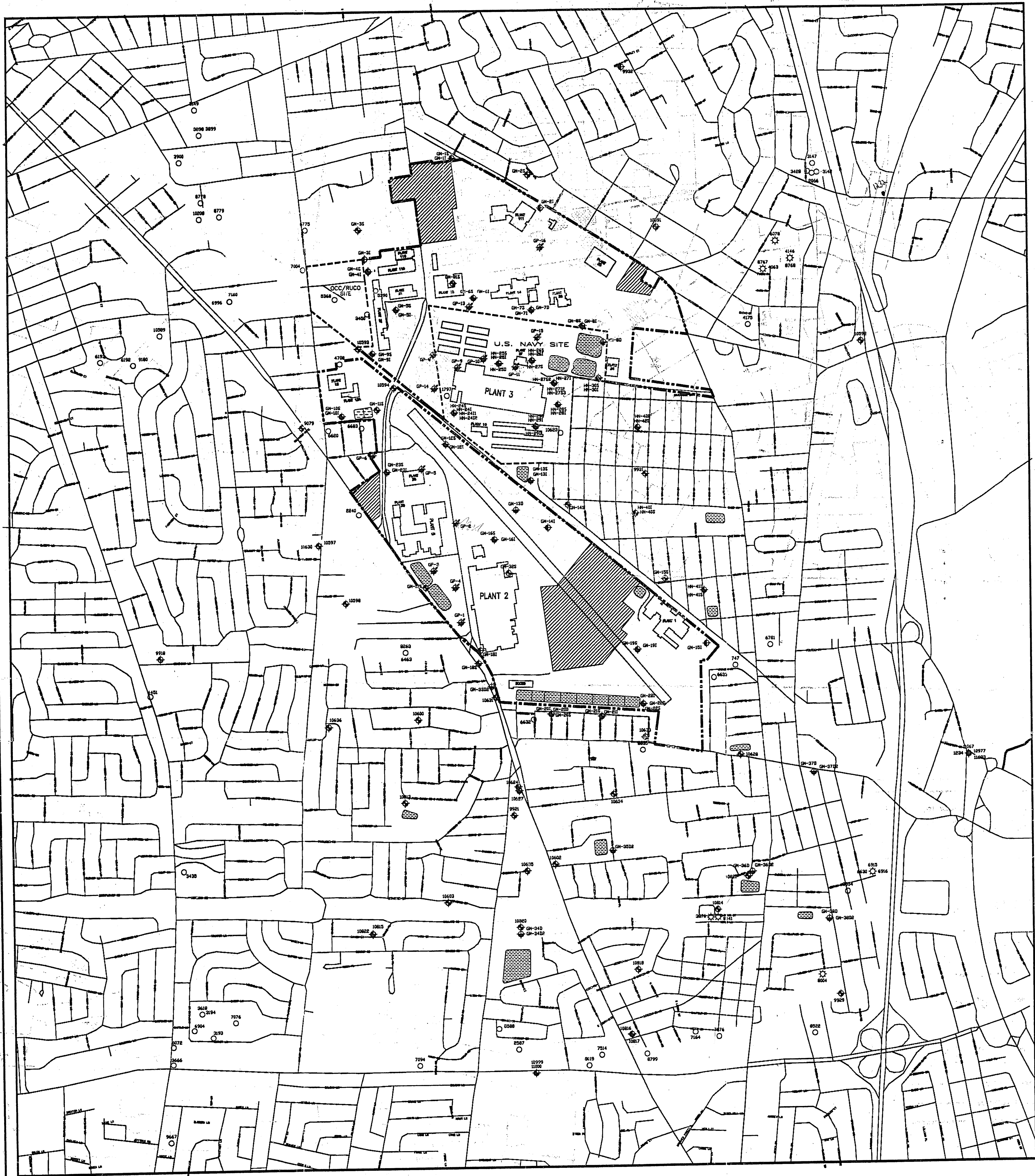


# SITE LOCATION

GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK

FIGURE  
**2-1**





EXPLANATION

- PROPERTY BOUNDARY OF GRUMMAN AEROSPACE CORPORATION
- PROPERTY BOUNDARY OF THE U.S. NAVY SITE
- PROPERTY BOUNDARY OF THE OCC/RUCO SITE
- DELISTED AREA
- RECHARGE BASIN
- 10680 LOCATION AND DESIGNATION OF SHALLOW MONITORING WELL
- 3076 LOCATION AND DESIGNATION OF BETHPAGE WATER DISTRICT PUBLIC SUPPLY WELL
- 101-251 LOCATION AND DESIGNATION OF INTERMEDIATE MONITORING WELL
- 9667 LOCATION AND DESIGNATION OF ADDITIONAL WELL
- GH-242 LOCATION AND DESIGNATION OF DEEP MONITORING WELL
- GH-16 LOCATION AND DESIGNATION OF DEEP GRUMMAN PRODUCTION WELL
- GH-2638 LOCATION AND DESIGNATION OF VERY DEEP MONITORING WELL



0 1000 FT



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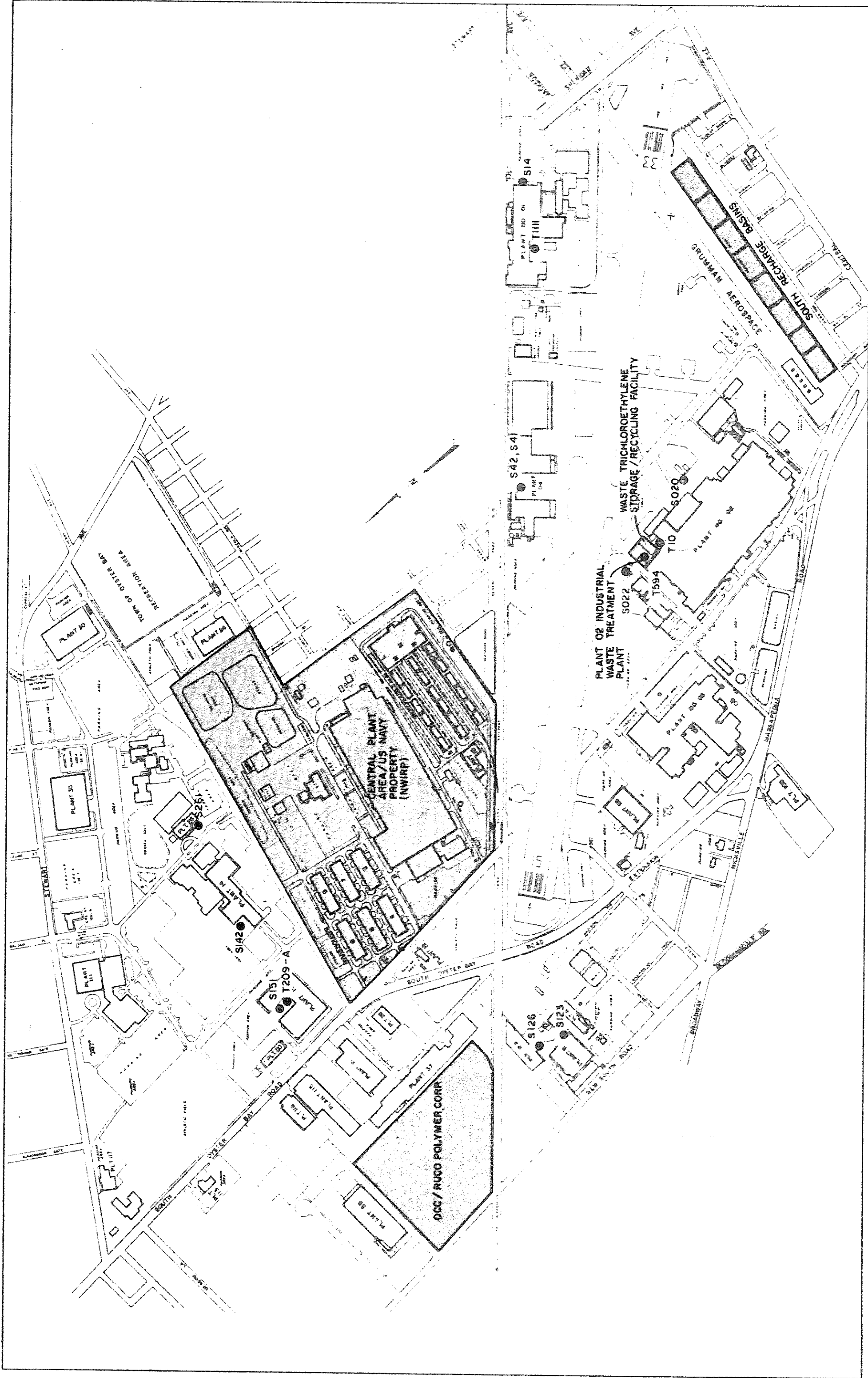
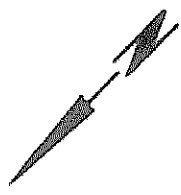
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USE TO VERIFY FIGURE REPRODUCTION SCALE

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DRAWING: GRUNGUAD	PLOT SIZE: 1-800
DRAFTED BY: BC/GS	DATE: 2-13-94
CHECKED BY: JS	DATE:
APPROVED BY: CSQ	DATE:



LOCATION OF GRUMMAN PRODUCTION AND MONITORING WELLS, AND EXISTING MONITORING AND PUBLIC SUPPLY WELLS WITHIN A ONE-MILE RADIUS OF THE GRUMMAN AEROSPACE CORPORATION

GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK

FIGURE  
**2-2**



EXPLANATION

-  POTENTIAL CONTAMINANT SOURCE AREAS AND DESIGNATIONS
-  S14 LOCATION AND DESIGNATION OF SOLVENT STORAGE AREAS (T DENOTES STORAGE TANK; S DENOTES STORAGE AREA)

0 1,000 ft


FIGURE  
2-3

LOCATION OF POTENTIAL CONTAMINANT SOURCE AREAS

PROJECT NO.: NY000040	FILE NO.: 1469
DRAWING: SOURCE-A	PLOT SIZE:
DRAWN BY: GS	DATE: 5-123-94
CHECKED BY: JS	DATE:
APPROVED BY: CSC	DATE:

SCALE VERIFICATION  
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USE TO VERIFY FIGURE REPRODUCTION SCALE

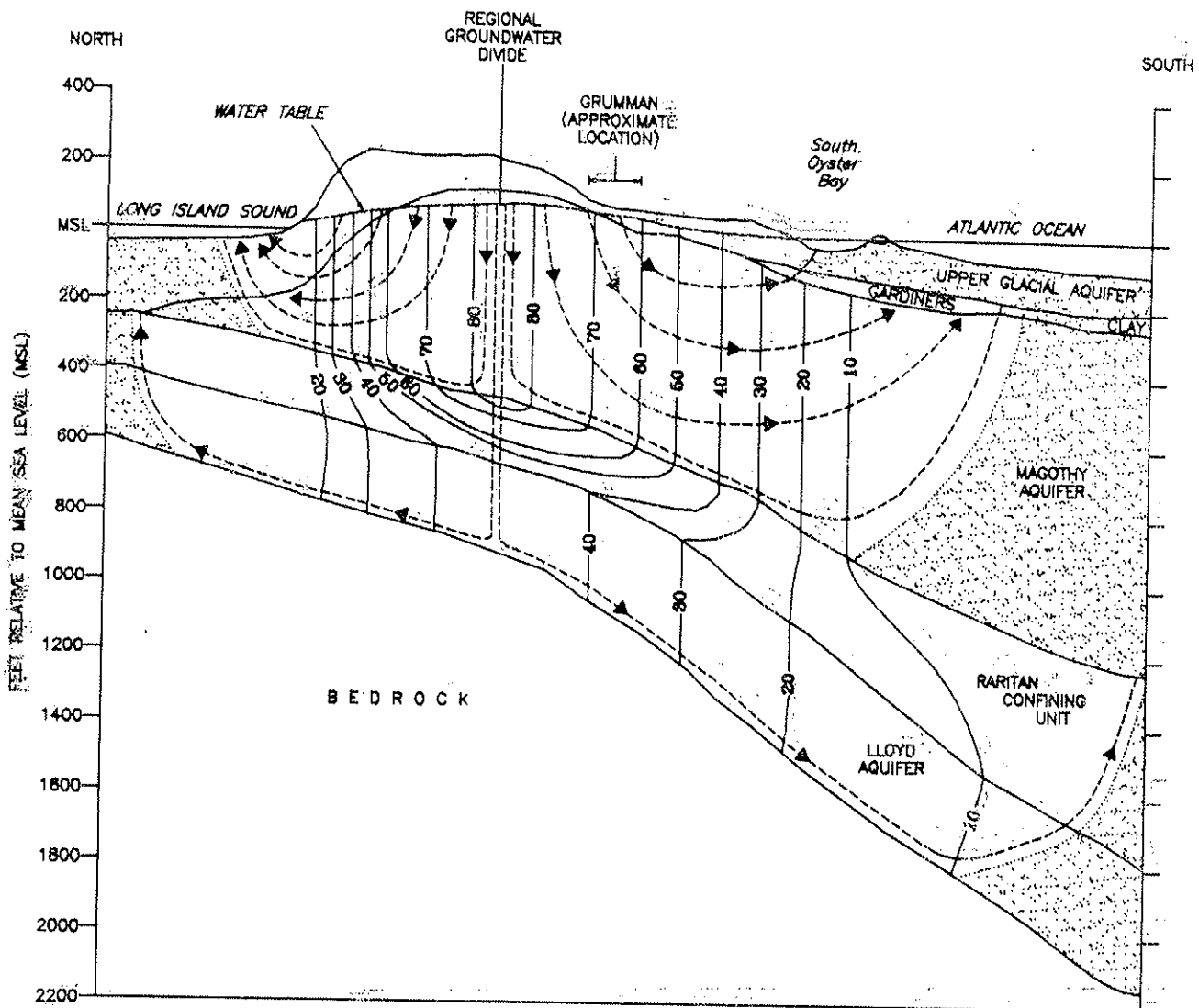
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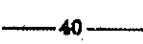
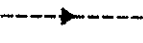
**GERAGHTY & MILLER, INC.**  
*Environmental Services*

GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK

DWG DATE: 5-13-94 | PROJECT NO.: NY008040 | FILE NO.: 1469 | DRAWING: LI-XSEC | CHECKED: JS | APPROVED: CSG | DRAFTER: GS



**E X P L A N A T I O N**

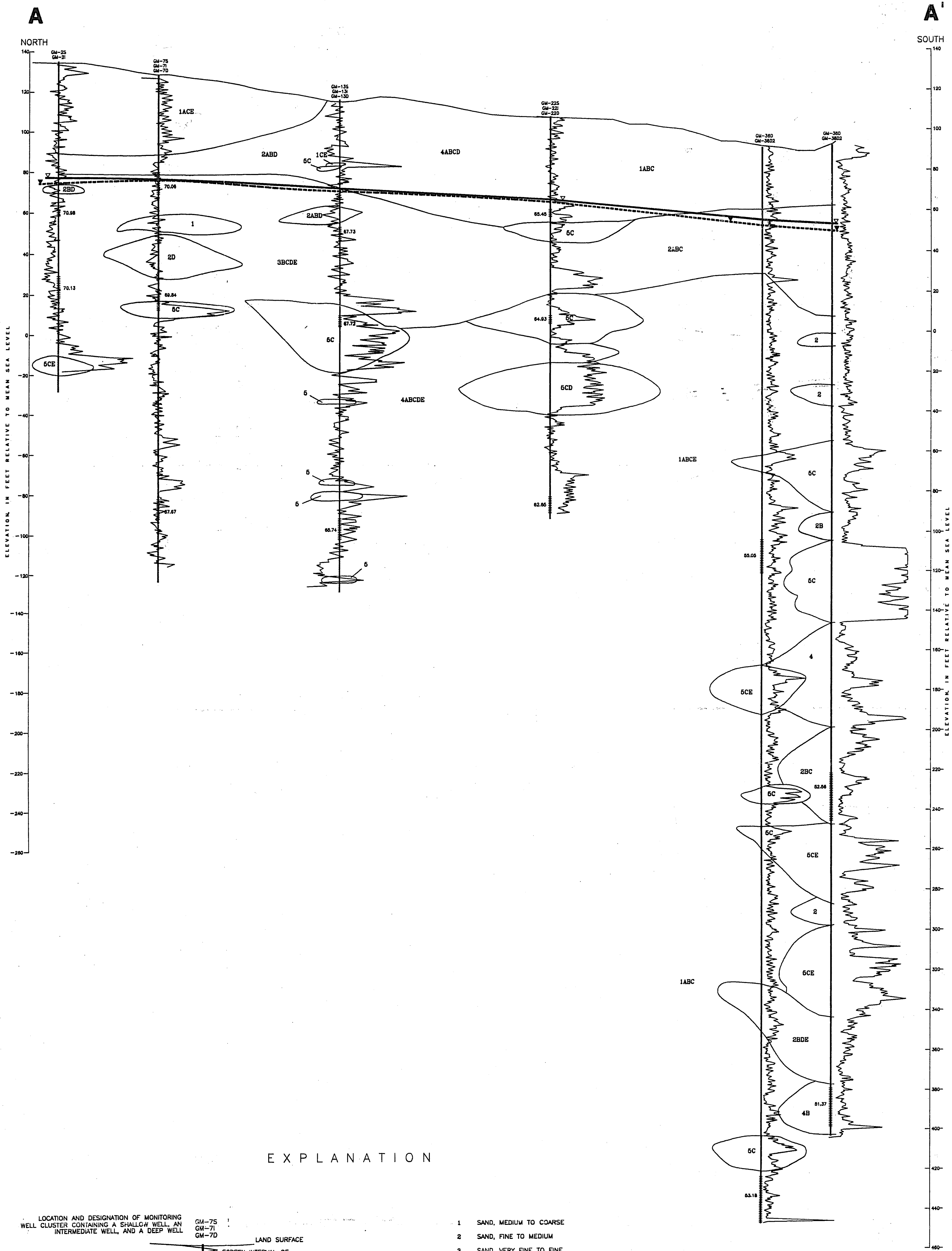
	SALTY GROUNDWATER	<b>NOTE:</b>
	EQUIPOTENTIAL LINE - NUMBER INDICATES HEAD IN FEET ABOVE MEAN SEA LEVEL	POSITION OF THE SALTWATER INTERFACE IS ESTIMATED
	INFERRED PATH OF GROUNDWATER FLOW	(MODIFIED FROM USGS [1990])



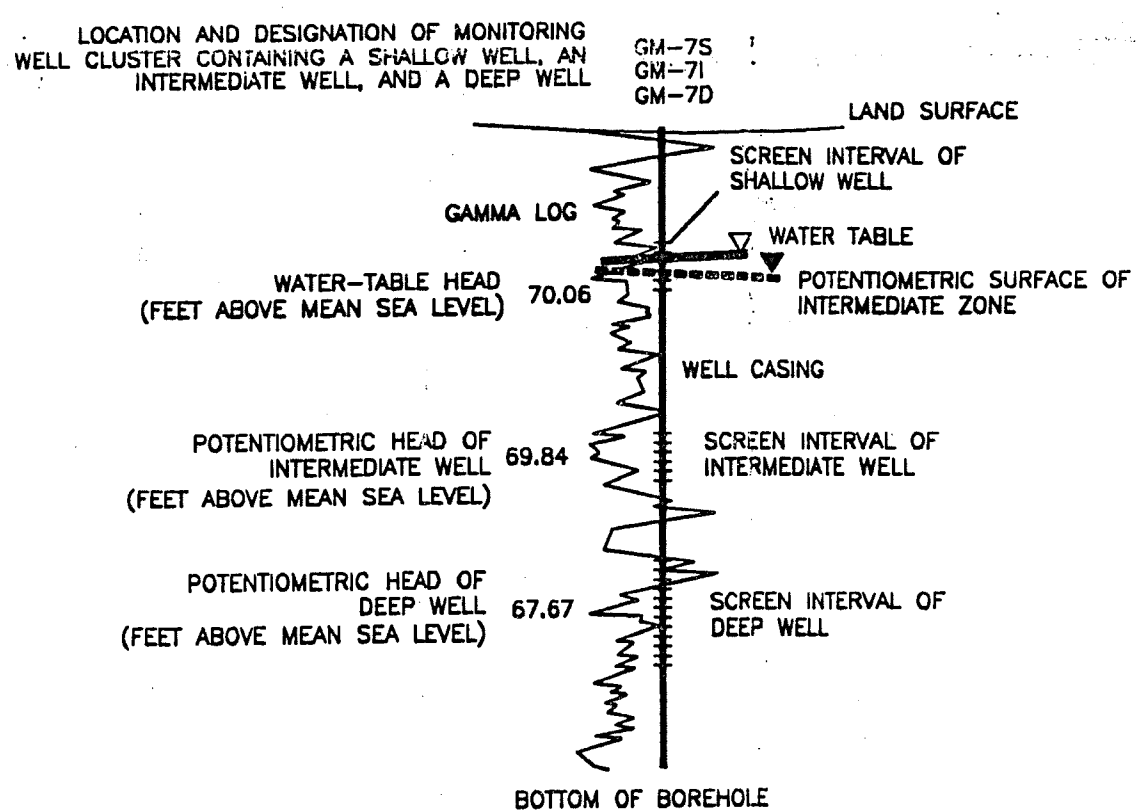
**GENERALIZED NORTH-SOUTH SECTION THROUGH LONG ISLAND SHOWING DIRECTIONS OF GROUNDWATER FLOW**

GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK

FIGURE  
**2-4**



EXPLANATION



- 1 SAND, MEDIUM TO COARSE
- 2 SAND, FINE TO MEDIUM
- 3 SAND, VERY FINE TO FINE
- 4 SAND, FINE TO COARSE
- 5 CLAY
- A CONTAINS GRAVEL AND COBBLES
- B CONTAINS CLAY
- C CONTAINS FINE SAND AND SILT
- D CONTAINS SILT
- E CONTAINS LIGNITE

SOURCE FOR ELEVATIONS: TAY (1991, 1993).  
WATER LEVELS WERE MEASURED ON AUGUST 18, 1993.

- S SHALLOW WELL
- I INTERMEDIATE WELL
- D DEEP WELL
- D2 VERY DEEP WELL

0 1000 FT  
(VERTICAL EXAG. # 333)



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PROJECT NO.: NY0008040	FILE NO.: 1695
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DRAFTED BY: GS	DATE: 5-16-84
CHECKED BY: TRB	DATE:
APPROVED BY: CSG	DATE:

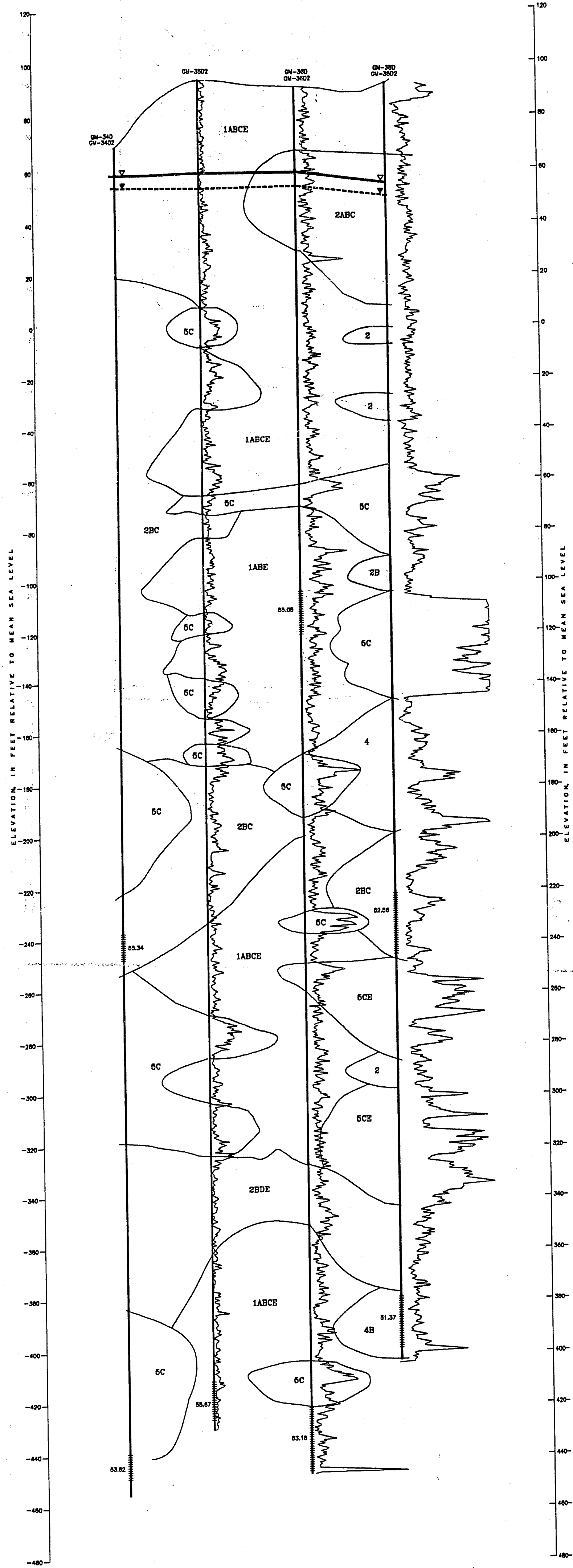
GEOLOGIC CROSS SECTION A-A'

GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK

FIGURE  
4-1

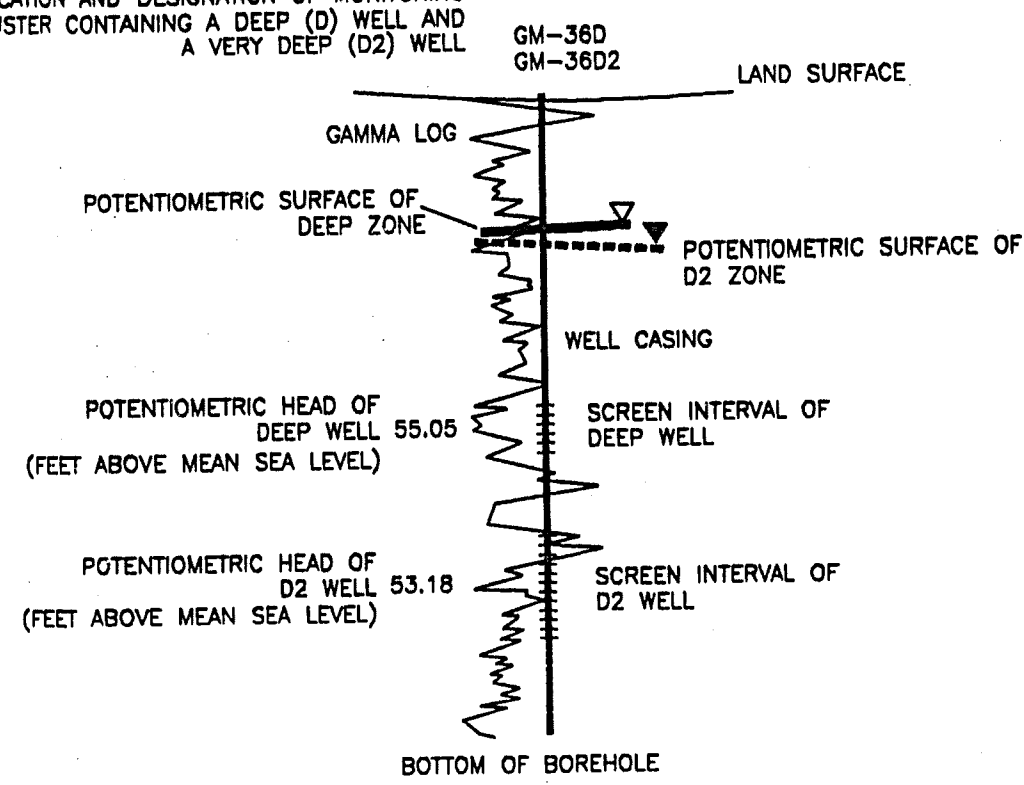
BB  
EAST

BB'  
WEST



EXPLANATION

LOCATION AND DESIGNATION OF MONITORING WELL CLUSTER CONTAINING A DEEP (D) WELL AND A VERY DEEP (D2) WELL



- 1 SAND, MEDIUM TO COARSE
- 2 SAND, FINE TO MEDIUM
- 3 SAND, VERY FINE TO FINE
- 4 SAND, FINE TO COARSE
- 5 CLAY
- A CONTAINS GRAVEL AND COBBLES
- B CONTAINS CLAY
- C CONTAINS FINE SAND AND SILT
- D CONTAINS SILT
- E CONTAINS LIGNITE

SOURCE FOR ELEVATIONS: TAY, (1993).  
WATER LEVELS WERE MEASURED ON AUGUST 18, 1993.

0 1000 FT  
(VERTICAL EXAG. IS 33X)



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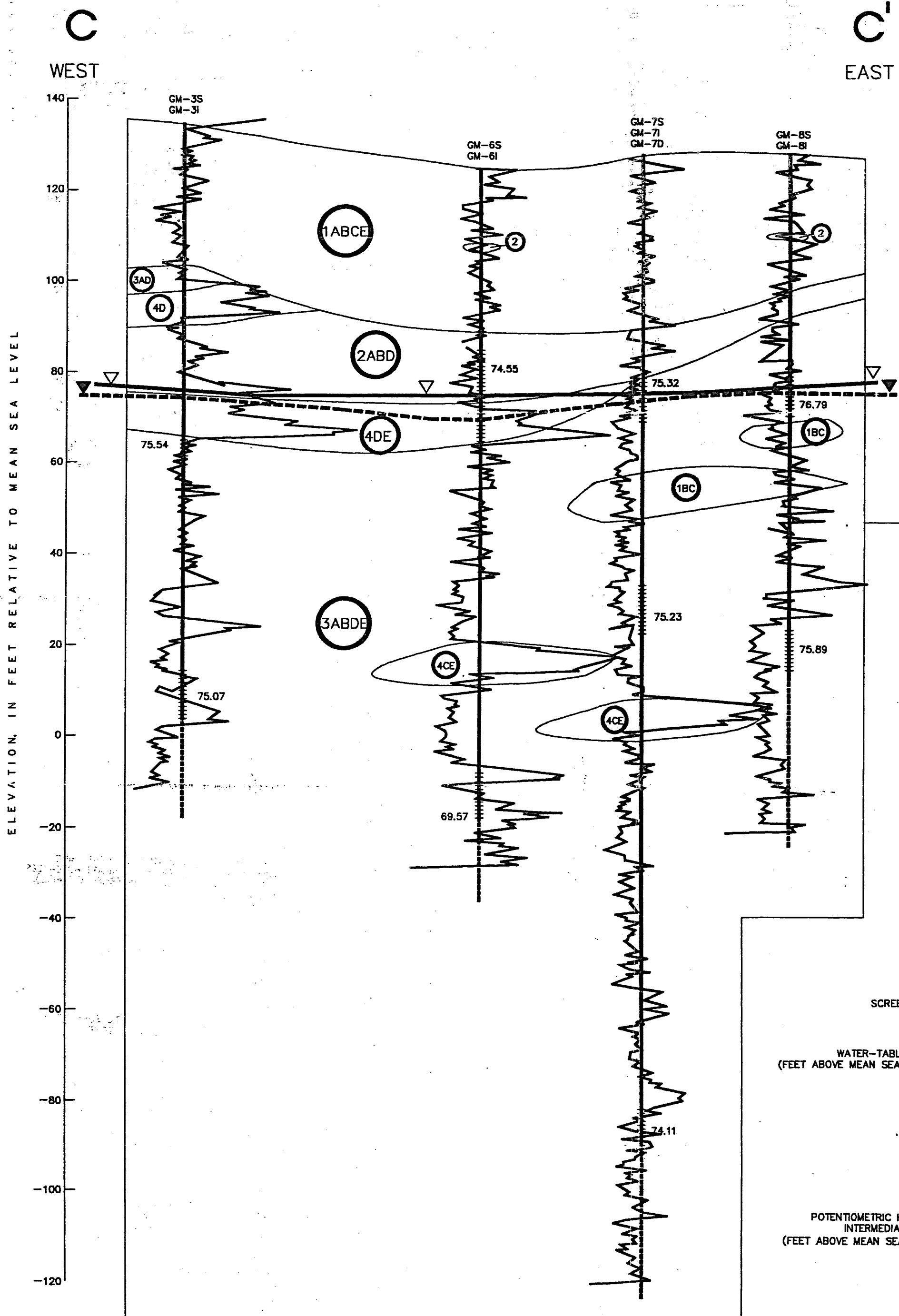
SCALE VERIFICATION  
THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING.  
USE TO VERIFY FIGURE REPRODUCTION SCALE

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DRAWING: E/VXSEC	PLOT SIZE:
DRAFTED BY: GS	DATE: 8-17-94
CHECKED BY: TRB	DATE:
APPROVED BY: CSB	DATE:

GEOLOGIC CROSS SECTION BB-BB'

GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK

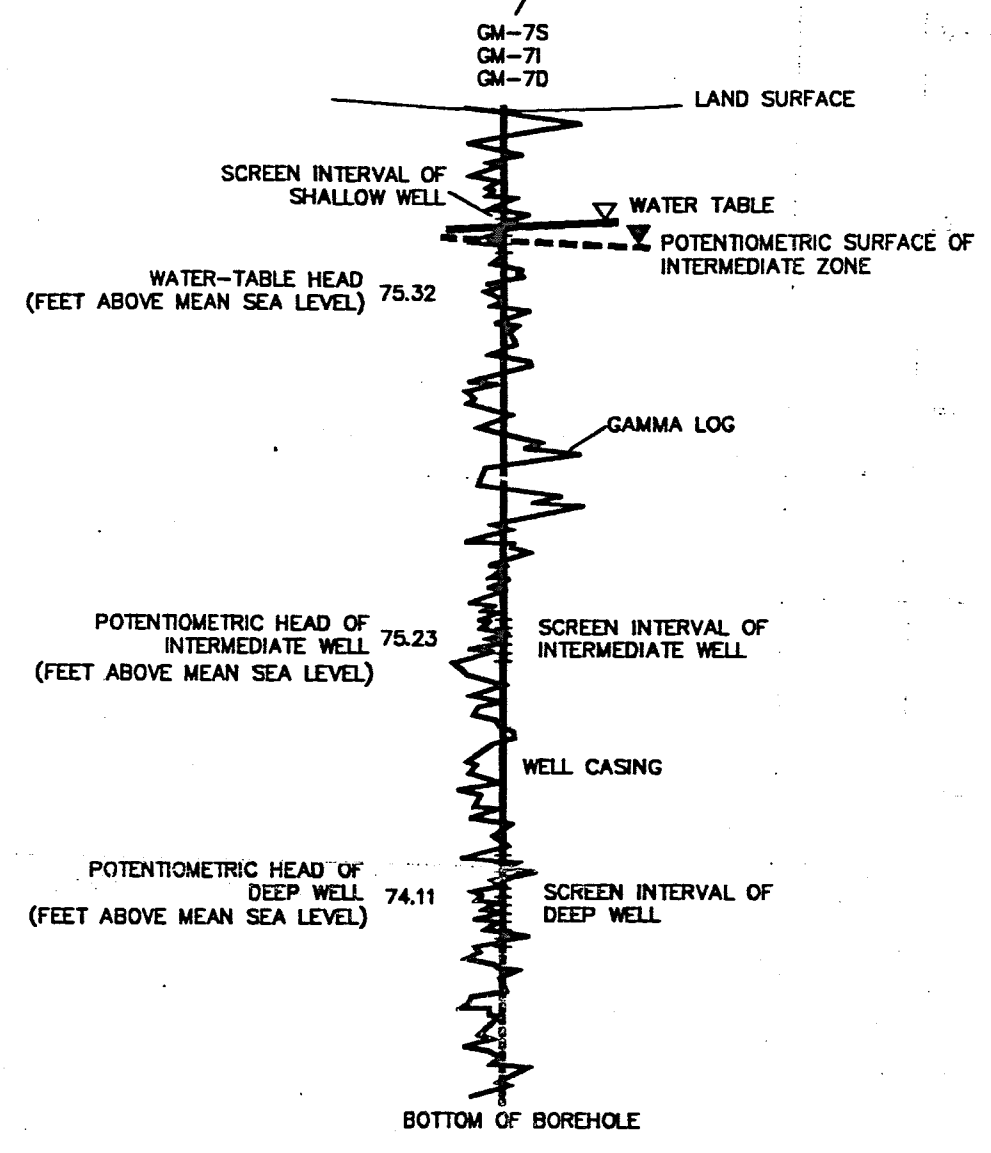
FIGURE  
4-2



EXPLANATION

- ① SAND, MEDIUM TO COARSE
- ② SAND, FINE TO MEDIUM
- ③ SAND, VERY FINE TO FINE
- ④ CLAY
- Ⓐ CONTAINS GRAVEL AND COBBLES
- Ⓑ CONTAINS CLAY
- Ⓒ CONTAINS FINE SAND AND SILT
- Ⓓ CONTAINS SILT
- Ⓔ CONTAINS LIGNITE AND/OR-PYRITE

LOCATION AND DESIGNATION OF MONITORING WELL CLUSTER CONTAINING SEPARATE BOREHOLES FOR S (SHALLOW WELL), I (INTERMEDIATE WELL), AND D (DEEP WELL)



SOURCE FOR ELEVATIONS: ALBERT W.TAY, L.S., NOVEMBER 1991  
WATER LEVELS WERE MEASURED ON NOVEMBER 25, 1991



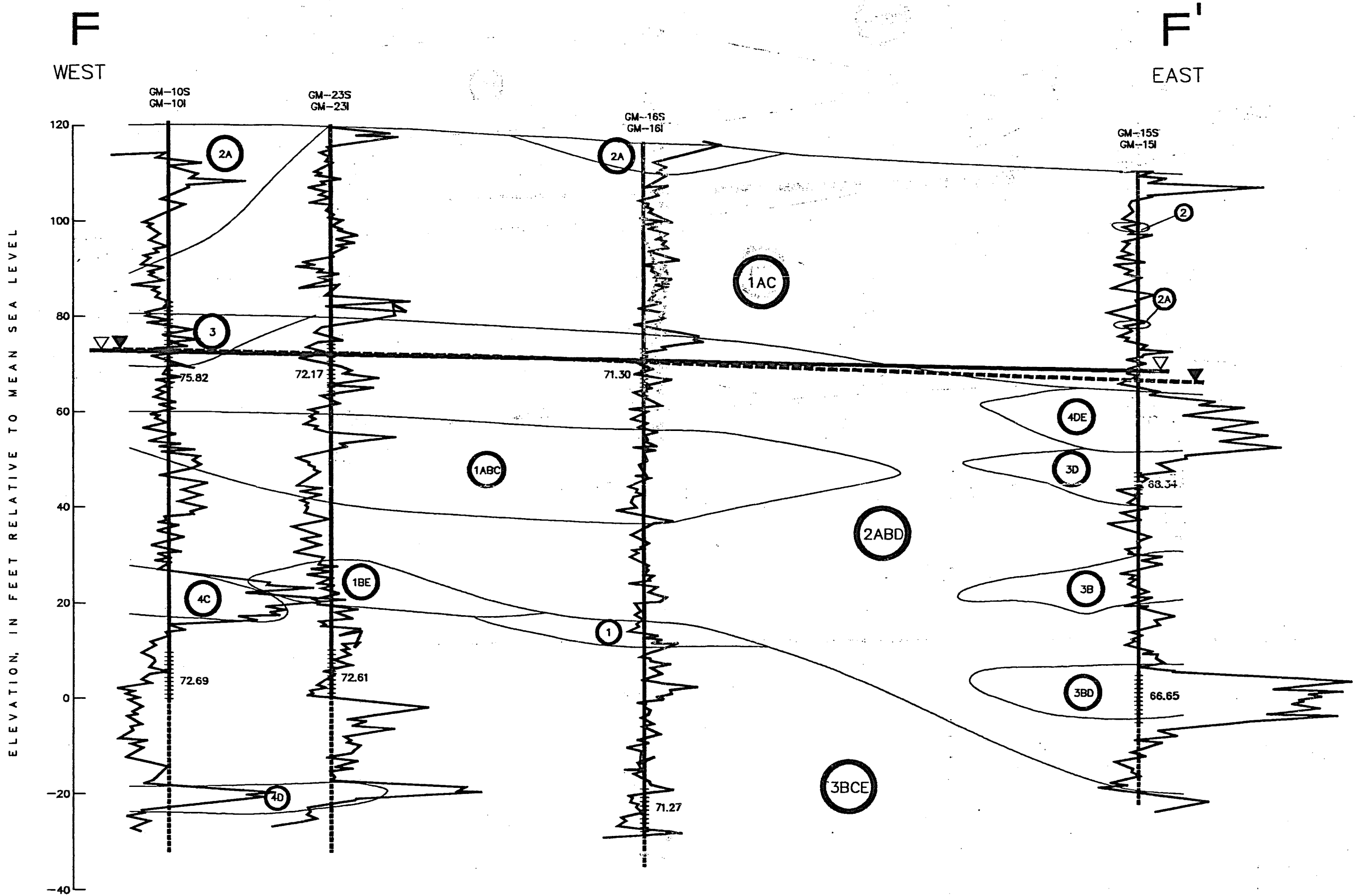
SCALE VERIFICATION  
THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING  
USE TO VERIFY FIGURE REPRODUCTION SCALE

PROJECT NO.: NY008040	FILE NO: 146g
DRAWING: XSEC-AA	PLOT SIZE: C
DRAFTED BY: GS	DATE: 5-16-94
CHECKED BY: SG	DATE:
APPROVED BY: CSG	DATE:

GEOLOGIC CROSS SECTION C-C'

FIGURE  
**4-3**

GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK

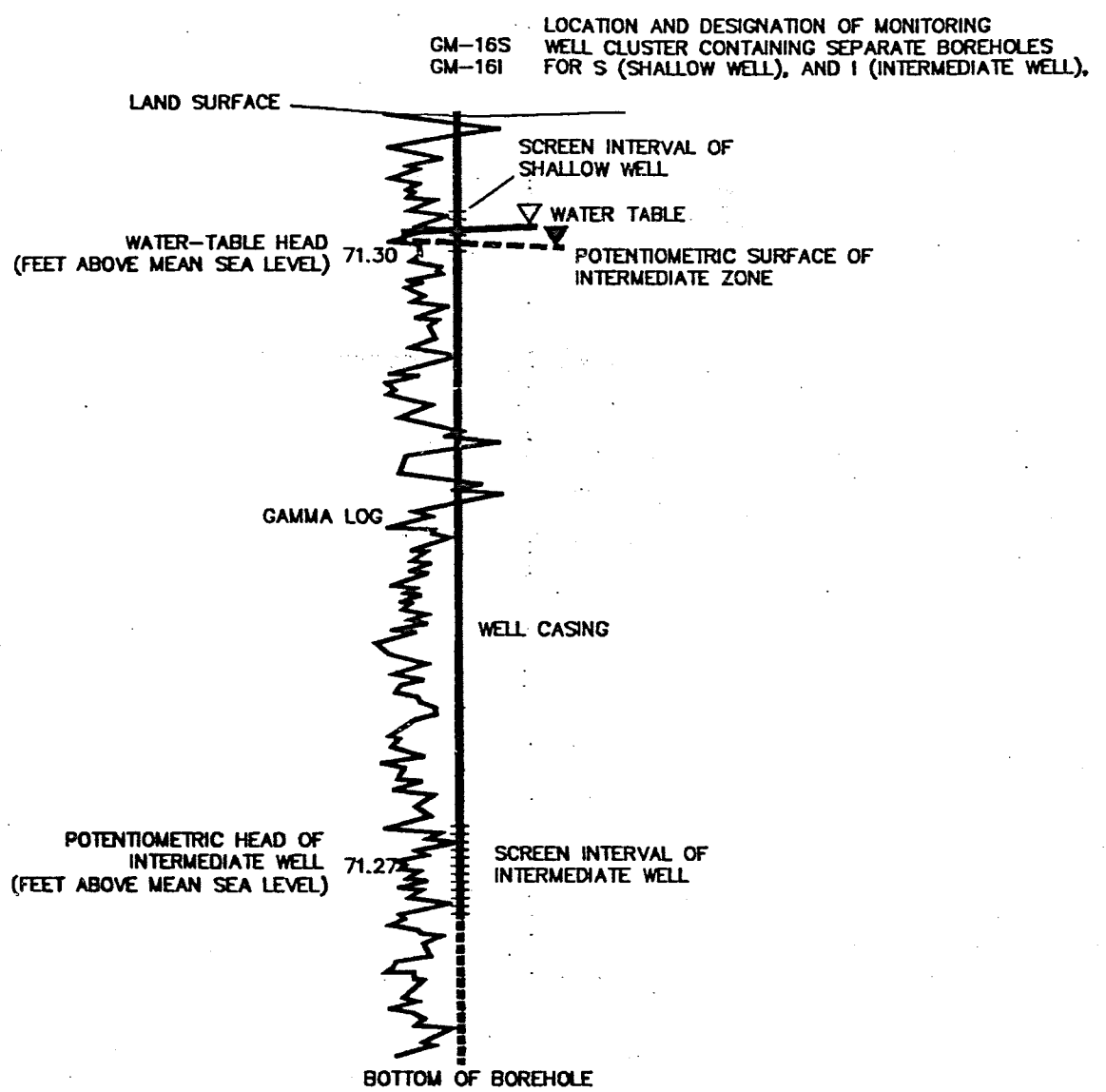


EXPLANATION:

- ① SAND, MEDIUM TO COARSE
- ② SAND, FINE TO MEDIUM
- ③ SAND, VERY FINE TO FINE
- ④ CLAY
- Ⓐ CONTAINS GRAVEL AND COBBLES
- Ⓑ CONTAINS CLAY
- Ⓒ CONTAINS FINE SAND AND SILT
- Ⓓ CONTAINS SILT
- Ⓔ CONTAINS LIGNITE AND/OR PYRITE

SOURCE FOR ELEVATIONS: ALBERT TAY, (1991).  
WATER LEVELS WERE MEASURED ON NOVEMBER 25, 1991.

0 1000 FT  
(VERTICAL EXAG. ≈ 33X)



SCALE VERIFICATION  
THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING  
USE TO VERIFY FIGURE REPRODUCTION SCALE

PROJECT NO.: NY008040	FILE NO: 1469
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CHECKED BY: JS	DATE:
APPROVED BY: CSG	DATE:

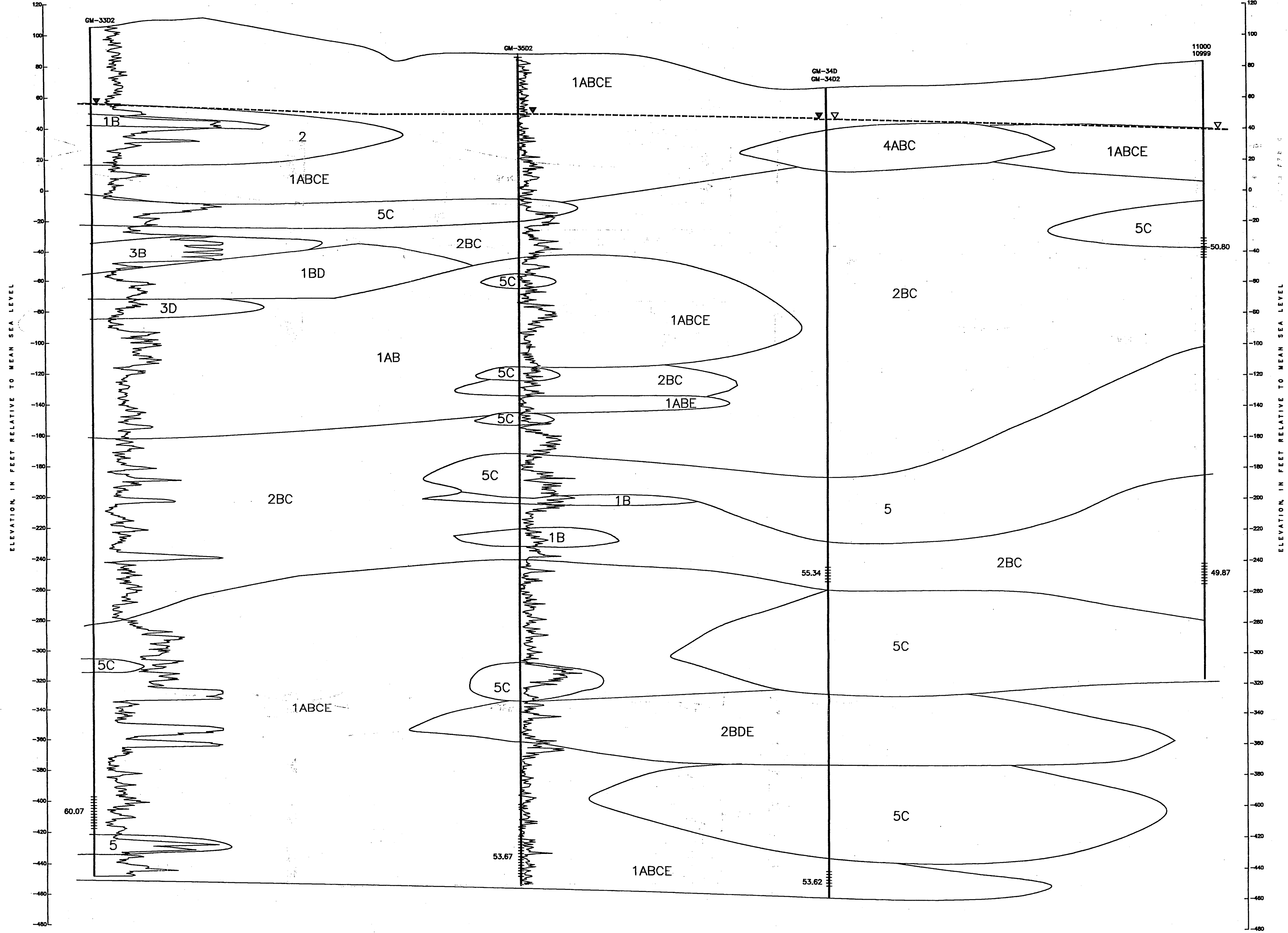
GEOLOGIC CROSS SECTION F-F'

GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK

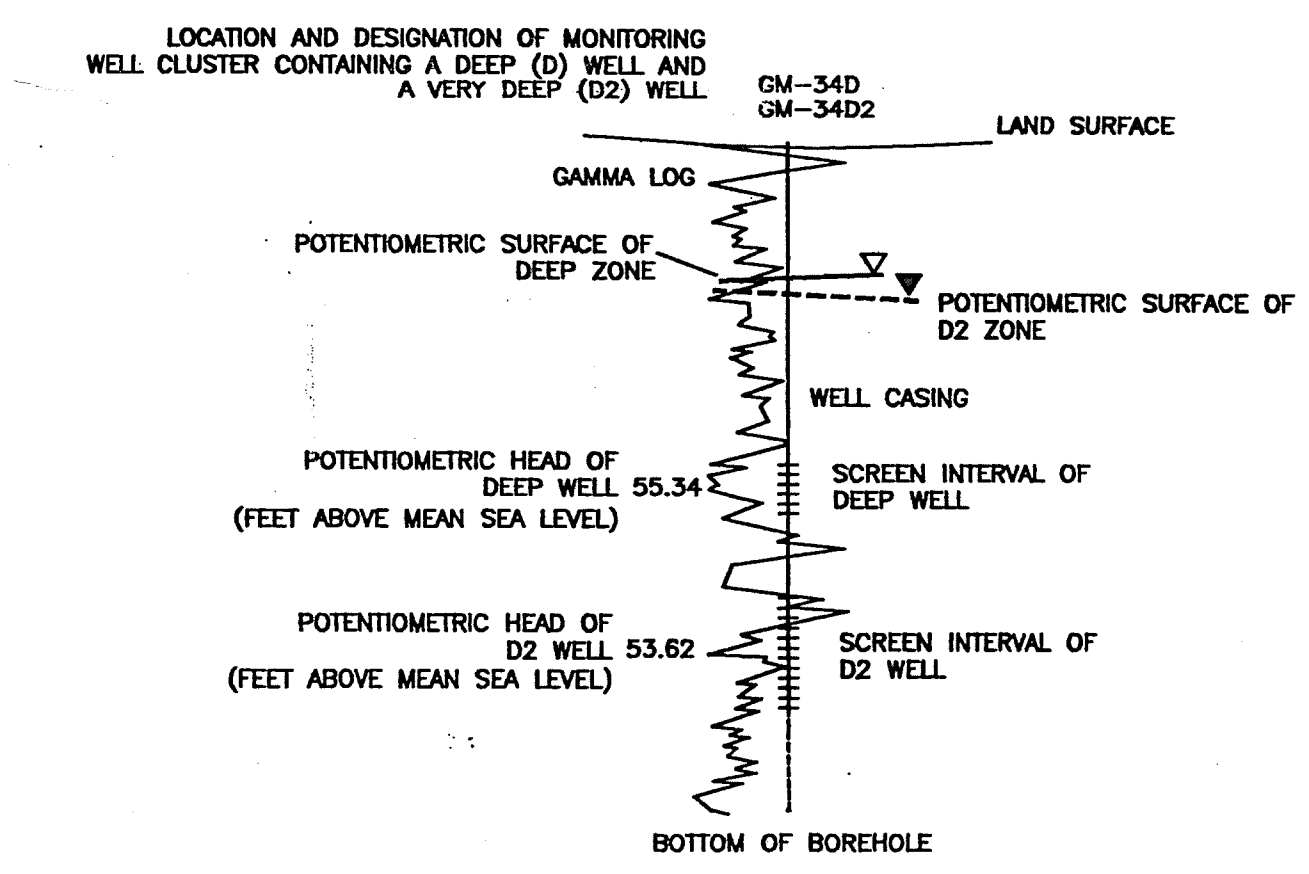
FIGURE  
**4-4**

**G**  
NORTH

**G'**  
SOUTH



**EXPLANATION**



- 1 SAND, MEDIUM TO COARSE
- 2 SAND, FINE TO MEDIUM
- 3 SAND, VERY FINE TO FINE
- 4 SAND, FINE TO COARSE
- 5 CLAY
- A CONTAINS GRAVEL AND COBBLES
- B CONTAINS CLAY
- C CONTAINS FINE SAND AND SILT
- D CONTAINS SILT
- E CONTAINS LIGNITE

SOURCE FOR ELEVATIONS: TAY, (1993).  
WATER LEVELS WERE MEASURED ON AUGUST 18, 1993.

0 1000 FT  
(VERTICAL EXAG. 2 100)



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Environmental Services

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REV. NO.	DATE	DESCRIPTION	BY	APPR.

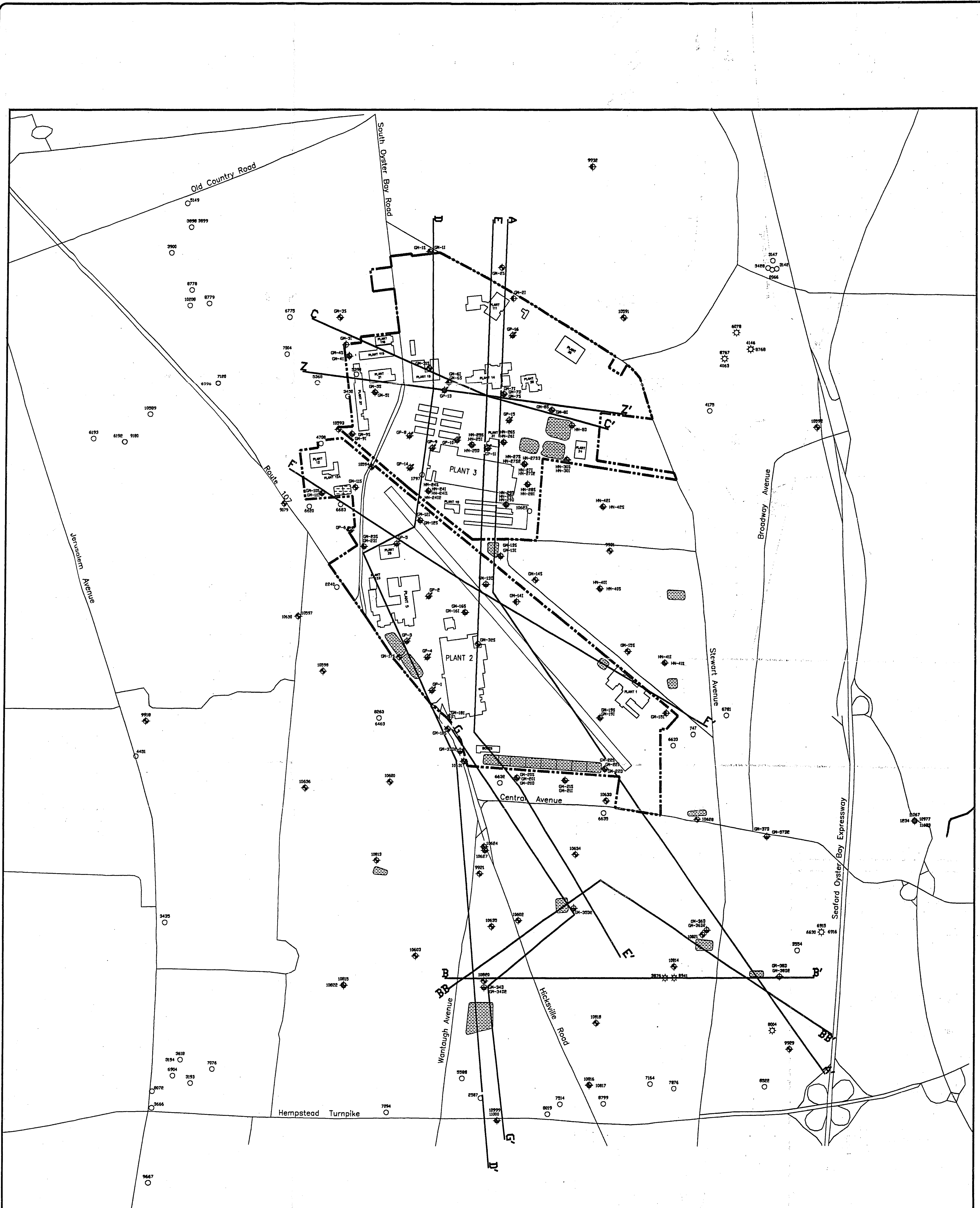
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DRAWING: EESCC	PLOT SIZE:
DRAFTED BY: CS	DATE: 5-17-94
CHECKED BY: TRB/JS	DATE:
APPROVED BY: CS	DATE:

**GEOLOGIC CROSS SECTION G-G'**

GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK

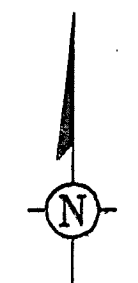
FIGURE  
**4-5**



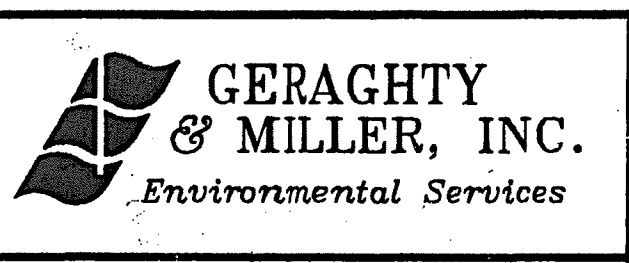


EXPLANATION

- PROPERTY BOUNDARY OF GRUMMAN AEROSPACE CORPORATION
- RECHARGE BASIN
- LOCATION AND DESIGNATION OF SHALLOW MONITORING WELL
- LOCATION AND DESIGNATION OF BETHPAGE WATER DISTRICT PUBLIC SUPPLY WELL
- LOCATION AND DESIGNATION OF INTERMEDIATE MONITORING WELL
- LOCATION AND DESIGNATION OF ADDITIONAL WELL
- LOCATION AND DESIGNATION OF DEEP MONITORING WELL
- LOCATION AND DESIGNATION OF DEEP GRUMMAN PRODUCTION WELL
- LOCATION AND DESIGNATION OF VERY DEEP MONITORING WELL
- LOCATION AND DESIGNATION OF LINE OF CROSS SECTION



0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 FT



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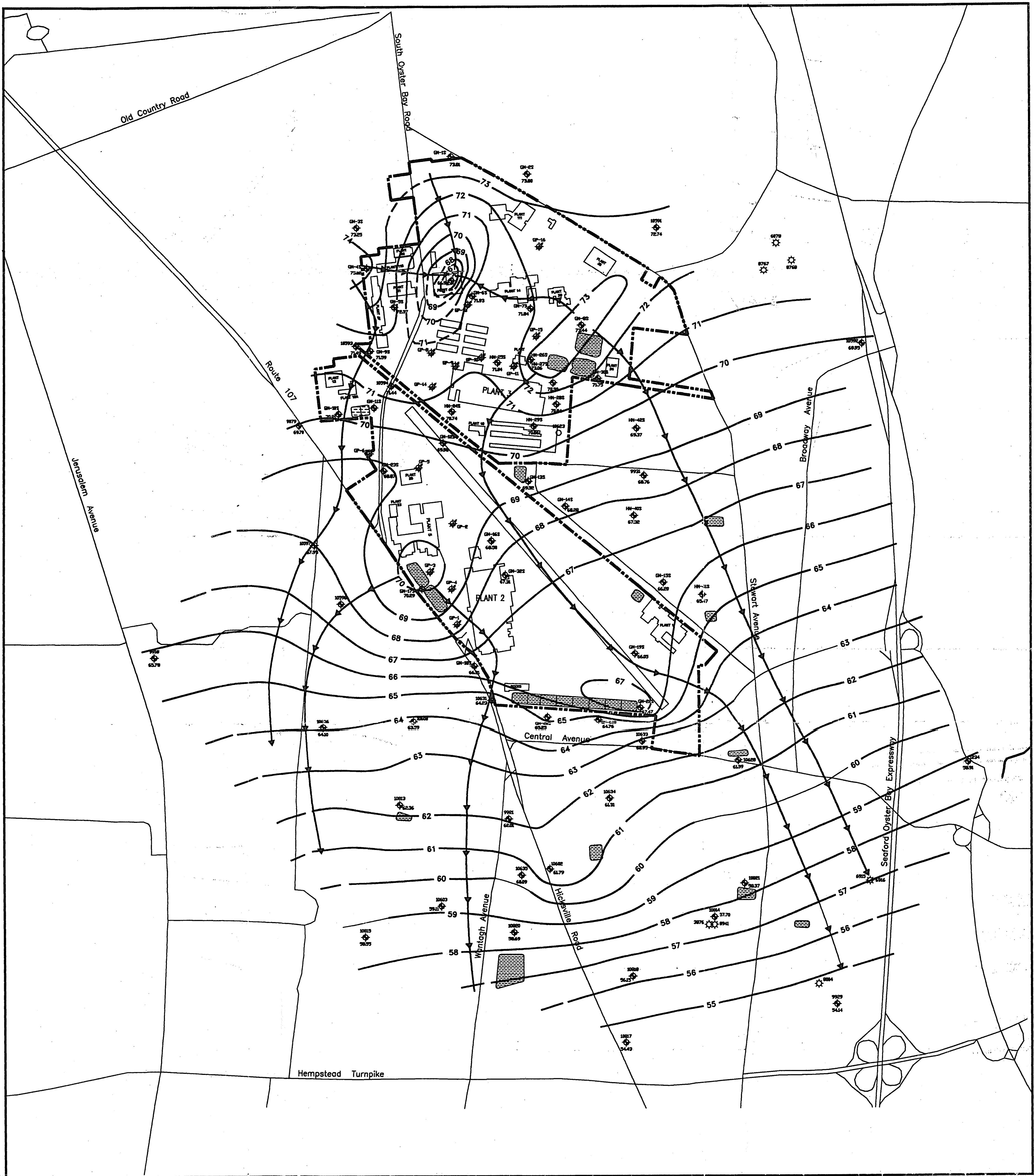
SCALE VERIFICATION  
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 USE TO VERIFY FIGURE REPRODUCTION SCALE

PROJECT NO.: NY0008040	FILE NO.: 1409
DRAWING: GRUMSECT	PLOT SIZE: 11-800
DRAFTED BY: BC/GS	DATE: 8-18-94
CHECKED BY: JS	DATE:
APPROVED BY: CSG	DATE:

LINES OF CROSS SECTION

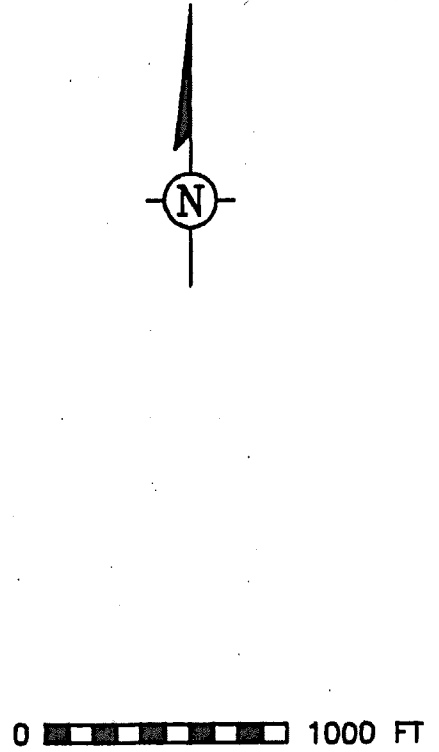
GRUMMAN AEROSPACE CORPORATION  
 BETHPAGE, NEW YORK

FIGURE  
**4-6**



EXPLANATION

- PROPERTY BOUNDARY OF GRUMMAN AEROSPACE CORPORATION
- ▨ RECHARGE BASIN
- GW-25 LOCATION AND DESIGNATION OF SHALLOW MONITORING WELL
- GW-14 LOCATION AND DESIGNATION OF DEEP GRUMMAN PRODUCTION WELL
- GW-1 LOCATION AND DESIGNATION OF BETHPAGE WATER DISTRICT PUBLIC SUPPLY WELL
- 55 — LINE OF EQUAL WATER-TABLE ELEVATION IN FEET ABOVE MEAN SEA LEVEL (DASHED WHERE APPROXIMATE)
- 54.43 WATER-TABLE ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- DIRECTION OF HORIZONTAL COMPONENT OF GROUNDWATER FLOW



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PROJECT NO.: NY0008040	FILE NO: 1469
DRAWING: 4-99/71	PLOT SIZE: 14-800
DRAFTED BY: BC/DS	DATE: 5-18-84
CHECKED BY: JS	DATE:
APPROVED BY: CSG	DATE:

WATER-TABLE ELEVATIONS IN THE SHALLOW ZONE  
APRIL 30, 1993

GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK

FIGURE  
**4-7**



EXPLANATION

- PROPERTY BOUNDARY OF GRUMMAN AEROSPACE CORPORATION
- RECHARGE BASIN
- LOCATION AND DESIGNATION OF INTERMEDIATE MONITORING WELL
- LOCATION AND DESIGNATION OF DEEP GRUMMAN PRODUCTION WELL
- LOCATION AND DESIGNATION OF BETHPAGE WATER DISTRICT PUBLIC SUPPLY WELL
- LINE OF EQUAL POTENTIOMETRIC SURFACE ELEVATION IN FEET ABOVE MEAN SEA LEVEL (DASHED WHERE APPROXIMATE)
- POTENTIOMETRIC SURFACE ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- DIRECTION OF HORIZONTAL COMPONENT OF GROUNDWATER FLOW



0 1000 FT



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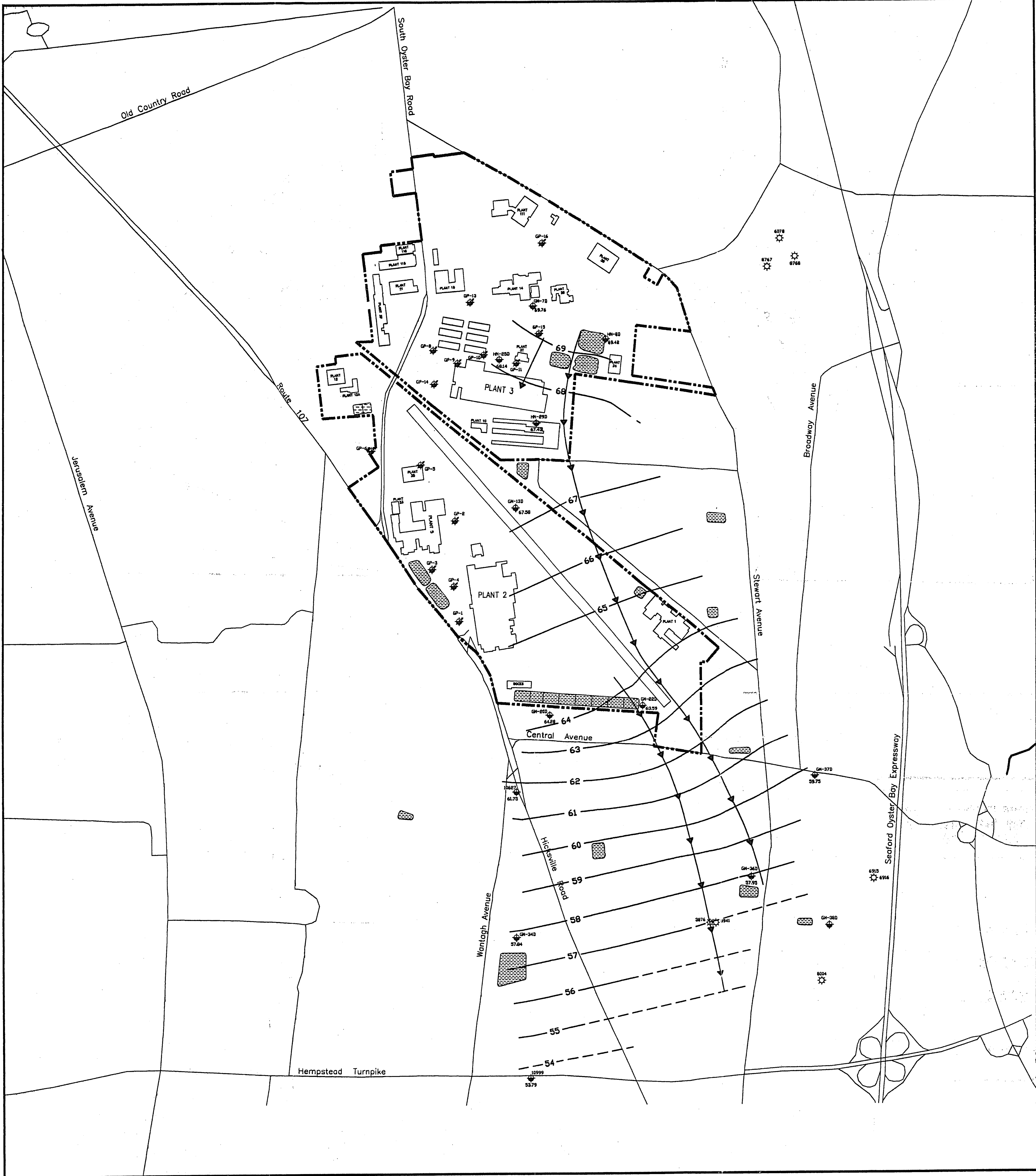
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DRAFTED BY: BC/OS	DATE: 5-18-94
CHECKED BY: JS	DATE:
APPROVED BY: CSG	DATE:

POTENTIOMETRIC SURFACE ELEVATIONS IN THE INTERMEDIATE ZONE  
APRIL 30, 1993

FIGURE

4-8

GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK



EXPLANATION

----- PROPERTY BOUNDARY OF GRUMMAN AEROSPACE CORPORATION

RECHARGE BASIN

GH-203 LOCATION AND DESIGNATION OF DEEP MONITORING WELL

GH-14 LOCATION AND DESIGNATION OF DEEP GRUMMAN PRODUCTION WELL

GH-204 LOCATION AND DESIGNATION OF BETHPAGE WATER DISTRICT PUBLIC SUPPLY WELL

54 LINE OF EQUAL POTENTIOMETRIC SURFACE ELEVATION IN FEET ABOVE MEAN SEA LEVEL (DASHED WHERE APPROXIMATE)

53.79 POTENTIOMETRIC SURFACE ELEVATION IN FEET ABOVE MEAN SEA LEVEL

→ DIRECTION OF HORIZONTAL COMPONENT OF GROUNDWATER FLOW



0 1000 FT



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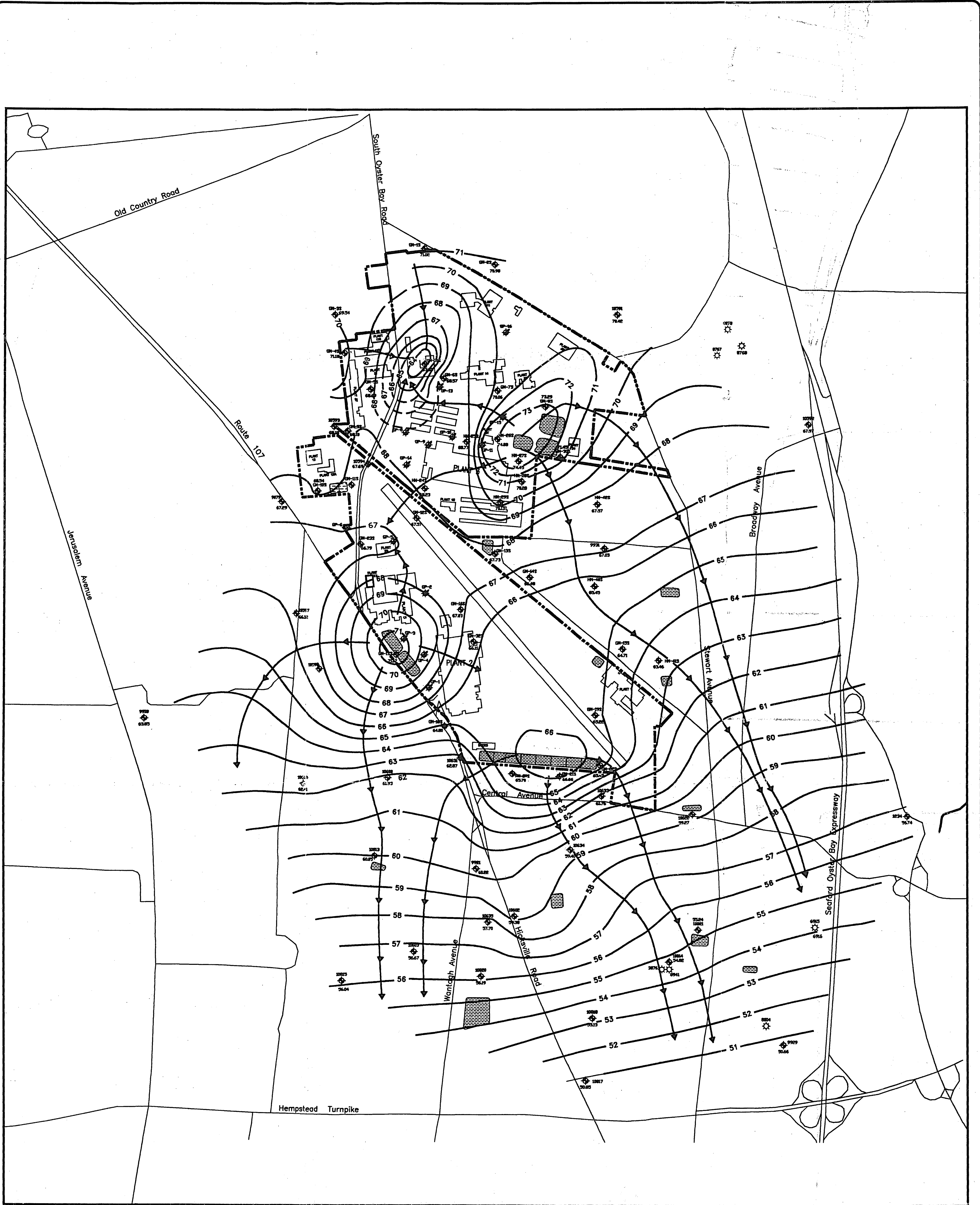
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DRAFTED BY: BC/GS	DATE: 5-18-94
CHECKED BY: JS	DATE:
APPROVED BY: CSG	DATE:

POTENTIOMETRIC SURFACE ELEVATIONS IN THE DEEP ZONE  
APRIL 30, 1993

GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK

FIGURE

4-9



EXPLANATION

- PROPERTY BOUNDARY OF GRUMMAN AEROSPACE CORPORATION
  
- RECHARGE BASIN
  
- LOCATION AND DESIGNATION OF SHALLOW MONITORING WELL
  
- LOCATION AND DESIGNATION OF DEEP GRUMMAN PRODUCTION WELL
  
- LOCATION AND DESIGNATION OF BETHPAGE WATER DISTRICT PUBLIC SUPPLY WELL
  
- LINE OF EQUAL WATER-TABLE ELEVATION IN FEET ABOVE MEAN SEA LEVEL
  
- WATER-TABLE ELEVATION IN FEET ABOVE MEAN SEA LEVEL
  
- DIRECTION OF HORIZONTAL COMPONENT OF GROUNDWATER FLOW



0 1000 FT



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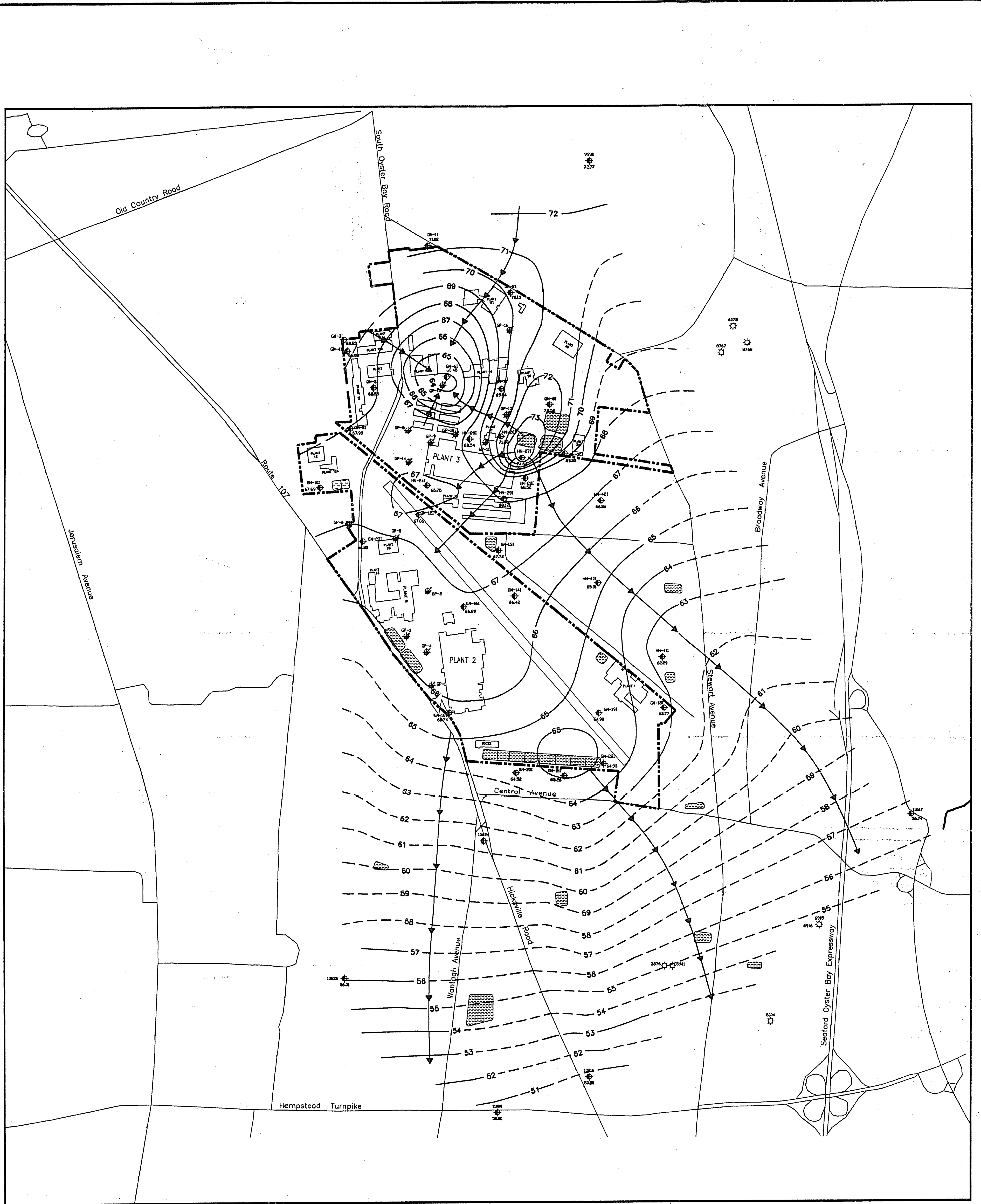
SCALE VERIFICATION  
 THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING.  
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DRAFTED BY: BC/RS	DATE: 5-18-94
CHECKED BY: JS	DATE:
APPROVED BY: CSG	DATE:

WATER-TABLE ELEVATIONS IN THE SHALLOW ZONE  
 AUGUST 18, 1993

GRUMMAN AEROSPACE CORPORATION  
 BETHPAGE, NEW YORK

FIGURE  
**4-10**



EXPLANATION

■■■■■■■■■■ PROPERTY BOUNDARY OF GRUMMAN AEROSPACE CORPORATION

▨ RECHARGE BASIN

GH-22 LOCATION AND DESIGNATION OF INTERMEDIATE MONITORING WELL

GH-14 LOCATION AND DESIGNATION OF DEEP GRUMMAN PRODUCTION WELL

8004 LOCATION AND DESIGNATION OF BETHPAGE WATER DISTRICT PUBLIC SUPPLY WELL

— 52 — LINE OF EQUAL POTENTIOMETRIC SURFACE ELEVATION IN FEET ABOVE MEAN SEA LEVEL (DASHED WHERE APPROXIMATE)

50.00 POTENTIOMETRIC SURFACE ELEVATION IN FEET ABOVE MEAN SEA LEVEL

→ DIRECTION OF HORIZONTAL COMPONENT OF GROUNDWATER FLOW

0 1000 FT



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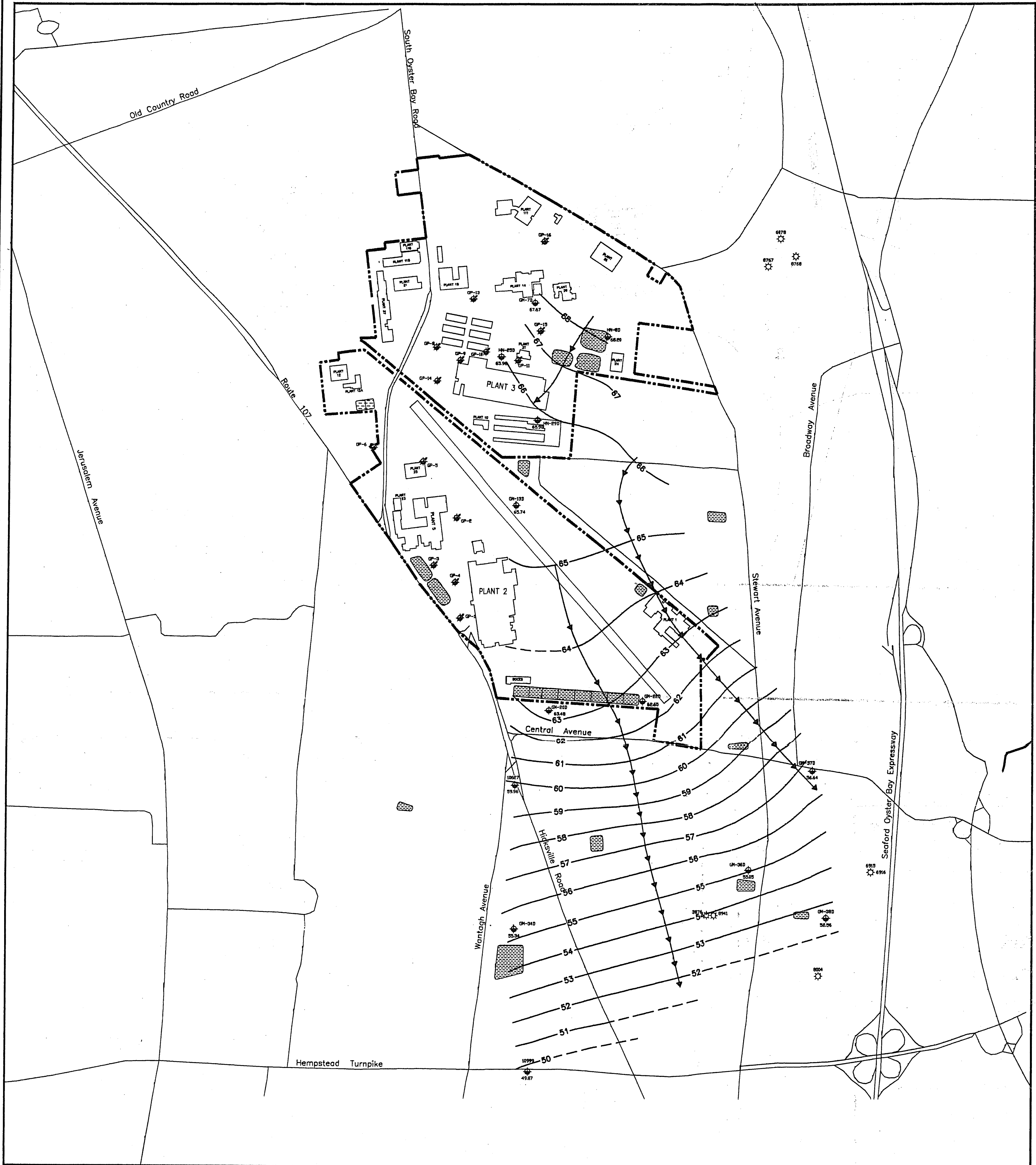
SCALE VERIFICATION  
THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING.  
USE TO VERIFY FIGURE REPRODUCTION SCALE

PROJECT NO.: NY0008040	FILE NO.: 1469
DRAWING: 8931PDT2	PLOT SIZE: 11-800
DRAFTED BY: BC/GS	DATE: 5-13-84
CHECKED BY: JS	DATE:
APPROVED BY: CSG	DATE:

POTENTIOMETRIC SURFACE ELEVATIONS IN THE INTERMEDIATE ZONE  
AUGUST 18, 1993

GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK

FIGURE  
**4-11**



EXPLANATION

- PROPERTY BOUNDARY OF GRUMMAN AEROSPACE CORPORATION
- RECHARGE BASIN
- LOCATION AND DESIGNATION OF DEEP MONITORING WELL
- LOCATION AND DESIGNATION OF DEEP GRUMMAN PRODUCTION WELL
- LOCATION AND DESIGNATION OF BETHPAGE WATER DISTRICT PUBLIC SUPPLY WELL
- 52 ——— LINE OF EQUAL WATER-TABLE ELEVATION IN FEET ABOVE MEAN SEA LEVEL (DASHED WHERE APPROXIMATE)
- 4987 WATER-TABLE ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- DIRECTION OF HORIZONTAL COMPONENT OF GROUNDWATER FLOW



0 1000 FT



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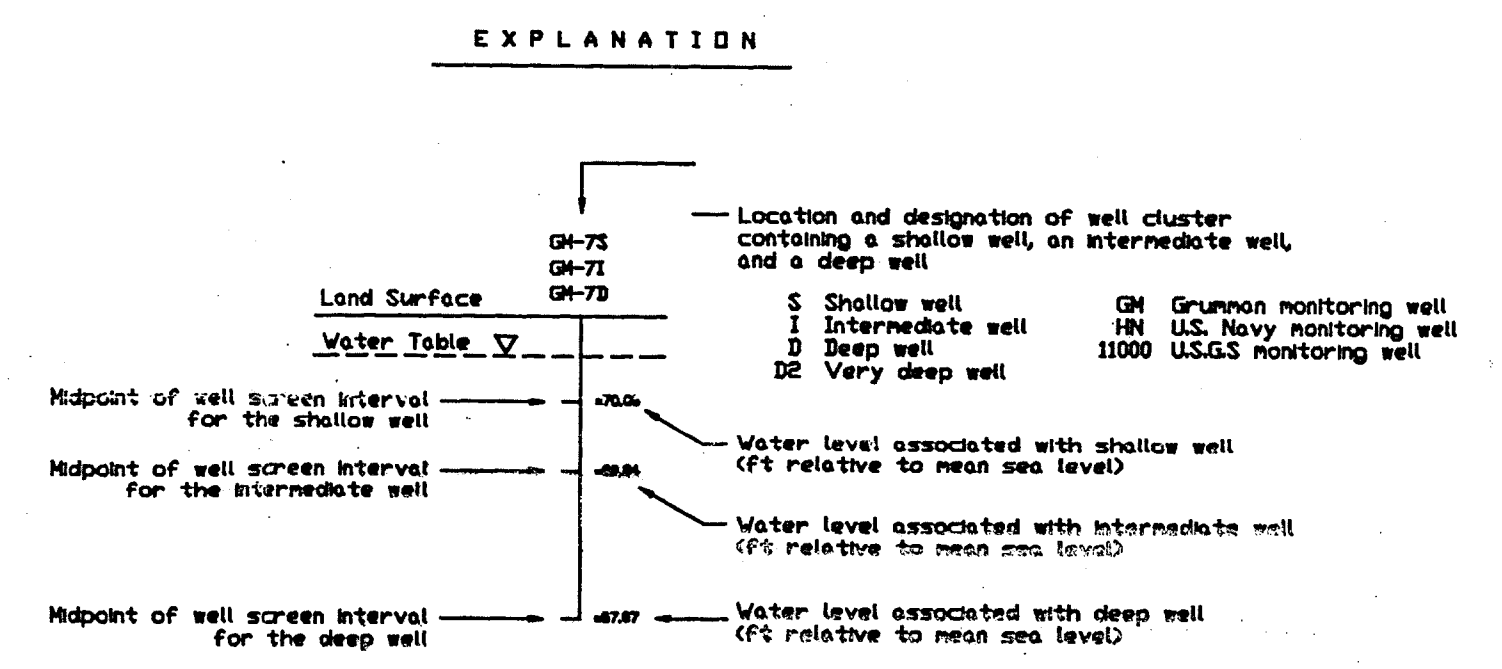
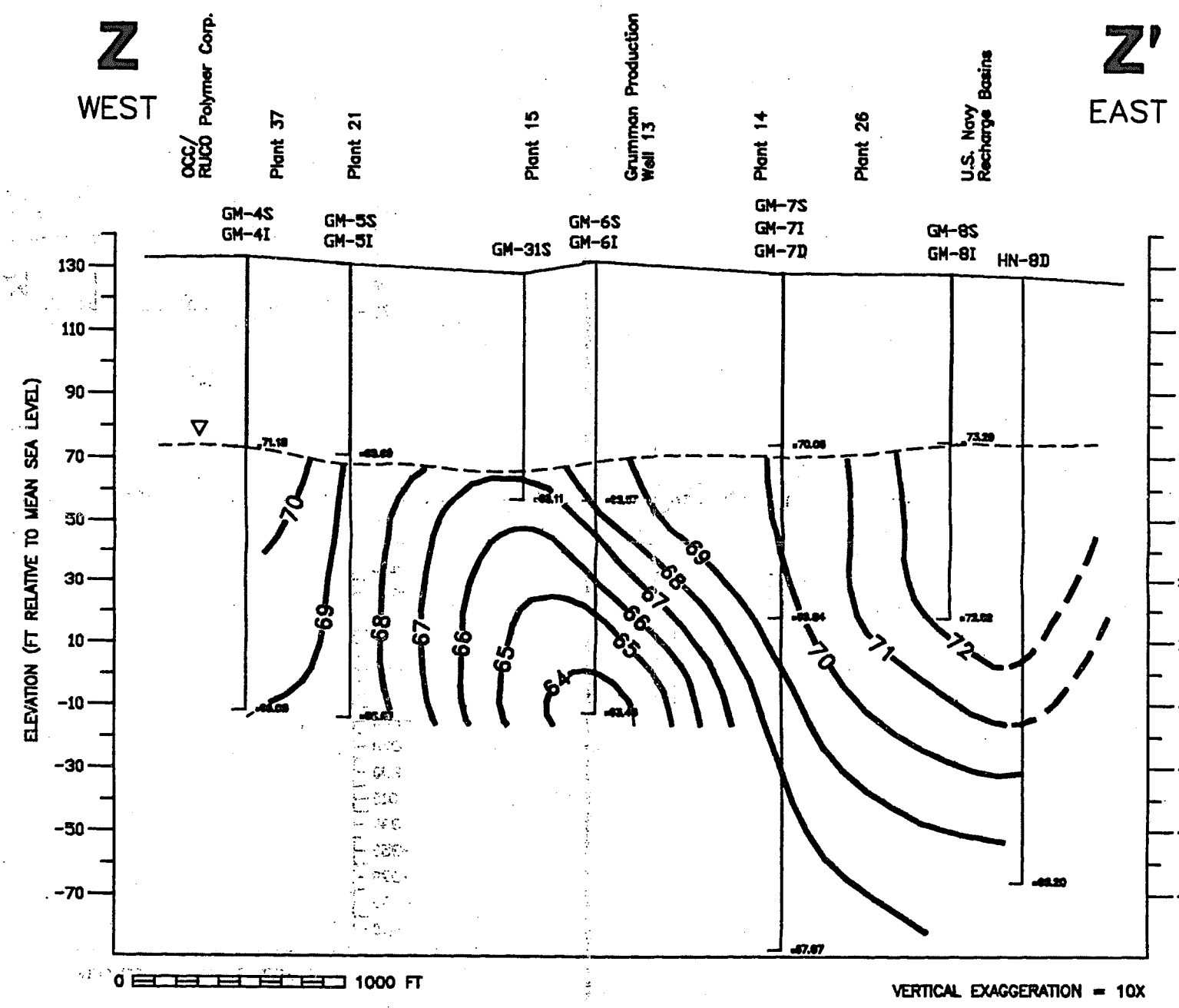
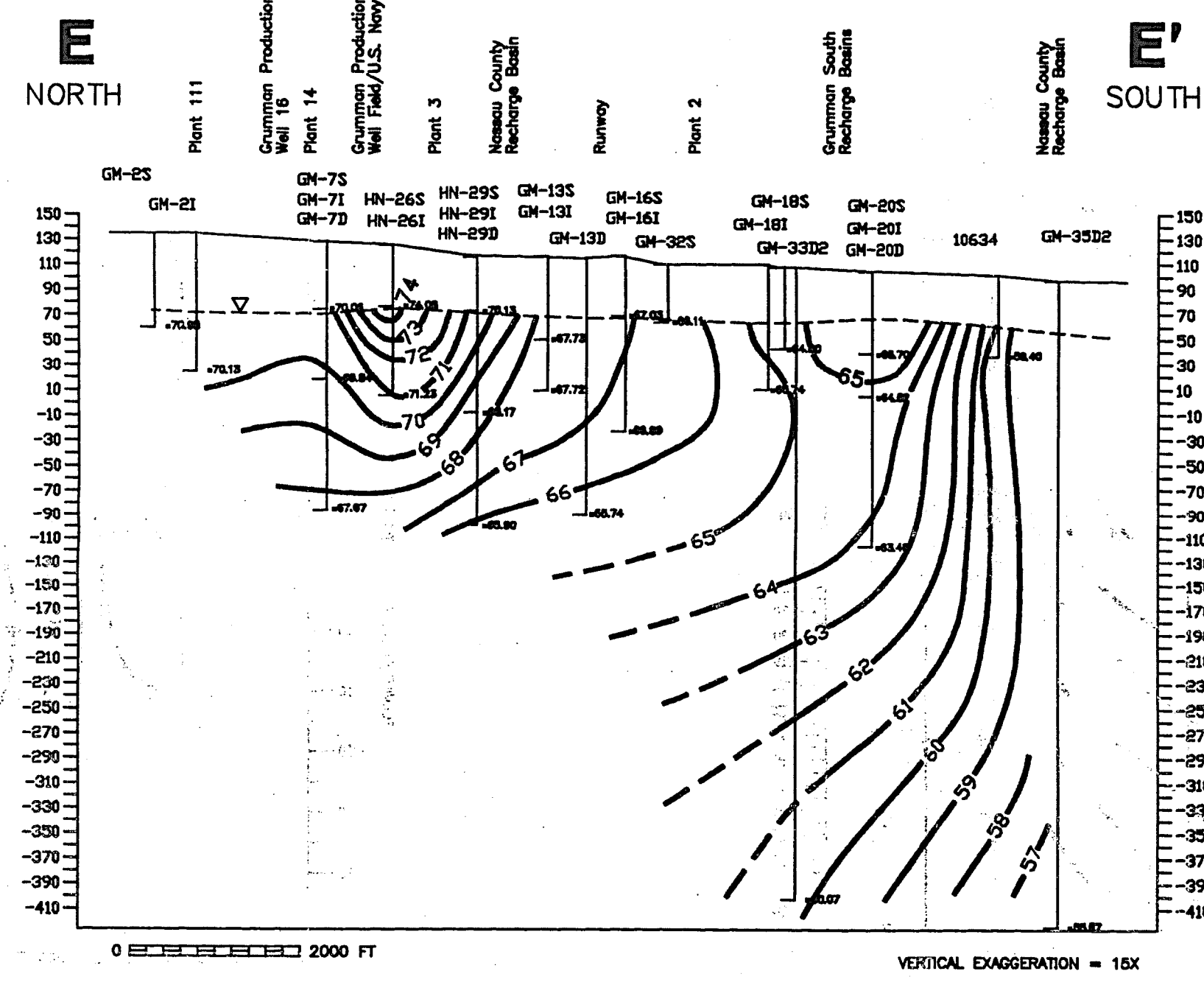
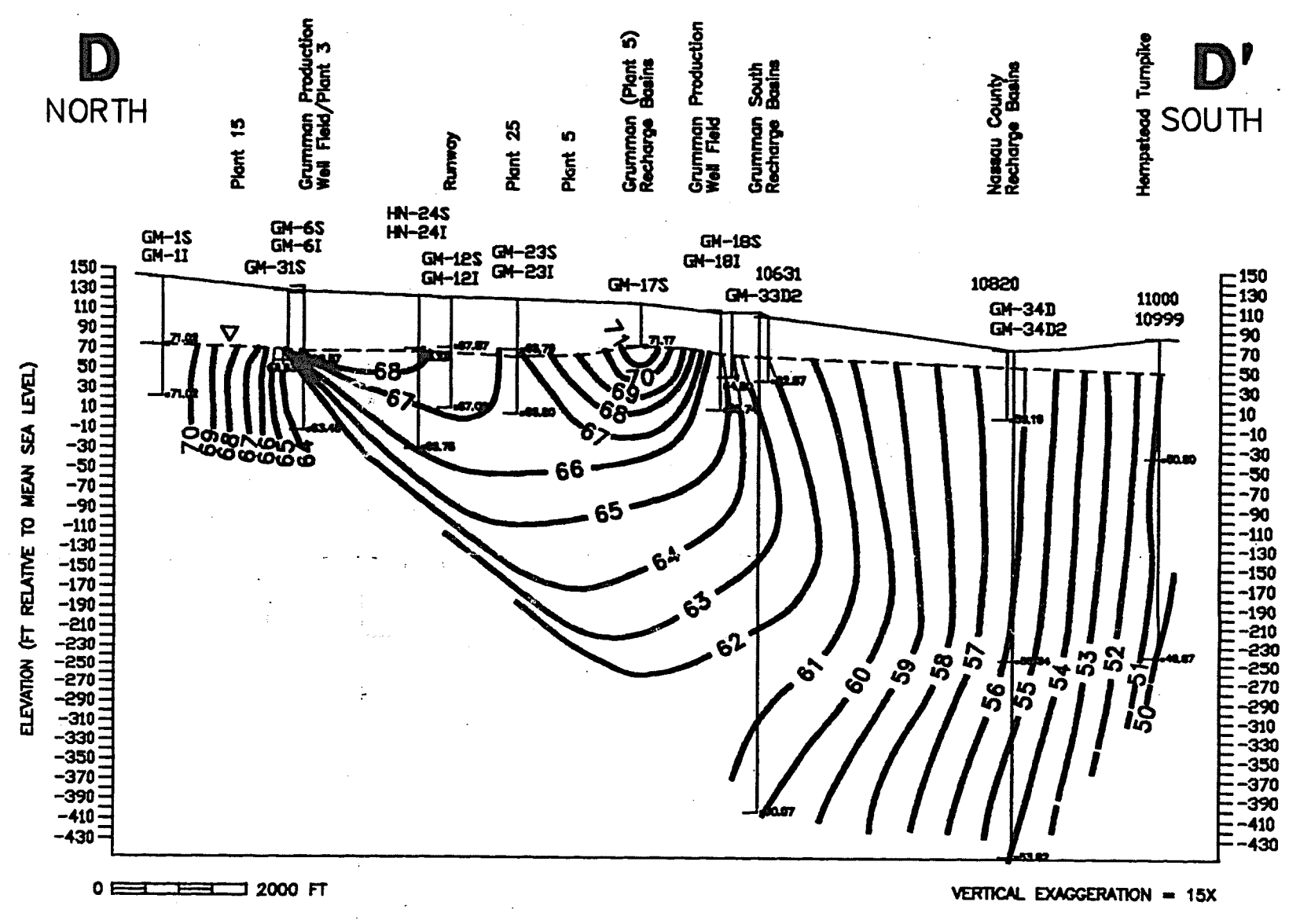
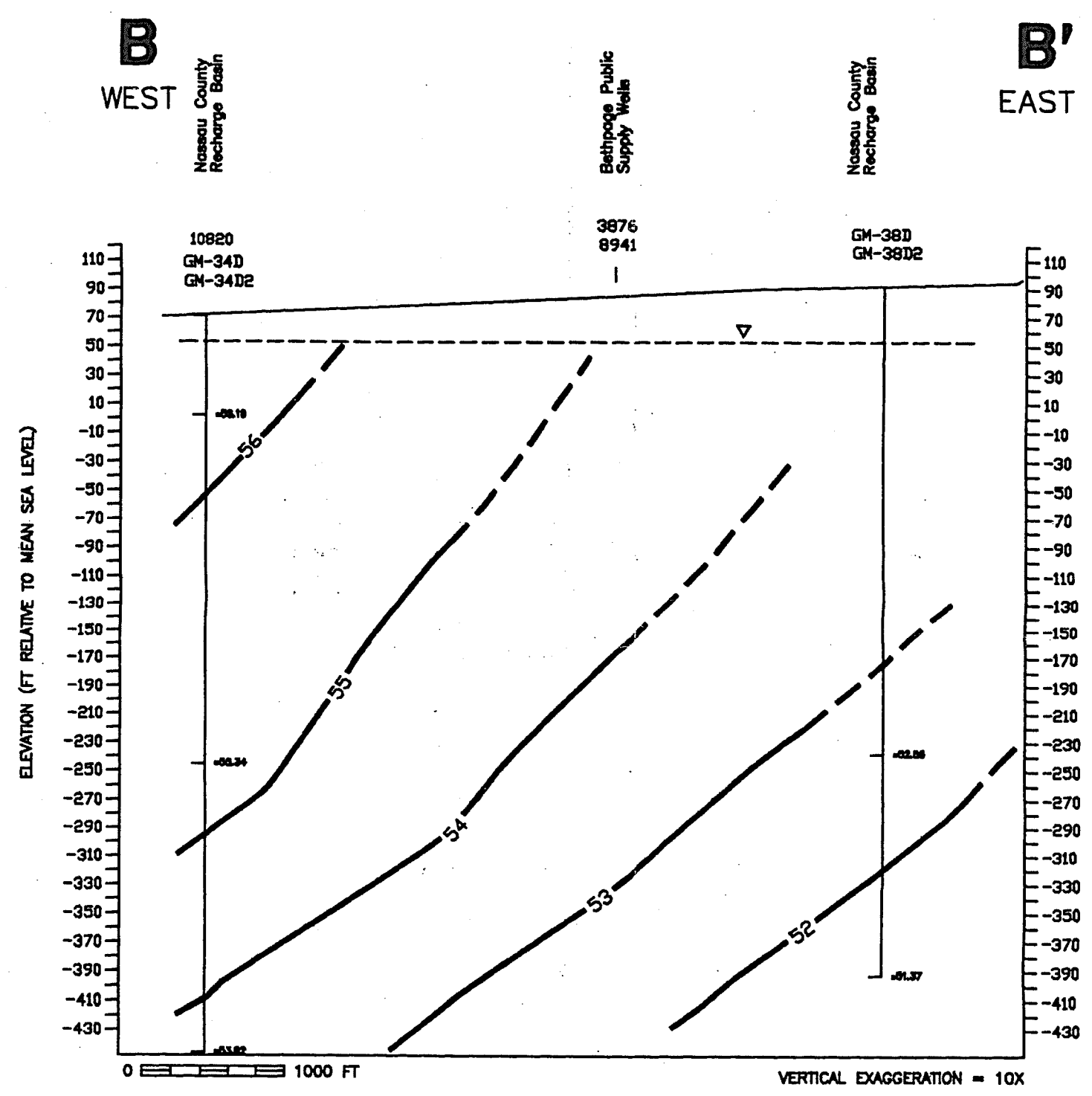
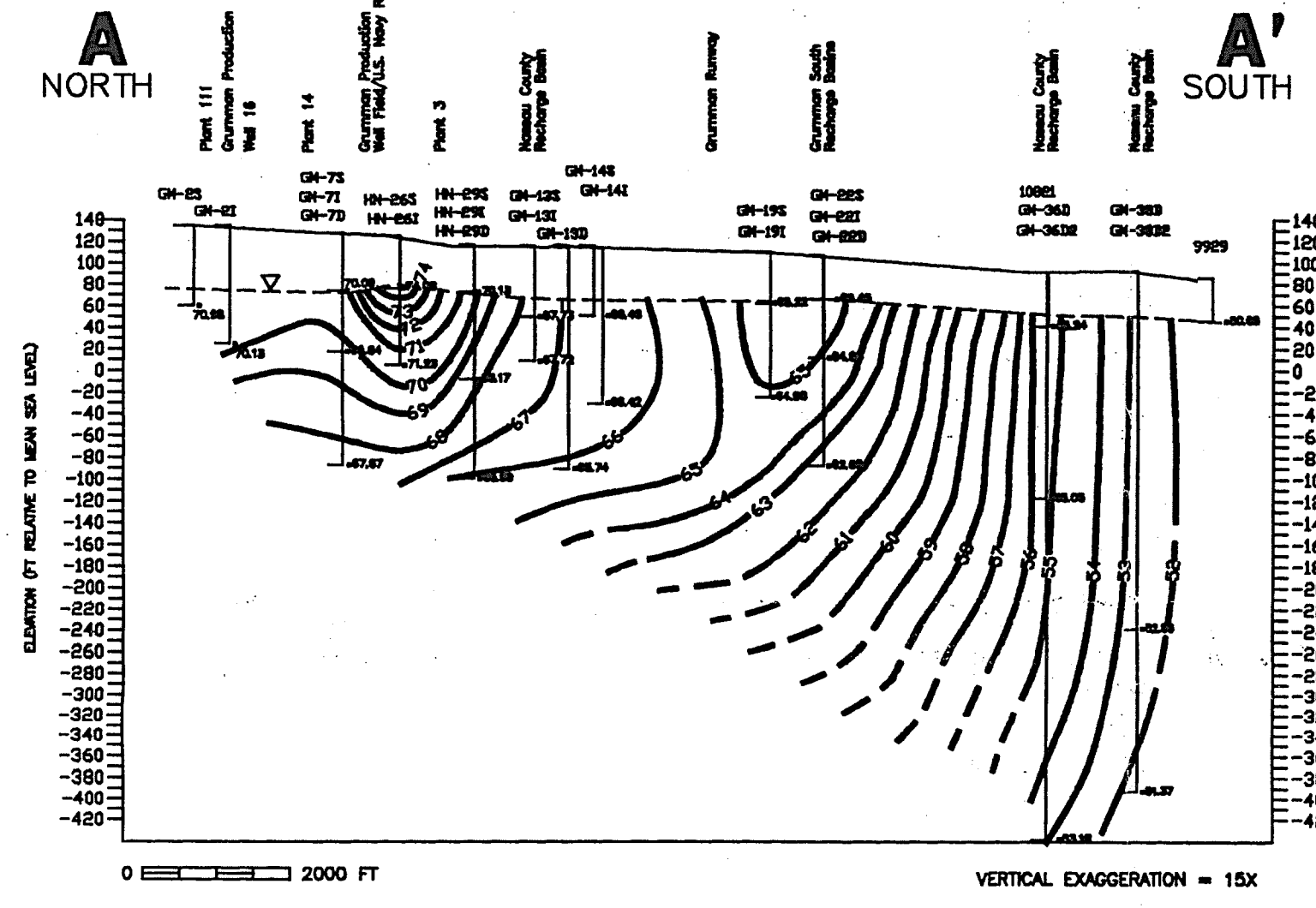
SCALE VERIFICATION  
THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING.  
USE TO VERIFY FIGURE REPRODUCTION SCALE

PROJECT NO.: NY0008040	FILE NO: 1489
DRAWING: 8932POTR	PLOT SIZE: 1-800
DRAFTED BY: BC/GS	DATE: 8-13-94
CHECKED BY: JS	DATE:
APPROVED BY: CS2	DATE:

POTENTIOMETRIC SURFACE ELEVATIONS IN THE DEEP ZONE  
AUGUST 18, 1993

GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK

FIGURE  
4-12



All water levels measured on August 10, 1993



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**SCALE VERIFICATION**  
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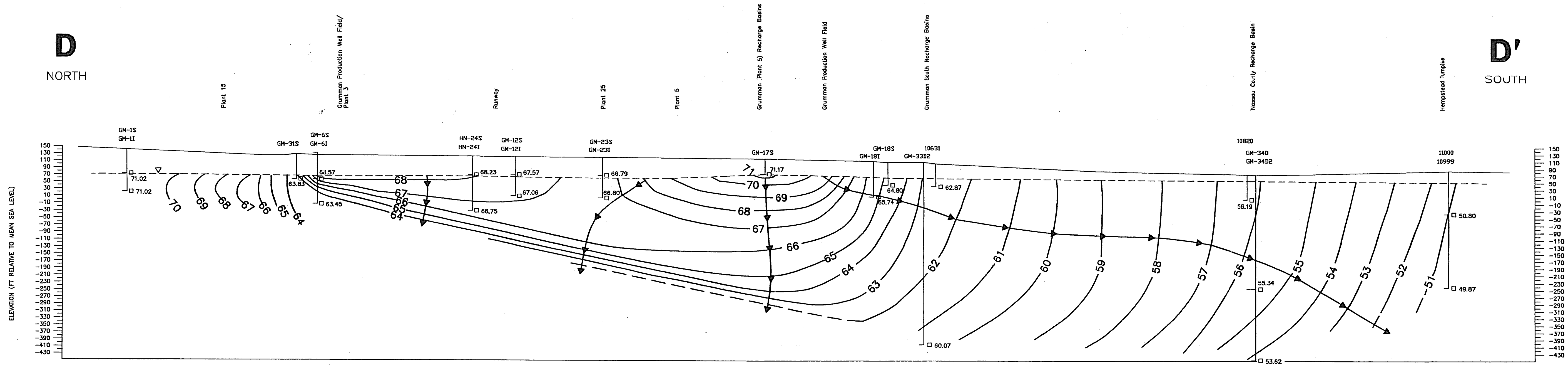
REV. NO.	DATE	DESCRIPTION	BY	APPR.

PROJECT NO.: NY020040	FILE NO.: 1469
DRAWING: VT-K32CS	PLST SIZE: 1'-2000'(H)
DRAFTED BY: CS/BC	DATE: 8-21-94
CHECKED BY: JS	DATE:
APPROVED BY: CSJ	DATE:

GENERALIZED HYDRAULIC CROSS SECTIONS

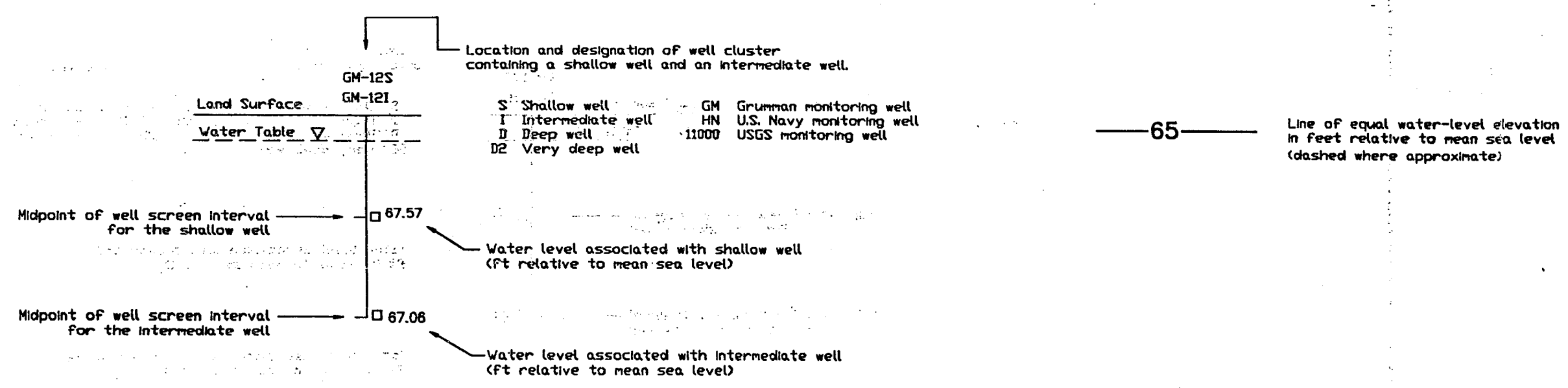
GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK





0 1000 FT VERTICAL EXAGGERATION = 4X

EXPLANATION



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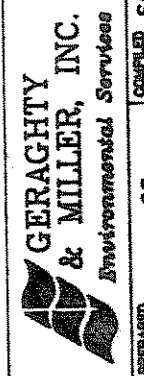
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REV. NO.	DATE	DESCRIPTION	BY	APPR.

PROJECT NO: HYD008L040	FILE NO: 1409
DRAWING: EEVT-V4	PLOT SIZE: 11x500(0)
DRAFTED BY: WHC/GS	DATE: 5-13-94
CHECKED BY: JS	DATE:
APPROVED BY: CSG	DATE:

GENERALIZED HYDRAULIC CROSS SECTION D-D'

GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK



DATE PREPARED: 12-91  
 REVISION DATE: 1005  
 PROJECT: PLANVIEW  
 CLIENT: GRM-BRD

PREPARED FOR:  
 GRUMMAN AEROSPACE CORP.  
 Bethpage, New York



PROJECT: SG  
 PROJECT: CSG  
 BAR SCALE: 0

EXPLANATION

- SG-1 LOCATION AND DESIGNATION OF SOIL-GAS SURVEY SITES
- RW/BS-1 LOCATION AND DESIGNATION OF RECHARGE BASIN WATER AND BOTTOM-SEDIMENT SAMPLES
- ▲ B-1, B-2 SOIL BORING LOCATIONS AND DESIGNATIONS

0 1000 FT  
 SCALE

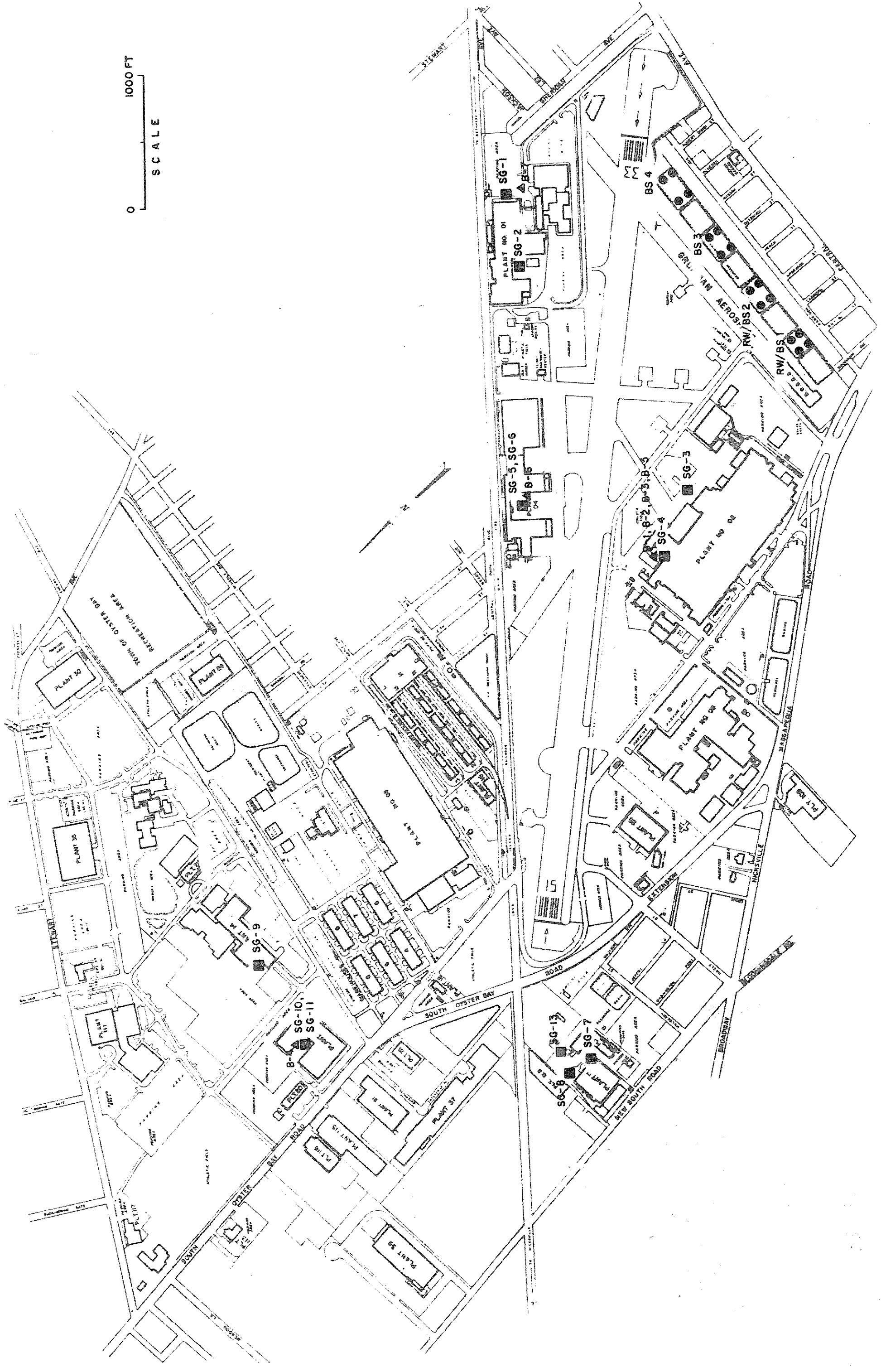
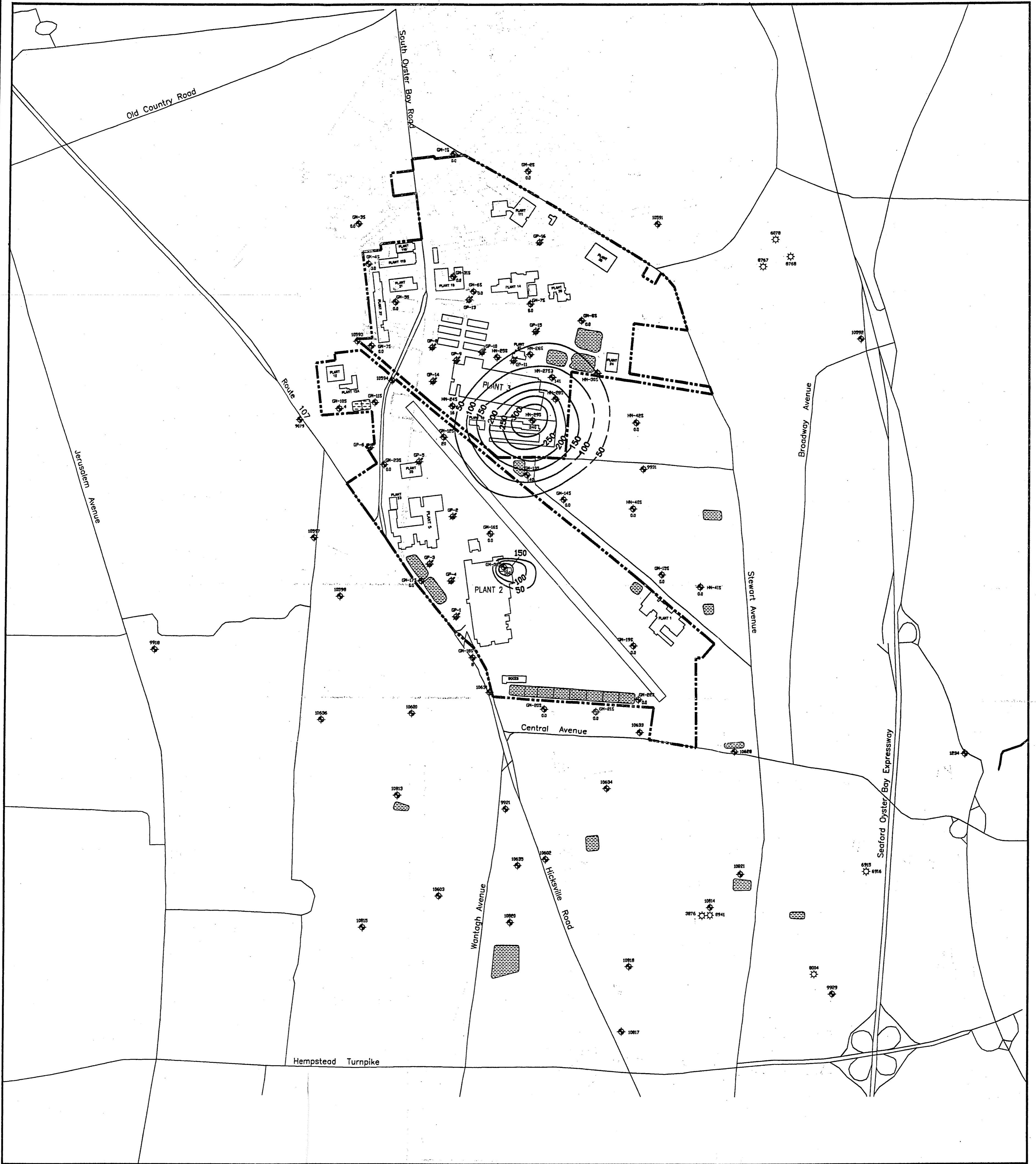


FIGURE 4-15  
 RECHARGE BASIN SAMPLING, SOIL BORING, AND SOIL-GAS SURVEY LOCATIONS  
 PHASE 1 AND 2 REMEDIAL INVESTIGATIONS  
 GRUMMAN AEROSPACE CORPORATION, BETHPAGE, NEW YORK



EXPLANATION

--- PROPERTY BOUNDARY OF GRUMMAN AEROSPACE CORPORATION

RECHARGE BASIN

1087 LOCATION AND DESIGNATION OF SHALLOW MONITORING WELL

1014 LOCATION AND DESIGNATION OF DEEP GRUMMAN PRODUCTION WELL

6904 LOCATION AND DESIGNATION OF BETHPAGE WATER DISTRICT PUBLIC SUPPLY WELL

100 LINE OF EQUAL TRICHLOROETHENE CONCENTRATION (DASHED WHERE APPROXIMATE)

140 TRICHLOROETHENE CONCENTRATION IN MICROGRAMS PER LITER (ug/L) (0.0 INDICATES CONCENTRATION LESS THAN METHOD DETECTION LIMIT)

U.S. NAVY WELLS SAMPLED DURING MARCH 1993, EXCEPT FOR WELL HN-2753, WHICH WAS SAMPLED DURING DECEMBER 1992. GRUMMAN WELLS SAMPLED FROM AUGUST 23 THROUGH SEPTEMBER 2, 1993



0 1000 FT



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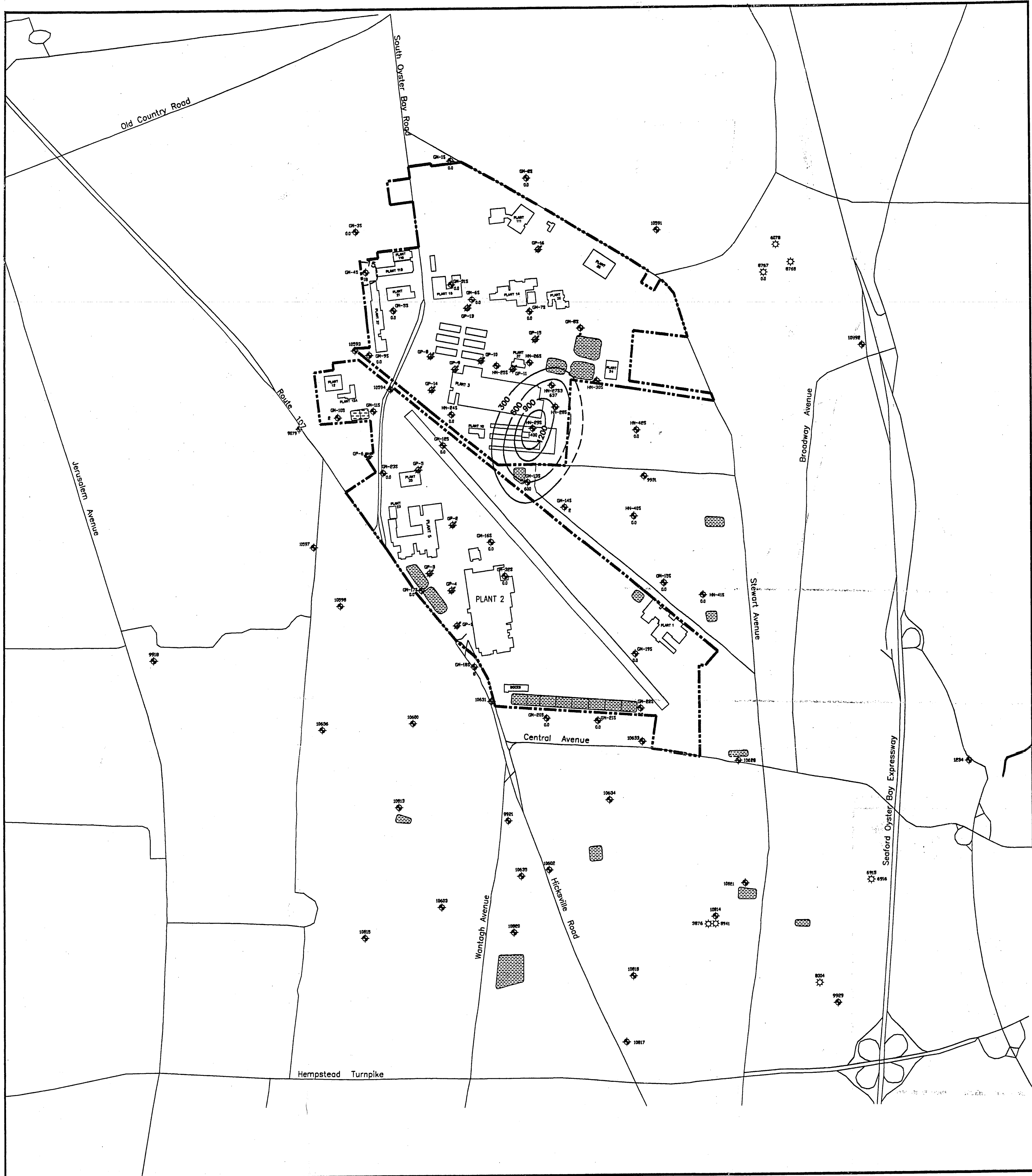
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PROJECT NO.: NY0008040	FILE NO.: 1469
DRAWING: TCE893VT	PLOT SIZE: 11x800
DRAFTED BY: BC/GS	DATE: 5-13-94
CHECKED BY: JS	DATE:
APPROVED BY: CSG	DATE:

TRICHLOROETHENE CONCENTRATIONS IN THE SHALLOW ZONE

FIGURE  
**4-16**

GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK



EXPLANATION

- PROPERTY BOUNDARY OF GRUMMAN AEROSPACE CORPORATION
- ▨ RECHARGE BASIN
- ◆ LOCATION AND DESIGNATION OF SHALLOW MONITORING WELL
- ◆ LOCATION AND DESIGNATION OF DEEP GRUMMAN PRODUCTION WELL
- ◆ LOCATION AND DESIGNATION OF BETHPAGE WATER DISTRICT PUBLIC SUPPLY WELL

— 800 — LINE OF EQUAL TETRACHLOROETHENE CONCENTRATION (DASHED WHERE APPROXIMATE)

600 TETRACHLOROETHENE CONCENTRATION IN MICROGRAMS PER LITER (ug/L) (0.0 INDICATES CONCENTRATION LESS THAN METHOD DETECTION LIMIT)

U.S. NAVY WELLS SAMPLED DURING MARCH 1993, EXCEPT FOR WELL HN-2753, WHICH WAS SAMPLED DURING DECEMBER 1992.  
GRUMMAN WELLS SAMPLED FROM AUGUST 23 THROUGH SEPTEMBER 2, 1993

0 1000 FT



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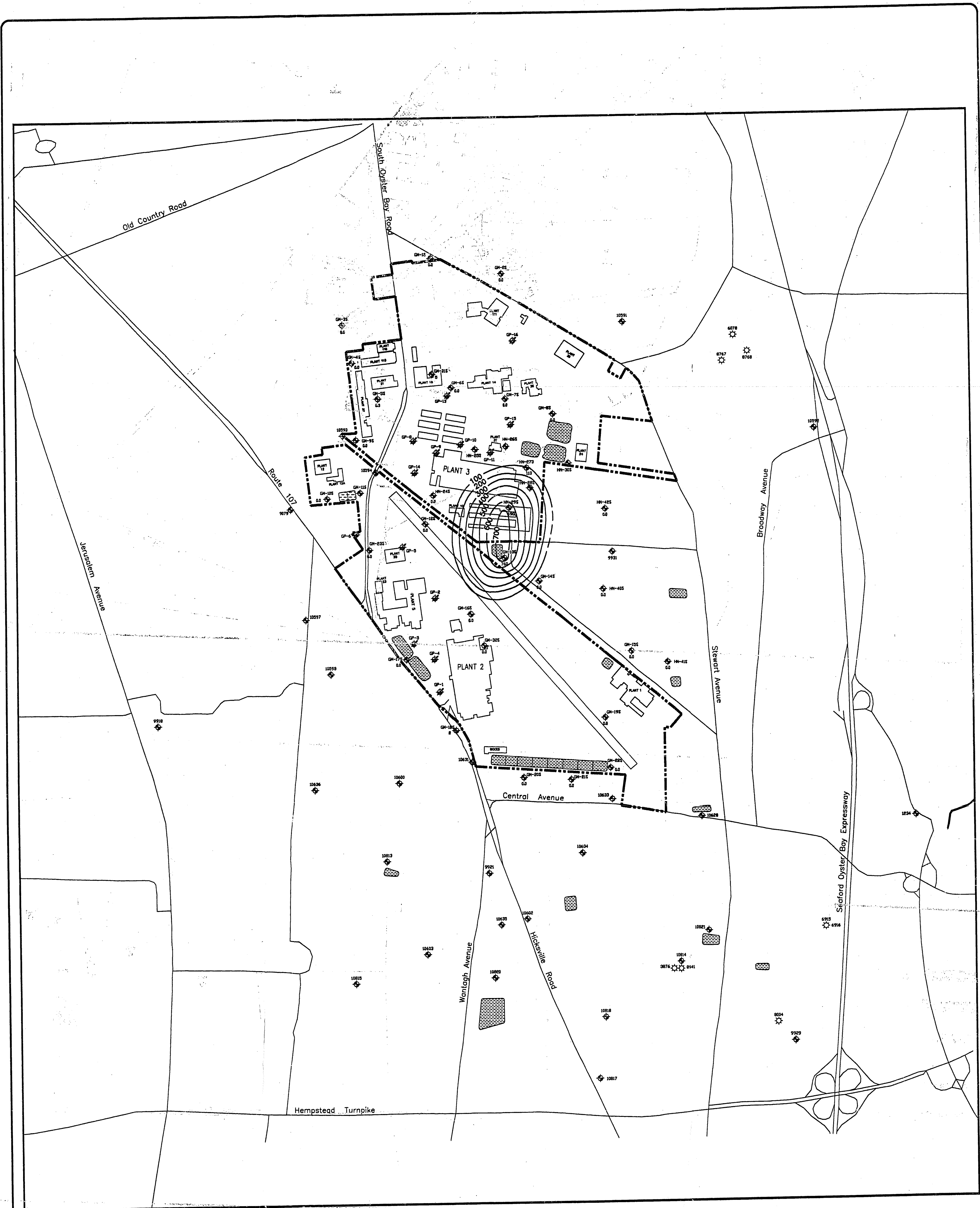
SCALE VERIFICATION  
THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING.  
USE TO VERIFY FIGURE REPRODUCTION SCALE

PROJECT NO.: NY0008040	FILE NO.: 1469
DRAWING: PCE893WT	PLOT SIZE: 14-800
DRAFTED BY: BC/GS	DATE: 4-27-94
CHECKED BY: JS	DATE:
APPROVED BY: CSG	DATE:

TETRACHLOROETHENE CONCENTRATIONS IN THE SHALLOW ZONE

GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK

FIGURE  
**4-17**



EXPLANATION

--- PROPERTY BOUNDARY OF GRUMMAN AEROSPACE CORPORATION

RECHARGE BASIN

— 100 — LINE OF EQUAL 1,1,1-TRICHLOROETHANE CONCENTRATION (DASHED WHERE APPROXIMATE)

◆ LOCATION AND DESIGNATION OF SHALLOW MONITORING WELL

140 1,1,1-TRICHLOROETHANE CONCENTRATION IN MICROGRAMS PER LITER (µg/L) (0.0 INDICATES CONCENTRATION LESS THAN METHOD DETECTION LIMIT)

◆ LOCATION AND DESIGNATION OF DEEP GRUMMAN PRODUCTION WELL

U.S. NAVY WELLS SAMPLED DURING MARCH 1993, EXCEPT FOR WELL HN-2753, WHICH WAS SAMPLED DURING DECEMBER 1992. GRUMMAN WELLS SAMPLED FROM AUGUST 23 THROUGH SEPTEMBER 2, 1993

◆ LOCATION AND DESIGNATION OF BETHPAGE WATER DISTRICT PUBLIC SUPPLY WELL

0 1000 FT



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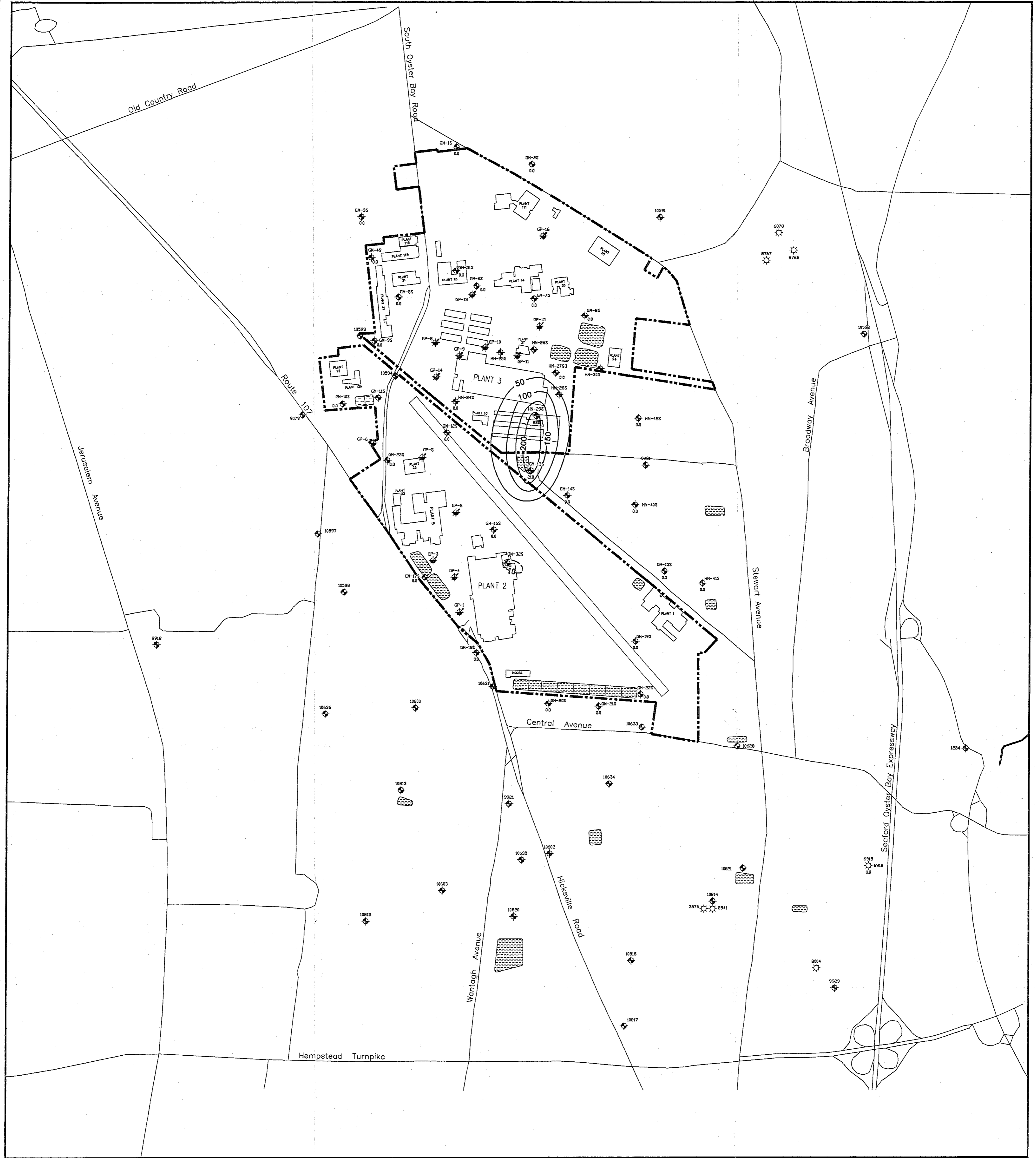
SCALE VERIFICATION  
THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING.  
USE TO VERIFY FIGURE REPRODUCTION SCALE

PROJECT NO. HYDRO-001	DATE NOV 1993
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CHECKED BY: JCS	DATE: 5-11-94
APPROVED BY: CSO	DATE:

1,1,1-TRICHLOROETHANE CONCENTRATIONS IN THE SHALLOW ZONE

FIGURE 4-18

GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK

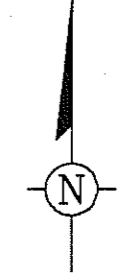


EXPLANATION

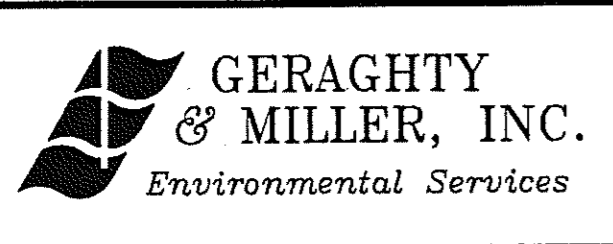
- PROPERTY BOUNDARY OF GRUMMAN AEROSPACE CORPORATION
- ▨ RECHARGE BASIN
- ◆ 10827 LOCATION AND DESIGNATION OF SHALLOW MONITORING WELL
- ◆ GP-14 LOCATION AND DESIGNATION OF DEEP GRUMMAN PRODUCTION WELL
- ★ 8054 LOCATION AND DESIGNATION OF BETHPAGE WATER DISTRICT PUBLIC SUPPLY WELL

- 200— LINE OF EQUAL 1,2-DICHLOROETHENE CONCENTRATION (DASHED WHERE APPROXIMATE)
- 200 1,2-DICHLOROETHENE CONCENTRATION IN MICROGRAMS PER LITER (ug/L) (0.0 INDICATES CONCENTRATION LESS THAN METHOD DETECTION LIMIT)

U.S. NAVY WELLS SAMPLED DURING MARCH 1993, EXCEPT FOR WELL HN-2753, WHICH WAS SAMPLED DURING DECEMBER 1992.  
GRUMMAN WELLS SAMPLED FROM AUGUST 23 THROUGH SEPTEMBER 2, 1993



0 1000 FT



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PROJECT NO.: NY0008040	FILE NO.: 1469
DRAWING: 12D893WT	PLOT SIZE: 11x800
DRAFTED BY: BC/GS	DATE: 4-27-94
CHECKED BY: JS	DATE:
APPROVED BY: CSG	DATE:

1,2-DICHLOROETHENE CONCENTRATIONS IN THE SHALLOW ZONE

FIGURE 4-19

GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK



EXPLANATION

--- PROPERTY BOUNDARY OF GRUMMAN AEROSPACE CORPORATION

RECHARGE BASIN

OH-201 LOCATION AND DESIGNATION OF INTERMEDIATE MONITORING WELL

GP-14 LOCATION AND DESIGNATION OF DEEP GRUMMAN PRODUCTION WELL

6924 LOCATION AND DESIGNATION OF BETHPAGE WATER DISTRICT PUBLIC SUPPLY WELL

— 300 — LINE OF EQUAL TRICHLOROETHENE CONCENTRATION (DASHED WHERE APPROXIMATE)

200 TRICHLOROETHENE CONCENTRATION IN MICROGRAMS PER LITER (µg/L) (0.0 INDICATES CONCENTRATION LESS THAN METHOD DETECTION LIMIT)

U.S. NAVY WELLS SAMPLED DURING MARCH 1993  
GRUMMAN WELLS SAMPLED FROM AUGUST 23 THROUGH SEPTEMBER 2, 1993

0 1000 FT



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SCALE VERIFICATION

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PROJECT NO.: NY0008040	FILE NO: 1469
DRAWING: TCEB-931	PLOT SIZE: 11-800
DRAFTED BY: BC/GS	DATE: 4-28-94
CHECKED BY: JS	DATE:
APPROVED BY: CSG	DATE:

TRICHLOROETHENE CONCENTRATIONS IN THE INTERMEDIATE ZONE

GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK

FIGURE

4-20



EXPLANATION

- PROPERTY BOUNDARY OF GRUMMAN AEROSPACE CORPORATION
- ▨ RECHARGE BASIN
- GP-201 LOCATION AND DESIGNATION OF INTERMEDIATE MONITORING WELL
- GP-14 LOCATION AND DESIGNATION OF DEEP GRUMMAN PRODUCTION WELL
- 854 LOCATION AND DESIGNATION OF BETHPAGE WATER DISTRICT PUBLIC SUPPLY WELL

- 300 — LINE OF EQUAL TETRACHLOROETHENE CONCENTRATION (DASHED WHERE APPROXIMATE)
- 9 TETRACHLOROETHENE CONCENTRATION IN MICROGRAMS PER LITER (ug/L) (0.0 INDICATES CONCENTRATION LESS THAN METHOD DETECTION LIMIT)

U.S. NAVY WELLS SAMPLED DURING MARCH 1993  
 GRUMMAN WELLS SAMPLED FROM AUGUST 23 THROUGH SEPTEMBER 2, 1993



0 1000 FT



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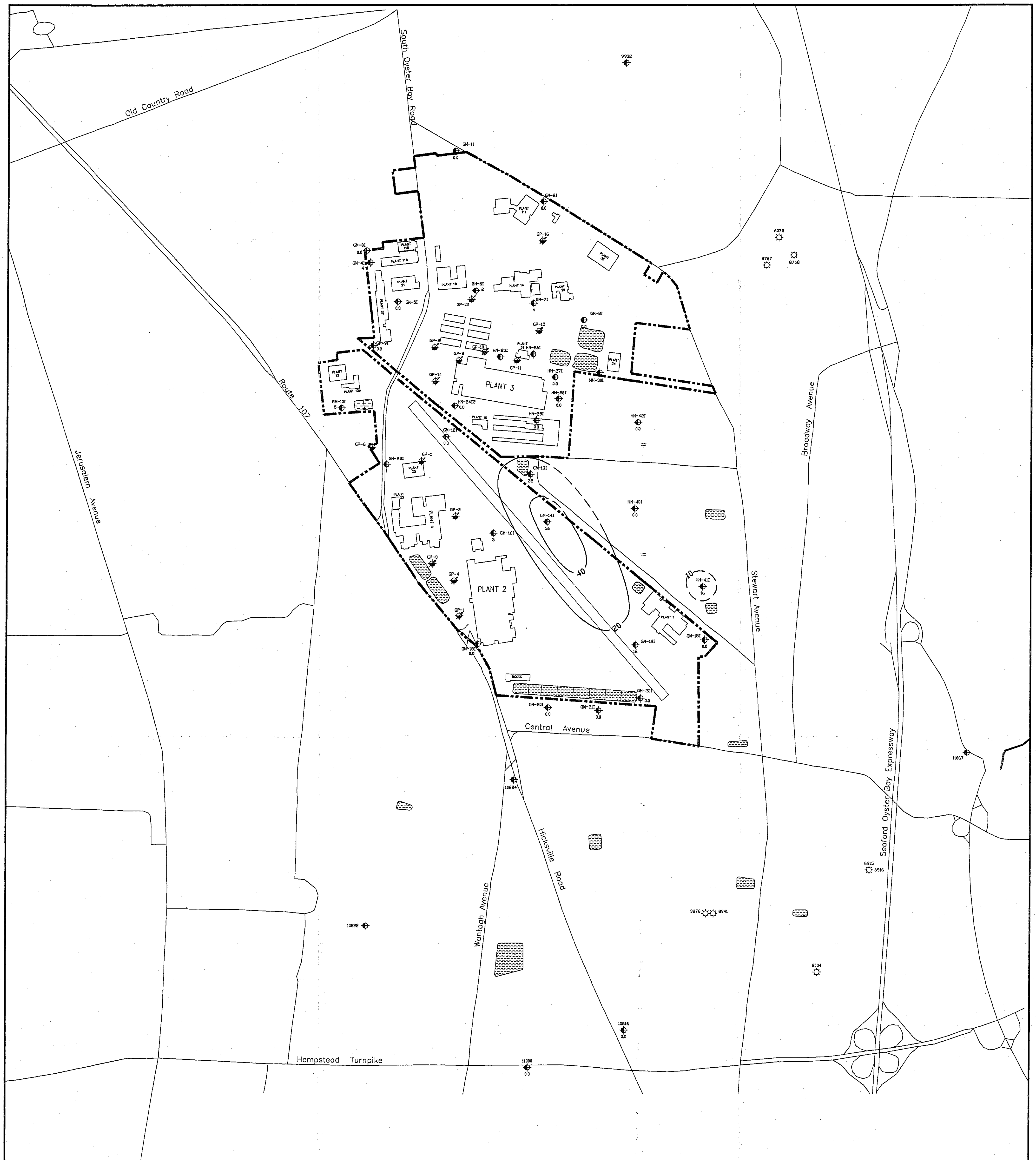
SCALE VERIFICATION  
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 USE TO VERIFY FIGURE REPRODUCTION SCALE

PROJECT NO.: NY0006040	FILE NO.: 1468
DRAWING: PCEB-931	PLOT SIZE: 11-800
DRAFTED BY: BC/GS	DATE: 4-28-94
CHECKED BY: GS	DATE:
APPROVED BY: CSG	DATE:

TETRACHLOROETHENE CONCENTRATIONS IN THE INTERMEDIATE ZONE  
 GRUMMAN AEROSPACE CORPORATION  
 BETHPAGE, NEW YORK

FIGURE  
**4-21**





EXPLANATION

--- PROPERTY BOUNDARY OF GRUMMAN AEROSPACE CORPORATION

RECHARGE BASIN

GH-201 LOCATION AND DESIGNATION OF INTERMEDIATE MONITORING WELL

GP-14 LOCATION AND DESIGNATION OF DEEP GRUMMAN PRODUCTION WELL

8004 LOCATION AND DESIGNATION OF BETHPAGE WATER DISTRICT PUBLIC SUPPLY WELL

30 LINE OF EQUAL 1,1,1-TRICHLOROETHANE CONCENTRATION (DASHED WHERE APPROXIMATE)

20 1,1,1-TRICHLOROETHANE CONCENTRATION IN MICROGRAMS PER LITER (ug/L) (0.0 INDICATES CONCENTRATION LESS THAN METHOD DETECTION LIMIT)

U.S. NAVY WELLS SAMPLED DURING MARCH 1993  
GRUMMAN WELLS SAMPLED FROM AUGUST 23 THROUGH SEPTEMBER 2, 1993



0 1000 FT



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SCALE VERIFICATION  
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PROJECT NO: NY0008040	FILE NO: 1469
DRAWING: 1118-931	PLOT SIZE: 1-800
DRAFTED BY: BC/GS	DATE: 4-8-94
CHECKED BY: JS	DATE:
APPROVED BY: CSG	DATE:

1,1,1-TRICHLOROETHANE CONCENTRATIONS IN THE INTERMEDIATE ZONE

FIGURE  
**4-22**

GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK



EXPLANATION

--- PROPERTY BOUNDARY OF GRUMMAN AEROSPACE CORPORATION

RECHARGE BASIN

GH-311 LOCATION AND DESIGNATION OF INTERMEDIATE MONITORING WELL

GH-14 LOCATION AND DESIGNATION OF DEEP GRUMMAN PRODUCTION WELL

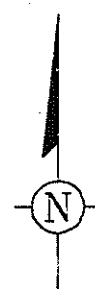
6934 LOCATION AND DESIGNATION OF BETHPAGE WATER DISTRICT PUBLIC SUPPLY WELL

60 LINE OF EQUAL 1,2-DICHLOROETHENE CONCENTRATION (DASHED WHERE APPROXIMATE)

16 1,2-DICHLOROETHENE CONCENTRATION IN MICROGRAMS PER LITER (ug/L) (0.0 INDICATES CONCENTRATION LESS THAN METHOD DETECTION LIMIT)

U.S. NAVY WELLS SAMPLED DURING MARCH 1993  
GRUMMAN WELLS SAMPLED FROM AUGUST 23 THROUGH SEPTEMBER 2, 1993

0 1000 FT



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USE TO VERIFY FIGURE REPRODUCTION SCALE

PROJECT NO.: NY0008040	FILE NO. 1469
DRAWING: 1226-931	PLOT SIZE: 11x800
DRAFTED BY: BC/GS	DATE: 4-27-94
CHECKED BY: JS	DATE:
APPROVED BY: CSG	DATE:

1,2-DICHLOROETHENE CONCENTRATIONS IN THE INTERMEDIATE ZONE

FIGURE  
**4-23**

GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK



EXPLANATION

--- PROPERTY BOUNDARY OF GRUMMAN AEROSPACE CORPORATION

RECHARGE BASIN

GP-820 LOCATION AND DESIGNATION OF DEEP MONITORING WELL

GP-14 LOCATION AND DESIGNATION OF DEEP GRUMMAN PRODUCTION WELL

6004 LOCATION AND DESIGNATION OF BETHPAGE WATER DISTRICT PUBLIC SUPPLY WELL

—400— LINE OF EQUAL TRICHLOROETHENE CONCENTRATION (DASHED WHERE APPROXIMATE)

200 TRICHLOROETHENE CONCENTRATION IN MICROGRAMS PER LITER (ug/L) (0.0 INDICATES CONCENTRATION LESS THAN METHOD DETECTION LIMIT)

U.S. NAVY WELLS SAMPLED DURING MARCH 1993  
GRUMMAN WELLS SAMPLED FROM AUGUST 23 THROUGH SEPTEMBER 2, 1993



0 1000 FT



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PROJECT NO.: NY0008040	FILE NO.: 1468
DRAWING: TCEB-93D	PLOT SIZE: 1=800
DRAFTED BY: BC/GS	DATE: 4-28-94
CHECKED BY: JS	DATE:
APPROVED BY: CSG	DATE:

TRICHLOROETHENE CONCENTRATIONS IN THE DEEP ZONE

GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK

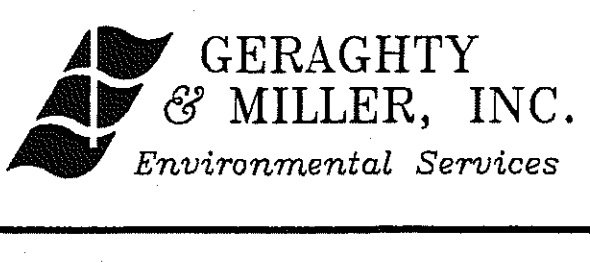
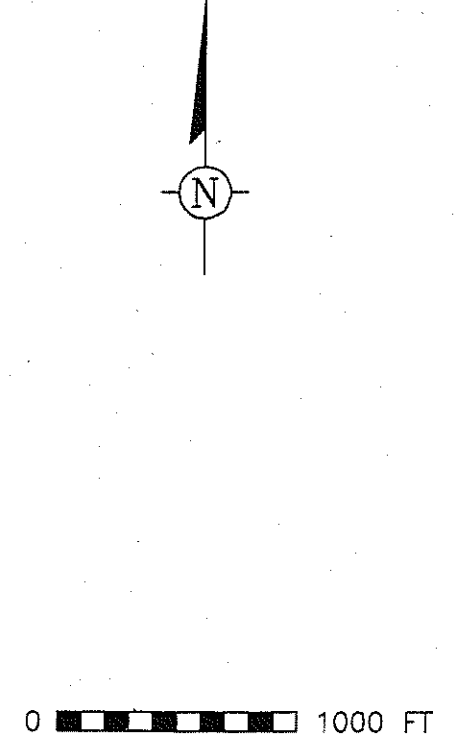
FIGURE  
**4-24**



EXPLANATION

- PROPERTY BOUNDARY OF GRUMMAN AEROSPACE CORPORATION
- RECHARGE BASIN
- GP-200 LOCATION AND DESIGNATION OF DEEP MONITORING WELL
- GP-14 LOCATION AND DESIGNATION OF DEEP GRUMMAN PRODUCTION WELL
- 8854 LOCATION AND DESIGNATION OF BETHPAGE WATER DISTRICT PUBLIC SUPPLY WELL

- 40— LINE OF EQUAL TETRACHLOROETHENE CONCENTRATION (DASHED WHERE APPROXIMATE)
  - 10 TETRACHLOROETHENE CONCENTRATION IN MICROGRAMS PER LITER (ug/L) (0.0 INDICATES CONCENTRATION LESS THAN METHOD DETECTION LIMIT)
- U.S. NAVY WELLS SAMPLED DURING MARCH 1993  
GRUMMAN WELLS SAMPLED FROM AUGUST 23 THROUGH SEPTEMBER 2, 1993



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SCALE VERIFICATION  
THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING.  
USE TO VERIFY FIGURE REPRODUCTION SCALE

PROJECT NO.: NY0008040	FILE NO.: 1469
DRAWING: PCEB-93D	PLOT SIZE: 11-800
DRAFTED BY: BC/GS	DATE: 5-19-94
CHECKED BY: JS	DATE:
APPROVED BY: CSG	DATE:

TETRACHLOROETHENE CONCENTRATIONS IN THE DEEP ZONE

GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK

FIGURE  
**4-25**



EXPLANATION

--- PROPERTY BOUNDARY OF GRUMMAN AEROSPACE CORPORATION

RECHARGE BASIN

GH-202 LOCATION AND DESIGNATION OF DEEP MONITORING WELL

GH-14 LOCATION AND DESIGNATION OF DEEP GRUMMAN PRODUCTION WELL

804 LOCATION AND DESIGNATION OF BETHPAGE WATER DISTRICT PUBLIC SUPPLY WELL

80 LINE OF EQUAL 1,1,1-TRICHLOROETHANE CONCENTRATION (DASHED WHERE APPROXIMATE)

80 1,1,1-TRICHLOROETHANE CONCENTRATION IN MICROGRAMS PER LITER (ug/L) (0.0 INDICATES CONCENTRATION LESS THAN METHOD DETECTION LIMIT)

U.S. NAVY WELLS SAMPLED DURING MARCH 1993  
GRUMMAN WELLS SAMPLED FROM AUGUST 23 THROUGH SEPTEMBER 2, 1993



0 1000 FT



DRAWING CONFIDENTIAL: THIS DRAWING AND ALL INFORMATION CONTAINED THEREON IS AND SHALL REMAIN THE PROPERTY OF GERAGHTY & MILLER, INC. AS AN INSTRUMENT OF PROFESSIONAL SERVICE. THIS INFORMATION SHALL NOT BE USED IN WHOLE OR IN PART WITHOUT THE FULL KNOWLEDGE AND PRIOR WRITTEN CONSENT OF GERAGHTY & MILLER, INC.

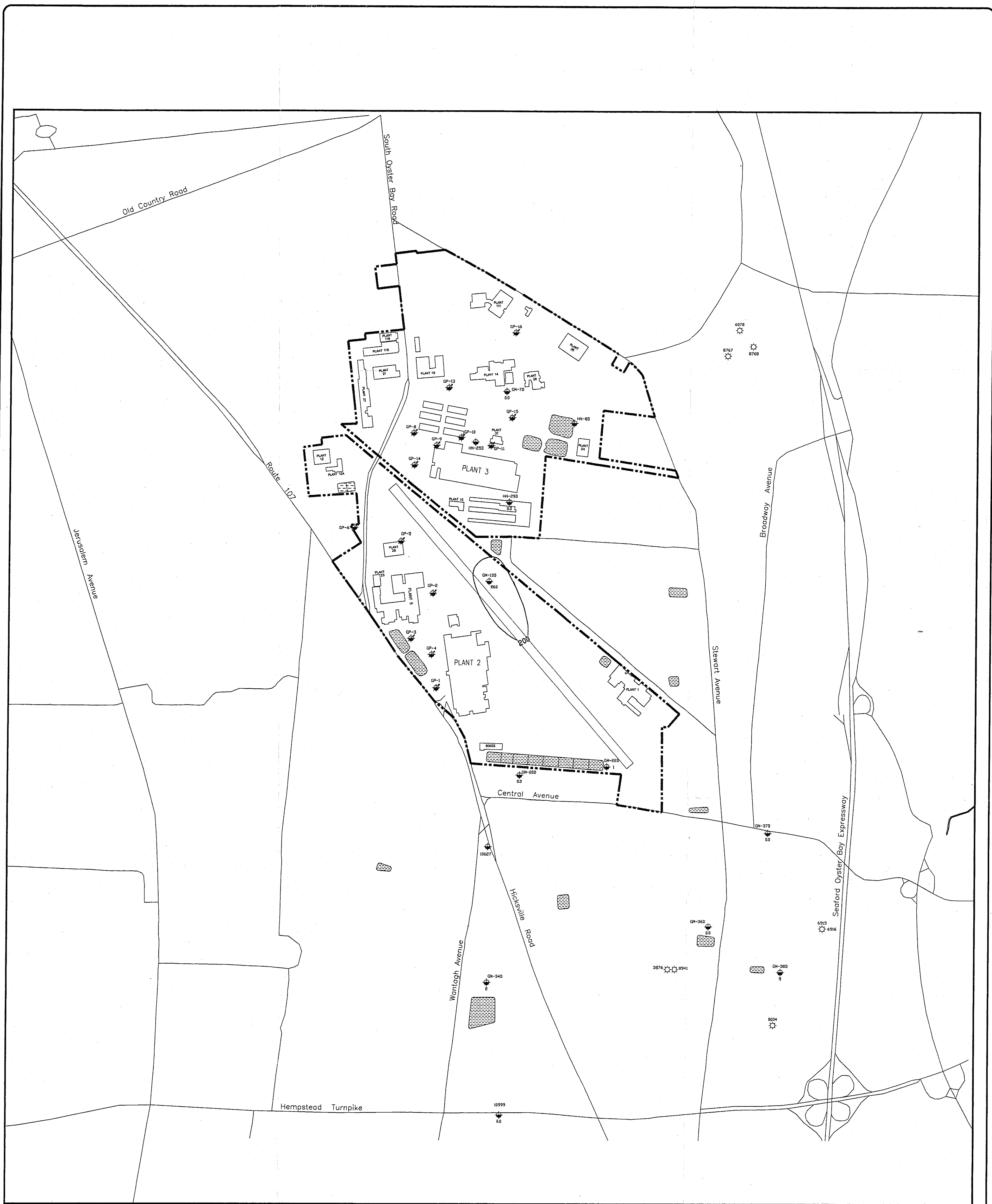
SCALE VERIFICATION  
THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING  
USE TO VERIFY FIGURE REPRODUCTION SCALE

PROJECT NO.: NY0008040	FILE NO.: 1469
DRAWING: 1118-93D	PLOT SIZE: 1=800
DRAFTED BY: BC/GS	DATE: 4-26-94
CHECKED BY: JS	DATE:
APPROVED BY: CSG	DATE:

1,1,1-TRICHLOROETHANE CONCENTRATIONS IN THE DEEP ZONE

FIGURE  
**4-26**

GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK



EXPLANATION

--- PROPERTY BOUNDARY OF GRUMMAN AEROSPACE CORPORATION

RECHARGE BASIN

GH-282 LOCATION AND DESIGNATION OF DEEP MONITORING WELL

GP-14 LOCATION AND DESIGNATION OF DEEP GRUMMAN PRODUCTION WELL

6004 LOCATION AND DESIGNATION OF BETHPAGE WATER DISTRICT PUBLIC SUPPLY WELL

—200— LINE OF EQUAL 1,2-DICHLOROETHENE CONCENTRATION (DASHED WHERE APPROXIMATE)

200 1,2-DICHLOROETHENE CONCENTRATION IN MICROGRAMS PER LITER (ug/L) (0.0 INDICATES CONCENTRATION LESS THAN METHOD DETECTION LIMIT)

U.S. NAVY WELLS SAMPLED DURING MARCH 1993  
GRUMMAN WELLS SAMPLED FROM AUGUST 23 THROUGH SEPTEMBER 2, 1993



0 1000 FT



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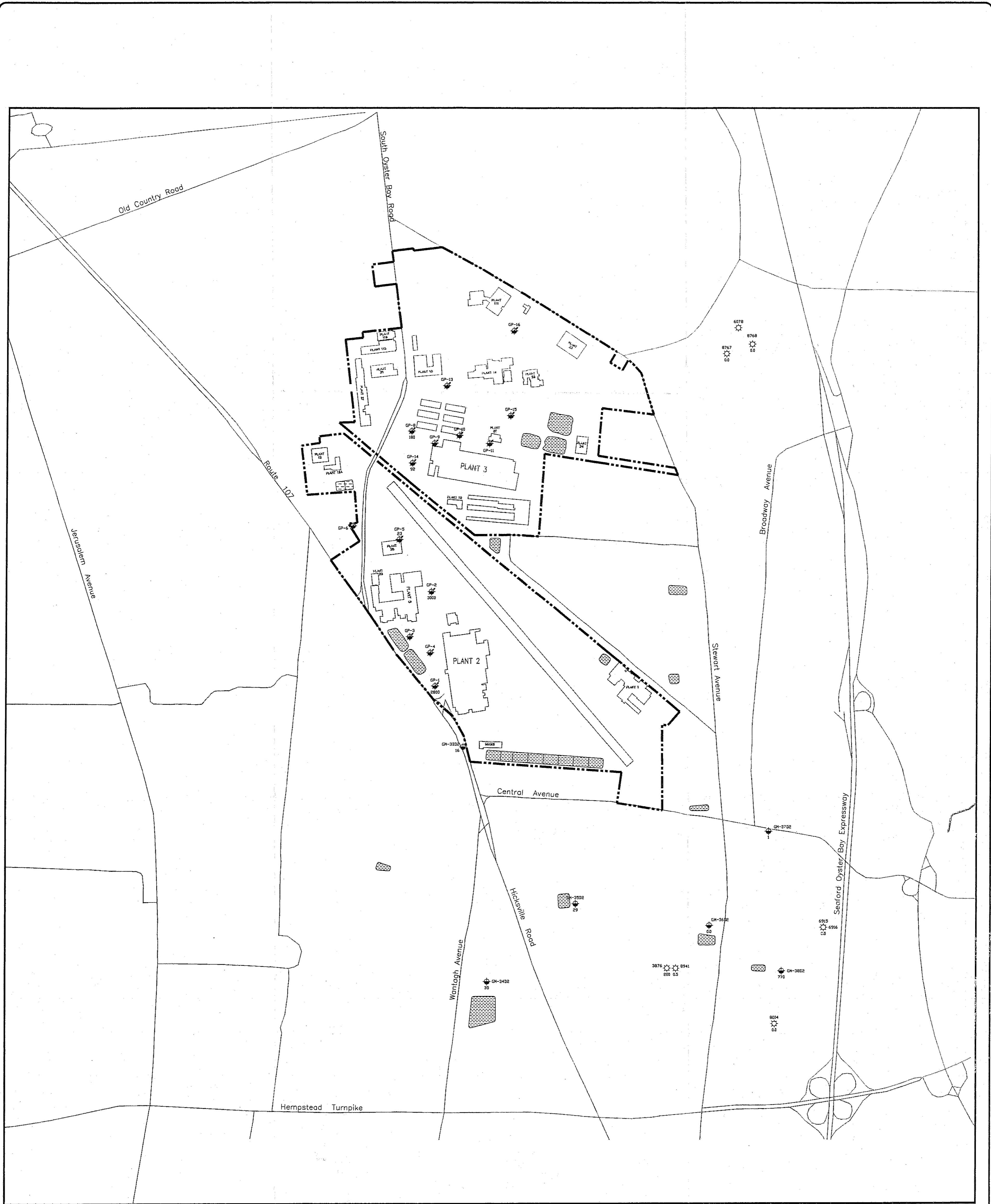
SCALE VERIFICATION  
THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING.  
USE TO VERIFY FIGURE REPRODUCTION SCALE

PROJECT NO.: NY0008040	FILE NO: 1468
DRAWING: 12DB-93D	PLOT SIZE: 1-800
DRAFTED BY: BC/GS	DATE: 4-26-94
CHECKED BY: JS	DATE:
APPROVED BY: CSG	DATE:

1,2-DICHLOROETHENE CONCENTRATIONS IN THE DEEP ZONE

FIGURE  
4-27

GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK

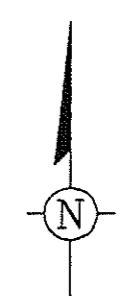


EXPLANATION

- PROPERTY BOUNDARY OF GRUMMAN AEROSPACE CORPORATION
- RECHARGE BASIN
- GN-2452 LOCATION AND DESIGNATION OF VERY DEEP MONITORING WELL
- GN-14 LOCATION AND DESIGNATION OF GRUMMAN PRODUCTION WELL
- GN-3702 LOCATION AND DESIGNATION OF BETHPAGE WATER DISTRICT PUBLIC SUPPLY WELL

770 TRICHLOROETHENE CONCENTRATION IN MICROGRAMS PER LITER (ug/L)  
(0.0 INDICATES CONCENTRATION LESS THAN METHOD DETECTION LIMIT)

BETHPAGE WATER DISTRICT PUBLIC SUPPLY WELLS SAMPLED ON SEPTEMBER 1 AND 20, 1993.  
GRUMMAN MONITORING AND PRODUCTION WELLS SAMPLED FROM AUGUST 23 THROUGH SEPTEMBER 2, 1993.



0 1000 FT

SCALE VERIFICATION  
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USE TO VERIFY FIGURE REPRODUCTION SCALE

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DRAWING: TCE893VD	PLOT SIZE: 1-800
DRAFTED BY: BC/GS	DATE: 5-18-94
CHECKED BY: JS	DATE:
APPROVED BY: CSG	DATE:

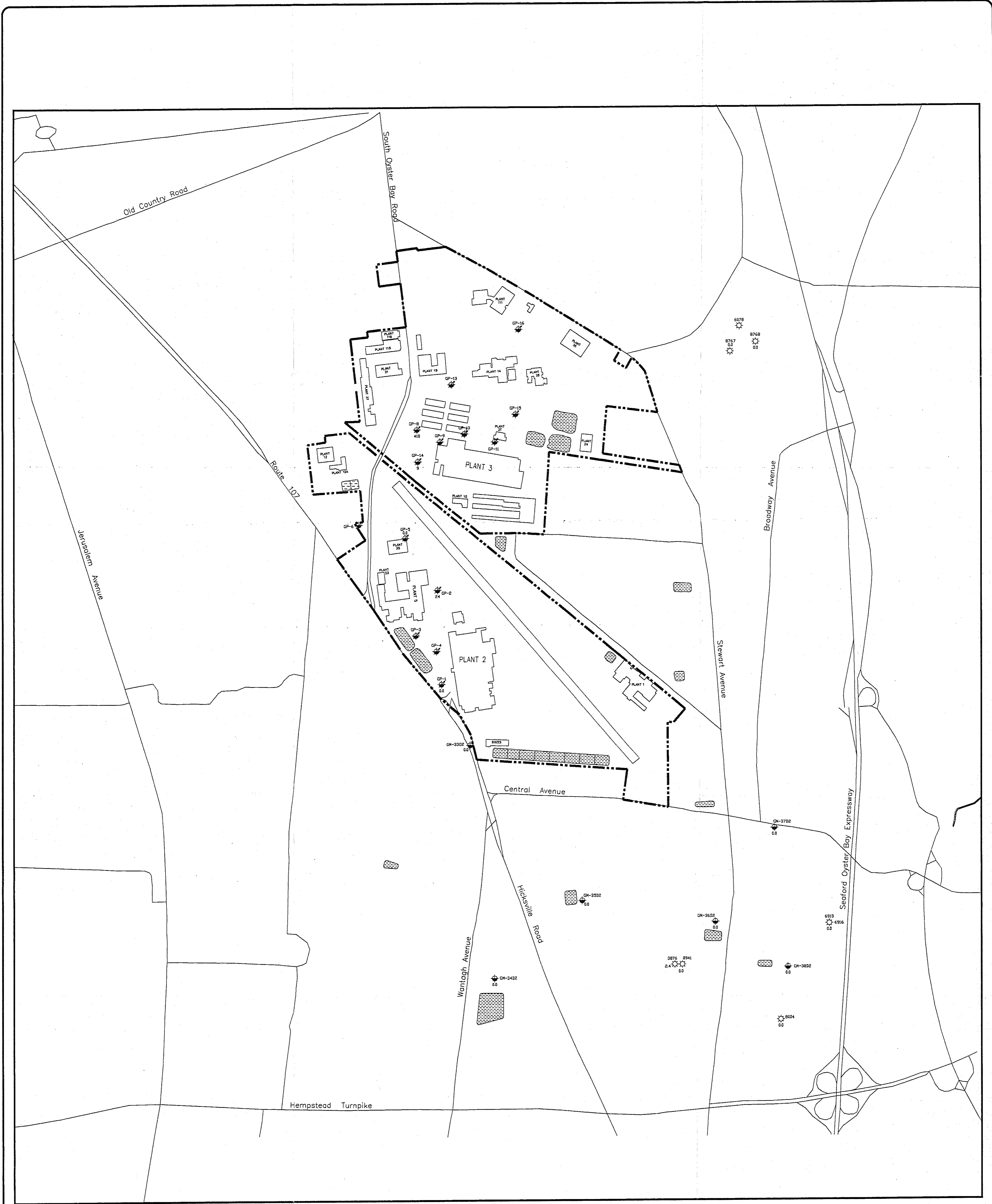
TRICHLOROETHENE CONCENTRATIONS IN THE D2 ZONE

FIGURE  
**4-28**

GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK







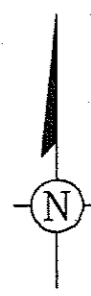
EXPLANATION

- PROPERTY BOUNDARY OF GRUMMAN AEROSPACE CORPORATION
- RECHARGE BASIN
- GP-14 LOCATION AND DESIGNATION OF GRUMMAN PRODUCTION WELL
- GP-3422 LOCATION AND DESIGNATION OF VERY DEEP MONITORING WELL
- 0004 LOCATION AND DESIGNATION OF BETHPAGE WATER DISTRICT PUBLIC SUPPLY WELL

1,1,1-TRICHLOROETHANE CONCENTRATION IN MICROGRAMS PER LITER ( $\mu\text{g/L}$ )  
 0.0 INDICATES CONCENTRATION LESS THAN METHOD DETECTION LIMIT

BETHPAGE WATER DISTRICT PUBLIC SUPPLY WELLS SAMPLED ON SEPTEMBER 1 AND 20, 1993.  
 GRUMMAN MONITORING AND PRODUCTION WELLS SAMPLED FROM AUGUST 23 THROUGH SEPTEMBER 2, 1993.

0 1000 FT



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DRAWING: 111893VD	PLOT SIZE: 11x800
DRAFTED BY: BC/GS	DATE: 5-18-94
CHECKED BY: JS	DATE:
APPROVED BY: CSG	DATE:

1,1,1-TRICHLOROETHANE CONCENTRATIONS IN THE D2 ZONE

FIGURE 4-30

GRUMMAN AEROSPACE CORPORATION  
 BETHPAGE, NEW YORK



EXPLANATION

- PROPERTY BOUNDARY OF GRUMMAN AEROSPACE CORPORATION
- RECHARGE BASIN
- 00-2426 LOCATION AND DESIGNATION OF VERY DEEP MONITORING WELL
- 00-14 LOCATION AND DESIGNATION OF GRUMMAN PRODUCTION WELL
- 0004 LOCATION AND DESIGNATION OF BETHPAGE WATER DISTRICT PUBLIC SUPPLY WELL

1,2-DICHLOROETHENE CONCENTRATION IN MICROGRAMS PER LITER (ug/L)  
(0.0 INDICATES CONCENTRATION LESS THAN METHOD DETECTION LIMIT)

BETHPAGE WATER DISTRICT PUBLIC SUPPLY WELLS SAMPLED ON SEPTEMBER 1 AND 20, 1993.  
GRUMMAN MONITORING AND PRODUCTION WELLS SAMPLED FROM AUGUST 23 THROUGH SEPTEMBER 2, 1993.



0 1000 FT



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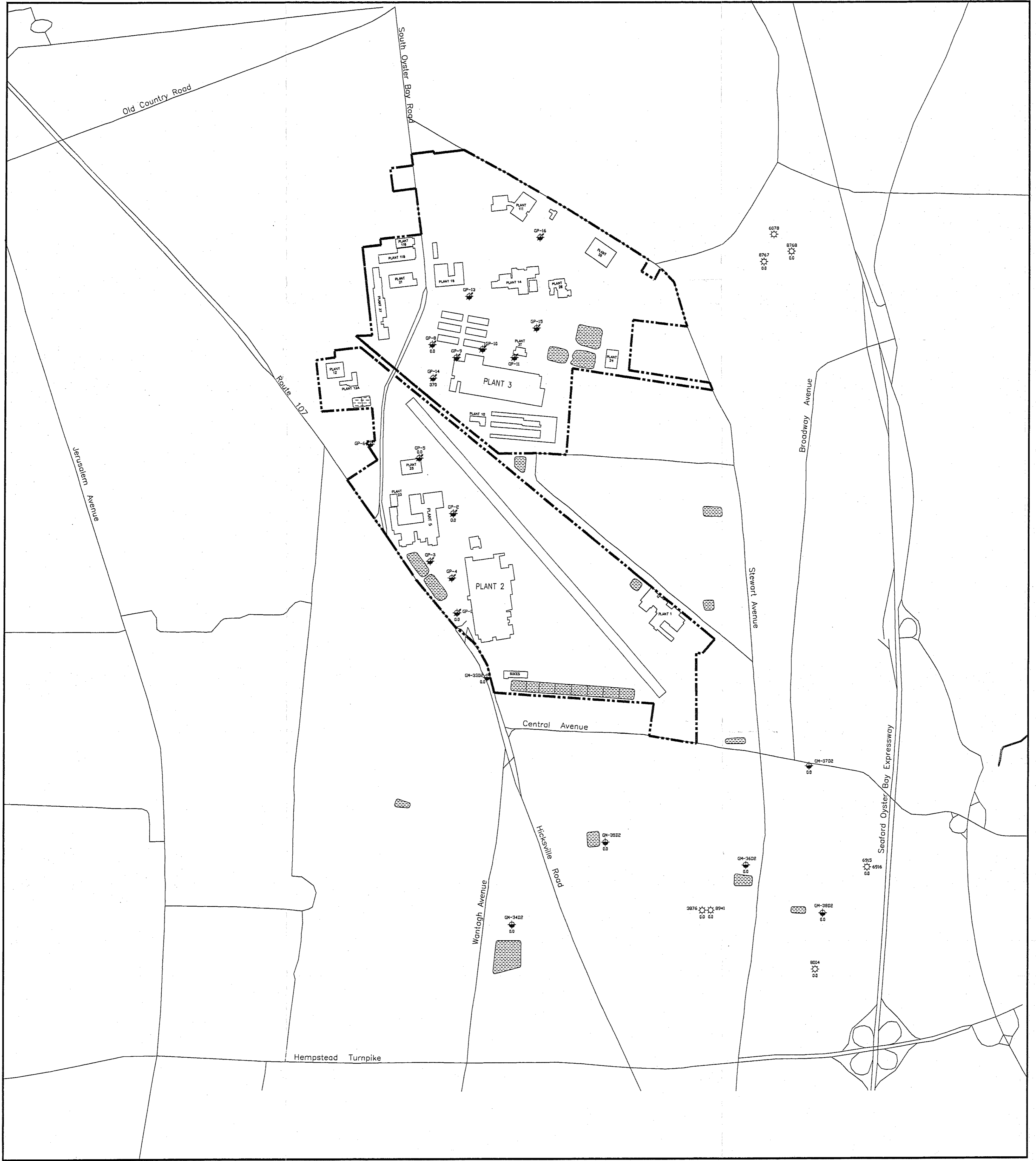
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USE TO VERIFY FIGURE REPRODUCTION SCALE

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DRAWING: 121893VD	PLOT SIZE: 1-800
DRAFTED BY: BC/GS	DATE: 5-18-94
CHECKED BY: JS	DATE:
APPROVED BY: CSG	DATE:

1,2-DICHLOROETHENE CONCENTRATIONS IN THE D2 ZONE

FIGURE  
**4-31**

GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK



EXPLANATION

- PROPERTY BOUNDARY OF GRUMMAN AEROSPACE CORPORATION
- RECHARGE BASIN
- GN-3422 LOCATION AND DESIGNATION OF VERY DEEP MONITORING WELL
- GP-14 LOCATION AND DESIGNATION OF GRUMMAN PRODUCTION WELL
- 8024 LOCATION AND DESIGNATION OF BETHPAGE WATER DISTRICT PUBLIC SUPPLY WELL

370 VINYL CHLORIDE CONCENTRATION IN MICROGRAMS PER LITER (ug/L)  
 0.0 INDICATES CONCENTRATION LESS THAN METHOD DETECTION LIMIT

BETHPAGE WATER DISTRICT PUBLIC SUPPLY WELLS SAMPLED ON SEPTEMBER 1 AND 20, 1993.  
 GRUMMAN MONITORING AND PRODUCTION WELLS SAMPLED FROM AUGUST 23 THROUGH SEPTEMBER 2, 1993.



0 1000 FT



DRAWING CONFIDENTIAL: THIS DRAWING AND ALL INFORMATION CONTAINED THEREON IS AND SHALL REMAIN THE PROPERTY OF GERAGHTY & MILLER, INC. AS AN INSTRUMENT OF PROFESSIONAL SERVICE. THIS INFORMATION SHALL NOT BE USED IN WHOLE OR IN PART WITHOUT THE FULL KNOWLEDGE AND PRIOR WRITTEN CONSENT OF GERAGHTY & MILLER, INC.

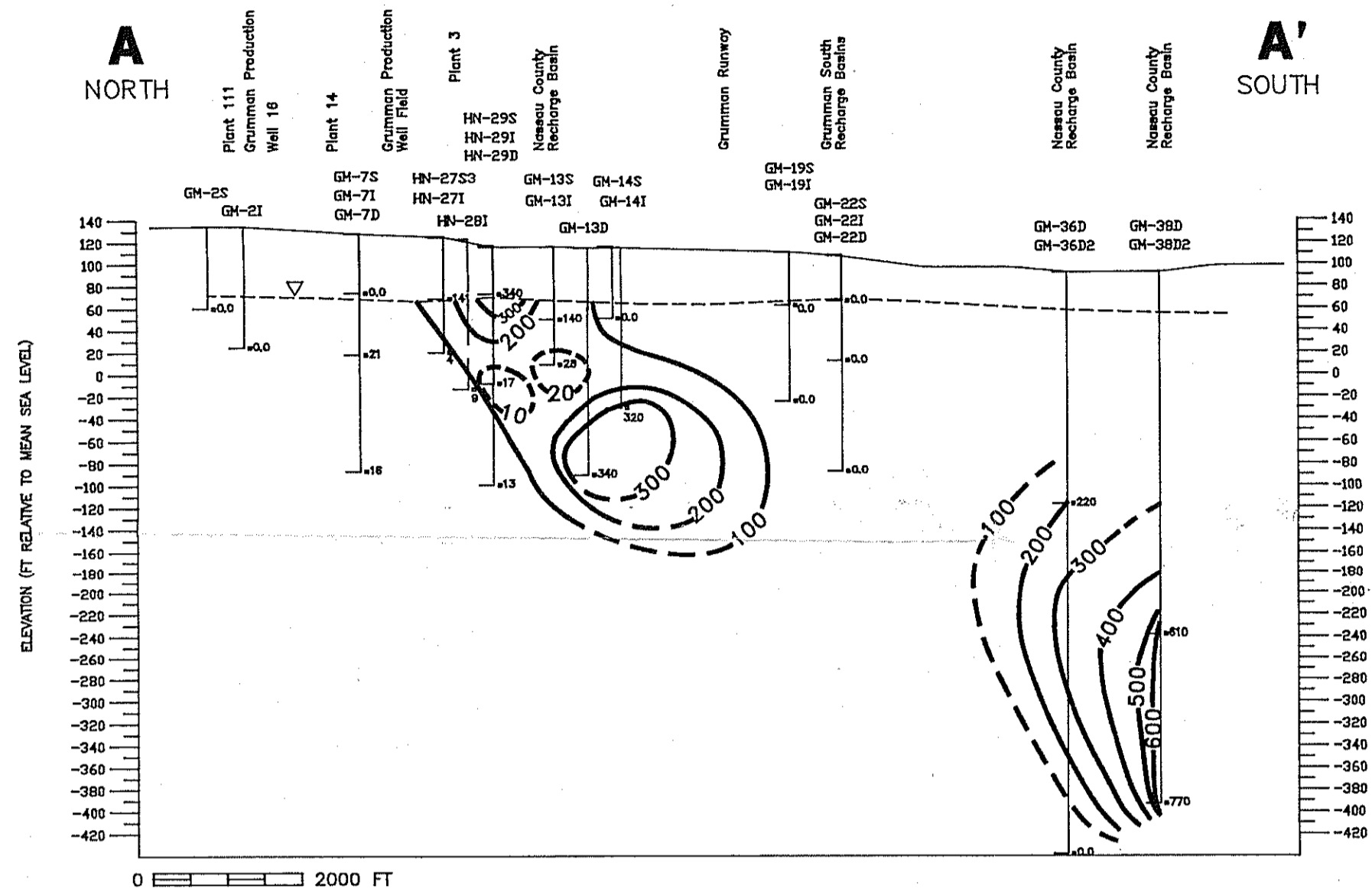
SCALE VERIFICATION  
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 USE TO VERIFY FIGURE REPRODUCTION SCALE

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CHECKED BY: JS	DATE:
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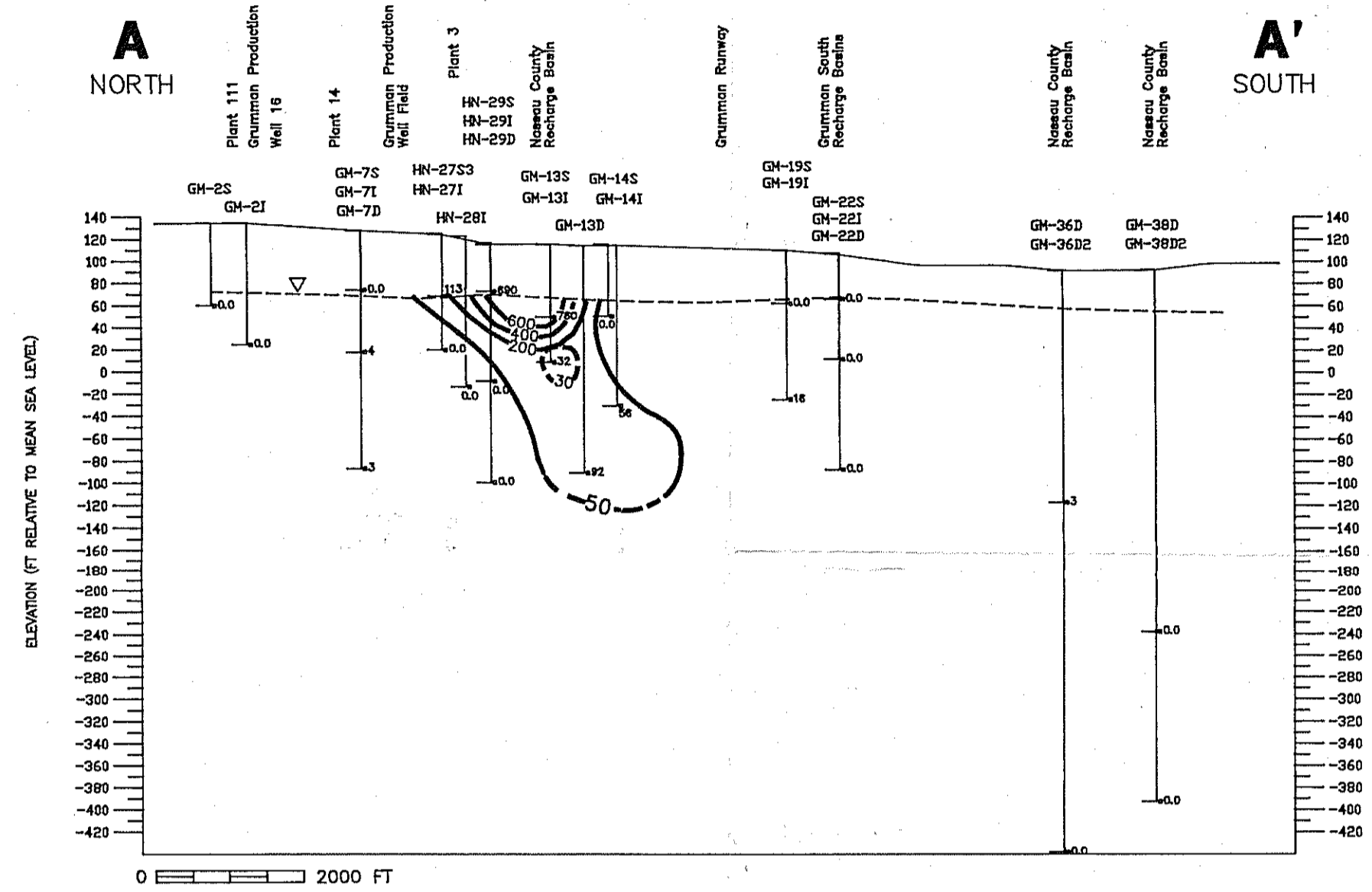
VINYL CHLORIDE CONCENTRATIONS IN THE D2 ZONE

GRUMMAN AEROSPACE CORPORATION  
 BETHPAGE, NEW YORK

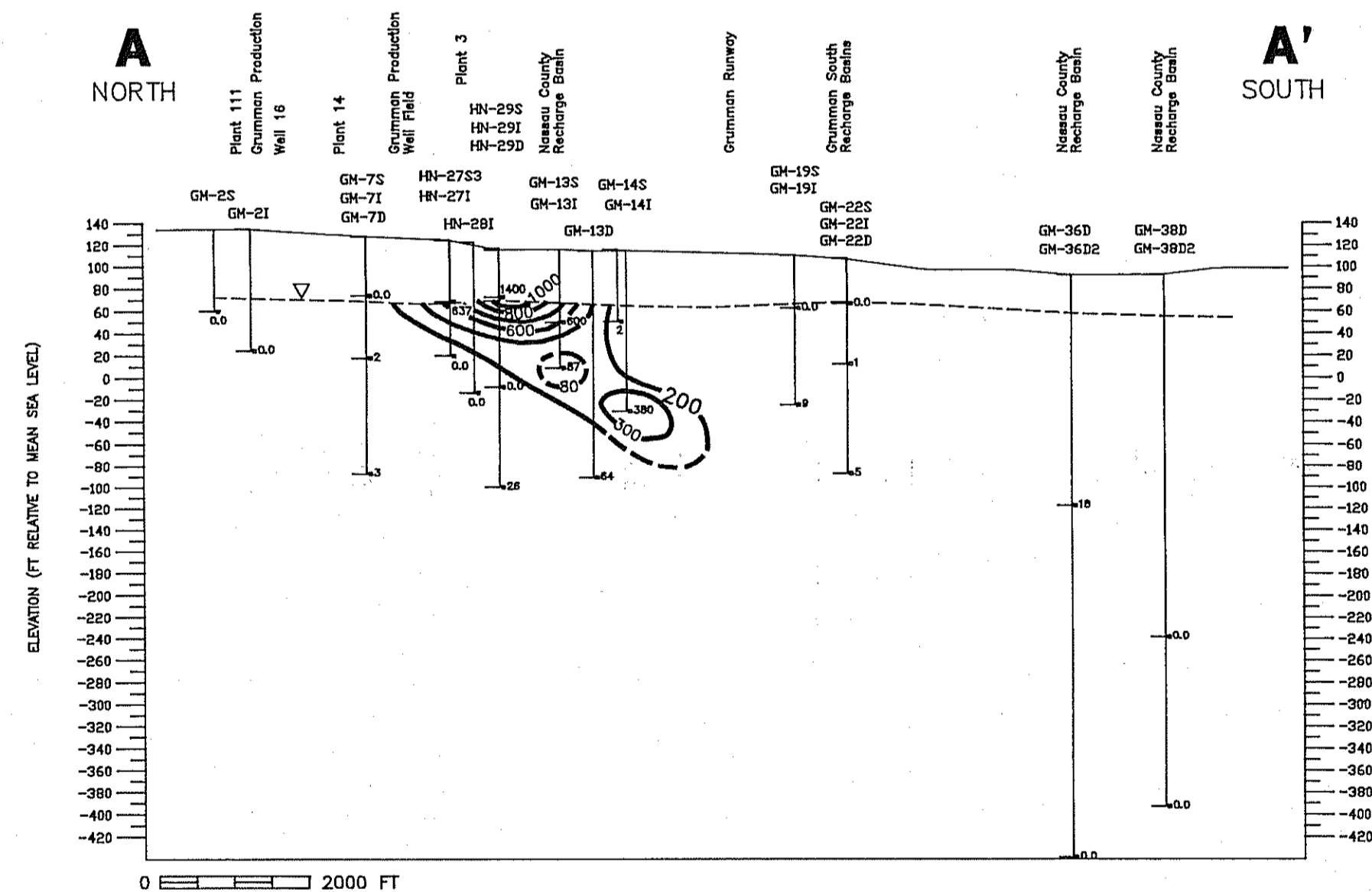
FIGURE  
**4-32**



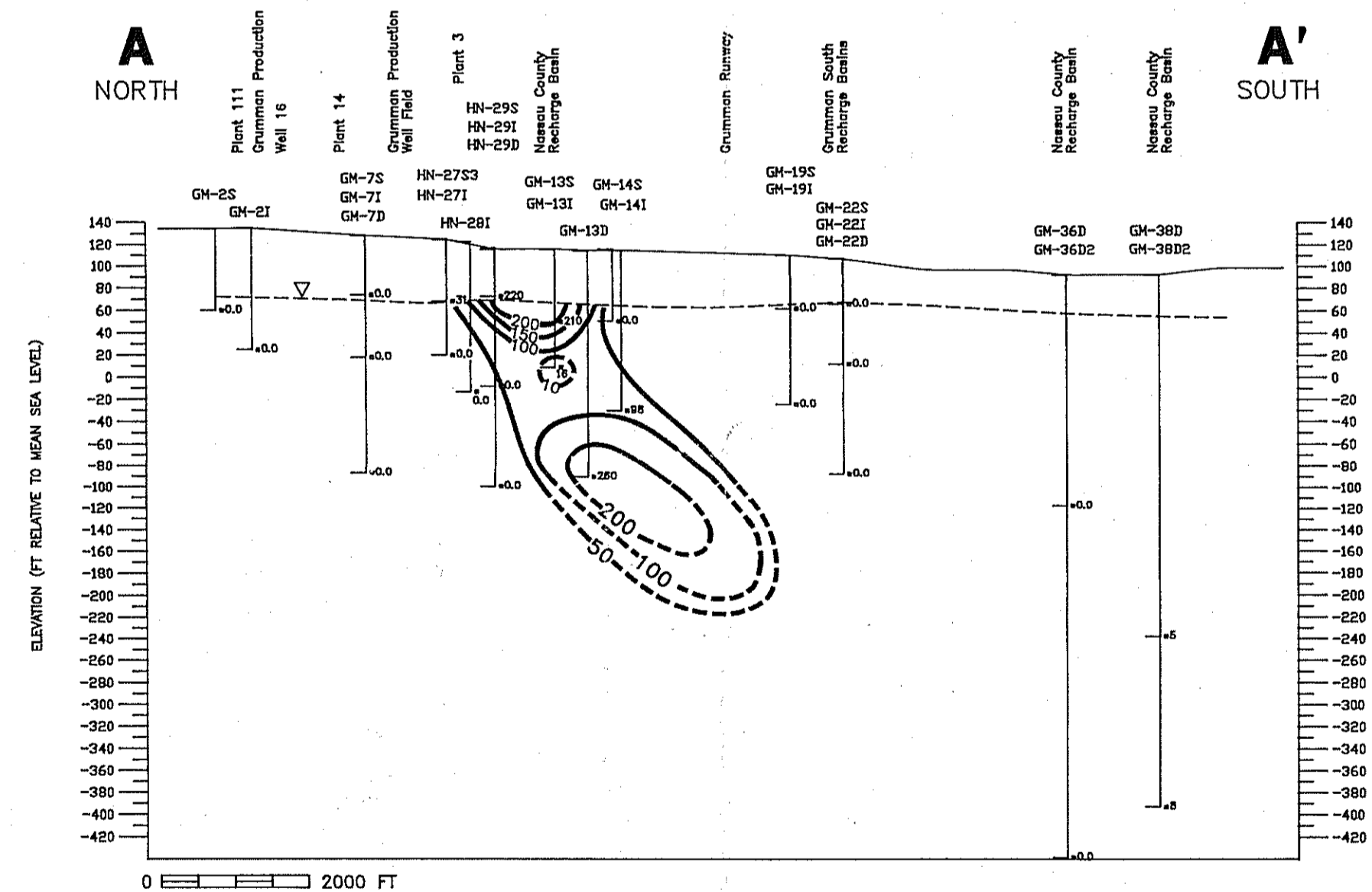
Trichloroethene Concentrations



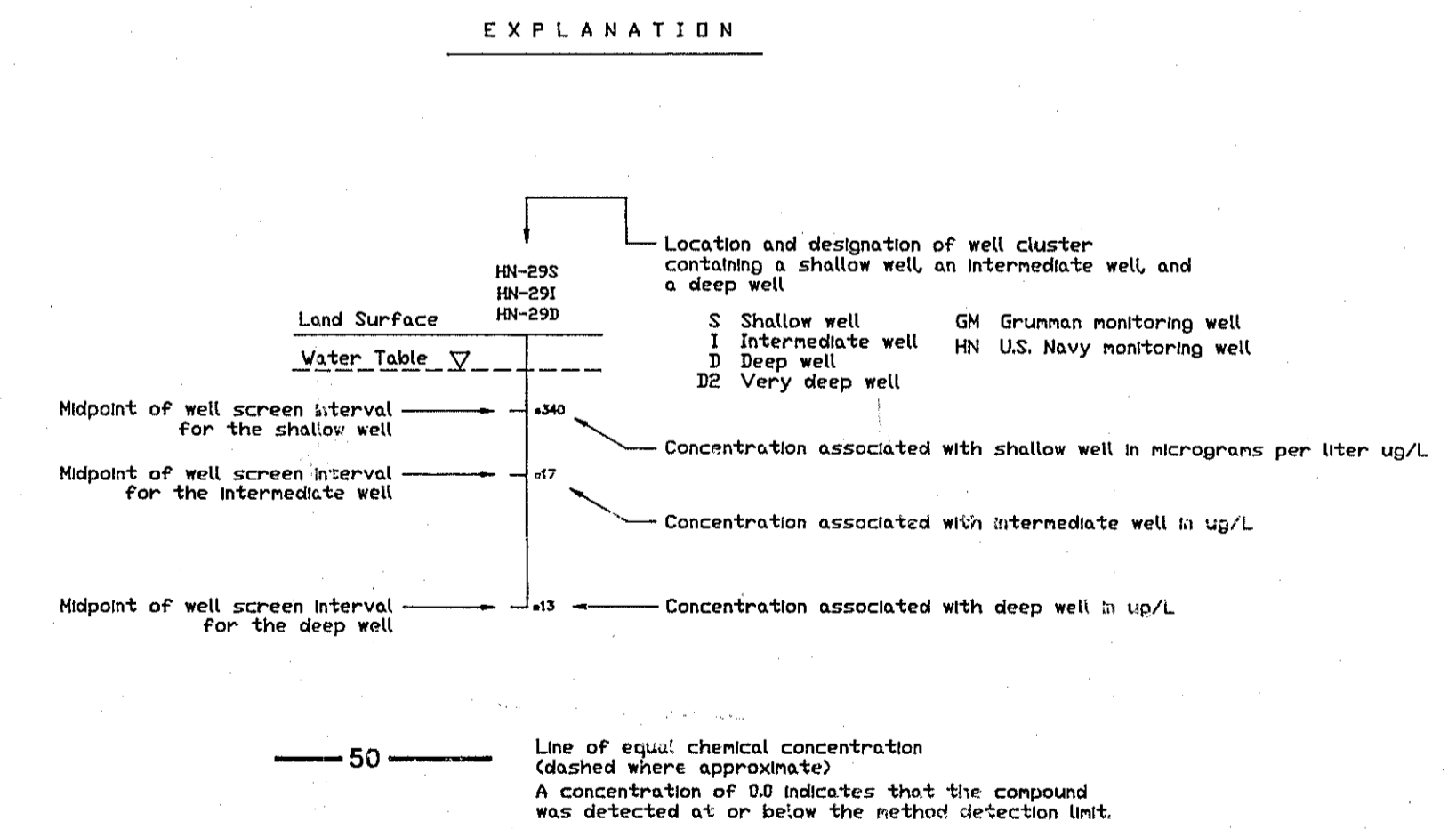
1,1,1-Trichloroethane Concentrations



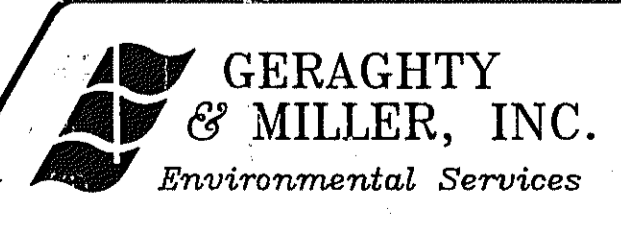
Tetrachloroethene Concentrations



1,2-Dichloroethene Concentrations



U.S. Navy wells were sampled during March, 1993, except for well HN-2753, which was sampled during December, 1992.  
 Grumman wells were sampled from August 23 through September 2, 1993.



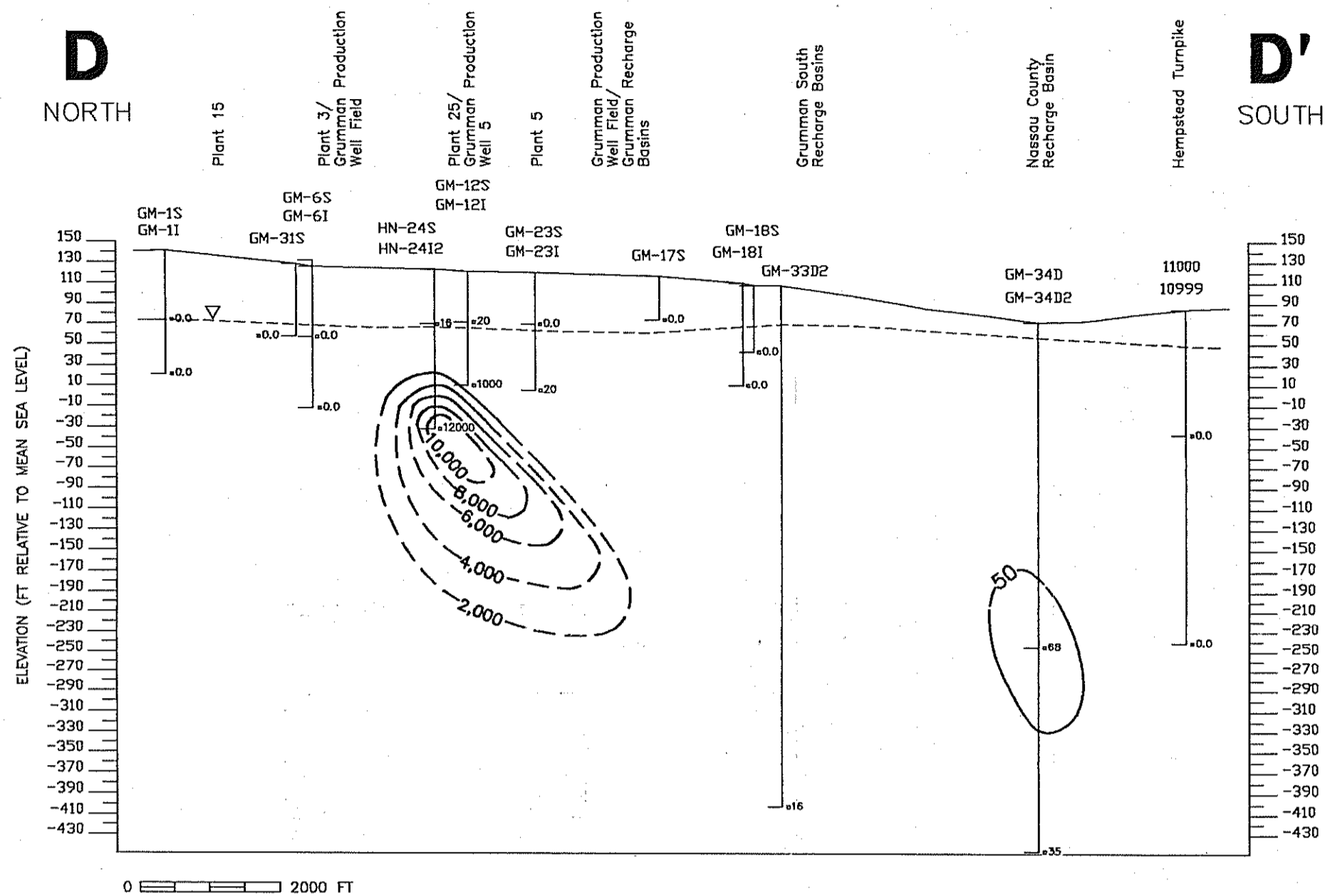
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SCALE VERIFICATION  
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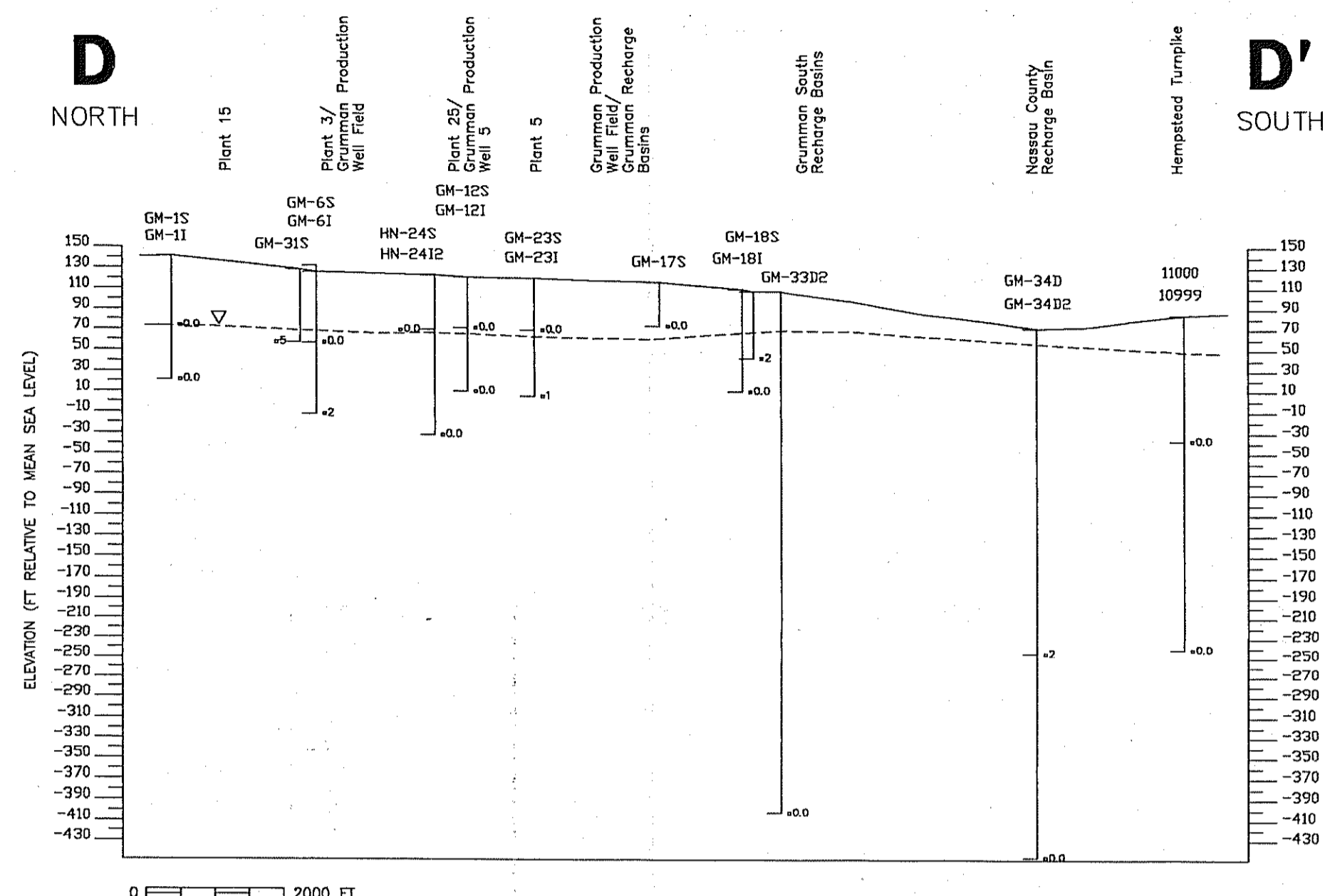
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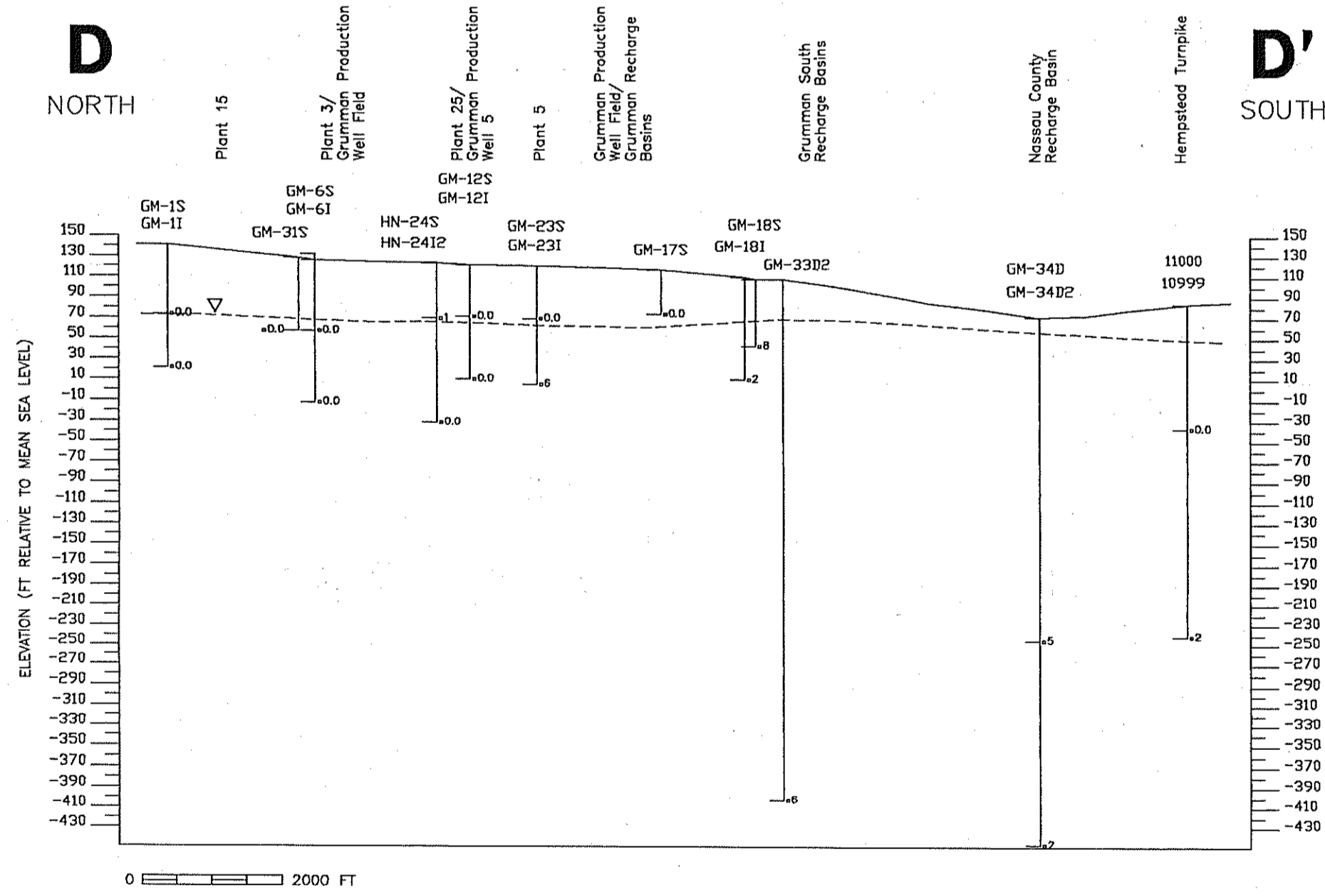
GENERALIZED CHEMICAL CROSS SECTION A-A'  
 GRUMMAN AEROSPACE CORPORATION  
 BETHPAGE, NEW YORK



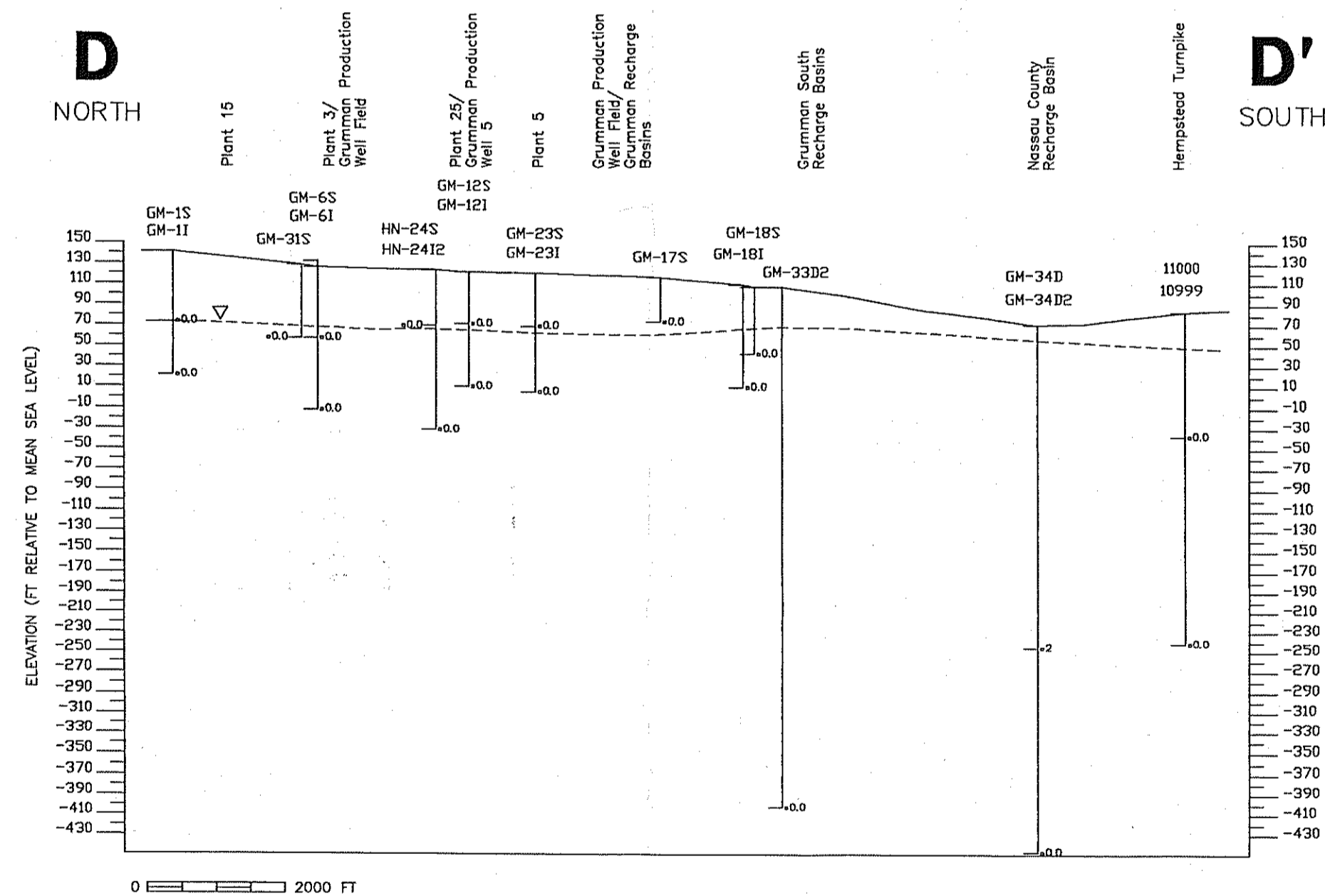
Trichloroethene Concentrations



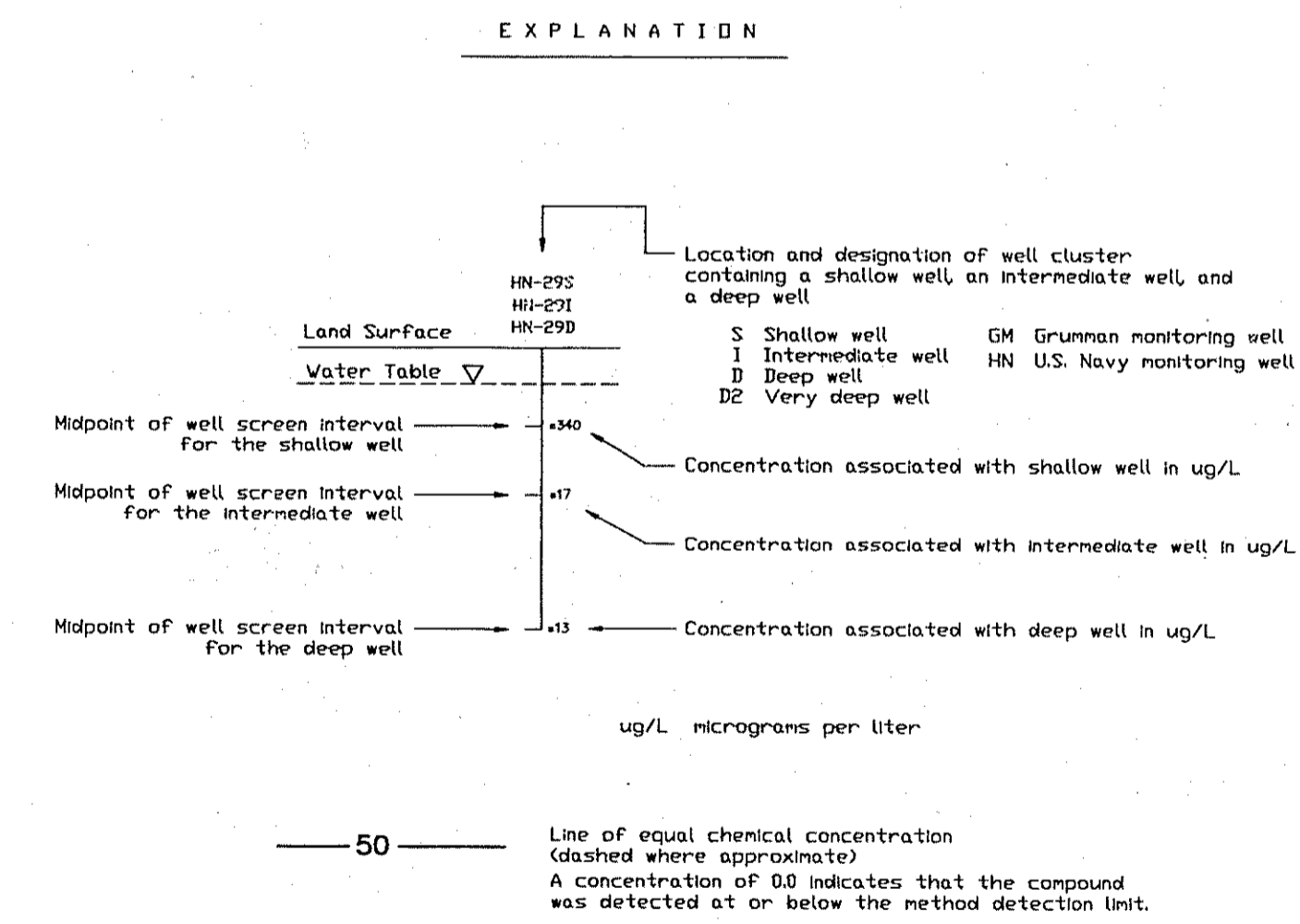
1,1,1-Trichloroethane Concentrations



Tetrachloroethene Concentrations



1,2-Dichloroethene Concentrations



U.S. Navy wells were sampled during March 1993, except for well HN-2753, which was sampled during December 1992.  
 Grumman wells were sampled from August through September 2, 1993.



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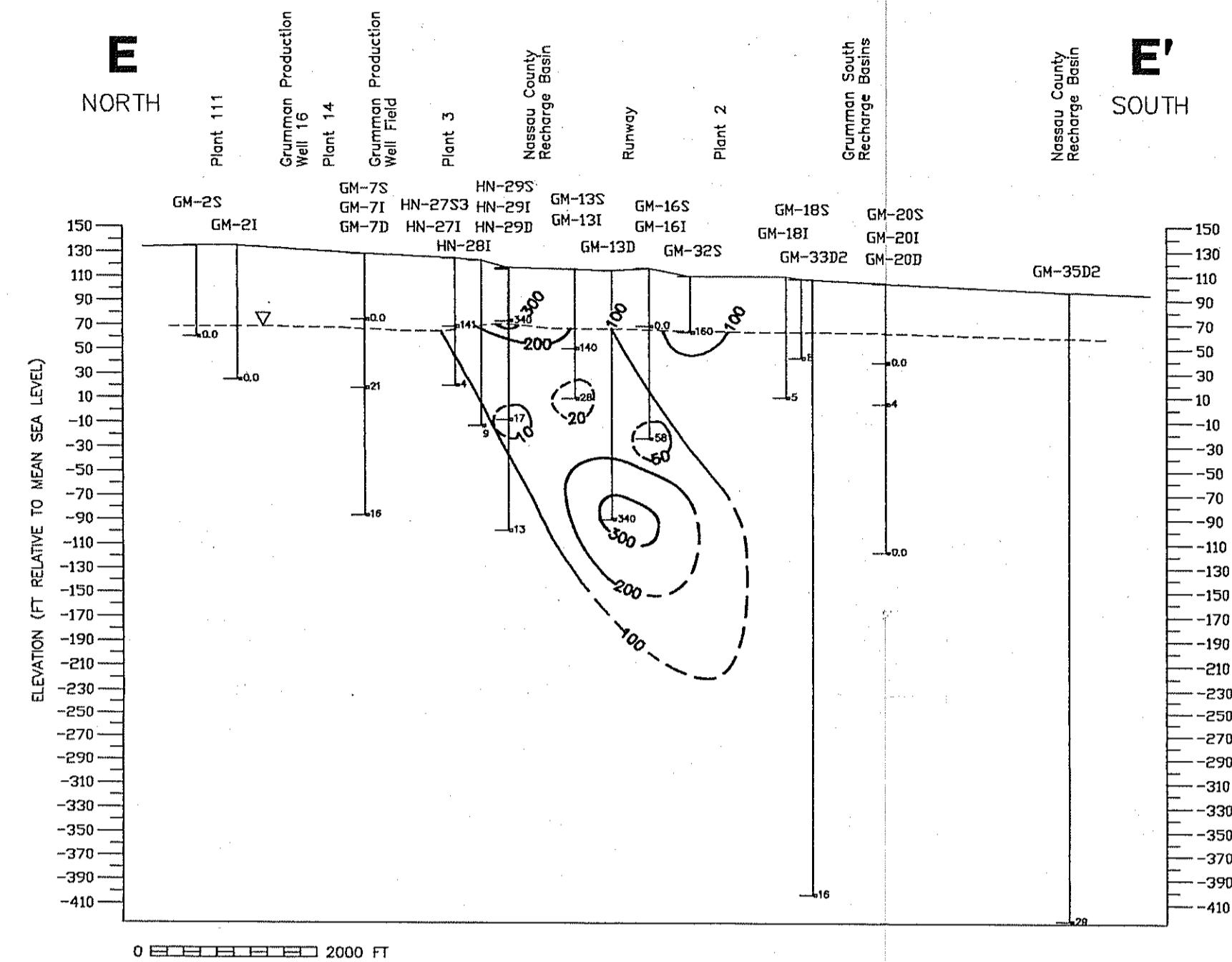
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CHECKED BY: JS	DATE:
APPROVED BY: CSG	DATE:

GENERALIZED CHEMICAL CROSS SECTION D-D'

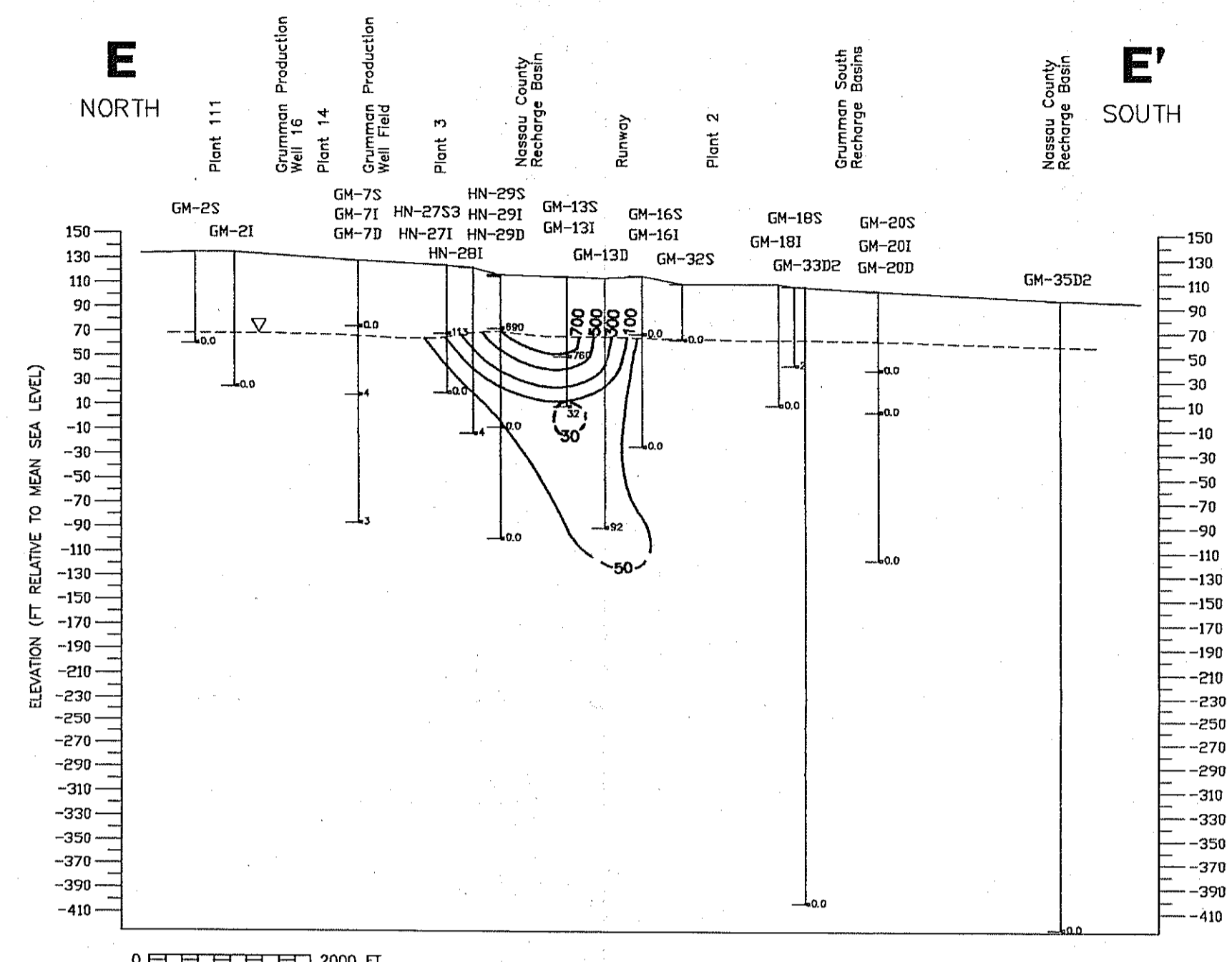
GRUMMAN AEROSPACE CORPORATION  
 BETHPAGE, NEW YORK

FIGURE

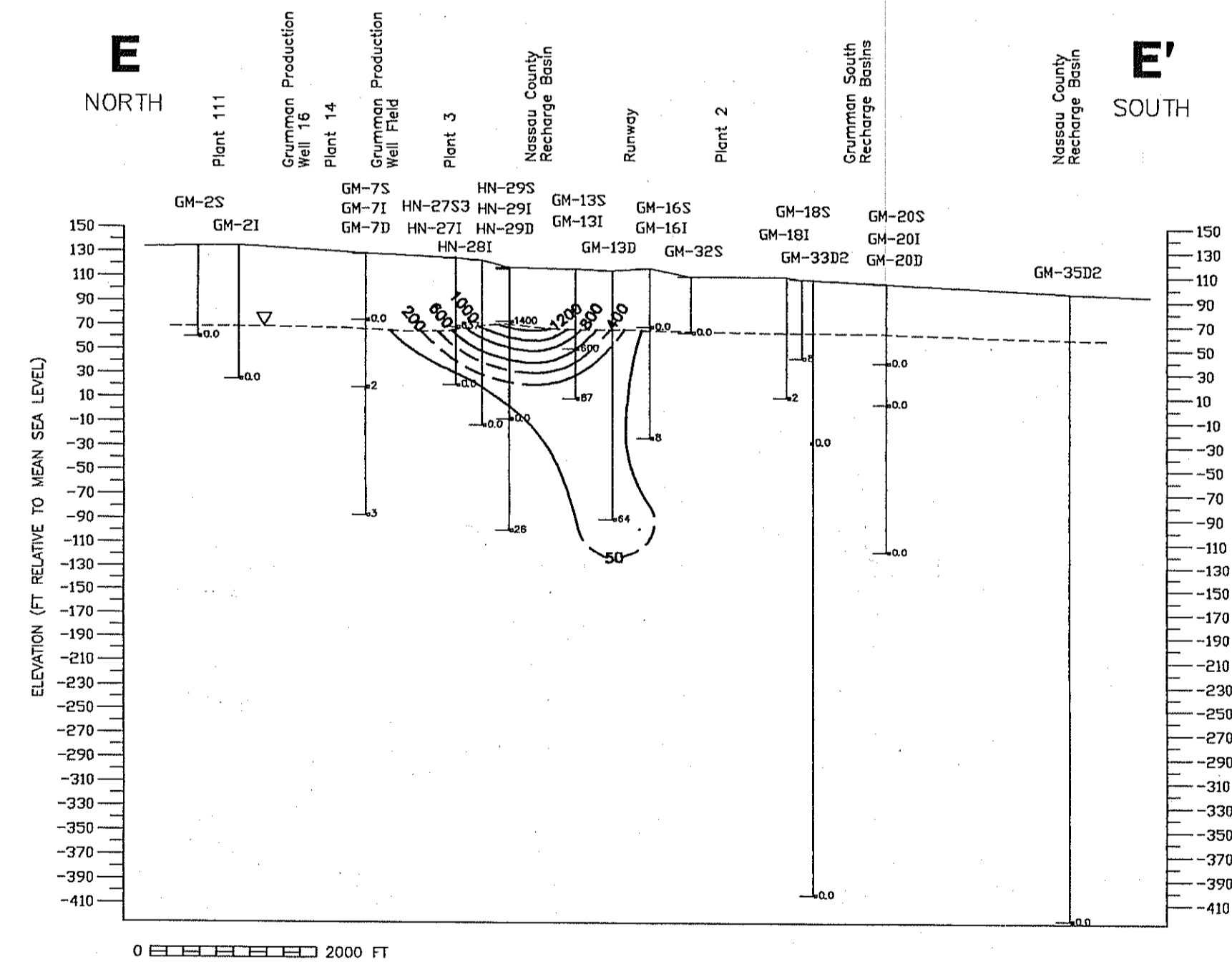
4-34



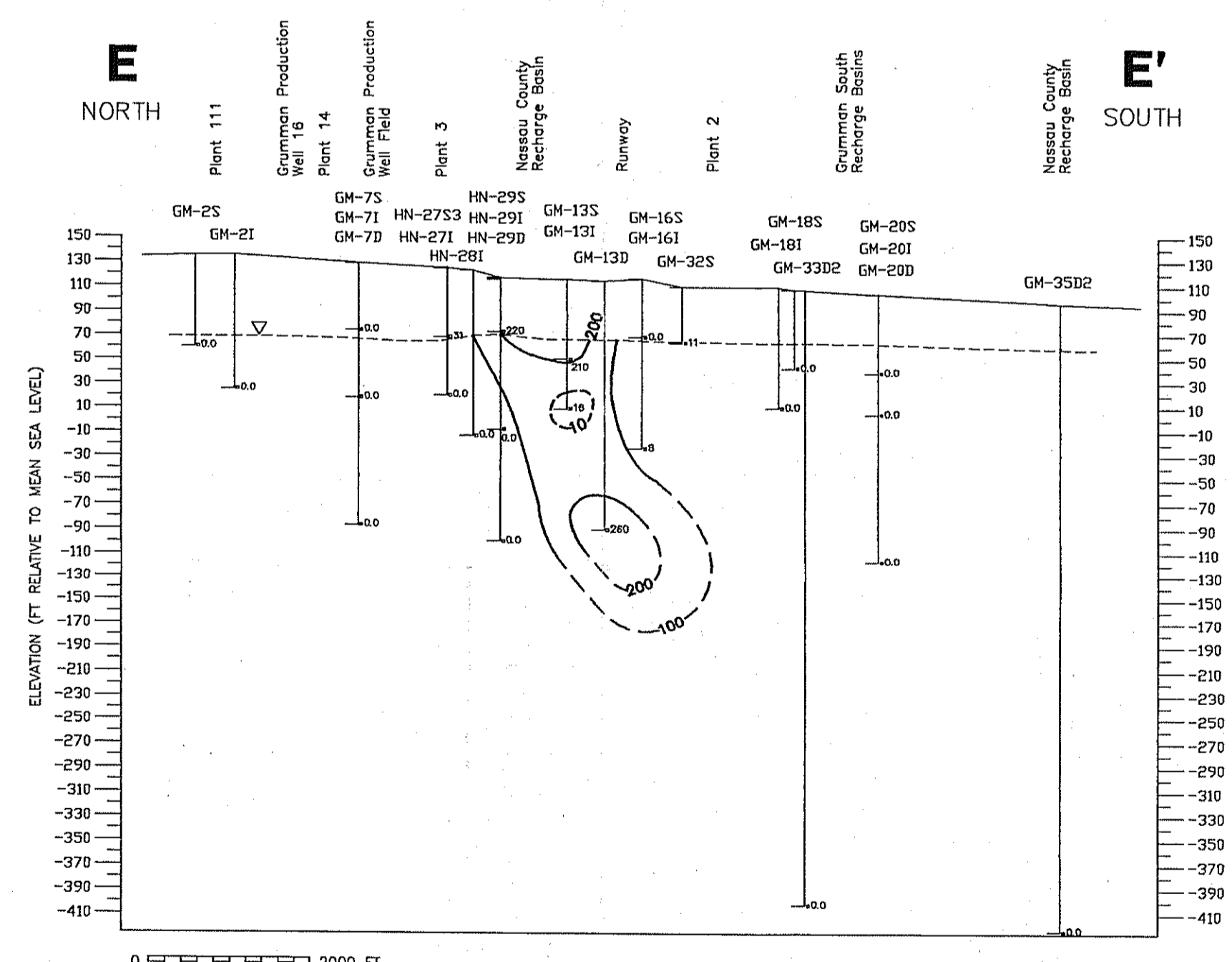
Trichloroethene Concentrations



1,1,1-Trichloroethane Concentrations

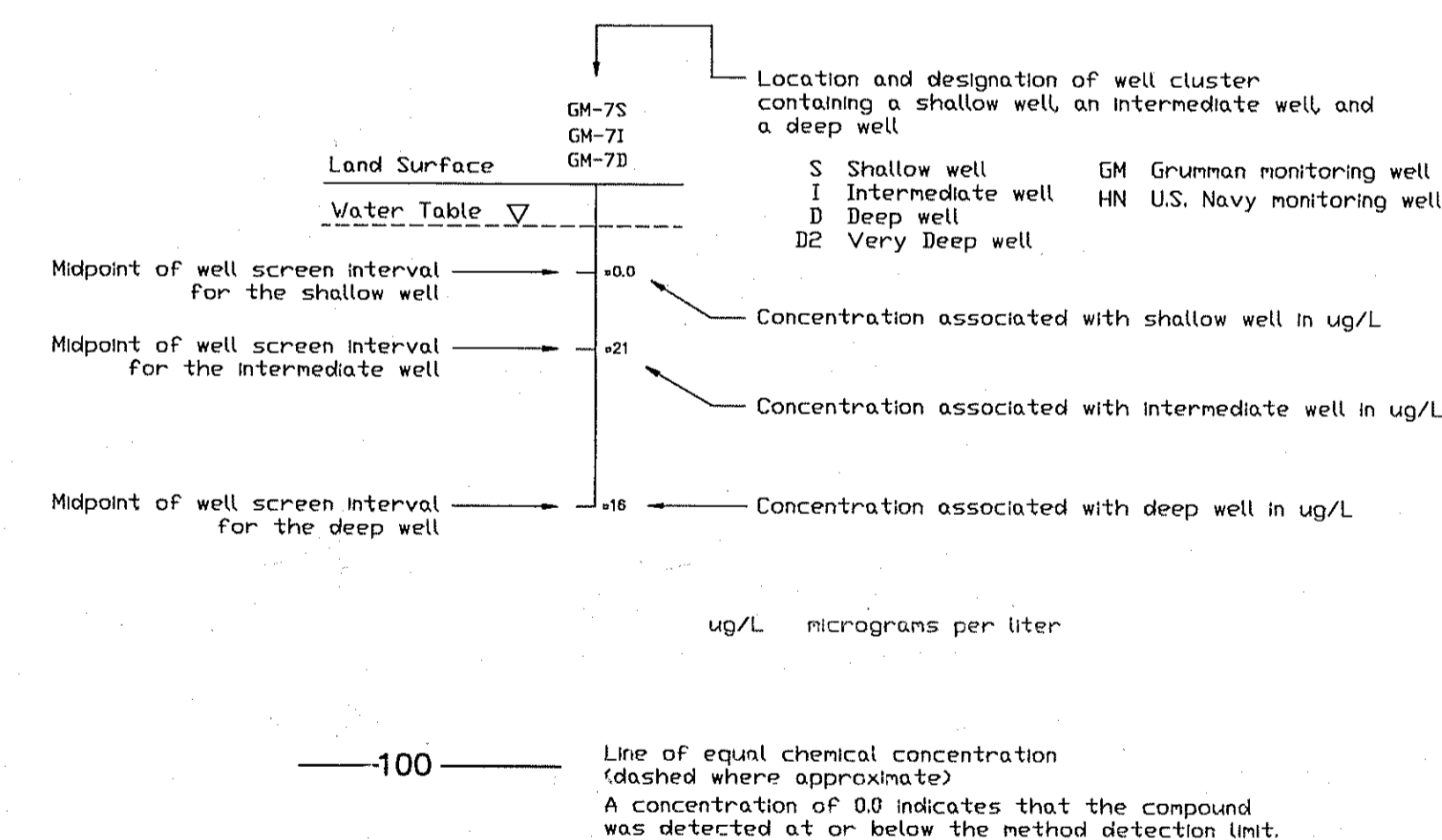


Tetrachloroethene Concentrations



1,2-Dichloroethene Concentrations

EXPLANATION



U.S. Navy wells were sampled during March 1993, except for well HN-27S3, which was sampled during December 1992.  
 Grumman wells were sampled from August 23 through September 2, 1993.



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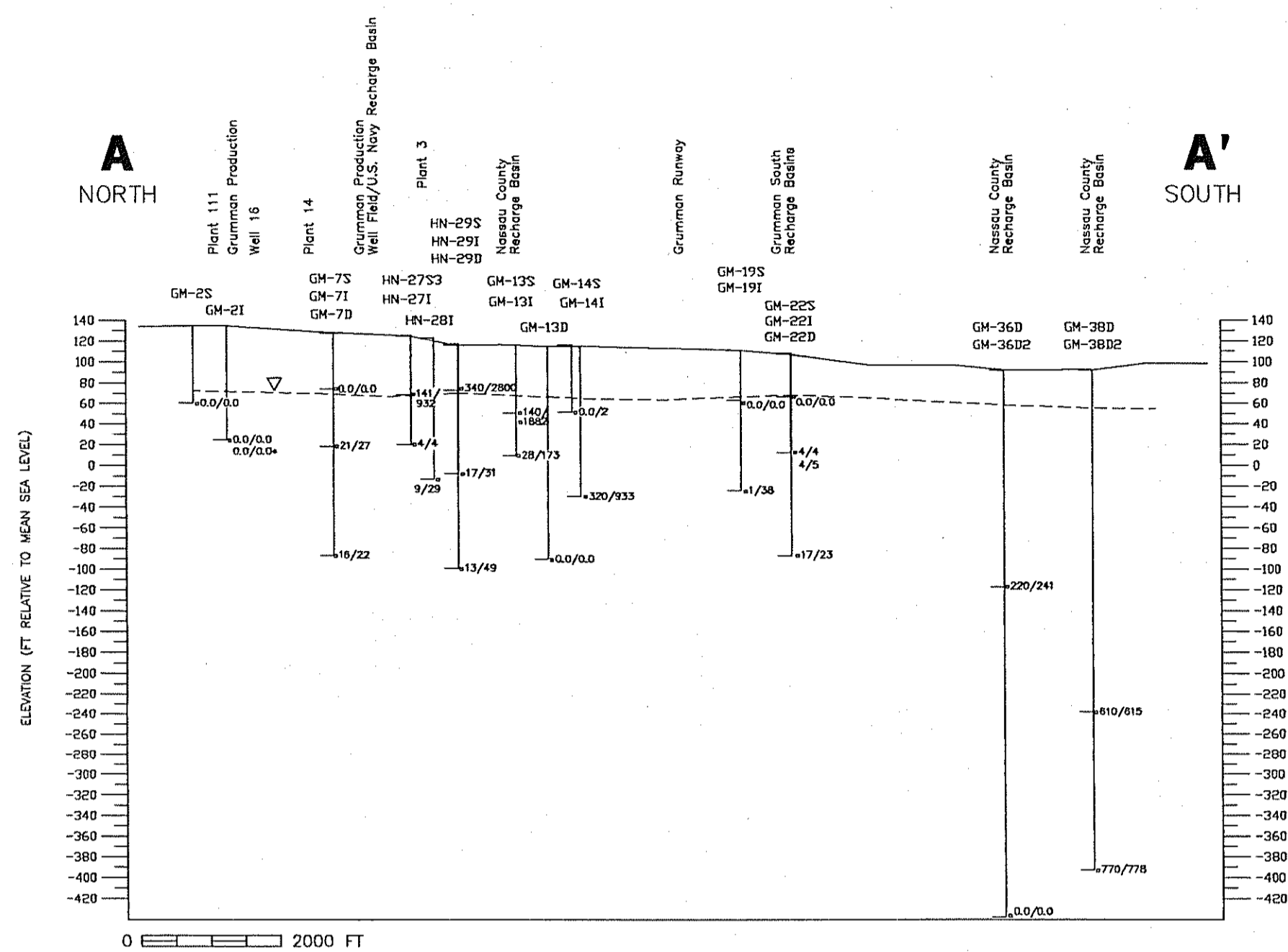
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CHECKED BY: JS	DATE:
APPROVED BY: CSG	DATE:

GENERALIZED CHEMICAL CROSS SECTION E-E'

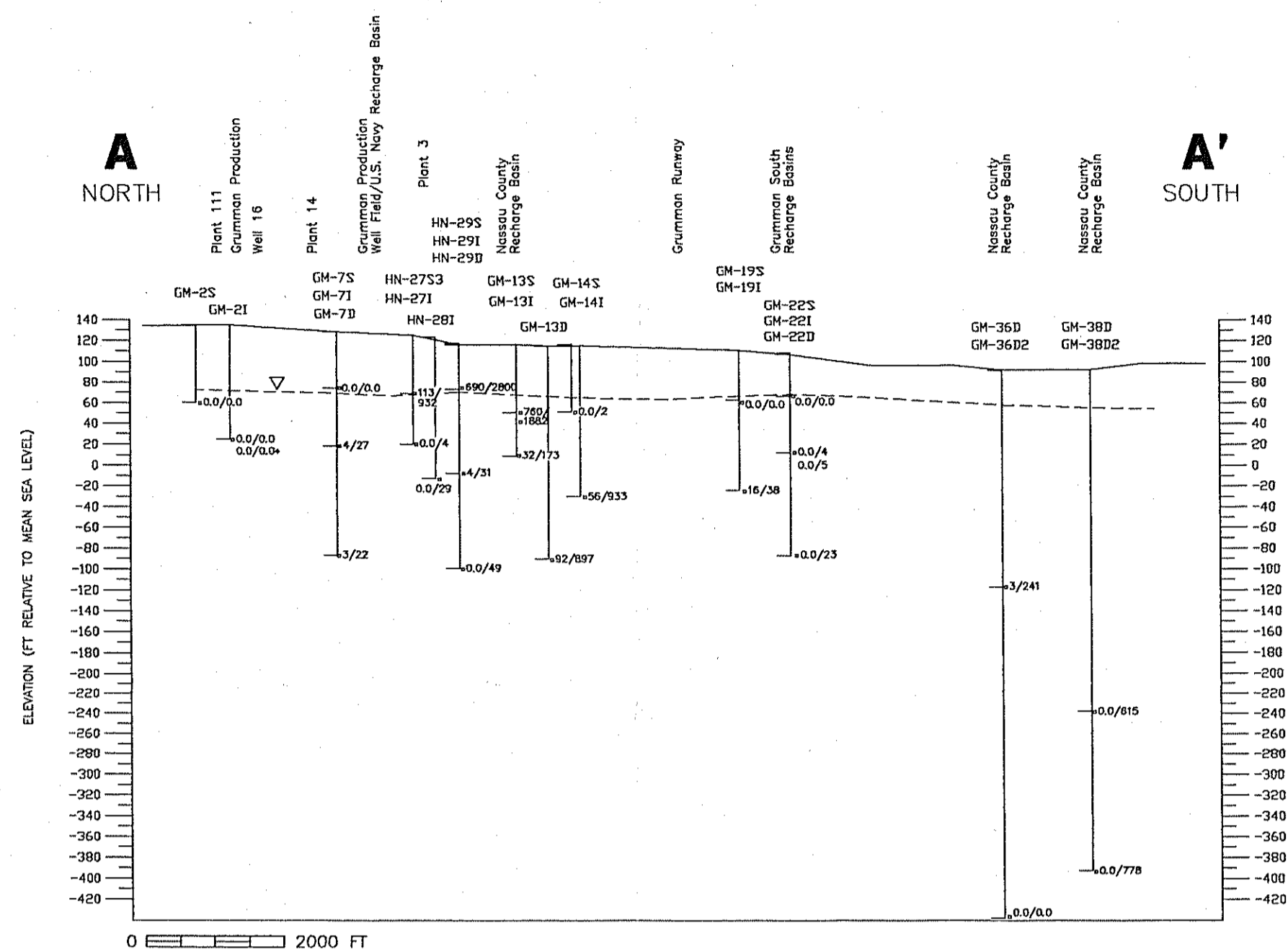
GRUMMAN AEROSPACE CORPORATION  
 BETHPAGE, NEW YORK

FIGURE

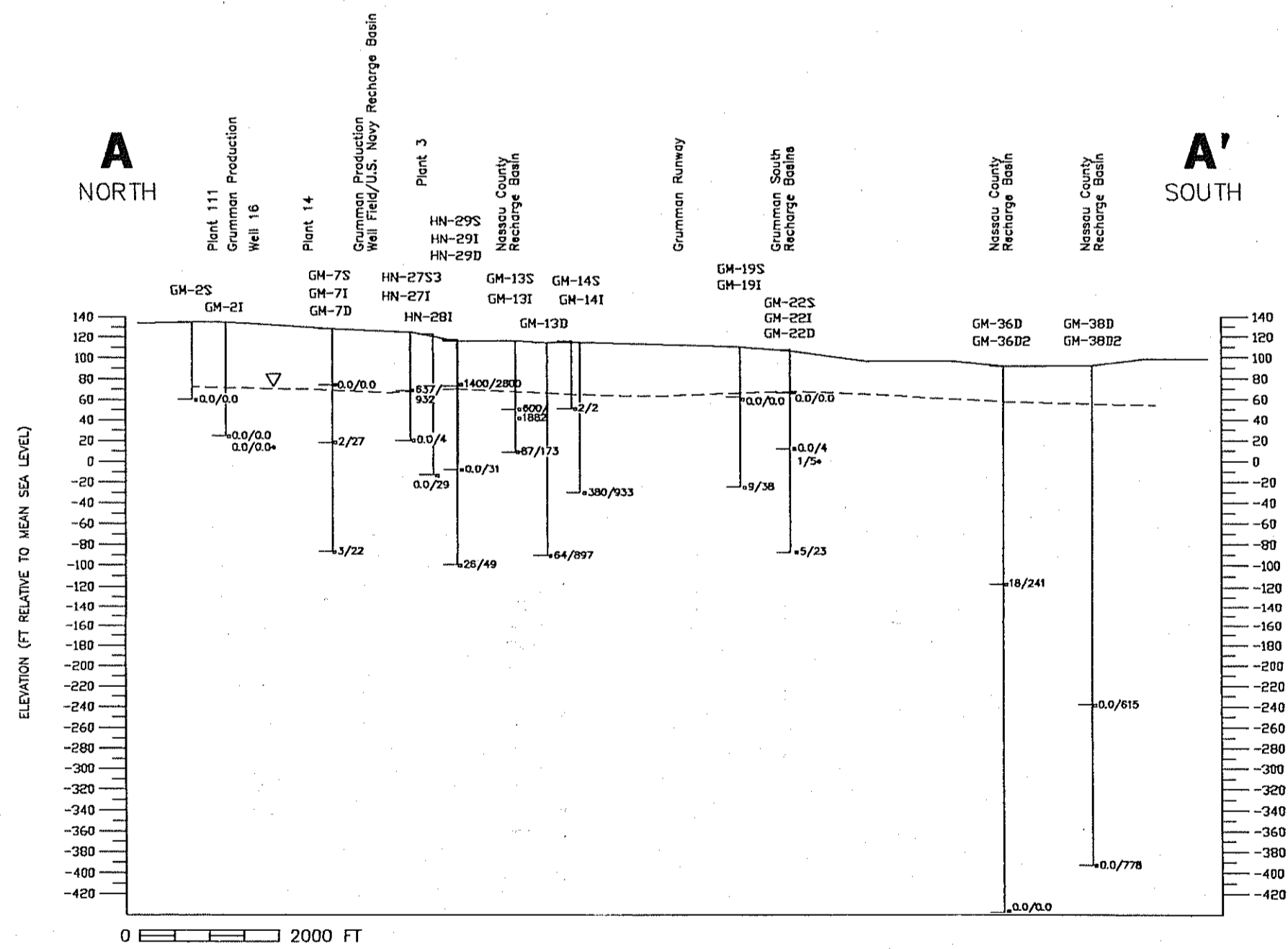
4-35



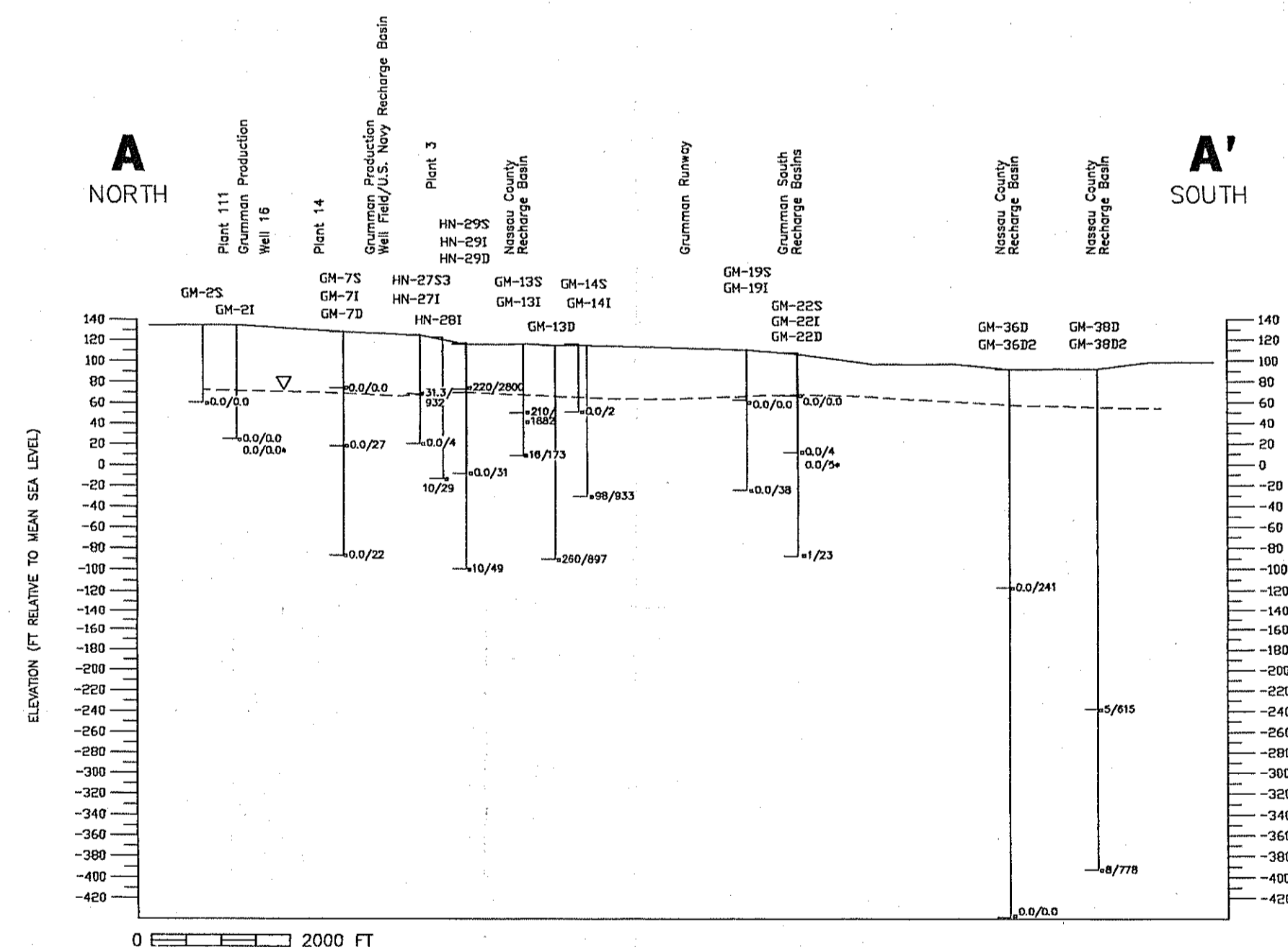
Trichloroethene Concentrations versus Total Volatile Halogenated Organic Compounds



1,1,1-Trichloroethane Concentrations versus Total Volatile Halogenated Organic Compounds

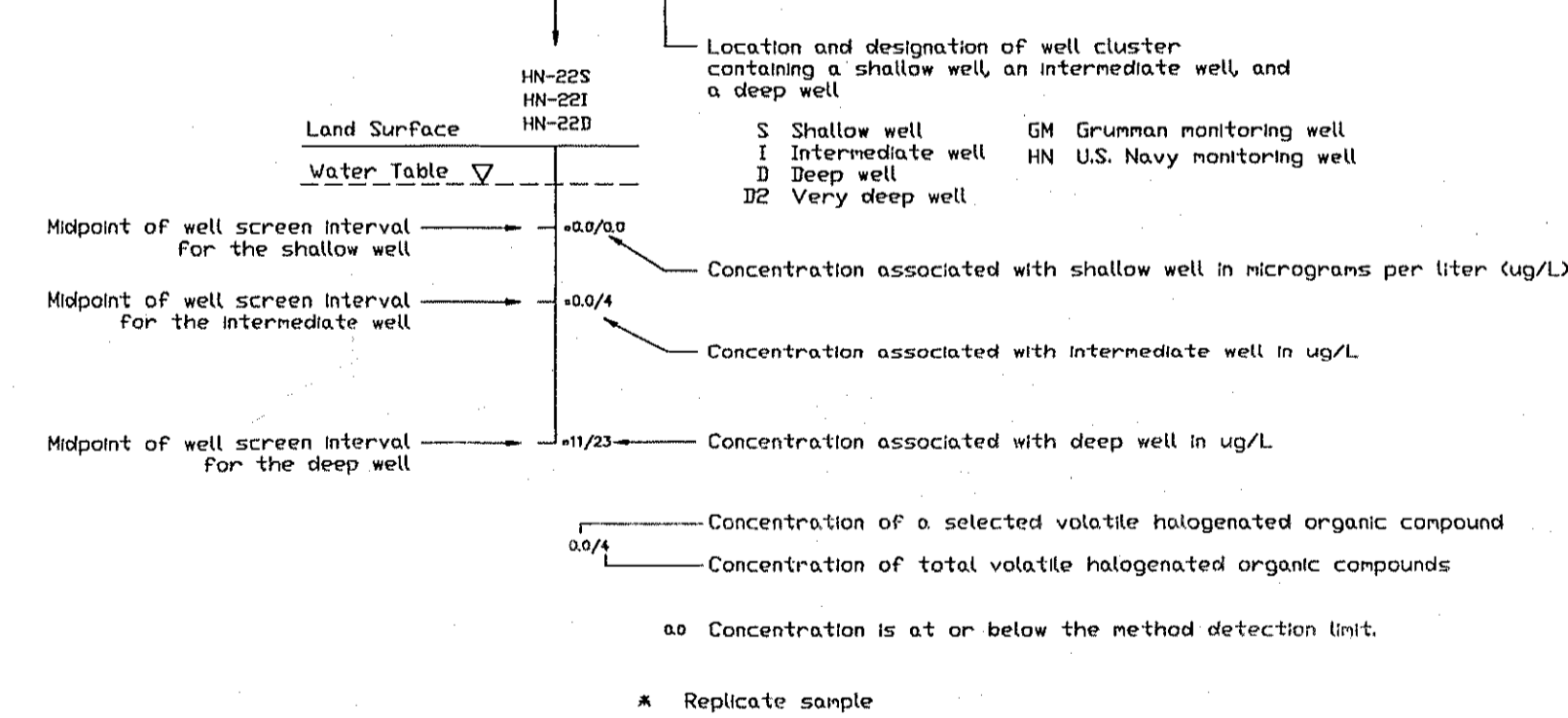


Tetrachloroethene Concentrations versus Total Volatile Halogenated Organic Compounds



1,2-Dichloroethene Concentrations versus Total Volatile Halogenated Organic Compounds

EXPLANATION



U.S. Navy wells were sampled during March 1993, except for well HN-2753 which was sampled during December 1992.  
Grumman wells were sampled from August 23 through September 2, 1993.



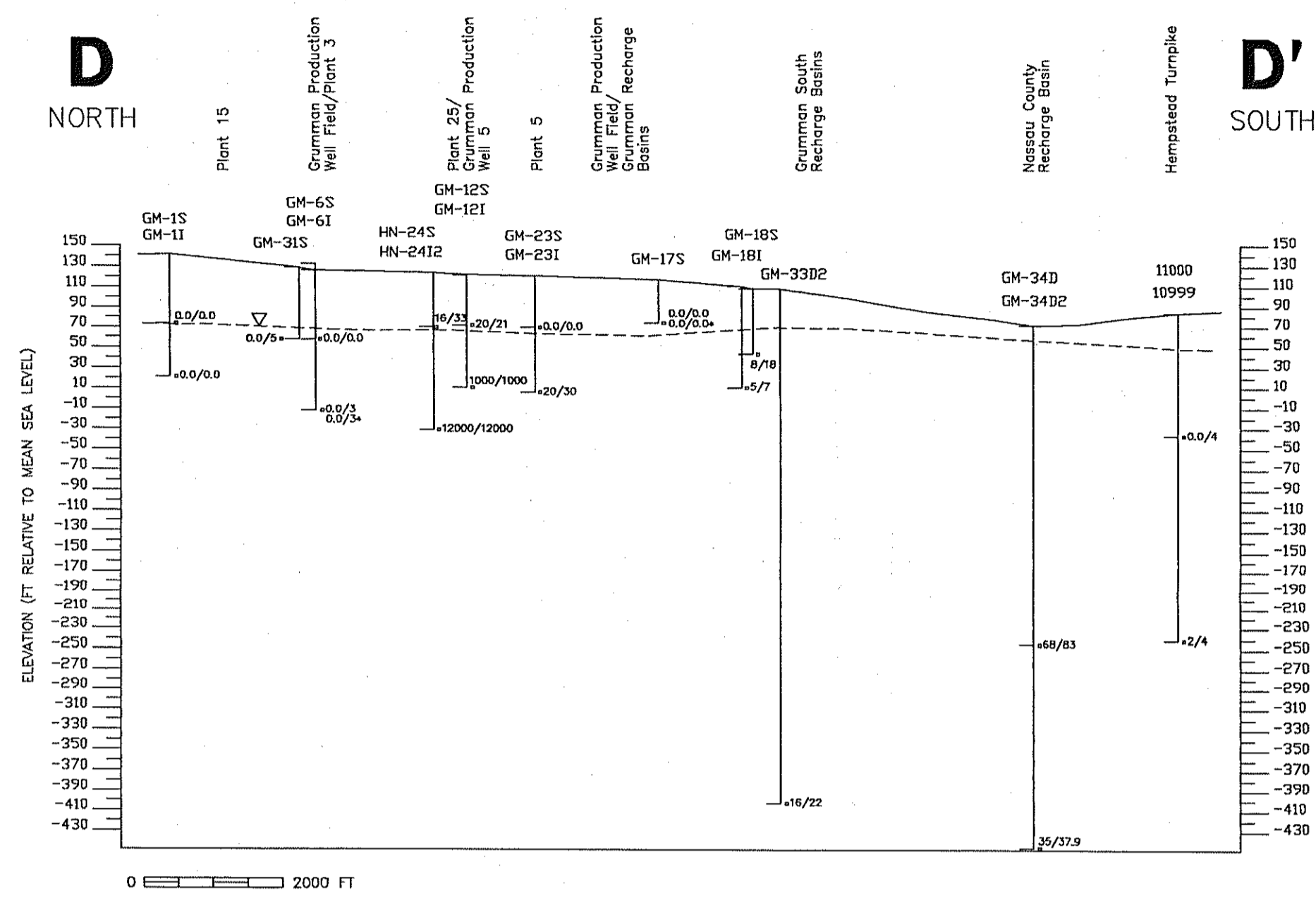
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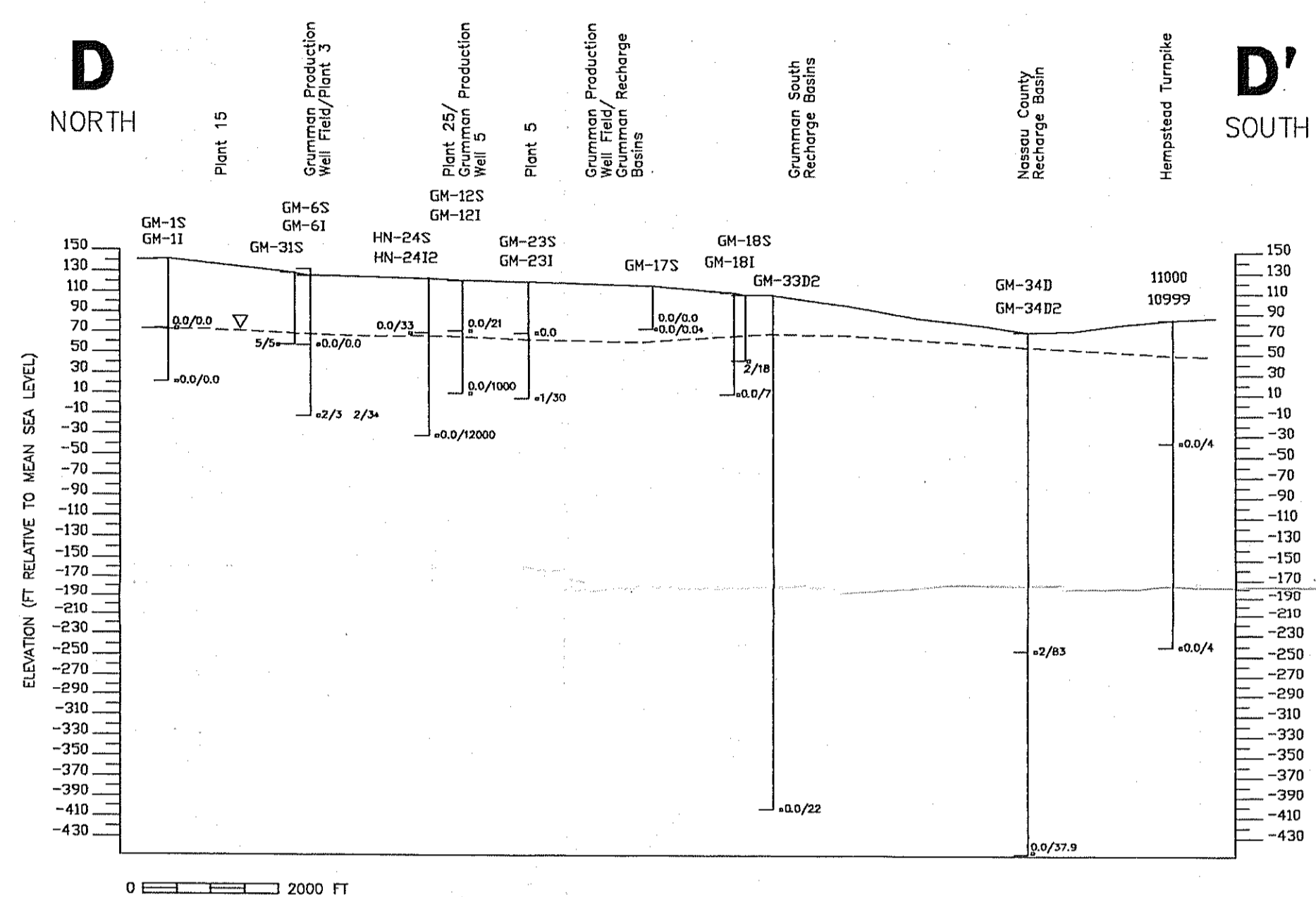
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PROJECT NO.: NY000840	FILE NO: 1469
DRAWING: VHCDBNA	PLOT SIZE: 1"=2000'(H)
DRAFTED BY: BHC/GS	DATE: 5-2-94
CHECKED BY: JS/TRB	DATE:
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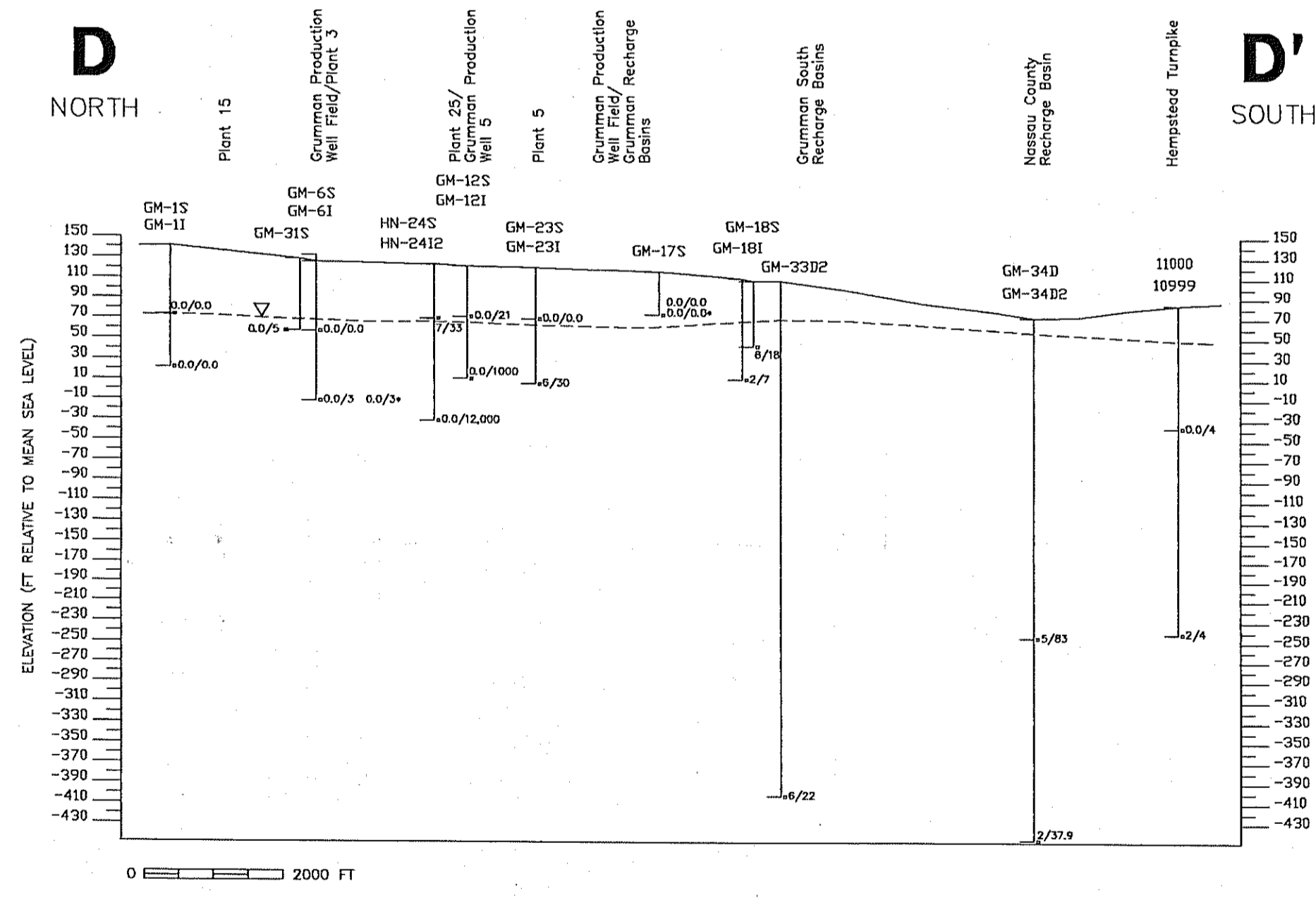
CONCENTRATION OF SELECTED VOLATILE HALOGENATED ORGANIC COMPOUNDS VERSUS CONCENTRATION OF TOTAL VOLATILE HALOGENATED ORGANIC COMPOUNDS DETECTED ALONG CROSS SECTION A-A'  
GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK



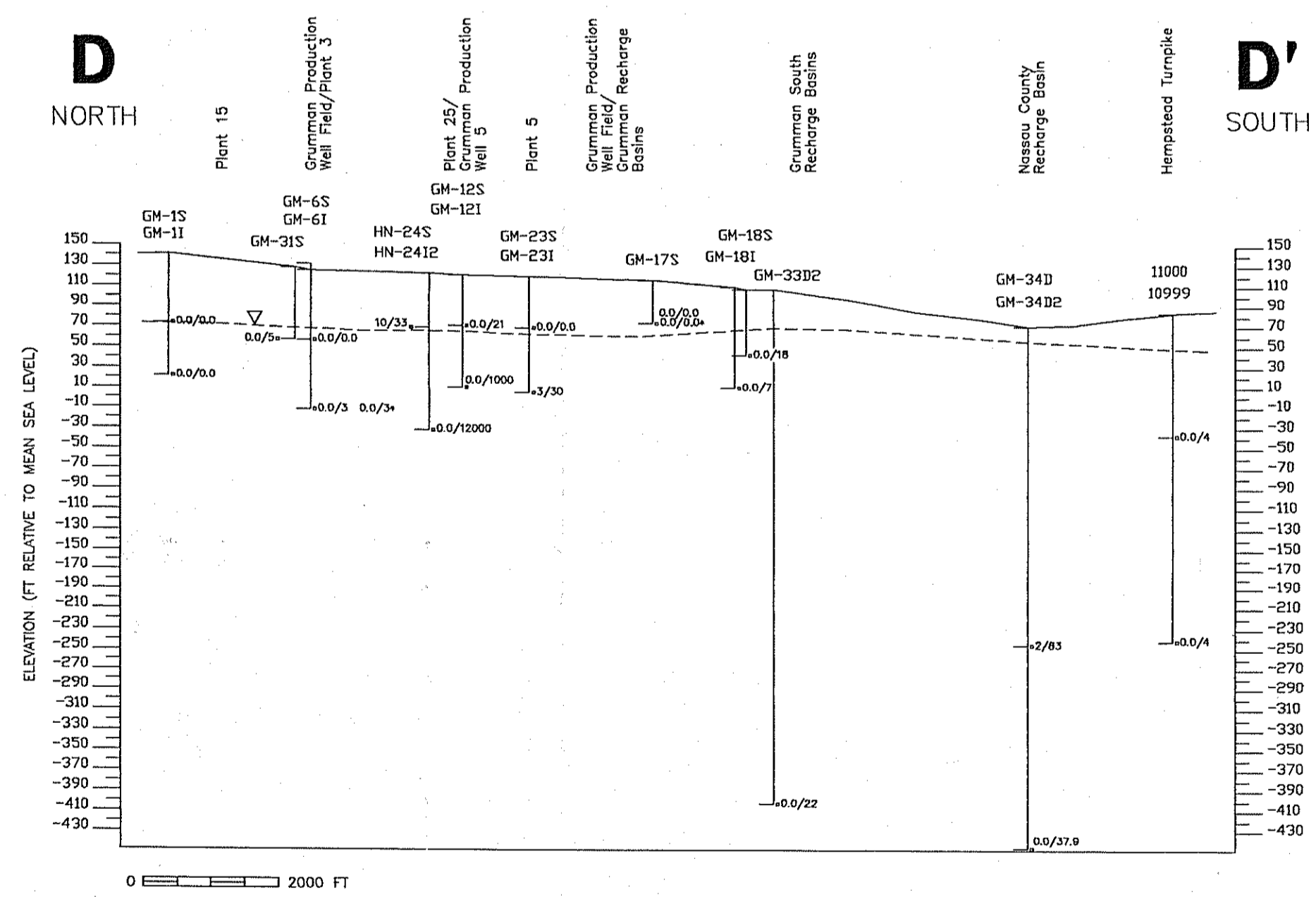
Trichloroethene Concentrations versus Total Volatile Halogenated Organic Compounds



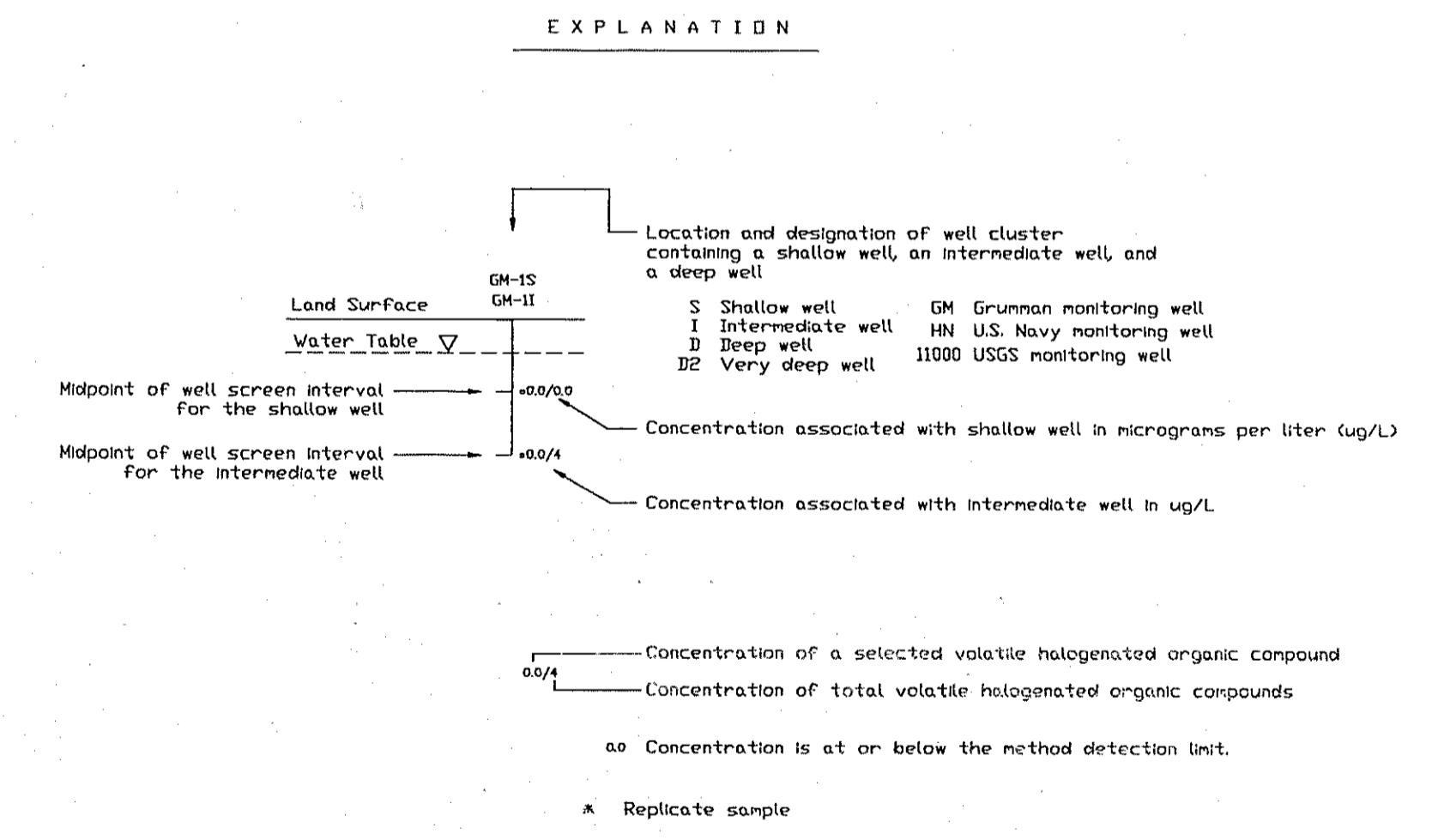
1,1,1-Trichloroethane Concentrations versus Total Volatile Halogenated Organic Compounds



Tetrachloroethene Concentrations versus Total Volatile Halogenated Organic Compounds



1,2-Dichloroethene Concentrations versus Total Volatile Halogenated Organic Compounds



U.S. Navy wells were sampled during March 1993  
Grumman wells were sampled from August 23 through September 2, 1993.

VERTICAL EXAGGERATION 15X



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SCALE VERIFICATION  
THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING.  
USE TO VERIFY FIGURE REPRODUCTION SCALE

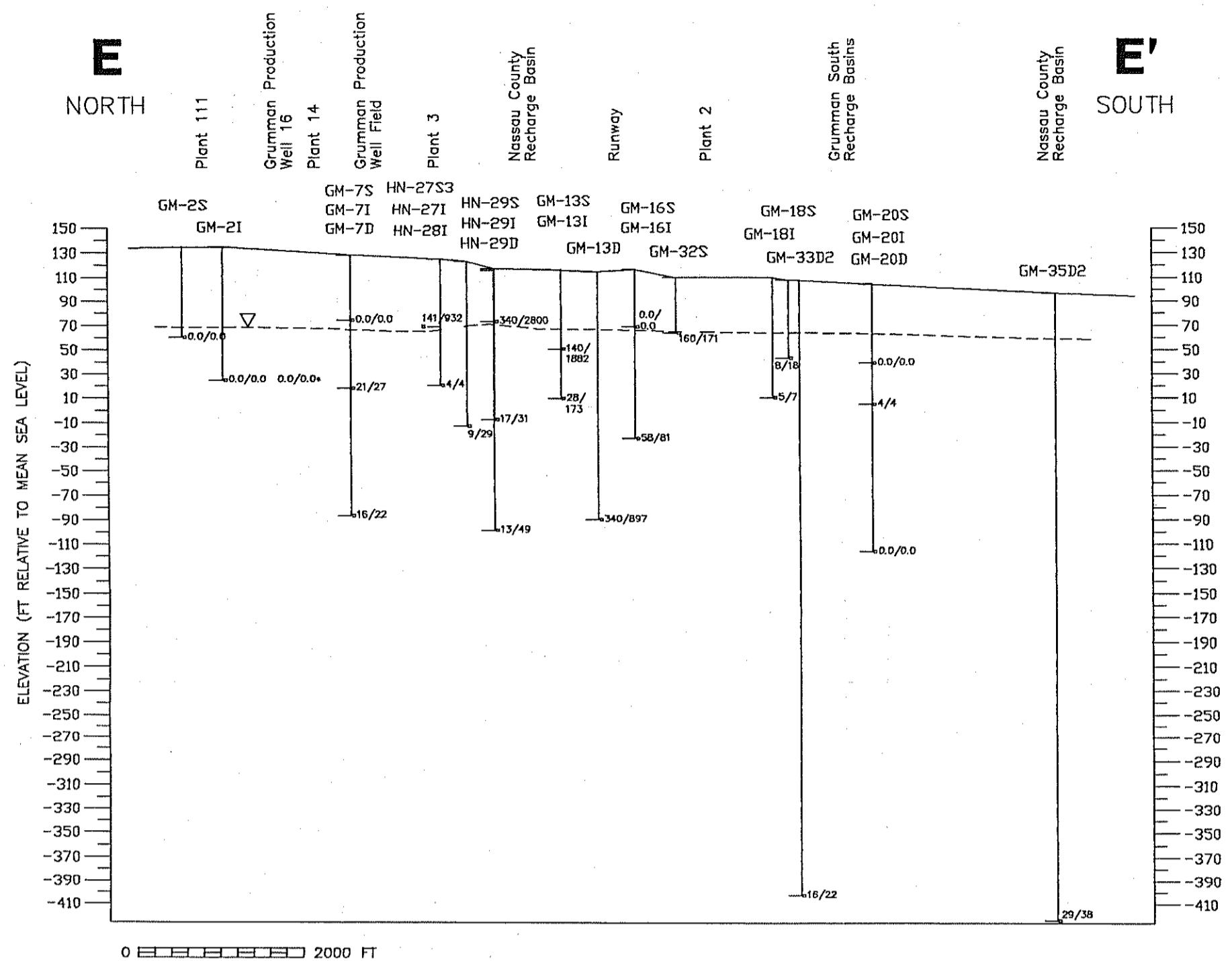
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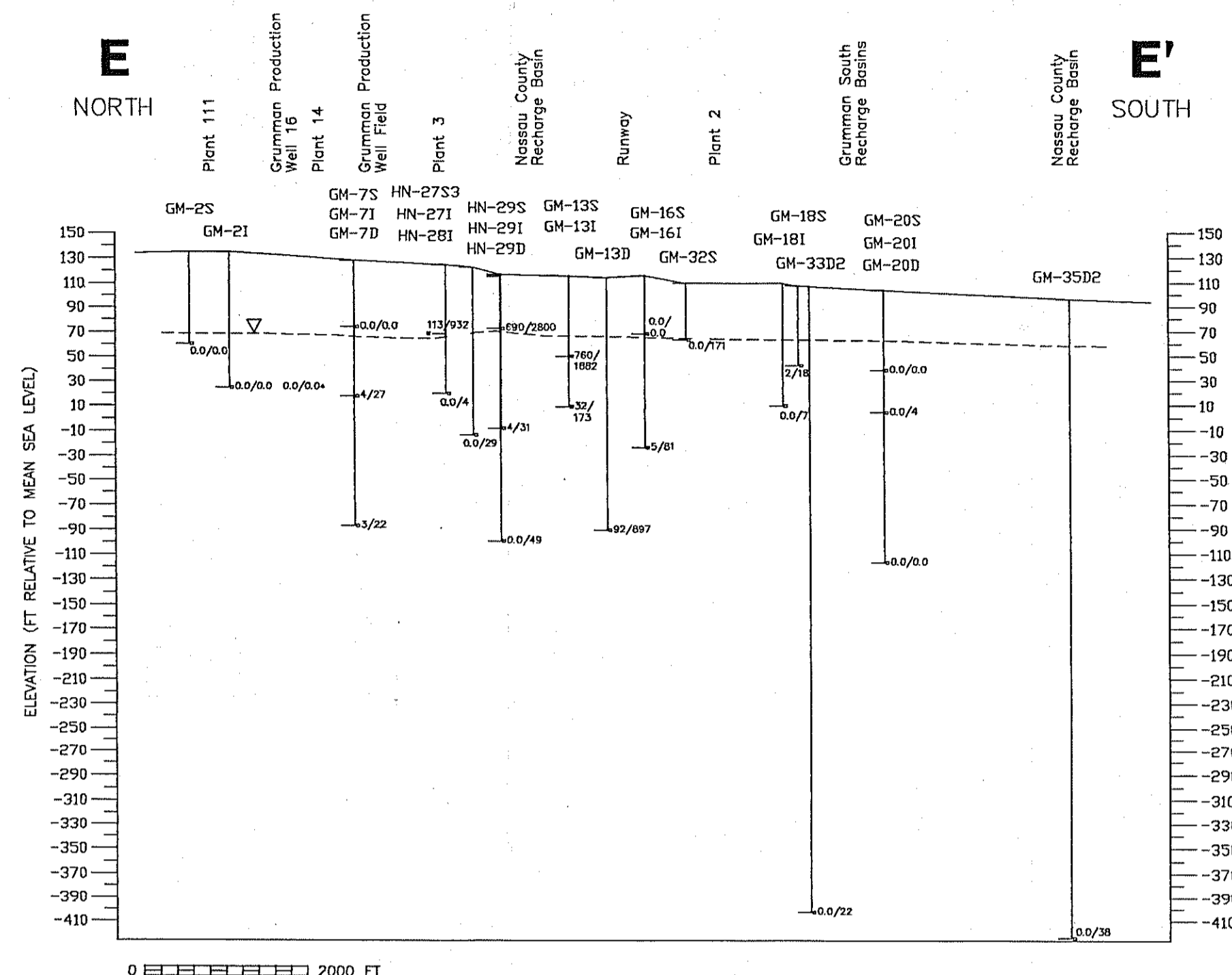
CONCENTRATION OF SELECTED VOLATILE HALOGENATED ORGANIC COMPOUNDS VERSUS CONCENTRATION OF TOTAL VOLATILE HALOGENATED ORGANIC COMPOUNDS DETECTED ALONG CROSS SECTION D-D'

GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK

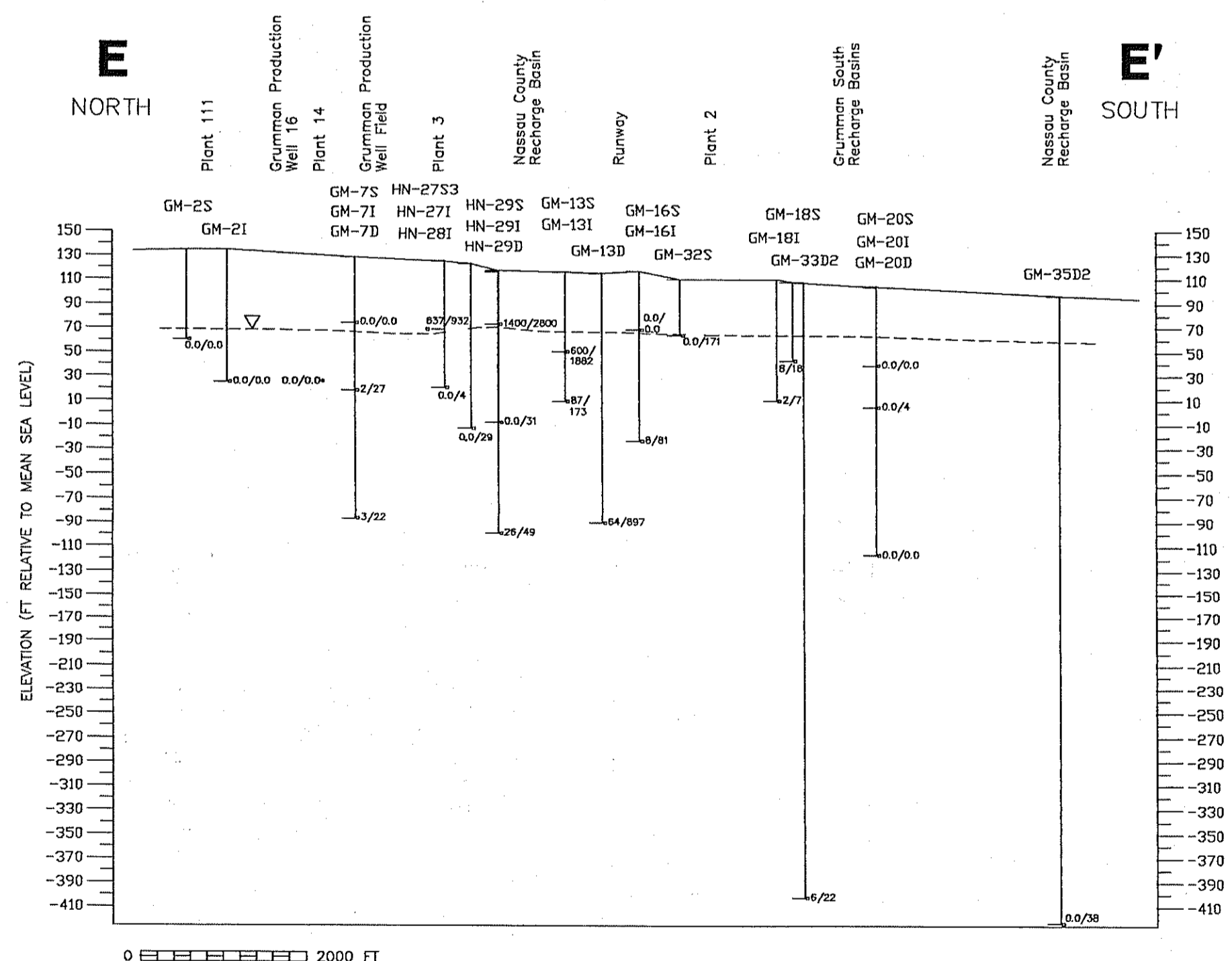




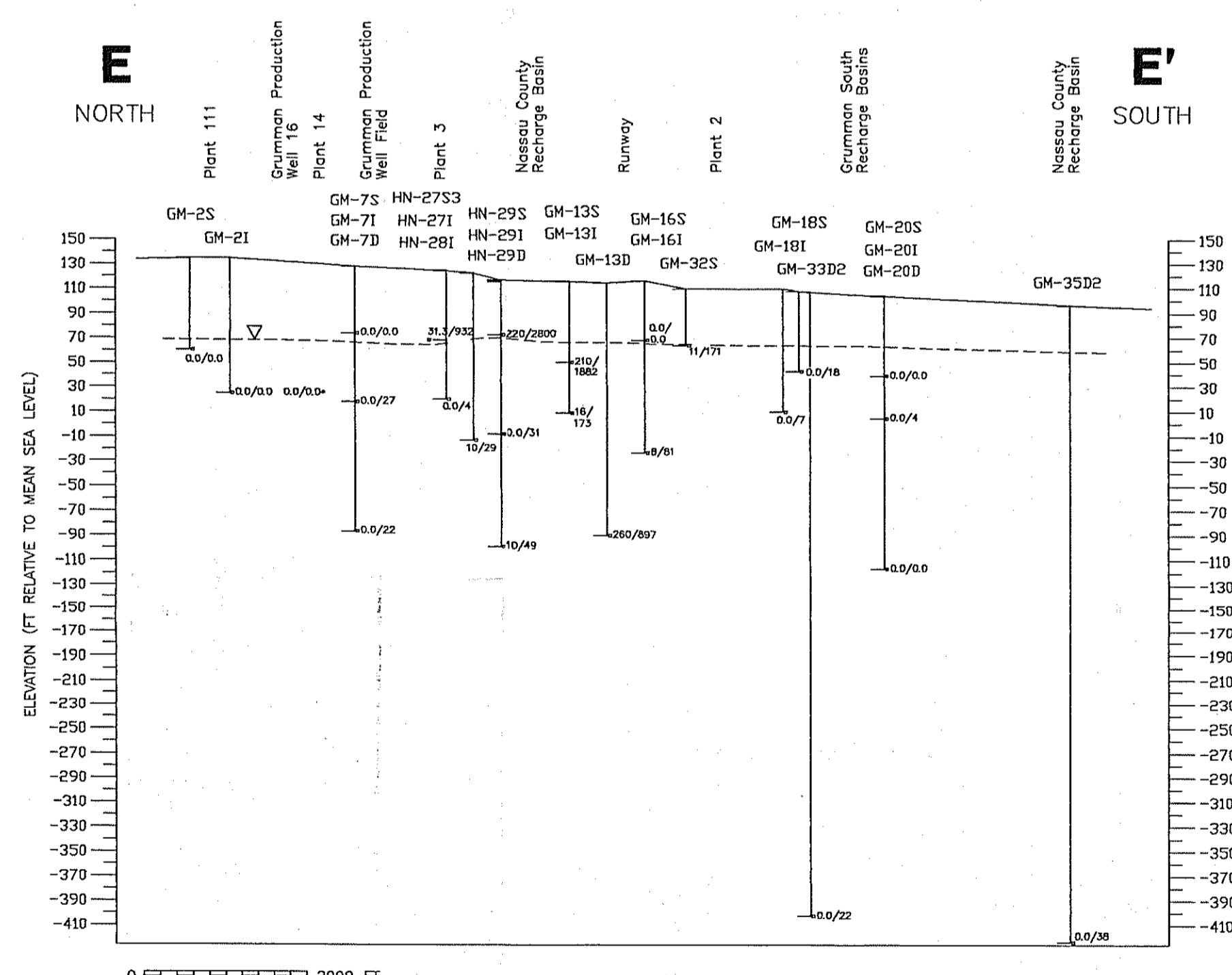
Trichloroethene Concentrations versus Total Volatile Halogenated Organic Compounds



1,1-Trichloroethane Concentrations versus Total Volatile Halogenated Organic Compounds



Tetrachloroethene Concentrations versus Total Volatile Halogenated Organic Compounds



1,2-Dichloroethene Concentrations versus Total Volatile Halogenated Organic Compounds

**EXPLANATION**

- Location and designation of well cluster containing a shallow well, an intermediate well, and a deep well
- Land Surface
- Water Table
- S Shallow well
- I Intermediate well
- D Deep well
- DC Very deep well
- GM Grumman monitoring well
- HN U.S. Navy monitoring well
- Midpoint of well screen interval for the shallow well
- Midpoint of well screen interval for the intermediate well
- Midpoint of well screen interval for the deep well
- Concentration associated with shallow well in micrograms per liter (ug/L)
- Concentration associated with intermediate well in ug/L
- Concentration associated with deep well in ug/L
- Concentration of a selected volatile halogenated organic compound
- Concentration of total volatile halogenated organic compound
- as Concentration is at or below the method detection limit.
- ▲ Replicate sample

U.S. Navy wells were sampled during March 1993, except for well HN-27S3 which was sampled during December 1992.  
 Grumman wells were sampled from August 23 through September 2, 1993.



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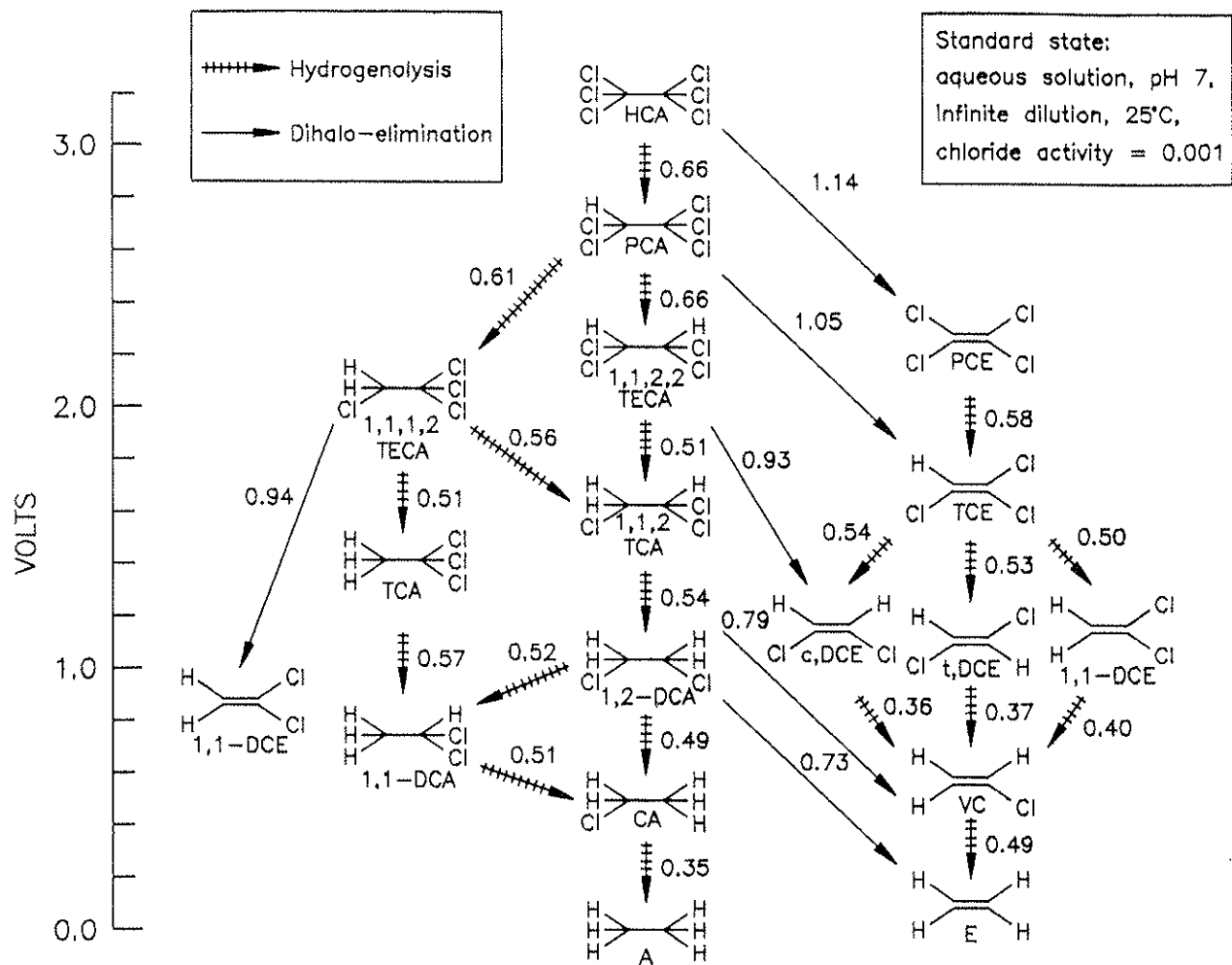
SCALE VERIFICATION  
 THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING.  
 USE TO VERIFY FIGURE REPRODUCTION SCALE

REV. NO.	DATE	DESCRIPTION	BY	APPR.

PROJECT NO.: NY000940	FILE NO: 1469
DRAWING: VHCDBNE	PLOT SIZE: 1'-2000'(H)
DRAFTED BY: BHC/GS	DATE: 5-2-94
CHECKED BY: JS/TRB	DATE:
APPROVED BY: CSG	DATE:

CONCENTRATION OF SELECTED VOLATILE HALOGENATED ORGANIC COMPOUNDS VERSUS CONCENTRATION OF TOTAL VOLATILE HALOGENATED ORGANIC COMPOUNDS DETECTED ALONG CROSS SECTION E-E'

GRUMMAN AEROSPACE CORPORATION  
 BETHPAGE, NEW YORK



Standard state:  
aqueous solution, pH 7,  
Infinite dilution, 25°C,  
chloride activity = 0.001

- |  |                              |
|--|------------------------------|
| 1,1-DCE = 1,1-Dichloroethene             | CA = Chloroethane            |
| 1,1,1,2-TECA = 1,1,1,2-Tetrachloroethane | A = Ethane                   |
| TCA = Trichloroethane                    | PCE = Perchloroethene        |
| 1,1-DCA = 1,1-Dichloroethane             | TCE = Trichloroethene        |
| HCA = Hexachloroethane                   | cDCE = Cis-dichloroethene    |
| PCA = Pentachloroethane                  | tDCE = Trans-dichloroethene  |
| 1,1,2,2-TECA = 1,1,2,2-Tetrachloroethane | 1,1-DCE = 1,1-dichloroethene |
| 1,1,2-TCA = 1,1,2-Trichloroethane        | VC = Vinyl chloride          |
| 1,2-DCA = 1,2-Dichloroethane             | E = Ethylene                 |

MODIFIED FROM FETTER, (1993).



PATHWAYS OF CHLORINATED ETHANES AND ETHENES  
REDUCTION, AND ESTIMATED RELATIVE HALF-LIFE  
REDUCTION POTENTIALS IN VOLTS

FIGURE

5-1

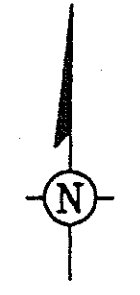
GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK



EXPLANATION

- PROPERTY BOUNDARY OF GRUMMAN AEROSPACE CORPORATION
- PROPERTY BOUNDARY OF THE U.S. NAVY SITE
- PROPERTY BOUNDARY OF THE OCC/RUCO SITE
- RECHARGE BASIN
- LOCATION AND DESIGNATION OF SHALLOW MONITORING WELL
- LOCATION AND DESIGNATION OF BETHPAGE WATER DISTRICT PUBLIC SUPPLY WELL
- LOCATION AND DESIGNATION OF INTERMEDIATE MONITORING WELL
- LOCATION AND DESIGNATION OF ADDITIONAL WELL
- LOCATION AND DESIGNATION OF DEEP MONITORING WELL
- LOCATION AND DESIGNATION OF DEEP GRUMMAN PRODUCTION WELL
- LOCATION AND DESIGNATION OF VERY DEEP MONITORING WELL
- PLUME ZONE 1
- PLUME ZONE 2
- PLUME ZONE 3
- BARRIER ZONE
- AREA OF OFFSITE IMPACT FROM GRUMMAN PRODUCTION WELLS AND RECHARGE BASINS

( PLUME ZONE 1 MODIFIED FROM NAVY FS[1994] )



0 1000 FT



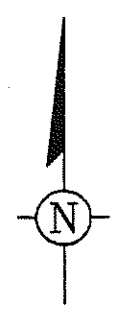
DRAWING CONFIDENTIAL: THIS DRAWING AND ALL INFORMATION CONTAINED THEREON IS AND SHALL REMAIN THE PROPERTY OF GERAGHTY & MILLER, INC. AS AN INSTRUMENT OF PROFESSIONAL SERVICE. THIS INFORMATION SHALL NOT BE USED IN WHOLE OR IN PART WITHOUT THE FULL KNOWLEDGE AND PRIOR WRITTEN CONSENT OF GERAGHTY & MILLER, INC.

SCALE VERIFICATION  
THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING.  
USE TO VERIFY FIGURE REPRODUCTION SCALE

PROJECT NO.: NY0008040	FILE NO: 1489
DRAWING: PLUMES	PLOT SIZE: 1-300
DRAFTED BY: BC/DS	DATE: 5-20-94
CHECKED BY: JS	DATE:
APPROVED BY: CSG	DATE:
Revised - JMC 12/5/96 MJD	

GENERALIZED AREAS OF IMPACT

GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK



EXPLANATION

- 1937 LOCATION AND DESIGNATION OF NASSAU COUNTY PUBLIC SUPPLY WELL (MULTIPLE WELL NUMBERS INDICATE WELLS AT SAME LOCATION)
- GRUMMAN CORPORATION PROPERTY BOUNDARY

0 2,000 FT



DRAWING CONFIDENTIAL: THIS DRAWING AND ALL INFORMATION CONTAINED THEREON IS AND SHALL REMAIN THE PROPERTY OF GERAGHTY & MILLER, INC. AS AN INSTRUMENT OF PROFESSIONAL SERVICE. THIS INFORMATION SHALL NOT BE USED IN WHOLE OR IN PART WITHOUT THE FULL KNOWLEDGE AND PRIOR WRITTEN CONSENT OF GERAGHTY & MILLER, INC.

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THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING.  
USE TO VERIFY FIGURE REPRODUCTION SCALE

PROJECT NO.: NY0008040	FILE NO.: 1469
DRAWING: GRMS101H	PLOT SIZE:
DRAFTED BY: GS	DATE: 5-18-94
CHECKED BY: JS	DATE:
APPROVED BY: CSG	DATE:

PUBLIC SUPPLY WELL LOCATIONS IN THE VICINITY OF AND SOUTH OF THE GRUMMAN AEROSPACE CORPORATION PROPERTY

FIGURE  
**5-3**

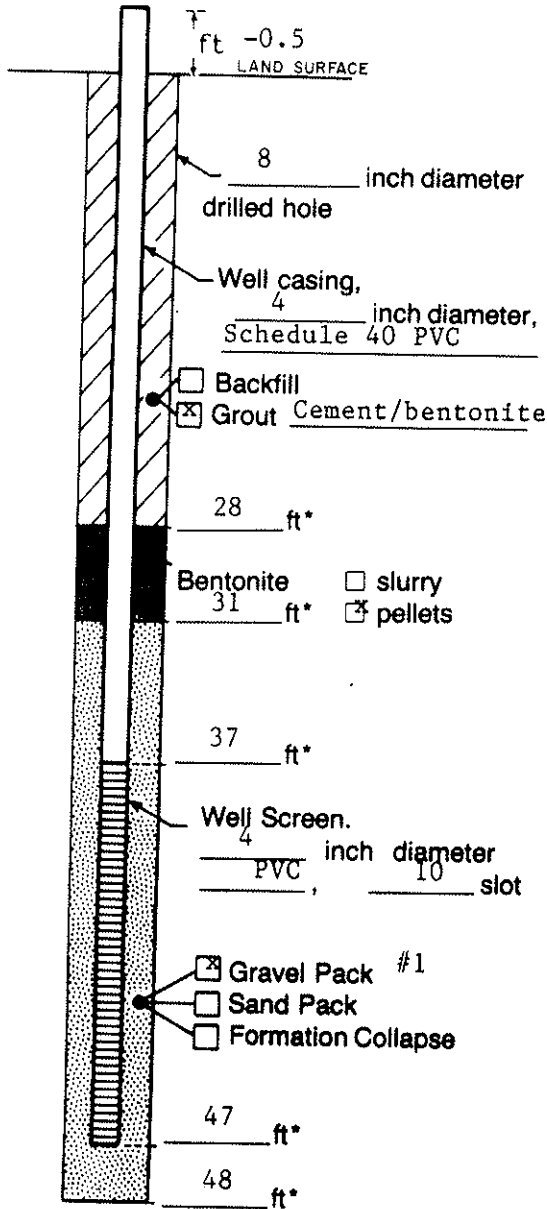
GRUMMAN AEROSPACE CORPORATION  
BETHPAGE, NEW YORK

**APPENDIX A**

**WELL CONSTRUCTION LOGS**



**WELL CONSTRUCTION LOG**  
(UNCONSOLIDATED)



Measuring Point is  
Top of Well Casing  
Unless Otherwise Noted.

\*Depth Below Land Surface

Project NY00808/Grumman Well GM-11S  
 Town/City Bethpage  
 County Nassau State New York  
 Permit No. \_\_\_\_\_  
 Land-Surface Elevation and Datum 124.00 feet  Surveyed  
 Estimated  
 Installation Date(s) 8/31/92  
 Drilling Method Hollow-stem auger  
 Drilling Contractor Delta Well & Pump Co.  
 Drilling Fluid \_\_\_\_\_  
Potable water added to prevent heaving.  
 Development Technique(s) and Date(s)  
Submersible pump - 12/21/92. Tried air lift and  
water jet - 12/22/92.  
 Fluid Loss During Drilling \_\_\_\_\_ gallons  
 Water Removed During Development \_\_\_\_\_ gallons  
 Static Depth to Water 37.76 feet below M.P.  
 Pumping Depth to Water \_\_\_\_\_ feet below M.P.  
 Pumping Duration \_\_\_\_\_ hours  
 Yield \_\_\_\_\_ gpm Date \_\_\_\_\_  
 Specific Capacity \_\_\_\_\_ gpm/ft  
 Well Purpose Monitoring well.

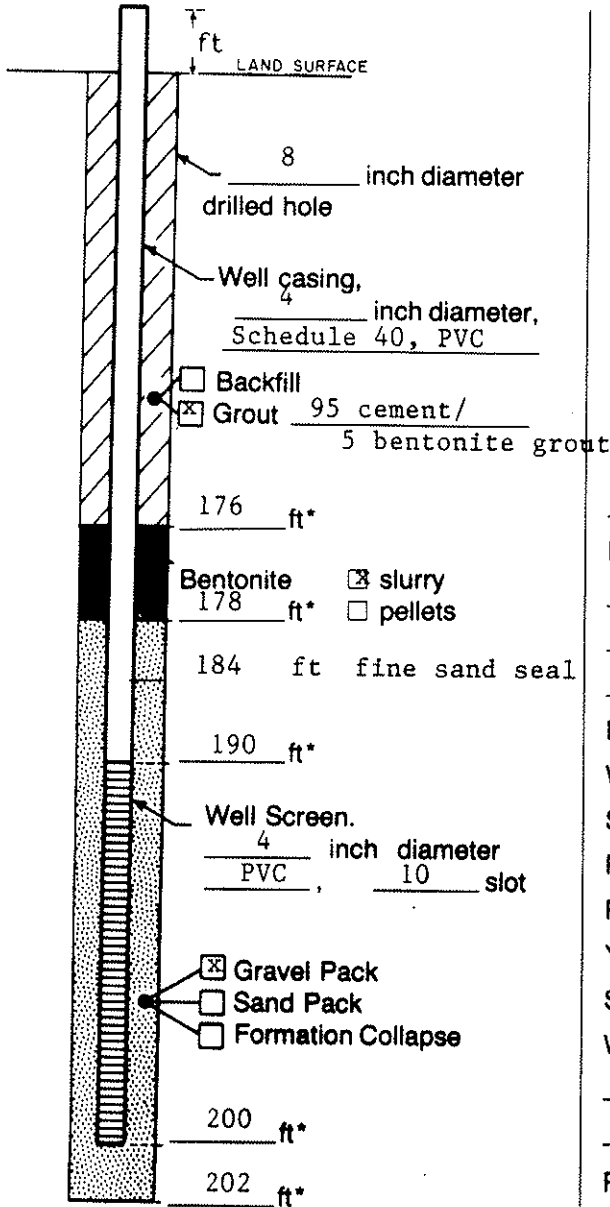
Remarks Locking well cap provided.

Low yield of well. Dedicated pump  
installed.

\*Measuring point elevation 123.66 feet.

Prepared by Don Monsen

**WELL CONSTRUCTION LOG**  
(UNCONSOLIDATED)



Measuring Point is  
Top of Well Casing  
Unless Otherwise Noted.

\*Depth Below Land Surface

Project Grumman/NY008.08 Well GM-22D  
 Town/City Bethpage  
 County Nassau State New York  
 Permit No. \_\_\_\_\_  
 Land-Surface Elevation and Datum 107.72 feet  Surveyed  
 \_\_\_\_\_  Estimated  
 Installation Date(s) September 17 and 18, 1992  
 Drilling Method Hollow-stem auger, mud rotary/reverse rota  
 Drilling Contractor Delta Well & Pump Co., Inc.  
 Drilling Fluid Potable water and bentonite

Development Technique(s) and Date(s)

Air lift - 12/30/92.

Fluid Loss During Drilling 400 gallons  
 Water Removed During Development 5,900 gallons  
 Static Depth to Water 45.25 feet below M.P.  
 Pumping Depth to Water \_\_\_\_\_ feet below M.P.  
 Pumping Duration 3 hours  
 Yield \_\_\_\_\_ gpm Date \_\_\_\_\_  
 Specific Capacity \_\_\_\_\_ gpm/ft  
 Well Purpose Monitoring

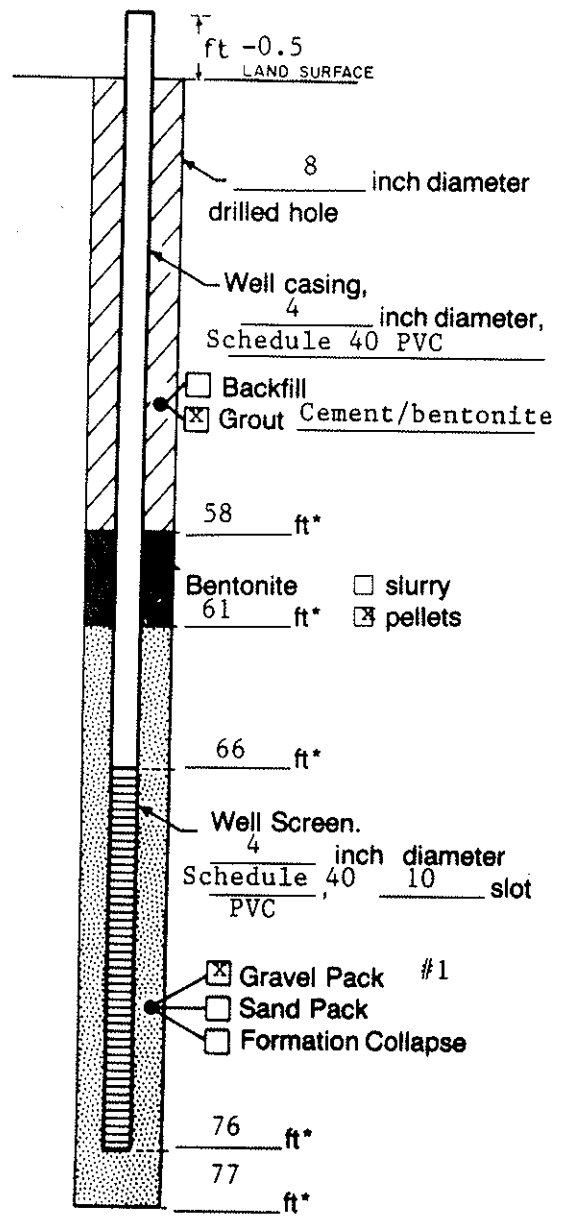
Remarks Dedicated pump and packer installed.

Drilled reverse rotary from 152 to 202 feet.

\*Measuring point elevation 107.02 feet.

Prepared by Tammie-Rae Bouchard

**WELL CONSTRUCTION LOG**  
(UNCONSOLIDATED)



Measuring Point is  
Top of Well Casing  
Unless Otherwise Noted.

\*Depth Below Land Surface

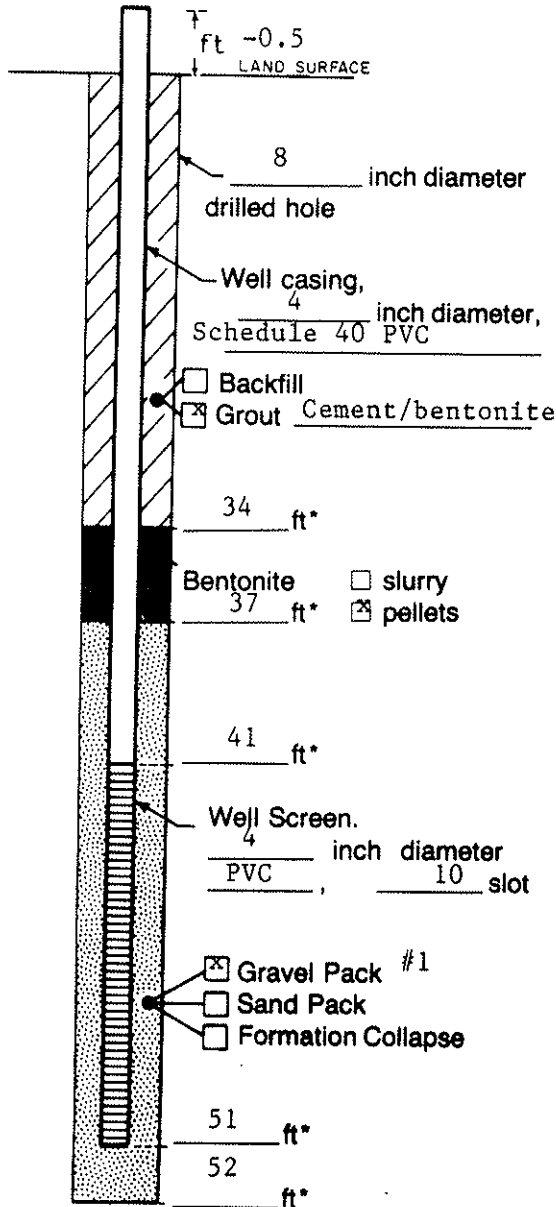
Project NY00808/Grumman Well GM-31S  
 Town/City Bethpage  
 County Nassau State New York  
 Permit No. \_\_\_\_\_  
 Land-Surface Elevation and Datum 128.21 feet  Surveyed  Estimated  
 Installation Date(s) 8/27, 8/28/92  
 Drilling Method Hollow-stem auger  
 Drilling Contractor Delta Well & Pump Co.  
 Drilling Fluid \_\_\_\_\_  
Potable water added to prevent heaving.  
 Development Technique(s) and Date(s)  
Submersible pump - 12/16/92.  
Submersible pump - 12/17/92.  
 Fluid Loss During Drilling \_\_\_\_\_ gallons  
 Water Removed During Development 1,500 gallons  
 Static Depth to Water 62.75 feet below M.P.  
 Pumping Depth to Water \_\_\_\_\_ feet below M.P.  
 Pumping Duration 5 hours  
 Yield \_\_\_\_\_ gpm Date \_\_\_\_\_  
 Specific Capacity \_\_\_\_\_ gpm/ft  
 Well Purpose Monitoring well.

Remarks Locking well cap provided. Installed in Soil Boring B-4.  
Dedicated pump installed.  
\*Measuring point elevation 127.82 feet.

Prepared by Don Monsen



**WELL CONSTRUCTION LOG**  
(UNCONSOLIDATED)

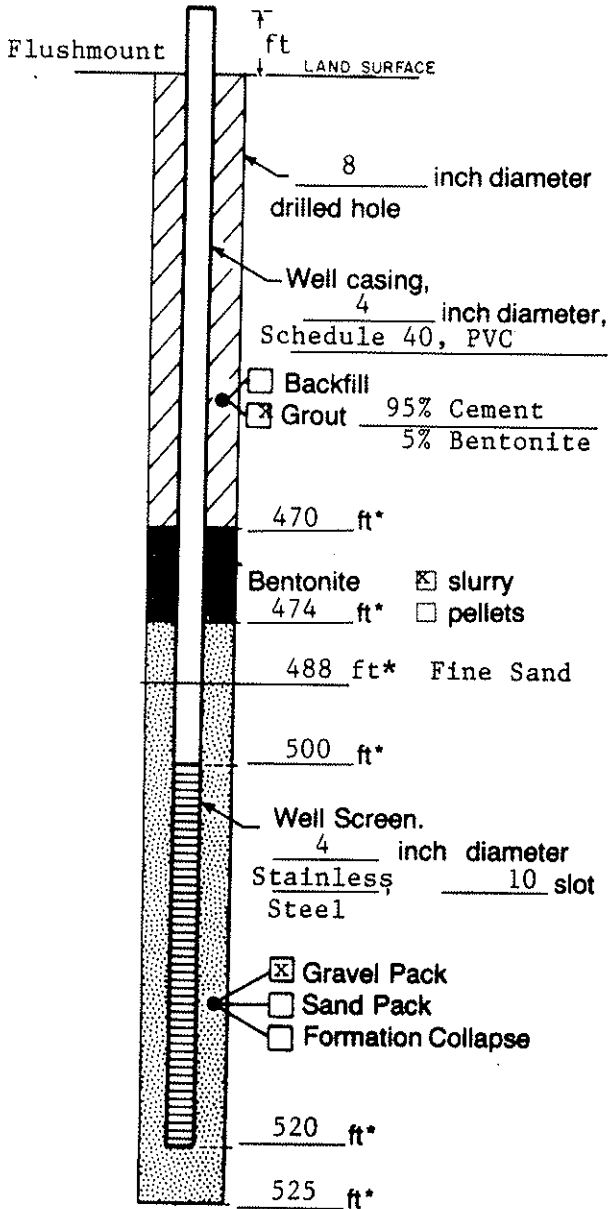


Measuring Point is  
Top of Well Casing  
Unless Otherwise Noted.

\*Depth Below Land Surface

Project NY00808 / Grumman Well GM-32S  
 Town/City Bethpage  
 County Nassau State New York  
 Permit No. \_\_\_\_\_  
 Land-Surface Elevation and Datum 109.72 feet  Surveyed  Estimated  
 Installation Date(s) 8/26/92  
 Drilling Method Hollow-stem auger  
 Drilling Contractor Delta Well & Pump Co.  
 Drilling Fluid \_\_\_\_\_  
 Potable water added to prevent heaving. \_\_\_\_\_  
 Development Technique(s) and Date(s)  
Air lift - 12/18/92.  
 \_\_\_\_\_  
 Fluid Loss During Drilling \_\_\_\_\_ gallons  
 Water Removed During Development 1,485 gallons  
 Static Depth to Water 41.10 feet below M.P.  
 Pumping Depth to Water \_\_\_\_\_ feet below M.P.  
 Pumping Duration 2 hours 45 min.  
 Yield \_\_\_\_\_ gpm Date \_\_\_\_\_  
 Specific Capacity \_\_\_\_\_ gpm/ft  
 Well Purpose Monitoring well.  
 \_\_\_\_\_  
 Remarks Locking well cap provided. Installed in  
Soil Boring B-5.  
Dedicated pump installed.  
\*Measuring point elevation 109.10 feet.  
 \_\_\_\_\_  
 \_\_\_\_\_  
 Prepared by Don Monsen

**WELL CONSTRUCTION LOG**  
(UNCONSOLIDATED)



Measuring Point is  
Top of Well Casing  
Unless Otherwise Noted.

\*Depth Below Land Surface

Project NY008.30/Grumman Well GM-33D2

Town/City Bethpage

County Nassau State New York

Permit No. \_\_\_\_\_

Land-Surface Elevation and Datum 107.51 feet  Surveyed  Estimated

Installation Date(s) July 7, 1993

Drilling Method Mud and Reverse Rotary

Drilling Contractor Delta Well & Pump Co., Inc.

Drilling Fluid Potable Water and Bentonite

Development Technique(s) and Date(s)  
Water-Jet/Air Lift Combination Method  
July 13-19, 1993

Fluid Loss During Drilling 5,000 gallons

Water Removed During Development 91,000 gallons

Static Depth to Water 45.15 feet below M.P.

Pumping Depth to Water \_\_\_\_\_ feet below M.P.

Pumping Duration \_\_\_\_\_ hours

Yield \_\_\_\_\_ gpm Date \_\_\_\_\_

Specific Capacity \_\_\_\_\_ gpm/ft

Well Purpose Monitoring

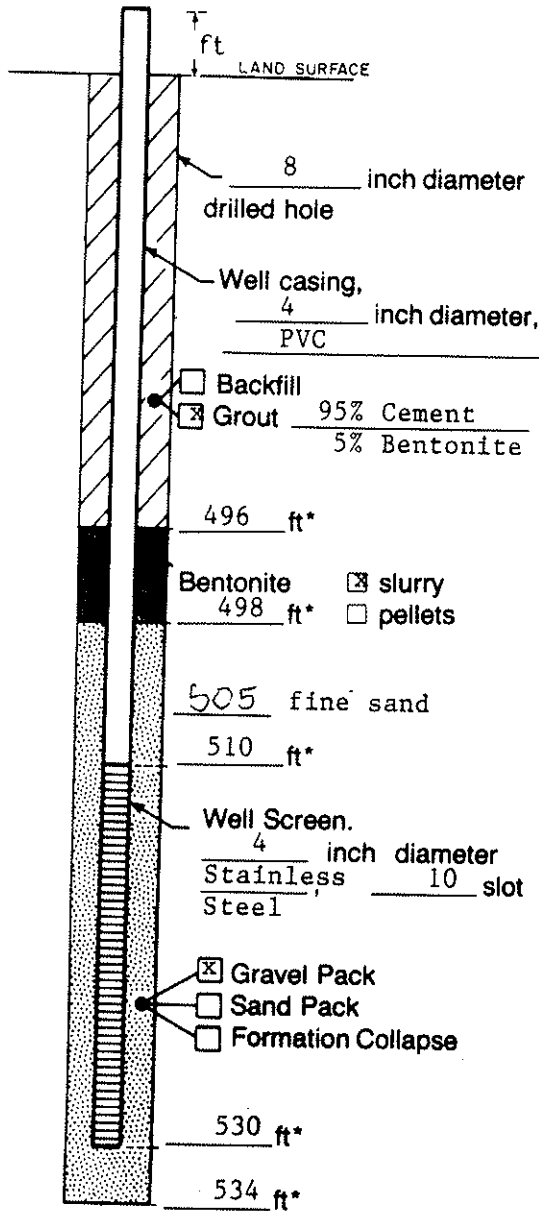
Remarks Permanent pump/packer installed on 7/29/93.

Drilled reverse rotary from 465 feet to 525 feet.

\*Measuring point elevation 106.85 feet.

Prepared by Tammie-Rae Bouchard

**WELL CONSTRUCTION LOG**  
(UNCONSOLIDATED)



Measuring Point is  
Top of Well Casing  
Unless Otherwise Noted.

\*Depth Below Land Surface

Project Grumman/NY008.30 Well GM-35D2

Town/City Bethpage

County Nassau State NY

Permit No. \_\_\_\_\_

Land-Surface Elevation and Datum 96.61 feet  Surveyed  Estimated

Installation Date(s) February 2, 1993

Drilling Method Hollow-stem auger and mud rotary

Drilling Contractor Delta Well & Pump Co., Inc.

Drilling Fluid Potable water and bentonite

Development Technique(s) and Date(s)  
2/9 - 2/24/93: Water jet and air.

Fluid Loss During Drilling 5,000 gallons

Water Removed During Development 88,000 gallons

Static Depth to Water 38.54 feet below M.P.

Pumping Depth to Water \_\_\_\_\_ feet below M.P.

Pumping Duration \_\_\_\_\_ hours

Yield \_\_\_\_\_ gpm Date \_\_\_\_\_

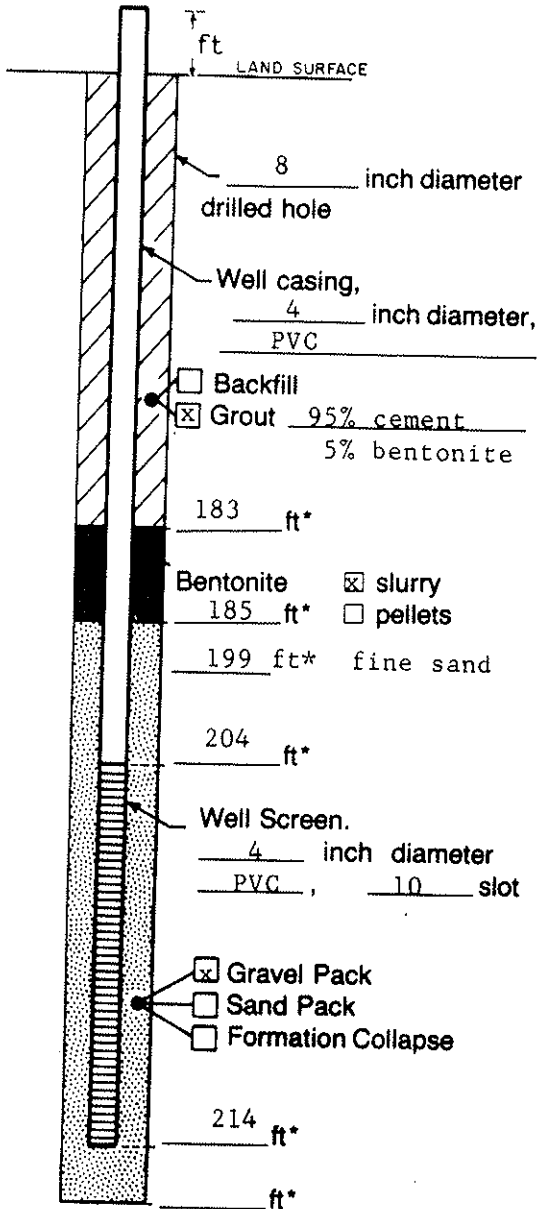
Specific Capacity \_\_\_\_\_ gpm/ft

Well Purpose Monitoring

Remarks Drilled reverse rotary from 475 feet to 534 feet. Permanent pump and packer installed.  
\*Measuring point elevation 96.28 feet.

Prepared by Tammie-Rae Bouchard

**WELL CONSTRUCTION LOG**  
(UNCONSOLIDATED)



Measuring Point is  
Top of Well Casing  
Unless Otherwise Noted.

\*Depth Below Land Surface

Project Grumman/NY008.08 Well GM-36D  
 Town/City Bethpage  
 County Nassay State NY  
 Permit No. \_\_\_\_\_  
 Land-Surface Elevation  
 and Datum 91.70 feet  Surveyed  
 Estimated  
 Installation Date(s) December 21, 1992  
 Drilling Method Hollow-stem, mud, and reverse rotary  
 Drilling Contractor Delta Well & Pump Co., Inc.  
 Drilling Fluid Potable water and bentonite---

Development Technique(s) and Date(s)

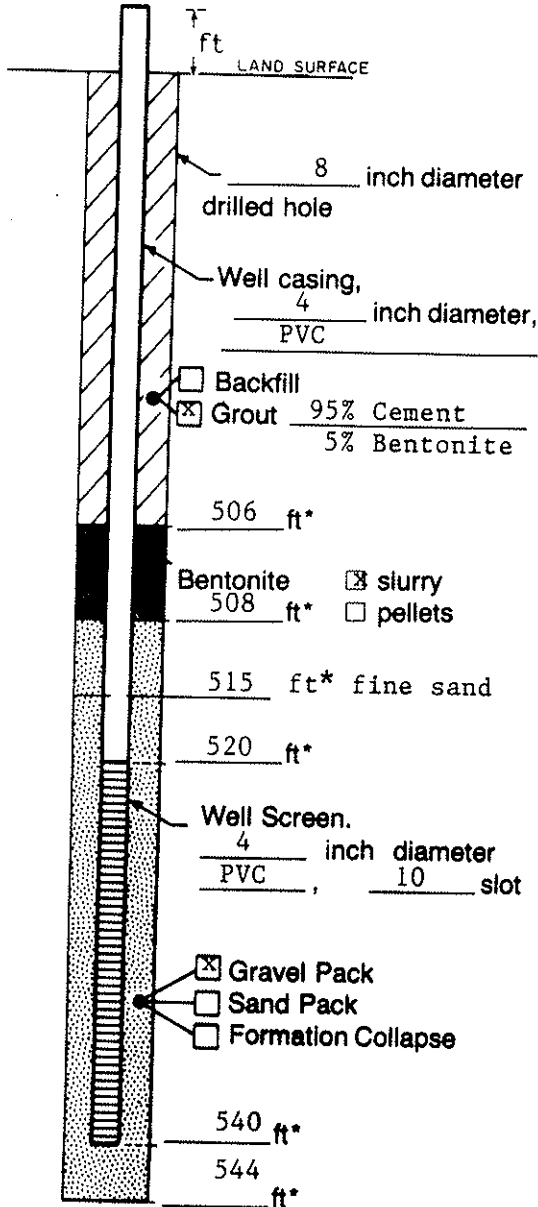
Air lift - 12/29/92.  
Air lift - 12/31/92.

Fluid Loss During Drilling \_\_\_\_\_ 600 \_\_\_\_\_ gallons  
 Water Removed During Development 5,900 \_\_\_\_\_ gallons  
 Static Depth to Water \_\_\_\_\_ 35.73 \_\_\_\_\_ feet below M.P.  
 Pumping Depth to Water \_\_\_\_\_ feet below M.P.  
 Pumping Duration \_\_\_\_\_ hours  
 Yield \_\_\_\_\_ gpm Date \_\_\_\_\_  
 Specific Capacity \_\_\_\_\_ gpm/ft  
 Well Purpose Monitoring

Remarks Dedicated pump and packer installed.  
Drilled reverse rotary from 164 feet to 214 feet.  
\*Measuring point elevation 91.63 feet.

Prepared by Tammie-Rae Bouchard

**WELL CONSTRUCTION LOG**  
(UNCONSOLIDATED)



Measuring Point is  
Top of Well Casing  
Unless Otherwise Noted.

\*Depth Below Land Surface

Project Grumman/NY00808 Well GM-36D2  
 Town/City Bethpage  
 County Nassau State NY  
 Permit No. \_\_\_\_\_  
 Land-Surface Elevation  
 and Datum 91.64 feet  Surveyed  
 Estimated  
 Installation Date(s) December 9 & 10, 1992  
 Drilling Method Hollow-stem, mud and reverse rotary  
 Drilling Contractor Delta Well & Pump Co., Inc.  
 Drilling Fluid Potable water and bentonite

Development Technique(s) and Date(s)

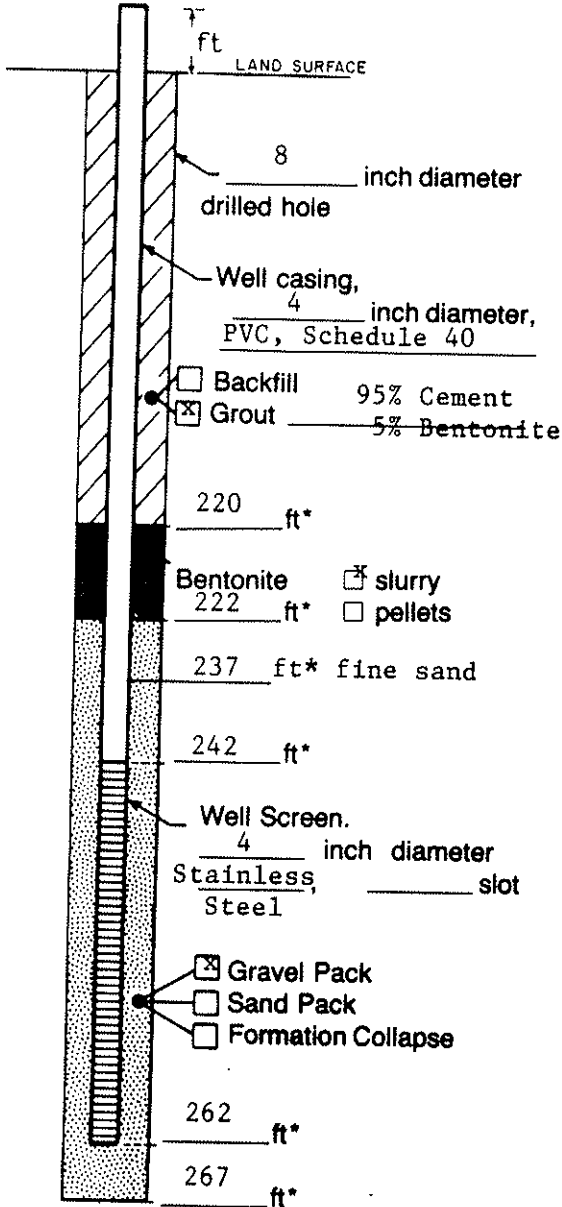
Air lift (6,000) - 1/4/93.  
Air lift (9,000) - 1/5/93.  
Air lift (9,000) - 1/6/93.

Fluid Loss During Drilling 4,000 gallons  
 Water Removed During Development 24,000 gallons  
 Static Depth to Water 37.72 feet below M.P.  
 Pumping Depth to Water \_\_\_\_\_ feet below M.P.  
 Pumping Duration \_\_\_\_\_ hours  
 Yield \_\_\_\_\_ gpm Date \_\_\_\_\_  
 Specific Capacity \_\_\_\_\_ gpm/ft  
 Well Purpose Monitoring

Remarks Dedicated pump and packer installed.  
Drilled reverse rotary from 479 feet to 544 feet.  
\*Measuring point elevation 91.60 feet.

Prepared by Tammie-Rae Bouchard

**WELL CONSTRUCTION LOG**  
(UNCONSOLIDATED)



Measuring Point is  
Top of Well Casing  
Unless Otherwise Noted.

\*Depth Below Land Surface

Project Grumman/NY008.34 Well GM-37D  
Town/City Bethpage  
County Nassau State NY  
Permit No. \_\_\_\_\_  
Land-Surface Elevation  
and Datum 97.83 feet  Surveyed  
 Estimated  
Installation Date(s) March 24, 1993  
Drilling Method Mud Rotary  
Drilling Contractor Delta Well & Pump Co., Inc.  
Drilling Fluid Potable Water and Bentonite

Development Technique(s) and Date(s)  
Water Jetting and Air Lifting March 30-31, 1993

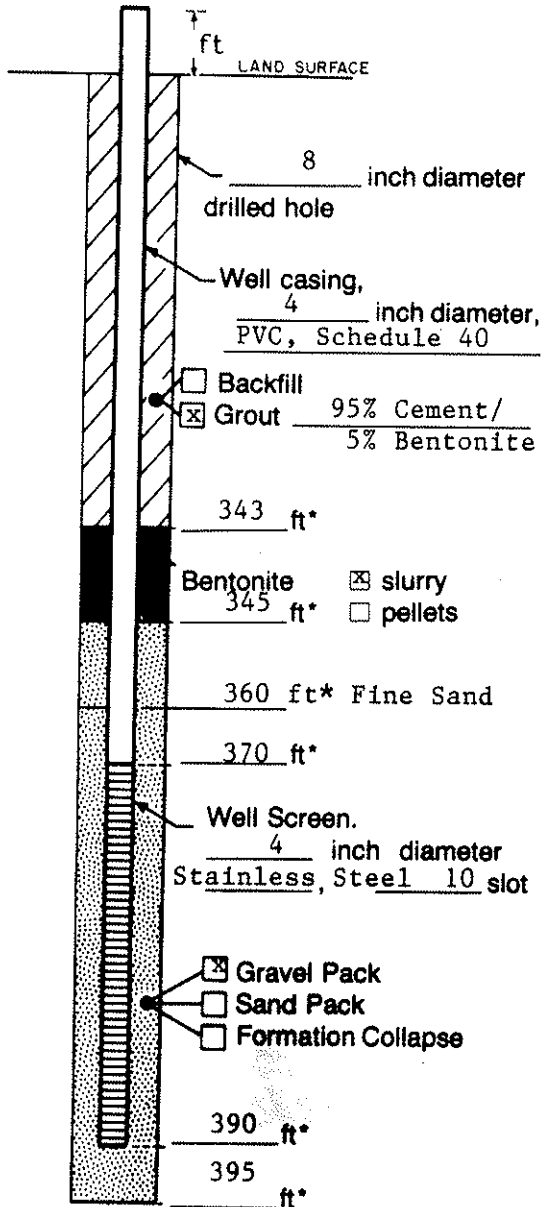
Fluid Loss During Drilling \_\_\_\_\_ 4,000 \_\_\_\_\_ gallons  
Water Removed During Development \_\_\_\_\_ 35,000 \_\_\_\_\_ gallons  
Static Depth to Water \_\_\_\_\_ 38.1 \_\_\_\_\_ feet below M.P.  
Pumping Depth to Water \_\_\_\_\_ feet below M.P.  
Pumping Duration \_\_\_\_\_ hours  
Yield \_\_\_\_\_ gpm Date \_\_\_\_\_  
Specific Capacity \_\_\_\_\_ gpm/ft  
Well Purpose Monitoring

Remarks Permanent pump/packer installed on  
April 14, 1993.

\*Measuring point elevation 97.26 feet.

Prepared by Tammie-Rae Bouchard

**WELL CONSTRUCTION LOG**  
(UNCONSOLIDATED)



Measuring Point is  
Top of Well Casing  
Unless Otherwise Noted.

\*Depth Below Land Surface

Project Grumman Well GM-37D2  
 Town/City Bethpage  
 County Nassau State NY  
 Permit No. \_\_\_\_\_  
 Land-Surface Elevation  
 and Datum 97.84 feet  Surveyed  
 Estimated  
 Installation Date(s) March 12, 1993  
 Drilling Method Hollow-stem auger and mud rotary  
 Drilling Contractor Delta Well & Pump  
 Drilling Fluid Bentonite and potable water

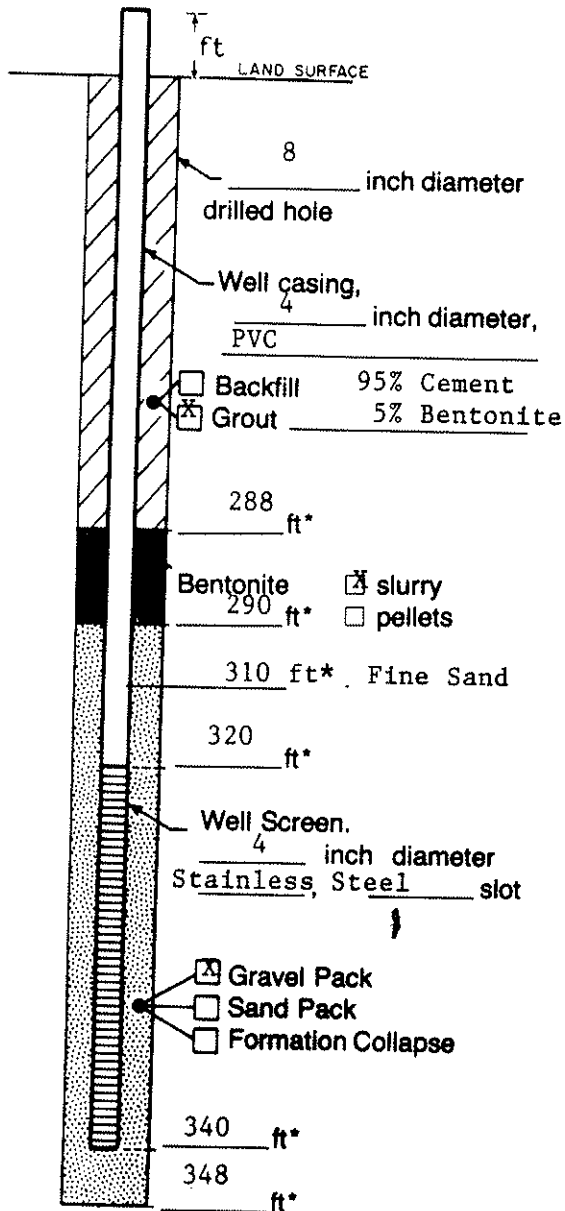
Development Technique(s) and Date(s)  
Water jet/air lift combination - April 1-6, 1993

Fluid Loss During Drilling 6,000 gallons  
 Water Removed During Development 38,000 gallons  
 Static Depth to Water 38.5 feet below M.P.  
 Pumping Depth to Water \_\_\_\_\_ feet below M.P.  
 Pumping Duration \_\_\_\_\_ hours  
 Yield \_\_\_\_\_ gpm Date \_\_\_\_\_  
 Specific Capacity \_\_\_\_\_ gpm/ft  
 Well Purpose Monitoring

Remarks Permanent pump/packer installed on  
April 17, 1993.  
\*Measuring point elevation 97.17 feet.

Prepared by Tammie-Rae Bouchard

**WELL CONSTRUCTION LOG**  
(UNCONSOLIDATED)



Measuring Point is  
Top of Well Casing  
Unless Otherwise Noted.

\*Depth Below Land Surface

Project Grumman/NY008.34 Well GM-38D  
 Town/City Bethpage  
 County Nassau State NY  
 Permit No. \_\_\_\_\_  
 Land-Surface Elevation and Datum 92.07 feet  Surveyed  Estimated  
 Installation Date(s) May 13, 1993  
 Drilling Method Mud Rotary  
 Drilling Contractor Delta Well & Pump Co., Inc.  
 Drilling Fluid Potable Water & Bentonite

Development Technique(s) and Date(s)  
May 17-24, 1993. Water Jet/Air Lift Combination.

Fluid Loss During Drilling 4,000 gallons  
 Water Removed During Development 96,000 gallons  
 Static Depth to Water 36.7 feet below M.P.  
 Pumping Depth to Water \_\_\_\_\_ feet below M.P.  
 Pumping Duration \_\_\_\_\_ hours  
 Yield \_\_\_\_\_ gpm Date \_\_\_\_\_  
 Specific Capacity \_\_\_\_\_ gpm/ft  
 Well Purpose Monitoring

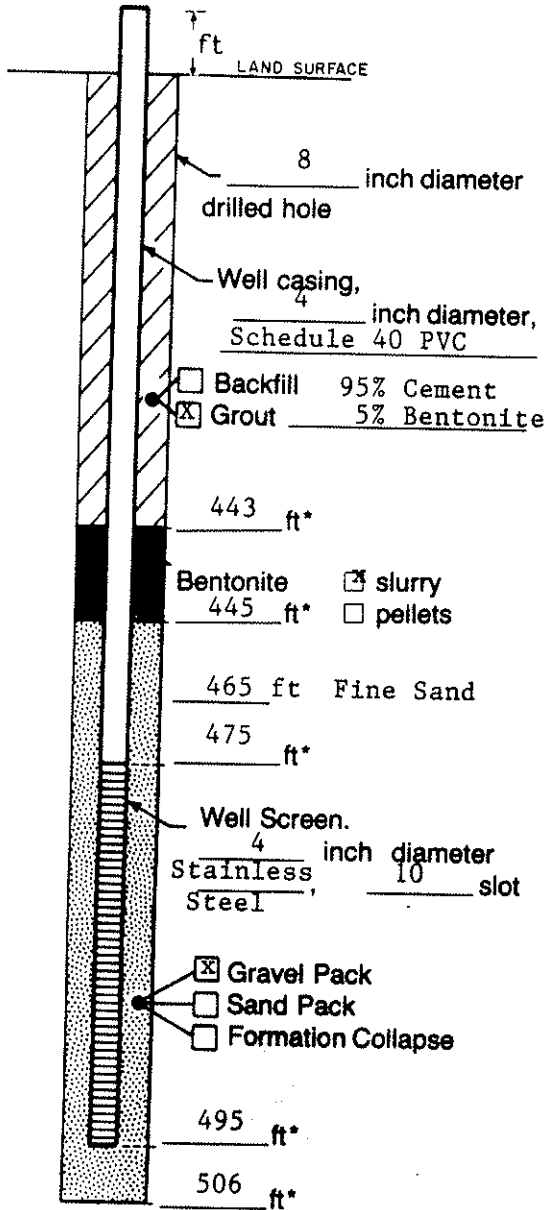
Remarks Permanent pump/packer installed on  
May 28, 1993.

\*Measuring point elevation 91.75 feet.

Prepared by Tammie-Rae Bouchard



**WELL CONSTRUCTION LOG**  
(UNCONSOLIDATED)



Measuring Point is  
Top of Well Casing  
Unless Otherwise Noted.

\*Depth Below Land Surface

Project NY00834/Grumman Well GM-38D2

Town/City Bethpage

County Nassau State NY

Permit No. \_\_\_\_\_

Land-Surface Elevation  
and Datum 92.18 feet  Surveyed  
 Estimated

Installation Date(s) April 27, 1993

Drilling Method Mud Rotary

Drilling Contractor Delta Well & Pump Co., Inc.

Drilling Fluid Potable water and bentonite

Development Technique(s) and Date(s)  
April 29 - May 5, 1993 Water Jet/Air Lift Combination.

Fluid Loss During Drilling 10,000 gallons

Water Removed During Development 72,000 gallons

Static Depth to Water 37.8 feet below M.P.

Pumping Depth to Water \_\_\_\_\_ feet below M.P.

Pumping Duration \_\_\_\_\_ hours

Yield \_\_\_\_\_ gpm Date \_\_\_\_\_

Specific Capacity \_\_\_\_\_ gpm/ft

Well Purpose Monitoring

Remarks Permanent pump/packer installed on  
May 27, 1993.

\*Measuring point elevation 91.56 feet.

Prepared by Tammie-Rae Bouchard

**APPENDIX B**

**SAMPLE CORE LOGS**



SAMPLE/CORE LOG

BORING/WELL: B-6 PROJECT NO: NY00808 PAGE: 1  
 SITE Plant 4 DRILLING DRILLING  
 LOCATION: Grumman, Bethpage, NY STARTED: 8/24/92 COMPLETED: 8/24/92  
 TOTAL DEPTH HOLE TYPE OF SAMPLE/  
 DRILLED: 10 ft DIAMETER: 3-in. CORING DEVICE: Split Spoon  
 LENGTH & DIAMETER SAMPLING  
 OF CORING DEVICE: 2 ft x 3 in. INTERVAL: Continuous  
 LAND-SURFACE  
 ELEVATION: N/A ( ) SURVEYED DATUM: N/A  
 ( ) ESTIMATED  
 DRILLING DRILLING  
 FLUID USED: None METHOD: Hollow-stem auger  
 DRILLING  
 CONTRACTOR: Delta Well & Pump Co. DRILLER: Joe HELPER: Lou  
 PREPARED BY: D. Monsen HAMMER WEIGHT: 140 lb. HAMMER DROP: 18 in.

SAMPLE DEPTH (FT BELOW LAND SURFACE)		CORE RECVRY (FT)	BLOW COUNTS PER 6 INCHES	SAMPLE/CORE DESCRIPTION	HNU (ppm)
FROM	TO				
0	2	2	15/45/ 51/81	Sand, coarse, and gravel; light brown.	0*
2	4	2	26/23/ 43/64	Sand, coarse, and gravel; light brown.	0*
4	6	2	32/46 55/64	Sand, coarse, and gravel; brown.	0*
6	8	2	50/36 47/38	Sand, medium to coarse, and gravel; orange-brown.	0*
8	10	2	43/36 38/38	Sand, medium, and gravel; orange-brown in top 1 ft; sand, coarse; light brown in bottom 1 ft.	0*

\*Headspace analysis performed by field GC.





## SAMPLE/CORE LOG

BORING/WELL: GM-22IPROJECT NO: NY00803PAGE: 1 of 2SITE  
LOCATION: Grumman Aerospace Corp.DRILLING  
STARTED: 6/11/91DRILLING  
COMPLETED: 6/12/91TOTAL DEPTH  
DRILLED: 140 feetHOLE  
DIAMETER: 8 inchesTYPE OF SAMPLE/  
CORING DEVICE: Split-SpoonLENGTH & DIAMETER  
OF CORING DEVICE: 3 inches by 2 feetSAMPLING  
INTERVAL: 10 feetLAND-SURFACE  
ELEVATION: \_\_\_\_\_( ) SURVEYED  
( ) ESTIMATED DATUM: \_\_\_\_\_DRILLING  
FLUID USED: Potable Water (Bethpage)DRILLING  
METHOD: Hollow-Stem AugerDRILLING  
CONTRACTOR: Delta Well &  
Pump Co., Inc.DRILLER: Al TayHELPER: Bob Devine IIPREPARED BY: Scott J. GlashHAMMER WEIGHT: 140HAMMER DROP: 30 inches

SAMPLE DEPTH (FT BELOW LAND SURFACE)		CORE RECVRY (FT)	BLOW COUNTS PER 6 INCHES	SAMPLE/CORE DESCRIPTION	HNU (ppm)
FROM	TO				
0	2	1	4/5/5/6	Light brown to dark brown, medium to coarse sand and gravel, trace top soil, dry.	0
10	12	2	58/33/ 33/40	Light brown to dark brown, fine to medium sand, silty sand, trace coarse sand and gravel, dry.	0.4
20	22	2	16/18/ 23/25	Light brown to tan, fine to medium sand, trace coarse sand and gravel, trace ironstone, dry.	0.2
30*	32	2	10/13/ 17/19	Light brown to tan, medium to coarse sand and gravel, trace fine sand and silt, moist.	0.2
40	42	2	15/12/ 10/11	Light brown, medium to coarse sand, trace gravel, trace ironstone, wet.	0.4
50	52	2	4/8/15/ 15	Light brown to dark brown, silt, trace fine sand, wet.	0.6
60	62	2	8/26/46/ 85	Light brown to light grey, medium to coarse sand, trace fine sand, trace lignite, wet.	1
70	72	2	3/9/14/ 20	Light brown to light grey, fine to medium sand, trace silt, trace coarse sand, wet.	0.4
80	82	2	8/10/17/ 20	Light brown to light grey silty sand, trace grey clay streaks, wet.	1.2
90	92	2	4/8/12/ 31	Light brown to tan, silty clay, trace fine sand, sparatic black discoloration, wet.	1.6

\* SENT TO THE LABORATORY FOR ANALYSIS







SAMPLE/CORE LOG

BORING/WELL: GMS-31S (B-4) PROJECT NO: NY00808 PAGE: 1

SITE Plant 15 DRILLING DRILLING  
 LOCATION: Grumman, Bethpage, NY STARTED: 8/27/92 COMPLETED: 8/27/92

TOTAL DEPTH DRILLED: 60 ft HOLE DIAMETER: 8-in. TYPE OF SAMPLE/  
 CORING DEVICE: Split Spoon

LENGTH & DIAMETER OF CORING DEVICE: 2 ft x 3 in. SAMPLING INTERVAL: Continuous/10 ft

LAND-SURFACE ELEVATION: N/A ( ) SURVEYED ( ) ESTIMATED DATUM: N/A

DRILLING FLUID USED: None DRILLING METHOD: Hollow-stem auger

DRILLING CONTRACTOR: Delta Well & Pump Co. DRILLER: Joe HELPER: Lou

PREPARED BY: D. Mosen HAMMER WEIGHT: 140 lb. HAMMER DROP: 18 in.

SAMPLE DEPTH (FT BELOW LAND SURFACE)		CORE RECVRY (FT)	BLOW COUNTS PER 6 INCHES	SAMPLE/CORE DESCRIPTION	HNU (ppm)
FROM	TO				
0	2	2	10/13/ 18/26	Sand, fine to coarse, and gravel; light brown. Asphalt in top 3 in. of sample.	190*
2	4	2	21/24/ 31/38	Sand, coarse, and gravel; light brown.	52*
4	6	2	27/25/ 26/34	Sand, medium to coarse, and gravel; light brown.	200*
6	8	2	7/11/ 17/39	Sand, medium; light orange-brown.	31*
8	10	2	8/11/ 16/21	Sand, coarse, and gravel; orange-brown. Moist.	28*
19	21	1	14/22/ 25/24	Sand, medium to coarse, and gravel; brown.	0
29	31	1	10/13/ 17/21	Sand, coarse to medium, and gravel; light brown to brown.	0
39	41	1	15/33/ 50/43	Sand, fine; light brown.	0
49	51	1.5	10/27/ 50/48	Sand, fine; light tan to light orange to pink.	0
59	61	2	17/30/ 28/36	Sand, fine; light tan to orange-brown with pinkish-red bonding. Thin layer of light gray clay at 61 ft.	0
74	76	2	12/14/ 8/17	Sand, medium; light brown mixed with clay, light gray.	0
*Headspace analysis performed by field GC.					



## SAMPLE/CORE LOG

BORING/WELL: GM-33D2 PROJECT NO: MY008.30 PAGE: 1 of 3  
 SITE LOCATION: Bethpage, NY DRILLING STARTED: 3/10/93 DRILLING COMPLETED: 6/17/93  
 TOTAL DEPTH DRILLED: 550 ft HOLE DIAMETER: 8 in. TYPE OF SAMPLE/CORING DEVICE: Split Spoon  
 LENGTH & DIAMETER OF CORING DEVICE: 3 ft x 2 in. SAMPLING INTERVAL: Every 10 ft  
 LAND-SURFACE ELEVATION: --- ( ) SURVEYED ( ) ESTIMATED DATUM: ---  
 DRILLING FLUID USED: Potable water and bentonite DRILLING METHOD: Mud Rotary  
 DRILLING CONTRACTOR: Delta Well & Pump Co., Inc. DRILLER: Mike/Keith HELPER: Dennis/Bobby  
 PREPARED BY: T.R. Bouchard HAMMER WEIGHT: 140 lbs. HAMMER DROP: 30 in.

SAMPLE DEPTH (FT BELOW LAND SURFACE)		CORE RECVRY (FT)	BLOW COUNTS PER 6 INCHES	SAMPLE/CORE DESCRIPTION	HNU (ppm)
FROM	TO				
8	10	2.0		Sand (80%), medium to very coarse, tan to yellow, orange discoloration, subangular; pebbles and cobbles (20%).	0
18	20	2.0		Same as above.	0
28	30	2.0		Same as above.	0
38	40	2.0		Same as above.	0
48	50	2.0		Sand (90%), fine to medium, yellow, subangular; pebbles (10%), wet.	0
58	60	.5		Sand (80%), medium to coarse, brown, subangular; pebbles and cobbles (20%).	0
68	70	1.5		Sand (80%), fine to medium, red, subangular; sand (20%), fine, yellow, subangular.	0
78	80	2.0		Sand (50%), medium, grey, subangular; sand (20%), fine, yellow, subangular; clay (20%), grey; mica (10%).	0
88	90	2.0		Sand (100%), medium to coarse, tan, subangular.	0
98	100	2.0		Same as 88-90.	0
108	110	2.0		Sand (80%), medium to coarse, tan, subangular; sand (20%), fine, yellow, subangular.	0
118	120	2.0		Clay (95%), grey; sand (5%), fine, yellow, subangular.	0
128	130	1.0		Sand (90%), fine to medium, grey, subangular; clay (10%), grey.	0

BORING/WELL: GM-33D2 PREPARED BY: T.R. Bouchard

PAGE: 2 of 3

SAMPLE DEPTH (FT BELOW LAND SURFACE)		CORE RECVRY (FT)	BLOW COUNTS PER 6 INCHES	SAMPLE/CORE DESCRIPTION	HNU (ppm)
FROM	TO				
138	140	1.0		Sand (85%), very fine, grey, subangular; clay (10%), grey; mica (5%).	0
148	150	1.0		Same as above.	0
158	160	1.0		Sand (90%), medium to coarse, tan, subangular; silt (10%), very fine, grey.	0
168	170	1.5		Sand (90%), medium to coarse, yellow, subangular; clay (10%), white.	0
178	180	1.0		Sand (90%), very fine, yellow, subangular; silt (10%), grey.	0
188	190	1.0		Sand (90%), medium to coarse, tan, subangular; sand (10%), medium to coarse, yellow, subangular.	0
198	200	1.0		Same as 188-190	0
208	210	2.0		Sand (70%), medium to coarse, tan, subangular; clay (20%), grey; sand (10%), medium to coarse, yellow, subangular.	0
218	220	2.0		Same as 208-210.	0
228	230	2.0		Same as 208-210.	0
238	240	1.0		Same as 208-210.	0
248	250	1.0		Same as 208-210.	0
258	260	1.5		Same as 208-210.	0
268	270	2.0		Same as 68-70.	0
278	280	1.0		Same as 68-70.	0
288	290	.5		Same as 68-70.	0
298	300	1.0		Same as 68-70	0
308	310	.5		Same as 68-70	0
318	320	1.5		Same as 68-70	0
328	330	1.0		Sand (100%), fine to medium, brown, subangular.	0
338	340	1.0		Same as above.	0
348	350	1.5		Same as 328 to 330.	0
358	360	1.5		Same as 128 to 130.	0
368	370	1.0		Same as 128 to 130.	0



## SAMPLE/CORE LOG

BORING/WELL: GM-35D2 PROJECT NO: Grumman NY008.30 PAGE: 1 of 3  
 SITE LOCATION: Jean & Ceil Sts Bethpage, NY DRILLING STARTED: 1/6/93 DRILLING COMPLETED: 1/29/93  
 TOTAL DEPTH DRILLED: 541 ft HOLE DIAMETER: 8 in. TYPE OF SAMPLE/CORING DEVICE: Split Spoon  
 LENGTH & DIAMETER OF CORING DEVICE: 2 ft x 2 in. SAMPLING INTERVAL: Every 10 ft  
 LAND-SURFACE ELEVATION: -- ( ) SURVEYED ( ) ESTIMATED DATUM: --  
 DRILLING FLUID USED: Potable water DRILLING METHOD: Hollow-stem auger & mud rotary  
 DRILLING CONTRACTOR: Delta Well & Pump Co., Inc. DRILLER: Keith HELPER: Lou  
 PREPARED BY: T.R. Bouchard HAMMER WEIGHT: 140 lbs HAMMER DROP: 30 in.

SAMPLE DEPTH (FT BELOW LAND SURFACE)		CORE RECVRY (FT)	BLOW COUNTS PER 6 INCHES	SAMPLE/CORE DESCRIPTION	HNU (ppm)
FROM	TO				
0	2			Sand, medium to coarse, brown, subrounded (80%); pebbles, rounded (15%); organics, black (5%).	0
9	11	1.5	60	As above.	0
19	21	1.0	83	As above.	0
29	31	1.0	97	As above.	0
39	41	1.2	65	As above (water at 36 ft).	0
49	51	1.8	65	As above.	0
59	61	.5	100	Sand, coarse, tan, subrounded (90%); pebbles, rounded (5%); organics, black (5%).	0
69	71	.5	93	As above.	0
79	81	.5	70	Sand, medium to coarse, tan, subangular (85%); pebbles and cobbles (10%); organics, black (5%).	0
89	91	.5	100	Sand, medium to coarse, tan, subangular (90%); organics, black (10%).	0
99	101	1.8	100	Clay, tan (85%); sand, medium, tan, subangular (10%); organics, black (5%).	.4
109	111	.6	70	0 to .3: As above. .3 to .6: Sand, medium, tan, subangular (90%); organics, black (10%).	.4
119	121	1.8	100	Sand, medium, tan, subangular (50%); clay, tan (50%).	(-)

## SAMPLE/CORE LOG (Cont.d)

BORING/WELL: GM-35D2 PREPARED BY: T.R. Bouchard PAGE: 2 of 3

SAMPLE DEPTH (FT BELOW LAND SURFACE)		CORE RECVRY (FT)	BLOW COUNTS PER 6 INCHES	SAMPLE/CORE DESCRIPTION	HNU (ppm)
FROM	TO				
129	131	1.0	100	Sand, medium, tan, subangular (90%); pebbles and cobbles (10%); orange discoloration.	(-)
139	141	.5	85	Sand, medium, tan, subangular (100%); orange discoloration.	(-)
149	151	2	85	As 89-91.	(-)
159	161	1	85	0 to .5: Pebbles and cobbles, rounded (90%); sand, very coarse, tan, subangular (10%). .5 to 1: Clay, tan (60%); sand, very fine, tan (40%).	(-)
169	171	2	60	Sand, fine to medium, tan, subangular (80%); clay, grey (20%).	0
179	181	.5	100	As 89-91.	0
189	191	.5	100	As 79-81.	.2
199	201	.5	100	As above.	0
209	211	1.0	140	As 159-161 (.5 - 1 interval).	0
219	221	1.5	100	As 89-91.	0
229	231	1.0	100	As 89-91.	
239	241	2.0	140	Clay, black (100%); lignite; abundant plant material.	.4
249	251	1.5	100	As 89-91.	0
259	261	.5	100	Sand, medium, tan, subrounded (60%); sand, medium, grey, subangular (30%); organics, black (10%).	0
269	271	1.0	75	Clay, black (70%); sand, fine, tan, subangular (30%).	.2
279	281	1.0	75	As above.	0
289	291	1.0	100	As 89-91.	0
299	301	1.0	75	As 119-121.	0
309	311	1.5	65	As 119-121.	0
319	321	1.5	75	As 119-121.	0
329	331	1.0	90	As 89-91.	0
339	341	1.0	75	Sand, medium, tan, subangular (60%); clay, black (35%); organics, black (5%).	0

## SAMPLE/CORE LOG (Cont.d)

BORING/WELL: GM-35D2 PREPARED BY: T.R. Bouchard PAGE: 3 of 3

SAMPLE DEPTH (FT BELOW LAND SURFACE)		CORE RECVRY (FT)	BLOW COUNTS PER 6 INCHES	SAMPLE/CORE DESCRIPTION	HNU (ppm)
FROM	TO				
349	351	1.5	59	Sand, medium, tan, subangular (80%); mica flakes (10%); organics, black (10%).	0
359	361	2.0	60	As above.	0
369	371	2.0	60	As above.	0
379	381	2.0	50	As 339-341.	0
389	391	1.0	75	Clay, black (80%); sand, fine, tan, sub- angular (10%); mica flakes (10%).	0
399	401	1.5	50	As 339-341.	0
409	411	1.0	100	As 89-91.	0
419	421	2.0	36	0 to 9: As 269-271. .9 to 2: As 89-91.	0
429	431	.5	65	As 89-91.	0
439	441	1.0	90	As 339-341.	0
449	451	.5	100	As 339-341.	0
459	461	1.0	80	As 89-91.	0
469	471	1.0	110	As 89-91.	0
479	481	1.0	80	As 89-91.	0
489	491	.5	90	Sand, coarse, grey, subangular (90%); organics, black (10%).	0
499	501	.5	100	As above.	0
509	511	.5	100	As above.	0
519	521	.5	100	Gravel, grey and white, subrounded, very clean.	0
529	531	.5	100	As above.	0
539	541	.5	100	As above.	0
				NOTE: HNU INOPERATIVE DUE TO RAIN.	



## SAMPLE/CORE LOG

BORING/WELL: GM-36D2 PROJECT NO: NY00808 PAGE: 1 of 4  
 SITE LOCATION: Bethpage, NY DRILLING STARTED: 10/19/92 DRILLING COMPLETED: 11/6/92  
 TOTAL DEPTH DRILLED: 551 ft HOLE DIAMETER: 8 in. TYPE OF SAMPLE/CORING DEVICE: Split Spoon  
 LENGTH & DIAMETER OF CORING DEVICE: 2 ft x 2 in. SAMPLING INTERVAL: Every 10 ft  
 LAND-SURFACE ELEVATION: ( ) SURVEYED  
( ) ESTIMATED DATUM: \_\_\_\_\_  
 DRILLING FLUID USED: Potable Water DRILLING METHOD: Hollow-Stem/Mud Rotary/Reverse Rotary  
 DRILLING CONTRACTOR: Delta Well and Pump Co., Inc. DRILLER: Joe HELPER: Lou & Keith  
 PREPARED BY: Schafer/Bouchard HAMMER WEIGHT: 140 lbs. HAMMER DROP: 30 in.

SAMPLE DEPTH (FT BELOW LAND SURFACE)		CORE RECVRY (FT)	BLOW COUNTS PER 6 INCHES	SAMPLE/CORE DESCRIPTION	HNU (ppm)
FROM	TO				
0	2	0.5	7/6/5/19	Sand (60%), coarse, brown with silt (20%) in interstices; cobble (20%) subrounded, quartz.	0
9	11	2	11/14/19/ 23	Sand (60%), fine to coarse, tan to orange to brown; silt (20%), brown; pebbles (10%), rounded to subrounded; cobbles (10%), sub-rounded.	0
19	21	2	7/9/14/23	Sand (65%), fine to coarse, tan to orange to brown; silt (20%), brown; pebbles (10%), angular to subrounded; cobbles (5%), angular to subrounded.	0
29	31	1	9/14/17/ 29	Sand (100%), fine to medium, tan to orange-red.	0
39	41	2	9/12/10/ 27	Sand (90%), fine, tan; clay (10%), tan.	0
49	51	2	4/7/11/19	Silty sand (45%), fine, tan to grey; Sand (45%), fine to medium, tan to orange; clay (10%), grey.	0
59	61	.5	35	Sand (100%), medium to coarse, orange-brown, subrounded to subangular.	0
69	71	2.0	55	Same as 59-61 ft.	0
79	81	2.0	73	Sand (90%), medium to coarse, orange-brown, subrounded to subangular; gravel (10%), grey.	0

## SAMPLE/CORE LOG (Cont.d)

BORING/WELL: GM-36D2 PREPARED BY: Schafer/Bouchard PAGE: 2 of 4

SAMPLE DEPTH (FT BELOW LAND SURFACE)		CORE RECVRY (FT)	BLOW COUNTS PER 6 INCHES	SAMPLE/CORE DESCRIPTION	HNU (ppm)
FROM	TO				
89	91	2.0	70	Sand (85%), medium to coarse, orange-brown, subrounded to subangular; gravel (10%), grey; lignite (5%).	0
99	101	2.0	55	Same as 89-91 ft.	0
109	111	1.0	55	0-.5: Sand (100%), medium to coarse, orange-brown, subrounded to subangular.	0
				.5-1.0: Sand (90%), medium to coarse, red, subrounded to subangular; cobbles (10%), white.	0
119	121	.5	55	Sand (100%), medium to coarse, orange-red, subrounded to subangular.	0
129	131	.5	73	Sand (95%), medium to coarse, orange-red, subrounded to subangular; lignite (5%) black.	0
139	141	.5	55	Same as 129-131 ft.	0
149	151	1.0	64	Sand (100%), medium to coarse, tan, subrounded to subangular.	0
159	161	1.0	55	Same as 149-151 ft.	0
169	171	.5	55	Same as 149-151 ft.	0
179	181	.7	55	Sand (80%), medium to coarse, brown, subrounded to subangular; lignite (20%), black.	0
189	191	2.0	60	0-1.5: Sand (100%), medium to coarse, brown, subrounded to subangular;	0
				1.5-2.0: Laminae of lignite and tan clay.	
199	201	1.5	20	Sand (100%), medium to coarse, tan, subrounded to subangular.	0
209	211	1.0	54	Same as 199-201 ft.	
219	221	1.0	50	Sand (85%), medium to coarse, tan, subrounded to subangular; clay (10%), orange; lignite (5%).	0
229	231	1.0	55	Same as 219-221 ft.	0
239	241	1.5	60	Same as 219-221 ft.	0

BORING/WELL: GM-36D2 PREPARED BY: Schafer/Bouchard PAGE: 3 of 4

SAMPLE DEPTH (FT BELOW LAND SURFACE)		CORE RECVRY (FT)	BLOW COUNTS PER 6 INCHES	SAMPLE/CORE DESCRIPTION	HNU (ppm)
FROM	TO				
249	251	1.0	55	Same as 219-221 ft.	0
259	261	.5	55	Same as 219-221 ft.	0
269	271	2.0	55	Clay (80%), grey; lignite (15%) woody; sand (5%), fine to medium, tan.	0
279	281	2.0	35	Same as 269-271 ft.	0
289	291	.5	45	0-.2: Same as 269-271 ft. .2-.5: Sand (100%), medium to coarse, tan.	0
299	301	.5	60	Sand (80%), medium to coarse, tan; mica (10%); clay (10%), orange.	0
309	311	1.0	48	Same as 299-301 ft.	0
319	321	.3	75	Same as 299-301 ft.	0
329	331	1.0	55	Clay (80%), black; sand (20%), medium, tan, angular.	0
339	341	.3	50	Sand (80%) medium to coarse, brown, angular; lignite (10%); mica (10%).	0
349	351	.3	30	Clay (70%), black; lignite (20%), sand (10%), brown, medium to coarse, angular.	0
359	361	1.0	60	Sand (80%), medium, yellow, angular; mica (10%); lignite (10%).	0
369	371	1.0	65	Same as 359-361 ft. Grades to grey sand.	0
379	381	.5	70	Sand (90%), medium to coarse, grey, angular; mica (10%).	0
389	391	1.0	55	Same as 379-381 ft.	0
399	401	1.0	55	Sand (90%), medium to coarse, grey, angular; clay (10%), black.	0
409	411	.5	50	Same as 399-401 ft.	0
419	421	1.0	65	Sand (90%), fine to medium, grey, angular; mica (10%).	0
429	431	2.0	60	Same as 419-421 ft.	0
439	441	1.5	70	Sand (90%), medium to coarse, grey, angular; mica (10%).	0
449	451	1.0	70	Same as 439-441 ft.	0
459	461	1.0	60	Sand (90%), medium to coarse, tan, angular;	0



## SAMPLE/CORE LOG

BORING/WELL: GM-37D2 PROJECT NO: Grumman NY008.30 PAGE: 1 of 2  
 SITE LOCATION: N. Windhorst Bethpage, NY DRILLING STARTED: 3/8/93 DRILLING COMPLETED: 3/10/93  
 TOTAL DEPTH DRILLED: 409 ft HOLE DIAMETER: 8 in. TYPE OF SAMPLE/CORING DEVICE: Mud Trough  
 LENGTH & DIAMETER OF CORING DEVICE: SAMPLING INTERVAL: Continuous  
 LAND-SURFACE ELEVATION: ( ) SURVEYED ( ) ESTIMATED DATUM:  
 DRILLING FLUID USED: Potable Water/Bentonite DRILLING METHOD: Mud Rotary  
 DRILLING CONTRACTOR: Delta Well & Pump Co., Inc. DRILLER: Keith HELPER: Lou  
 PREPARED BY: T.R. Bouchard HAMMER WEIGHT: HAMMER DROP:

SAMPLE DEPTH (FT BELOW LAND SURFACE)		CORE RECVRY (FT)	BLOW COUNTS PER 6 INCHES	SAMPLE/CORE DESCRIPTION
FROM	TO			
0	1			Topsoil.
1	22			Gravel, pebbles, cobbles.
22	23			Sand, coarse, red, subangular (80%); clay (20%).
23	24			Clay, grey (50%); fine sand (30%); gravel (20%).
34	55			Clay (50%); grey; fine sand (50%).
55	64			Sand, fine to medium, tan, subangular.
67	72			Clay, tan (60%); sand, fine (40%).
73	90			Sand, fine to medium, tan, subangular.
91	100			Sand, medium to coarse, tan, subangular (60%); clay (30%); gravel (10%).
101	105			Gravel (60%); pebbles and cobbles (20%); sand, medium, tan, subangular (20%).
105	114			Gravel (60%); sand, medium, tan, subangular (40%).
115	125			Gravel (60%); clay, white (30%); sand, fine, yellow (10%).
126	155			Sand, medium to coarse, tan, subangular (70%); clay (30%).
156	220			Sand, medium to coarse, tan, subangular (70%); clay, green, white (30%).
221	274			As above.
275	282			Clay, grey, solid.
283	302			Clay, grey, solid, alternating with fine sands.
303	340			Sand, medium to coarse, brown, subangular (80%);



## SAMPLE/CORE LOG

BORING/WELL: GM-38D2 PROJECT NO: Grumman NY008.30 PAGE: 1 of 2

SITE LOCATION: Broadway & Arthur Bethpage, NY DRILLING STARTED: 4/19/93 DRILLING COMPLETED: 4/27/93

TOTAL DEPTH DRILLED: 508 ft HOLE DIAMETER: 8 in. TYPE OF SAMPLE/CORING DEVICE: Mud Trough

LENGTH & DIAMETER OF CORING DEVICE: -- SAMPLING INTERVAL: Continuous

LAND-SURFACE ELEVATION: -- ( ) SURVEYED ( ) ESTIMATED DATUM: --

DRILLING FLUID USED: Potable water and bentonite DRILLING METHOD: Hollow-stem auger, mud and reverse rotary

DRILLING CONTRACTOR: Delta Well & Pump Co., Inc. DRILLER: Keith C. HELPER: Dennis

PREPARED BY: T.R. Bouchard HAMMER WEIGHT: -- HAMMER DROP: --

SAMPLE DEPTH (FT BELOW LAND SURFACE)		CORE RECVRY (FT)	BLOW COUNTS PER 6 INCHES	SAMPLE/CORE DESCRIPTION
FROM	TO			
0	2			Top soil - loam.
2	27			Medium to coarse sand, subangular, red (70%); gravel, medium to coarse, rounded, grey (30%).
27	58			Sand, fine to medium, subangular, red (70%); gravel, fine to medium, rounded, grey (30%).
58	70			Sand, fine to medium, subangular, red.
70	85			Sand, fine to coarse, subangular, brown.
85	88			Sand, medium to coarse, subangular, red (100%); mica, trace.
88	93			Sand, medium to coarse, subangular, red to brown (90%); gravel, small to medium, rounded (10%).
93	103			Sand, fine to medium, subangular, brown.
103	110			Sand, coarse, subangular, brown (90%); gravel, fine, rounded, grey (10%).
110	118			Sand, coarse, subangular, brown (80%); gravel, fine to coarse, rounded, grey and white (20%).
118	128			Sand, fine to medium, subangular, tan.
128	130			Gravel, fine to coarse, rounded, grey and white.
130	145			As 103 to 110.
145	162			Sand, fine to coarse, subangular, tan (90%); clay, tan (10%).
162	175			Sand, coarse, subangular, brown (75%); gravel, fine, rounded, grey (10%); clay, tan (10%); iron oxide (5%).

BORING/WELL: GM-38D2

PREPARED BY: T.R. Bouchard

PAGE: 2 of 2

SAMPLE DEPTH (FT BELOW LAND SURFACE)		CORE RECVRY (FT)	BLOW COUNTS PER 6 INCHES	SAMPLE/CORE DESCRIPTION
FROM	TO			
175	185			Sand, coarse, subangular, brown (80%); gravel, medium to coarse, rounded, grey (10%); iron oxide (5%); clay, white (5%).
185	204			Sand, fine to medium, subangular, tan (95%); clay, white (5%).
204	206			Sand, fine to medium, subangular, tan (90%); lignite (5%); clay, grey (5%).
206	222			Clays, grey and white (80%); sand, fine, subangular (20%).
222	239			Clay, grey and white (60%); sand, fine, subangular, tan (40%).
239	289			Sand, fine to coarse, subangular, tan (60%); clay, grey and white (40%).
289	320			Sand, fine to medium, subangular, tan (80%); laminae of clay (grey) and fine sand (10%); lignite (5%); mica (5%).
320	348			Sand, fine, subangular, tan (70%); silt, fine, grey (20%); clay, grey (10%).
348	365			As 239 to 289.
365	379			As 222 to 239.
379	385			As 118 to 128.
385	395			Sand, medium to coarse, subangular, tan (90%); clay, grey (10%).
395	430			Sand, medium to coarse, subangular, grey (65%); clay, grey (30%); lignite (5%).
430	458			Sand, fine, subangular, grey (95%); lignite (5%).
458	475			Sand, fine to medium, subangular, grey (70%); clay, grey (20%); mica (5%); lignite (5%).
475	508			Sand, fine to coarse, subangular, grey (85%); clay, grey (10%); mica (5%).



APPENDIX C

GROUNDWATER SAMPLING LOGS/  
CHAIN OF CUSTODY



## WATER SAMPLING LOG

PROJECT/NO.: NY00080.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/  
WELL NO.: GM-1S CODED/  
REPLICATE NO.: None DATE: 8/25/93WEATHER: Sunny 80s TIME SAMPLING  
BEGAN 11:00 am TIME SAMPLING  
COMPLETED 12:10 pm

## EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of Casing

HEIGHT OF MP  
ABOVE/BELOW LAND SURFACE:

MP ELEVATION:

TOTAL SOUNDED  
DEPTH OF WELL BELOW MP: 72.42WATER-LEVEL  
ELEVATION:HELD: DEPTH TO  
WATER BELOW MP: 69.42DIAMETER  
OF CASING: 4-inchWET: WATER  
COLUMN IN WELL: 3.00GALLONS PUMPED/BAILED  
PRIOR TO SAMPLING: 6 gallons

GALLONS PER FOOT: 0.65

SAMPLING PUMP INTAKE  
SETTING (feet below  
land surface):

GALLONS IN WELL: 1.95

EVACUATION METHOD: Teflon bailer

## SAMPLING DATA/FIELD PARAMETERS

COLOR: Orange-brown ODOR: None

APPEARANCE: Turbid TEMPERATURE: 19/17.5/18/18/17.5 °C

OTHER (specific ion; OVA; HNU; etc):

SPECIFIC CONDUCTANCE  
umhos/cm: 145/165/175/220/205 pH 5.30/5.23/5.05/5.17/5.05

SAMPLING METHOD AND MATERIAL: Teflon bailer

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	40-ml vials	None
TAL metals	1L poly	HNO3
Cr+6/CN	.5L poly/1L poly	None/NaOH

REMARKS:

SAMPLING PERSONNEL: David Vines and Susan Peters

GAL./FT	WELL CASING VOLUMES			
1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65	
1-1/2" = 0.14	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

## WATER SAMPLING LOG

PROJECT/NO.: NY00080.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/WELL NO.: GM-11 CODED/REPLICATE NO.: None DATE: 8/25/93

WEATHER: Sunny 80s TIME SAMPLING BEGAN 10:00 am TIME SAMPLING COMPLETED 1:00 pm

## EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of Casing

HEIGHT OF MP ABOVE/BELOW LAND SURFACE: MP ELEVATION:

TOTAL SOUNDED DEPTH OF WELL BELOW MP: 125.00 WATER-LEVEL ELEVATION:

HELD: DEPTH TO WATER BELOW MP: 69.73 DIAMETER OF CASING: 4-inch

WET: WATER COLUMN IN WELL: 12 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 23.4 gallons

GALLONS PER FOOT: 0.65 SAMPLING PUMP INTAKE SETTING (feet below land surface):

GALLONS IN WELL: 7.8

EVACUATION METHOD: Permanent bladder pump with packer

## SAMPLING DATA/FIELD PARAMETERS

COLOR: Colorless ODOR: None

APPEARANCE: Clear TEMPERATURE: 19/19/19/19 °C

OTHER (specific ion; OVA; HNU; etc):

SPECIFIC CONDUCTANCE umhos/cm: 215/190/195/195 pH 5.38/5.02/5.57/5.52

SAMPLING METHOD AND MATERIAL: Pump discharge

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None
TAL metals	1L poly	HNO3
Cr+6/CN	.5L poly/1L poly	None/NaOH

REMARKS: 43 feet of submergence. Packer inflated to 65 psi.

SAMPLING PERSONNEL: Gary Williams and Tammie-Rae Bouchard

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
	1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46

## WATER SAMPLING LOG

PROJECT/NO.: NY00080.030 PAGE 1 OF 1  
 SITE LOCATION: Grumman/Bethpage, NY  
 SITE/WELL NO.: GM-2S (N-10590) CODED/REPLICATE NO.: None DATE: 8/25/93  
 WEATHER: Sunny 80s TIME SAMPLING BEGAN 10:00 am TIME SAMPLING COMPLETED 11:00 am

## EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of Casing  
 HEIGHT OF MP ABOVE/BELOW LAND SURFACE: \_\_\_\_\_ MP ELEVATION: \_\_\_\_\_  
 TOTAL SOUNDED DEPTH OF WELL BELOW MP: 76.00 WATER-LEVEL ELEVATION: \_\_\_\_\_  
 HELD: DEPTH TO WATER BELOW MP: 64.03 DIAMETER OF CASING: 2-inch  
 WET: WATER COLUMN IN WELL: 11.97 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 6 gallons  
 GALLONS PER FOOT: 0.16 SAMPLING PUMP INTAKE SETTING (feet below land surface): \_\_\_\_\_  
 GALLONS IN WELL: 1.92  
 EVACUATION METHOD: 2-inch Teflon bailer

## SAMPLING DATA/FIELD PARAMETERS

COLOR: Brown ODOR: None  
 APPEARANCE: Turbid TEMPERATURE: 17/18/18 °C  
 OTHER (specific ion; OVA; HNU; etc): \_\_\_\_\_  
 SPECIFIC CONDUCTANCE umhos/cm: 70/75/75 pH 7.03/6.48/6.42

SAMPLING METHOD AND MATERIAL: 2-inch Teflon bailer

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None
_____	_____	_____
_____	_____	_____

REMARKS: Well dry after 2-1/2 gallons (total depth 73 feet).

SAMPLING PERSONNEL: David Vines and Susan Peters

GAL./FT	WELL CASING VOLUMES			
1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65	
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

WATER SAMPLING LOG

PROJECT/NO.: NY00080.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/WELL NO.: GM-2I CODED/REPLICATE NO.: GM-REP1 DATE: 8/25/93

WEATHER: Sunny 80s TIME SAMPLING BEGAN 1:00 pm TIME SAMPLING COMPLETED 4:00 pm

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of Casing

HEIGHT OF MP ABOVE/BELOW LAND SURFACE:		MP ELEVATION:	
TOTAL SOUNDED DEPTH OF WELL BELOW MP:	<u>115.00</u>	WATER-LEVEL ELEVATION:	
HELD: DEPTH TO WATER BELOW MP:	<u>64.23</u>	DIAMETER OF CASING:	<u>4-inch</u>
WET: WATER COLUMN IN WELL:	<u>12</u>	GALLONS PUMPED/BAILED PRIOR TO SAMPLING:	<u>23.4 gallons</u>
GALLONS PER FOOT:	<u>0.65</u>	SAMPLING PUMP INTAKE SETTING (feet below land surface):	<u>---</u>
GALLONS IN WELL:	<u>7.8</u>		

EVACUATION METHOD: Permanent bladder pump with packer

SAMPLING DATA/FIELD PARAMETERS

COLOR: Colorless ODOR: None  
 APPEARANCE: Clear TEMPERATURE: 19/19/19/19 °C

OTHER (specific ion; OVA; HNU; etc): \_\_\_\_\_

SPECIFIC CONDUCTANCE umhos/cm: 50/65/60/60 pH 5.90/5.39/5.20/5.20

SAMPLING METHOD AND MATERIAL: Pump discharge

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None
TAL Metals	1L poly	HNO3
Cr+6/CN	.5L poly/1L poly	None/NaOH

REMARKS: 39 feet submergence. Packer inflated to 60 psi.

SAMPLING PERSONNEL: Gary Williams and Tammie-Rae Bouchard

GAL./FT	WELL CASING VOLUMES			
1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65	
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

WATER SAMPLING LOG

PROJECT/NO.: NY00080.030 PAGE 1 OF 1  
 SITE LOCATION: Grumman/Bethpage, NY  
 SITE/WELL NO.: GM-3S CODED/REPLICATE NO.: DATE: 8/25/93  
 WEATHER: Sunny 90s TIME SAMPLING BEGAN 1:16 pm TIME SAMPLING COMPLETED 2:05 pm

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of Casing

HEIGHT OF MP ABOVE/BELOW LAND SURFACE:		MP ELEVATION:
TOTAL SOUNDED DEPTH OF WELL BELOW MP:	93.00	WATER-LEVEL ELEVATION:
HELD: DEPTH TO WATER BELOW MP:	65.94	DIAMETER OF CASING: 2-inch
WET: WATER COLUMN IN WELL:	27.06	GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 13 gallons
GALLONS PER FOOT:	0.16	SAMPLING PUMP INTAKE SETTING (feet below land surface):
GALLONS IN WELL:	4.32	---

EVACUATION METHOD: 2-inch submersible pump Q=15 gpm T=9 min.

SAMPLING DATA/FIELD PARAMETERS

COLOR: Brown ODOR: None  
 APPEARANCE: Turbid TEMPERATURE: 19/20/18.5/18.5 °C  
 OTHER (specific ion; OVA; HNU; etc):  
 SPECIFIC CONDUCTANCE umhos/cm: 100/85/82/81/82 pH 6.72/6.00/5.70/5.40/5.39

SAMPLING METHOD AND MATERIAL: Teflon bailer

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None

REMARKS:

SAMPLING PERSONNEL: David Vines and Susan Peters

GAL./FT	WELL CASING VOLUMES			
1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65	
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

## WATER SAMPLING LOG

PROJECT/NO.: NY00080.030 PAGE 1 OF 1  
 SITE LOCATION: Grumman/Bethpage, NY  
 SITE/WELL NO.: GM-3I CODED/REPLICATE NO.: DATE: 8/26/93  
 WEATHER: Sunny 90s TIME SAMPLING BEGAN 9:00 am TIME SAMPLING COMPLETED 12:00 pm

## EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of Casing  
 HEIGHT OF MP ABOVE/BELOW LAND SURFACE: MP ELEVATION:  
 TOTAL SOUNDED DEPTH OF WELL BELOW MP: 120.00 WATER-LEVEL ELEVATION:  
 HELD: DEPTH TO WATER BELOW MP: 64.82 DIAMETER OF CASING: 4-inch  
 WET: WATER COLUMN IN WELL: 12 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 23.4 gallons  
 GALLONS PER FOOT: 0.65 SAMPLING PUMP INTAKE SETTING (feet below land surface): --  
 GALLONS IN WELL: 7.8  
 EVACUATION METHOD: Permanent bladder pump with packer.

## SAMPLING DATA/FIELD PARAMETERS

COLOR: Colorless ODOR: None  
 APPEARANCE: Clear TEMPERATURE: 18/17/17/17 °C  
 OTHER (specific ion; OVA; HNU; etc):  
 SPECIFIC CONDUCTANCE umhos/cm: 90/90/85/85 pH 5.66/4.8/5.30/5.33

SAMPLING METHOD AND MATERIAL: Pump discharge.

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None

REMARKS: Leaky packer. 43 feet of submergence. Packer inflated to 65 psi.

SAMPLING PERSONNEL: Gary Williams and Tammie-Rae Bouchard

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

## WATER SAMPLING LOG

PROJECT/NO.: NY00080.030 PAGE 1 OF 1  
 SITE LOCATION: Grumman/Bethpage, NY  
 SITE/WELL NO.: GM-4S (S-1) CODED/REPLICATE NO.: DATE: 8/24/93  
 WEATHER: Sunny 80 TIME SAMPLING BEGAN 12:10 pm TIME SAMPLING COMPLETED 1:50 pm

## EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of Casing  
 HEIGHT OF MP ABOVE/BELOW LAND SURFACE: MP ELEVATION:  
 TOTAL SOUNDED DEPTH OF WELL BELOW MP: 65.00 WATER-LEVEL ELEVATION:  
 HELD: DEPTH TO WATER BELOW MP: 62.12 DIAMETER OF CASING: 2-inch  
 WET: WATER COLUMN IN WELL: 2.88 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 2 gallons  
 GALLONS PER FOOT: 0.16 SAMPLING PUMP INTAKE SETTING (feet below land surface):  
 GALLONS IN WELL: 0.46  
 EVACUATION METHOD: 2-inch Teflon bailer.

## SAMPLING DATA/FIELD PARAMETERS

COLOR: Orange-brown ODOR: None  
 APPEARANCE: Turbid TEMPERATURE: 13/17.5/17.5 °C  
 OTHER (specific ion; OVA; HNU; etc):  
 SPECIFIC CONDUCTANCE umhos/cm: 115/112/115 pH 7.00/6.40/6.35

SAMPLING METHOD AND MATERIAL: 2-inch Teflon bailer.

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None

REMARKS:

SAMPLING PERSONNEL: David Vines and Susan Peters

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	



WATER SAMPLING LOG

PROJECT/NO.: NY00080.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/WELL NO.: GM-4I CODED/REPLICATE NO.: DATE: 8/24/93

WEATHER: Sunny 80 TIME SAMPLING BEGAN 12:10 pm TIME SAMPLING COMPLETED 1:50 pm

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of Casing

HEIGHT OF MP ABOVE/BELOW LAND SURFACE: \_\_\_\_\_ MP ELEVATION: \_\_\_\_\_

TOTAL SOUNDED DEPTH OF WELL BELOW MP: 150.00 WATER-LEVEL ELEVATION: \_\_\_\_\_

HELD: \_\_\_\_\_ DEPTH TO WATER BELOW MP: 63.76 DIAMETER OF CASING: 2-inch

WET: \_\_\_\_\_ WATER COLUMN IN WELL: 86.24 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 42 gallons

GALLONS PER FOOT: 0.16 SAMPLING PUMP INTAKE SETTING (feet below land surface): \_\_\_\_\_

GALLONS IN WELL: 13.80

EVACUATION METHOD: 2-inch submersible pump. Q=1.5 gpm T=28 min.

SAMPLING DATA/FIELD PARAMETERS

COLOR: Colorless ODOR: None

APPEARANCE: Slightly turbid TEMPERATURE: 13/17.5/17.5 °C

OTHER (specific ion; OVA; HNU; etc): \_\_\_\_\_

SPECIFIC CONDUCTANCE umhos/cm: 223/200/195 pH 7.85/6.50/6.45

SAMPLING METHOD AND MATERIAL: 2-inch Teflon bailer.

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None

REMARKS: \_\_\_\_\_

SAMPLING PERSONNEL: David Vines and Susan Peters

GAL./FT	WELL CASING VOLUMES			
1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65	
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

## WATER SAMPLING LOG

PROJECT/NO.: NY00080.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/  
WELL NO.: GM-5S (T-1) CODED/  
REPLICATE NO.: DATE: 8/24/93WEATHER: Sunny 80 TIME SAMPLING  
BEGAN 1:55 pm TIME SAMPLING  
COMPLETED 2:30 pm

## EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of Casing

HEIGHT OF MP  
ABOVE/BELOW LAND SURFACE:

MP ELEVATION:

TOTAL SOUNDED  
DEPTH OF WELL BELOW MP: 65.00WATER-LEVEL  
ELEVATION:HELD: DEPTH TO  
WATER BELOW MP: 62.55DIAMETER  
OF CASING: 2-inchWET: WATER  
COLUMN IN WELL: 2.45GALLONS PUMPED/BAILED  
PRIOR TO SAMPLING: 2 gallons

GALLONS PER FOOT: 0.16

SAMPLING PUMP INTAKE  
SETTING (feet below  
land surface):

GALLONS IN WELL: 0.392

EVACUATION METHOD: 2-inch Teflon bailer

## SAMPLING DATA/FIELD PARAMETERS

COLOR: Brown

ODOR: None

APPEARANCE: Turbid

TEMPERATURE: 18/18/18 °C

OTHER (specific ion; OVA; HNU; etc):

SPECIFIC CONDUCTANCE

umhos/cm: 415/395/390

pH 5.0/5.0/5.1

SAMPLING METHOD AND MATERIAL: 2-inch Teflon bailer

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None

REMARKS:

SAMPLING PERSONNEL: David Vines and Susan Peters

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

WATER SAMPLING LOG

PROJECT/NO.: NY00080.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/WELL NO.: GM-5I CODED/REPLICATE NO.: DATE: 8/24/93

WEATHER: Sunny 80 TIME SAMPLING BEGAN 1:55 pm TIME SAMPLING COMPLETED 3:15 pm

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of Casing

HEIGHT OF MP ABOVE/BELOW LAND SURFACE: MP ELEVATION:

TOTAL SOUNDED DEPTH OF WELL BELOW MP: 150.00 WATER-LEVEL ELEVATION:

HELD: DEPTH TO WATER BELOW MP: 62.92 DIAMETER OF CASING: 2-inch

WET: WATER COLUMN IN WELL: 87.08 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 42 gallons

GALLONS PER FOOT: 0.16 SAMPLING PUMP INTAKE SETTING (feet below land surface):

GALLONS IN WELL: 13.93

EVACUATION METHOD: 2-inch submersible pump; Q=1.5 gpm T=28 min.

SAMPLING DATA/FIELD PARAMETERS

COLOR: Light brown ODOR: None

APPEARANCE: Slightly turbid TEMPERATURE: 18.5/17.5/17.5 °C

OTHER (specific ion; OVA; HNU; etc):

SPECIFIC CONDUCTANCE umhos/cm: 90/90/90 pH 5.85/5.8/5.90

SAMPLING METHOD AND MATERIAL: 2-inch Teflon bailer

Table with 3 columns: CONSTITUENTS SAMPLED, CONTAINER DESCRIPTION FROM LAB x OR G&M, PRESERVATIVE. Row 1: TCL VOCs, Three 40-ml vials, None.

REMARKS:

SAMPLING PERSONNEL: David Vines and Susan Peters

Table with 2 columns: GAL./FT, WELL CASING VOLUMES. Rows show volumes for 1-1/4", 1-1/2", 2", 2-1/2", 3", 3-1/2", 4", 6" casing diameters.

## WATER SAMPLING LOG

PROJECT/NO.: NY00080.030 PAGE 1 OF 1  
 SITE LOCATION: Grumman/Bethpage, NY  
 SITE/WELL NO.: GM-6S CODED/REPLICATE NO.: DATE: 8/24/93  
 WEATHER: Sunny/90s TIME SAMPLING BEGAN 9:45 am TIME SAMPLING COMPLETED 10:25 am

## EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of Casing  
 HEIGHT OF MP ABOVE/BELOW LAND SURFACE: MP ELEVATION:  
 TOTAL SOUNDED DEPTH OF WELL BELOW MP: 77.70 WATER-LEVEL ELEVATION:  
 HELD: DEPTH TO WATER BELOW MP: 65.64 DIAMETER OF CASING: 4-inch  
 WET: WATER COLUMN IN WELL: 12.06 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 24 gallons  
 GALLONS PER FOOT: 0.65 SAMPLING PUMP INTAKE SETTING (feet below land surface):  
 GALLONS IN WELL: 7.84  
 EVACUATION METHOD: 4-inch submersible pump; Q=1 gpm T= 24 min.

## SAMPLING DATA/FIELD PARAMETERS

COLOR: Orange-pink ODOR: None  
 APPEARANCE: Turbid TEMPERATURE: 21/20/20/18 °C  
 OTHER (specific ion; OVA; HNU; etc):  
 SPECIFIC CONDUCTANCE umhos/cm: 440/440/420/410 pH 5.9/5.7/5.8/5.5

SAMPLING METHOD AND MATERIAL: 2-inch Teflon bailer

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None

REMARKS: Collected FB-823 before sampling (after decon). Split sample with NYSDEC.

SAMPLING PERSONNEL: David Vines and Susan Peters

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

## WATER SAMPLING LOG

PROJECT/NO.: NY00080.030 PAGE 1 OF 1  
 SITE LOCATION: Grumman/Bethpage, NY  
 SITE/WELL NO.: GM-6I CODED/REPLICATE NO.: REP-2 DATE: 8/23/93  
 WEATHER: Sunny 80s TIME SAMPLING BEGAN 9:30 am TIME SAMPLING COMPLETED 12:30 pm

## EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of Casing  
 HEIGHT OF MP ABOVE/BELOW LAND SURFACE: \_\_\_\_\_ MP ELEVATION: \_\_\_\_\_  
 TOTAL SOUNDED DEPTH OF WELL BELOW MP: 143.00 WATER-LEVEL ELEVATION: \_\_\_\_\_  
 HELD: DEPTH TO WATER BELOW MP: 61.18 DIAMETER OF CASING: 4-inch  
 WET: WATER COLUMN IN WELL: 12. GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 23.4 gallons  
 GALLONS PER FOOT: 0.65 SAMPLING PUMP INTAKE SETTING (feet below land surface): \_\_\_\_\_  
 GALLONS IN WELL: 7.8  
 EVACUATION METHOD: Permanent bladder pump with packer

## SAMPLING DATA/FIELD PARAMETERS

COLOR: Colorless ODOR: None  
 APPEARANCE: Clear TEMPERATURE: 18/18/18/18 °C  
 OTHER (specific ion; OVA; HNU; etc): \_\_\_\_\_  
 SPECIFIC CONDUCTANCE umhos/cm: 100/100/100/100 pH 5.6/5.6/5.6

SAMPLING METHOD AND MATERIAL: Pump discharge.

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None
TAL metals	1L poly	HNO3
Cr+6/CN	.5 poly/1L poly	None/NaOH

REMARKS: 70 feet of submergence; packer inflated to 75 psi. Split sample with NYSDEC.

SAMPLING PERSONNEL: Gary Williams and Tammie-Rae Bouchard

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

## WATER SAMPLING LOG

PROJECT/NO.: NY00080.030 PAGE 1 OF 1  
 SITE LOCATION: Grumman/Bethpage, NY  
 SITE/WELL NO.: GM-7S CODED/REPLICATE NO.: DATE: 8/26/93  
 WEATHER: Sunny 70s TIME SAMPLING BEGAN 8:41 am TIME SAMPLING COMPLETED 9:38 am

## EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of Casing  
 HEIGHT OF MP ABOVE/BELOW LAND SURFACE: MP ELEVATION:  
 TOTAL SOUNDED DEPTH OF WELL BELOW MP: 59.00 WATER-LEVEL ELEVATION:  
 HELD: DEPTH TO WATER BELOW MP: 57.58 DIAMETER OF CASING: 4-inch  
 WET: WATER COLUMN IN WELL: 1.42 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 3 gallons  
 GALLONS PER FOOT: 0.65 SAMPLING PUMP INTAKE SETTING (feet below land surface):  
 GALLONS IN WELL: 0.923  
 EVACUATION METHOD: 2-inch Teflon bailer

## SAMPLING DATA/FIELD PARAMETERS

COLOR: Orange ODOR: None  
 APPEARANCE: Very turbid TEMPERATURE: 19.5/18/18/18 °C  
 OTHER (specific ion; OVA; HNU; etc):  
 SPECIFIC CONDUCTANCE umhos/cm: 209/265/255/255 pH 5.16/5.05/4.95/5.02

SAMPLING METHOD AND MATERIAL: Teflon bailer

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None

REMARKS:

SAMPLING PERSONNEL: David Vines and Susan Peters

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

## WATER SAMPLING LOG

PROJECT/NO.: NY00080.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/  
WELL NO.: GM-7ICODED/  
REPLICATE NO.:

DATE: 8/26/93

WEATHER: Sunny 90s

TIME SAMPLING  
BEGAN 1:00 pmTIME SAMPLING  
COMPLETED 5:00 pmEVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP):

HEIGHT OF MP  
ABOVE/BELOW LAND SURFACE:

MP ELEVATION:

TOTAL SOUNDED  
DEPTH OF WELL BELOW MP: 115.00WATER-LEVEL  
ELEVATION:HELD: DEPTH TO  
WATER BELOW MP: 57.68DIAMETER  
OF CASING: 4-inchWET: WATER  
COLUMN IN WELL: 12GALLONS PUMPED/BAILED  
PRIOR TO SAMPLING: 23.4 gallons

GALLONS PER FOOT: 0.65

SAMPLING PUMP INTAKE  
SETTING (feet below  
land surface): ---

GALLONS IN WELL: 7.8

EVACUATION METHOD: Permanent bladder pump with packer

SAMPLING DATA/FIELD PARAMETERS

COLOR: Colorless

ODOR: None

APPEARANCE: Clear

TEMPERATURE: 25/22/20/21 °C

OTHER (specific ion; OVA; HNU; etc):

SPECIFIC CONDUCTANCE

umhos/cm: 115/140/140/140

pH 6.20/5.61/5.30/5.16

SAMPLING METHOD AND MATERIAL: Pump discharge.

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None
TAL metals	1L poly	HNO3
Cr+6/CN	.5L poly/1L poly	None/NaOH

REMARKS: 45 feet of submergence; packer inflated to 65 psi.

SAMPLING PERSONNEL: Gary Williams/Tammie-Rae Bouchard

GAL./FT	WELL CASING VOLUMES				
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65	
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46		

WATER SAMPLING LOG
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PROJECT/NO.: NY00080.030 PAGE 1 OF 1  
 SITE LOCATION: Grumman/Bethpage, NY  
 SITE/WELL NO.: GM-7D CODED/REPLICATE NO.: DATE: 8/26/93  
 WEATHER: Sunny 90s TIME SAMPLING BEGAN 1:00 pm TIME SAMPLING COMPLETED 5:00 pm

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing  
 HEIGHT OF MP ABOVE/BELOW LAND SURFACE: MP ELEVATION:  
 TOTAL SOUNDED DEPTH OF WELL BELOW MP: 220.00 WATER-LEVEL ELEVATION:  
 HELD: DEPTH TO WATER BELOW MP: 60.48 DIAMETER OF CASING: 4-inch  
 WET: WATER COLUMN IN WELL: 12 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 23.4 gallons  
 GALLONS PER FOOT: 0.65 SAMPLING PUMP INTAKE SETTING (feet below land surface):  
 GALLONS IN WELL: 7.8  
 EVACUATION METHOD: Permanent bladder pump with packer

SAMPLING DATA/FIELD PARAMETERS

COLOR: Green to clear ODOR: None  
 APPEARANCE: Clear TEMPERATURE: 22/22/20/20 °C  
 OTHER (specific ion; OVA; HNU; etc):  
 SPECIFIC CONDUCTANCE umhos/cm: 160/125/130/130 pH 6.47/5.21/5.18/5.15

SAMPLING METHOD AND MATERIAL: Pump discharge.

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None
TAL metals	1L poly	HNO3
Cr+6/CN	.5L poly/1L poly	None/NaOH

REMARKS: 147 feet of submergence; packer inflated to 100 psi.

SAMPLING PERSONNEL: Gary Williams/Tammie-Rae Bouchard

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	



WATER SAMPLING LOG

PROJECT/NO.: NY00080.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/WELL NO.: GM-8S CODED/REPLICATE NO.: \_\_\_\_\_ DATE: 8/25/93

WEATHER: Sunny 90s TIME SAMPLING BEGAN 3:17 pm TIME SAMPLING COMPLETED 4:45 pm

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing

HEIGHT OF MP ABOVE/BELOW LAND SURFACE: \_\_\_\_\_ MP ELEVATION: \_\_\_\_\_

TOTAL SOUNDED DEPTH OF WELL BELOW MP: 58.00 WATER-LEVEL ELEVATION: \_\_\_\_\_

HELD: DEPTH TO WATER BELOW MP: 54.44 DIAMETER OF CASING: 4-inch

WET: WATER COLUMN IN WELL: 3.56 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 7 gallons

GALLONS PER FOOT: 0.65 SAMPLING PUMP INTAKE SETTING (feet below land surface): \_\_\_\_\_

GALLONS IN WELL: 2.32

EVACUATION METHOD: Teflon bailer

SAMPLING DATA/FIELD PARAMETERS

COLOR: Orange-pink ODOR: None

APPEARANCE: Very turbid TEMPERATURE: 20.5/20.5/20.5/20.5 °C

OTHER (specific ion; OVA; HNU; etc): \_\_\_\_\_

SPECIFIC CONDUCTANCE umhos/cm: 75/75/78/78 pH 5.68/5.30/5.39/5.45

SAMPLING METHOD AND MATERIAL: Teflon bailer

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None

REMARKS: \_\_\_\_\_

SAMPLING PERSONNEL: Susan Peters/David Vines

GAL./FT	WELL CASING VOLUMES			
1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65	
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

## WATER SAMPLING LOG

PROJECT/NO.: NY00080.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/  
WELL NO.: GM-81 CODED/  
REPLICATE NO.: DATE: 8/27/93WEATHER: Sunny 90s TIME SAMPLING  
BEGAN 11:30 am TIME SAMPLING  
COMPLETED 2:30 pm

## EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing

HEIGHT OF MP  
ABOVE/BELOW LAND SURFACE:

MP ELEVATION:

TOTAL SOUNDED  
DEPTH OF WELL BELOW MP: 115.00WATER-LEVEL  
ELEVATION:HELD: DEPTH TO  
WATER BELOW MP: 55.80DIAMETER  
OF CASING: 4-inchWET: WATER  
COLUMN IN WELL: 12GALLONS PUMPED/BAILED  
PRIOR TO SAMPLING: 23.4 gallons

GALLONS PER FOOT: 0.65

SAMPLING PUMP INTAKE  
SETTING (feet below  
land surface):

GALLONS IN WELL: 7.8

EVACUATION METHOD: Permanent bladder pump with packer

## SAMPLING DATA/FIELD PARAMETERS

COLOR: Green to colorless

ODOR: None

APPEARANCE: Clear

TEMPERATURE: 21/21/21/21 °C

OTHER (specific ion; OVA; HNU; etc):

SPECIFIC CONDUCTANCE

umhos/cm: 135/135/135/145

pH 5.65/5.04/5.10/5.03

SAMPLING METHOD AND MATERIAL: Pump discharge.

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None
TAL metals	1L poly	HNO3
Cr+6/CN	.5 L poly/1L poly	None/NaOH

REMARKS: 47 feet of submergence; packer inflated to 65 psi.

SAMPLING PERSONNEL: Gary Williams/Tammie-Rae Bouchard

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
	1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46

## WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1  
 SITE LOCATION: Grumman/Bethpage, NY  
 SITE/WELL NO.: GM-9S CODED/REPLICATE NO.: DATE: 8/24/93  
 WEATHER: Overcast 70s TIME SAMPLING BEGAN 8:50 am TIME SAMPLING COMPLETED 9:45 am

## EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing  
 HEIGHT OF MP ABOVE/BELOW LAND SURFACE: MP ELEVATION:  
 TOTAL SOUNDED DEPTH OF WELL BELOW MP: 65.00 WATER-LEVEL ELEVATION:  
 HELD: DEPTH TO WATER BELOW MP: 62.52 DIAMETER OF CASING: 2-inch  
 WET: WATER COLUMN IN WELL: 2.49 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 2 gallons  
 GALLONS PER FOOT: 0.16 SAMPLING PUMP INTAKE SETTING (feet below land surface):  
 GALLONS IN WELL: 0.40  
 EVACUATION METHOD: 2-inch Teflon bailer

## SAMPLING DATA/FIELD PARAMETERS

COLOR: Light brown ODOR: None  
 APPEARANCE: Slightly turbid TEMPERATURE: 17/17/17/17 °C  
 OTHER (specific ion; OVA; HNU; etc):  
 SPECIFIC CONDUCTANCE umhos/cm: 320/320/320/330 pH 5.80/5.85/5.80/6.0  
 SAMPLING METHOD AND MATERIAL: 2-inch Teflon bailer

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None

REMARKS: Split sample with NYSDEC.

SAMPLING PERSONNEL: David Vines/Susan Peters

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

## WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/WELL NO.: GM-9I CODED/REPLICATE NO.: DATE: 8/24/93

WEATHER: Overcast high 70s TIME SAMPLING BEGAN 10:35 am TIME SAMPLING COMPLETED 12:05 pm

## EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing

HEIGHT OF MP ABOVE/BELOW LAND SURFACE: MP ELEVATION:

TOTAL SOUNDED DEPTH OF WELL BELOW MP: 150.00 WATER-LEVEL ELEVATION:

HELD: DEPTH TO WATER BELOW MP: 62.49 DIAMETER OF CASING: 2-inch

WET: WATER COLUMN IN WELL: 87.51 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 43 gallons

GALLONS PER FOOT: 0.16 SAMPLING PUMP INTAKE SETTING (feet below land surface):

GALLONS IN WELL: 14

EVACUATION METHOD: 2-inch submersible pump; Q=4 gpm T=11 min.

## SAMPLING DATA/FIELD PARAMETERS

COLOR: Colorless ODOR: Yes

APPEARANCE: Clear TEMPERATURE: 18/17/17.5 °C

OTHER (specific ion; OVA; HNU; etc):

SPECIFIC CONDUCTANCE umhos/cm: 180/180/200 pH 6.20/6.3/6.25

SAMPLING METHOD AND MATERIAL: 2-inch Teflon bailer

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None

REMARKS: Field blank (FB824) prepared before sampling Well 9I, after 9S.  
Split sample with NYSDEC.

SAMPLING PERSONNEL: David Vines/Susan Peters

GAL./FT		WELL CASING VOLUMES					
1-1/4"	= 0.077	2"	= 0.16	3"	= 0.37	4"	= 0.65
1-1/2"	= 0.10	2-1/2"	= 0.24	3-1/2"	= 0.50	6"	= 1.46

## WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1  
 SITE LOCATION: Grumman/Bethpage, NY  
 SITE/WELL NO.: GM-10S CODED/REPLICATE NO.: \_\_\_\_\_ DATE: 8/25/93  
 WEATHER: Sunny 80s TIME SAMPLING BEGAN 8:39 am TIME SAMPLING COMPLETED 9:55 am

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing  
 HEIGHT OF MP ABOVE/BELOW LAND SURFACE: \_\_\_\_\_ MP ELEVATION: \_\_\_\_\_  
 TOTAL SOUNDED DEPTH OF WELL BELOW MP: 67.70 WATER-LEVEL ELEVATION: \_\_\_\_\_  
 HELD: \_\_\_\_\_ DEPTH TO WATER BELOW MP: 54.98 DIAMETER OF CASING: 4-inch  
 WET: \_\_\_\_\_ WATER COLUMN IN WELL: 12.72 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 25 gallons  
 GALLONS PER FOOT: 0.65 SAMPLING PUMP INTAKE SETTING (feet below land surface): \_\_\_\_\_  
 GALLONS IN WELL: 8.27  
 EVACUATION METHOD: 2-inch submersible pump; Q=1.5 gpm T=17 min.

SAMPLING DATA/FIELD PARAMETERS

COLOR: Tan ODOR: None  
 APPEARANCE: Slightly turbid TEMPERATURE: 18/19/19.5/20 °C  
 OTHER (specific ion; OVA; HNU; etc): \_\_\_\_\_  
 SPECIFIC CONDUCTANCE umhos/cm: 85/90/90/85 pH 4.96

SAMPLING METHOD AND MATERIAL: Teflon bailer

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None
_____	_____	_____
_____	_____	_____

REMARKS: Teflon bailer

SAMPLING PERSONNEL: David Vines/Susan Peters

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

## WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/WELL NO.: GM-101 CODED/REPLICATE NO.: DATE: 8/27/93

WEATHER: Sunny 90s TIME SAMPLING BEGAN 9:00 am TIME SAMPLING COMPLETED 11:30 am

## EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing

HEIGHT OF MP ABOVE/BELOW LAND SURFACE:

MP ELEVATION:

TOTAL SOUNDED DEPTH OF WELL BELOW MP: 120.00

WATER-LEVEL ELEVATION:

HELD: DEPTH TO WATER BELOW MP: 51.65

DIAMETER OF CASING: 4-inch

WET: WATER COLUMN IN WELL: 12

GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 23.4 gallons

GALLONS PER FOOT: 0.65

SAMPLING PUMP INTAKE SETTING (feet below land surface):

GALLONS IN WELL: 7.8

EVACUATION METHOD: Permanent bladder pump with packer

## SAMPLING DATA/FIELD PARAMETERS

COLOR: Green to colorless

ODOR: None

APPEARANCE: Clear

TEMPERATURE: 20/20/19/20 ° C

OTHER (specific ion; OVA; HNU; etc):

SPECIFIC CONDUCTANCE

umhos/cm: 410/190/140/140

pH 10.20/6.31/5.19/5.19

SAMPLING METHOD AND MATERIAL: Pump discharge.

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None

REMARKS: 56 feet of submergence; packer inflated to 70 psi. MS and MSD collected here.

SAMPLING PERSONNEL: David Vines/Susan Peters

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/WELL NO.: GM-12S CODED/REPLICATE NO.: DATE: 8/26/93

WEATHER: Sunny 90s TIME SAMPLING BEGAN 12:45 pm TIME SAMPLING COMPLETED 1:50 pm

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing

HEIGHT OF MP ABOVE/BELOW LAND SURFACE: MP ELEVATION:

TOTAL SOUNDED DEPTH OF WELL BELOW MP: 55.00 WATER-LEVEL ELEVATION:

HELD: DEPTH TO WATER BELOW MP: 53.01 DIAMETER OF CASING: 4-inch

WET: WATER COLUMN IN WELL: 1.99 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 4 gallons

GALLONS PER FOOT: 0.65 SAMPLING PUMP INTAKE SETTING (feet below land surface):

GALLONS IN WELL: 1.29

EVACUATION METHOD: 2-inch Teflon bailer

SAMPLING DATA/FIELD PARAMETERS

COLOR: Colorless ODOR: None

APPEARANCE: Clear TEMPERATURE: 18.5/18/18 C

OTHER (specific ion; OVA; HNU; etc):

SPECIFIC CONDUCTANCE umhos/cm: 192/190/190 pH 4.57/4.13/4.45

SAMPLING METHOD AND MATERIAL: 2-inch Teflon bailer

Table with 3 columns: CONSTITUENTS SAMPLED, CONTAINER DESCRIPTION FROM LAB x OR G&M, PRESERVATIVE. Row 1: TCL VOCs, Three 40-ml vials, None.

REMARKS:

SAMPLING PERSONNEL: David Vines/Susan Peters

Table with 2 columns: GAL./FT, WELL CASING VOLUMES. Rows: 1-1/4" = 0.077, 2" = 0.16, 3" = 0.37, 4" = 0.65; 1-1/2" = 0.10, 2-1/2" = 0.24, 3-1/2" = 0.50, 6" = 1.46.

WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1

ITE LOCATION: Grumman/Bethpage, NY

SITE/WELL NO.: GM-12I CODED/REPLICATE NO.: DATE: 8/27/93

WEATHER: Clear 90s TIME SAMPLING BEGAN 9:00 am TIME SAMPLING COMPLETED 10:45 am

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing

HEIGHT OF MP ABOVE/BELOW LAND SURFACE: MP ELEVATION:

TOTAL SOUNDED DEPTH OF WELL BELOW MP: 116.00 WATER-LEVEL ELEVATION:

HELD: DEPTH TO WATER BELOW MP: 53.49 DIAMETER OF CASING: 4-inch

WET: WATER COLUMN IN WELL: 11.0 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 22 gallons

GALLONS PER FOOT: 0.65 SAMPLING PUMP INTAKE SETTING (feet below land surface):

GALLONS IN WELL: 7.15

EVACUATION METHOD: Permanent bladder pump with packer; Q=3.5 min/gal T=77 min.

SAMPLING DATA/FIELD PARAMETERS

COLOR: Colorless ODOR: None

APPEARANCE: Clear TEMPERATURE: 19.5/19.5/19.5/19.5 o C

OTHER (specific ion; OVA; HNU; etc):

SPECIFIC CONDUCTANCE umhos/cm: 195/195/195/195 pH 4.21/4.03/4.03/4.03

SAMPLING METHOD AND MATERIAL: Pump discharge.

Table with 3 columns: CONSTITUENTS SAMPLED, CONTAINER DESCRIPTION FROM LAB x OR G&M, PRESERVATIVE. Row 1: TCL VOCs, Three 40-ml vials, None.

REMARKS: 52 feet of submergence; packer inflated to 76 psi.

SAMPLING PERSONNEL: Greg Ernst

Table with 2 columns: GAL./FT, WELL CASING VOLUMES. Rows: 1-1/4" = 0.077, 2" = 0.16, 3" = 0.37, 4" = 0.65; 1-1/2" = 0.10, 2-1/2" = 0.24, 3-1/2" = 0.50, 6" = 1.46.



WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/WELL NO.: GM-13S CODED/REPLICATE NO.: \_\_\_\_\_ DATE: 8/23/93

WEATHER: Sunny 80s TIME SAMPLING BEGAN 3:10 pm TIME SAMPLING COMPLETED 4:20 pm

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing

HEIGHT OF MP ABOVE/BELOW LAND SURFACE: \_\_\_\_\_ MP ELEVATION: \_\_\_\_\_

TOTAL SOUNDED DEPTH OF WELL BELOW MP: 67.00 WATER-LEVEL ELEVATION: \_\_\_\_\_

HELD: \_\_\_\_\_ DEPTH TO PACKER MP: 40.03 DIAMETER OF CASING: 2-inch

WET: \_\_\_\_\_ WATER COLUMN IN WELL: 26.97 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 13 gallons

GALLONS PER FOOT: 0.16 SAMPLING PUMP INTAKE SETTING (feet below land surface): \_\_\_\_\_

GALLONS IN WELL: 4.32

EVACUATION METHOD: 2-inch Teflon bailer

SAMPLING DATA/FIELD PARAMETERS

COLOR: Black ODOR: None

APPEARANCE: Turbid TEMPERATURE: 18/18/19/18 ° C

OTHER (specific ion; OVA; HNU; etc): \_\_\_\_\_

SPECIFIC CONDUCTANCE umhos/cm: 175/320/340/350 pH 9.45/8.5/8.55/8.40

SAMPLING METHOD AND MATERIAL: 2-inch Teflon bailer

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None
TAL metals	1L poly	HNO3
Cr+6/CN	.5L Poly/1L poly	None/NaOH

REMARKS: Split sample with NYSDEC.

SAMPLING PERSONNEL: David Vines/Susan Peters

GAL./FT	WELL CASING VOLUMES			
1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65	
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

## WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/  
WELL NO.: GM-13I CODED/  
REPLICATE NO.: DATE: 8/31/93WEATHER: Sunny 89 TIME SAMPLING  
BEGAN 1:00 pm TIME SAMPLING  
COMPLETED

## EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing

HEIGHT OF MP  
ABOVE/BELOW LAND SURFACE: MP ELEVATION:TOTAL SOUNDED  
DEPTH OF WELL BELOW MP: 109.00 WATER-LEVEL  
ELEVATION:HELD: DEPTH TO  
PACKER MP: 48.35 DIAMETER  
OF CASING: 2-inchWET: WATER  
COLUMN IN WELL: 60.65 GALLONS PUMPED/BAILED  
PRIOR TO SAMPLING: 30 gallonsGALLONS PER FOOT: 0.16 SAMPLING PUMP INTAKE  
SETTING (feet below  
land surface):

GALLONS IN WELL: 9.71

EVACUATION METHOD: 2-inch submersible pump; Q=2.5 gpm T=12 min.

## SAMPLING DATA/FIELD PARAMETERS

COLOR: Cream/brown ODOR: None

APPEARANCE: Turbid (silty) TEMPERATURE: 18.5/19.5/19/19/19.5 °C

OTHER (specific ion; OVA; HNU; etc):

SPECIFIC CONDUCTANCE  
umhos/cm: 175/212/200/200/200 pH 9.70/10.20/9.70/9.75/9.70

SAMPLING METHOD AND MATERIAL: Teflon bailer

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None
TAL metals	1L poly	HNO3
Cr+6/CN	.5L poly/1L poly	None/NaOH

REMARKS: FB831 taken for VOCs and dissolved metals after sampling GM-13I using

Quickfilter for FB13I metals sample.

SAMPLING PERSONNEL: David Vines/Greg Ernst

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

## WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1  
 SITE LOCATION: Grumman/Bethpage, NY  
 SITE/WELL NO.: GM-13D CODED/REPLICATE NO.: \_\_\_\_\_ DATE: 8/27/93  
 WEATHER: Sunny 90s-100s TIME SAMPLING BEGAN 10:48 am TIME SAMPLING COMPLETED \_\_\_\_\_

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing  
 HEIGHT OF MP ABOVE/BELOW LAND SURFACE: \_\_\_\_\_ MP ELEVATION: \_\_\_\_\_  
 TOTAL SOUNDED DEPTH OF WELL BELOW MP: 210.00 WATER-LEVEL ELEVATION: \_\_\_\_\_  
 HELD: \_\_\_\_\_ DEPTH TO WATER BELOW MP: 48.44 DIAMETER OF CASING: 4-inch  
 WET: \_\_\_\_\_ WATER COLUMN IN WELL: 11.00 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 22 gallons  
 GALLONS PER FOOT: 0.65 SAMPLING PUMP INTAKE SETTING (feet below land surface): \_\_\_\_\_  
 GALLONS IN WELL: 7.15  
 EVACUATION METHOD: Permanent bladder pump with packer

SAMPLING DATA/FIELD PARAMETERS

COLOR: Colorless ODOR: None  
 APPEARANCE: Clear TEMPERATURE: 18/18.5/19/19 °C  
 OTHER (specific ion; OVA; HNU; etc): \_\_\_\_\_  
 SPECIFIC CONDUCTANCE umhos/cm: 200/198/195/195 pH 4.96/5.39/5.37/5.35  
 SAMPLING METHOD AND MATERIAL: Pump discharge

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None
TAL metals	1L poly	HNO3
Cr+6/CN	.5L poly/1L poly	None/NaOH

REMARKS: 151 feet of submergence; packer inflated to 100 psi.

SAMPLING PERSONNEL: David Vines/Susan Peters

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
	1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46

WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1  
 SITE LOCATION: Grumman/Bethpage, NY  
 SITE/WELL NO.: GM-14S CODED/REPLICATE NO.: \_\_\_\_\_ DATE: 8/26/93  
 WEATHER: Sunny 80s TIME SAMPLING BEGAN 9:35 am TIME SAMPLING COMPLETED 10:55 am

**EVACUATION DATA**

DESCRIPTION OF MEASURING POINT (MP): Top of casing  
 HEIGHT OF MP ABOVE/BELOW LAND SURFACE: \_\_\_\_\_ MP ELEVATION: \_\_\_\_\_  
 TOTAL SOUNDED DEPTH OF WELL BELOW MP: 67.00 WATER-LEVEL ELEVATION: \_\_\_\_\_  
 HELD: \_\_\_\_\_ DEPTH TO WATER BELOW MP: 49.55 DIAMETER OF CASING: 2-inch  
 WET: \_\_\_\_\_ WATER COLUMN IN WELL: 17.45 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 9 gallons  
 GALLONS PER FOOT: 0.16 SAMPLING PUMP INTAKE SETTING (feet below land surface): \_\_\_\_\_  
 GALLONS IN WELL: 2.79  
 EVACUATION METHOD: 2-inch Teflon bailer

**SAMPLING DATA/FIELD PARAMETERS**

COLOR: Brown ODOR: None  
 APPEARANCE: Turbid TEMPERATURE: 20/15/18/17/17.5 °C  
 OTHER (specific ion; OVA; HNU; etc): \_\_\_\_\_  
 SPECIFIC CONDUCTANCE umhos/cm: 210/290/290/280/275 pH 6.85/6.30/6.04/5.94/5.95  
 SAMPLING METHOD AND MATERIAL: 2-inch Teflon bailer

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None
TAL metals	1L poly	HNO3
Cr+6/CN	.5L poly/1L poly	None/NaOH

REMARKS: \_\_\_\_\_

SAMPLING PERSONNEL: David Vines/Susan Peters

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

## WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/  
WELL NO.: GM-14I CODED/  
REPLICATE NO.: DATE: 8/30/93WEATHER: Overcast 70s TIME SAMPLING  
BEGAN 10:00 am TIME SAMPLING  
COMPLETED 1:00 pm

## EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing

HEIGHT OF MP  
ABOVE/BELOW LAND SURFACE:

MP ELEVATION:

TOTAL SOUNDED  
DEPTH OF WELL BELOW MP: 110.00WATER-LEVEL  
ELEVATION:HELD: DEPTH TO  
WATER BELOW MP: 47.55DIAMETER  
OF CASING: 4-inchWET: WATER  
COLUMN IN WELL: 12GALLONS PUMPED/BAILED  
PRIOR TO SAMPLING: 23.4 gallons

GALLONS PER FOOT: 0.65

SAMPLING PUMP INTAKE  
SETTING (feet below  
land surface):

GALLONS IN WELL: 7.8

EVACUATION METHOD: Permanent bladder pump with packer

## SAMPLING DATA/FIELD PARAMETERS

COLOR: Colorless

ODOR: None

APPEARANCE: Clear

TEMPERATURE: 18.5/18.5/18/18 °C

OTHER (specific ion; OVA; HNU; etc):

SPECIFIC CONDUCTANCE

umhos/cm: 210/230/320/275

pH 6.84/6.82/6.90/6.97

SAMPLING METHOD AND MATERIAL: Pump discharge.

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None
TAL metals	1L poly	HNO3
Cr+6/CN	.5L poly/1L poly	None/NaOH

REMARKS: 50 feet of submergence; packer inflated to 70 psi.  
Slow leak in packer; reinflated after 8 gallons; refilled at 65 psi.

SAMPLING PERSONNEL: Gary Williams

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

## WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1  
 ITE LOCATION: Grumman/Bethpage, NY  
 SITE/  
 WELL NO.: GM-15S CODED/  
 REPLICATE NO.: \_\_\_\_\_ DATE: 8/26/93  
 WEATHER: Sunny 80s TIME SAMPLING  
 BEGAN 11:00 am TIME SAMPLING  
 COMPLETED 12:00 pm

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing  
 HEIGHT OF MP  
 ABOVE/BELOW LAND SURFACE: \_\_\_\_\_ MP ELEVATION: \_\_\_\_\_  
 TOTAL SOUNDED  
 DEPTH OF WELL BELOW MP: 67.00 WATER-LEVEL  
 ELEVATION: \_\_\_\_\_  
 HELD: \_\_\_\_\_ DEPTH TO WATER  
 BELOW MP: 47.61 DIAMETER  
 OF CASING: 2-inch  
 WET: \_\_\_\_\_ WATER  
 COLUMN IN WELL: 19.39 GALLONS PUMPED/BAILED  
 PRIOR TO SAMPLING: 10 gallons  
 GALLONS PER FOOT: 0.16 SAMPLING PUMP INTAKE  
 SETTING (feet below  
 land surface): \_\_\_\_\_  
 GALLONS IN WELL: 3.10  
 EVACUATION METHOD: 2-inch Teflon bailer

SAMPLING DATA/FIELD PARAMETERS

COLOR: Brown ODOR: None  
 APPEARANCE: Turbid TEMPERATURE: 18/17/17.5/18 °  
 C  
 OTHER (specific ion; OVA; HNU; etc): \_\_\_\_\_  
 SPECIFIC CONDUCTANCE  
 umhos/cm: 115/170/215/225/215 pH 7.12/6.49/6.11/5.99/6.08

SAMPLING METHOD AND MATERIAL: Teflon bailer

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None
TAL metals	1L poly	HNO3
Cr+6/CN	.5L poly/1L poly	None/NaOH

REMARKS: \_\_\_\_\_

SAMPLING PERSONNEL: David Vines/Susan Peters

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

## WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/  
WELL NO.: GM-151 CODED/  
REPLICATE NO.: DATE: 8/31/93WEATHER: Sunny 90s TIME SAMPLING  
BEGAN 2:30 pm TIME SAMPLING  
COMPLETED 5:30 pm

## EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing

HEIGHT OF MP  
ABOVE/BELOW LAND SURFACE:

MP ELEVATION:

TOTAL SOUNDED  
DEPTH OF WELL BELOW MP: 105.00WATER-LEVEL  
ELEVATION:HELD: DEPTH TO  
PACKER MP: 46.63DIAMETER  
OF CASING: 4-inchWET: WATER  
COLUMN IN WELL: 12GALLONS PUMPED/BAILED  
PRIOR TO SAMPLING: 23.4 gallons

GALLONS PER FOOT: 0.65

SAMPLING PUMP INTAKE  
SETTING (feet below  
land surface):

GALLONS IN WELL: 7.8

EVACUATION METHOD: Permanent bladder pump with packer

## SAMPLING DATA/FIELD PARAMETERS

COLOR: Colorless

ODOR: None

APPEARANCE: Clear

TEMPERATURE: 19/19/18.5/18 °C

OTHER (specific ion; OVA; HNU; etc):

SPECIFIC CONDUCTANCE

umhos/cm: 210/225/225/225

pH 5.65/5.41/5.31/5.32

SAMPLING METHOD AND MATERIAL: Pump discharge

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None
TAL metals	1L poly	HNO3
Cr+6/CN	.5L poly/1L poly	None/NaOH

REMARKS: 46 feet of submergence; packer inflated to 65 psi.

SAMPLING PERSONNEL: Gary Williams/Tammie-Rae Bouchard

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
	1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46

## WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/  
WELL NO.: GM-16S CODED/  
REPLICATE NO.: DATE: 8/26/93WEATHER: Sunny 90s TIME SAMPLING  
BEGAN 3:10 pm TIME SAMPLING  
COMPLETED 3:45 pm

## EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing

HEIGHT OF MP  
ABOVE/BELOW LAND SURFACE:

MP ELEVATION:

TOTAL SOUNDED  
DEPTH OF WELL BELOW MP: 53.00WATER-LEVEL  
ELEVATION:HELD: DEPTH TO WATER  
BELOW MP: 49.16DIAMETER  
OF CASING: 4-inchWET: WATER  
COLUMN IN WELL: 3.84GALLONS PUMPED/BAILED  
PRIOR TO SAMPLING: 8 gallons

GALLONS PER FOOT: 0.65

SAMPLING PUMP INTAKE  
SETTING (feet below  
land surface):

GALLONS IN WELL: 2.496

EVACUATION METHOD: Teflon bailer

## SAMPLING DATA/FIELD PARAMETERS

COLOR: Colorless

ODOR: None

APPEARANCE: Clear

TEMPERATURE: 18/19/19 °C

OTHER (specific ion; OVA; HNU; etc):

SPECIFIC CONDUCTANCE

umhos/cm: 165/160/165

pH 5.67/5.48/5.56

SAMPLING METHOD AND MATERIAL: Teflon bailer

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None
TAL metals	1L poly	HNO3
Cr+6/CN	.5L poly/1L poly	None/NaOH

REMARKS:

SAMPLING PERSONNEL: David Vines/Susan Peters

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
	1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46



## WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1  
 SITE LOCATION: Grumman/Bethpage, NY  
 SITE/WELL NO.: GM-16I CODED/REPLICATE NO.: DATE: 9/1/93  
 WEATHER: Clear 80 TIME SAMPLING BEGAN 12:00 pm TIME SAMPLING COMPLETED 3:00 pm

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing  
 HEIGHT OF MP ABOVE/BELOW LAND SURFACE: MP ELEVATION:  
 TOTAL SOUNDED DEPTH OF WELL BELOW MP: 145.00 WATER-LEVEL ELEVATION:  
 HELD: DEPTH TO PACKER MP: 49.85 DIAMETER OF CASING: 4-inch  
 WET: WATER COLUMN IN WELL: 12 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 23.4 gallons  
 GALLONS PER FOOT: 0.65 SAMPLING PUMP INTAKE SETTING (feet below land surface):  
 GALLONS IN WELL: 7.8  
 EVACUATION METHOD: Permanent bladder pump with packer

SAMPLING DATA/FIELD PARAMETERS

COLOR: Brown ODOR: None  
 APPEARANCE: Clear TEMPERATURE: 19/19/19/19 °C  
 OTHER (specific ion; OVA; HNU; etc):  
 SPECIFIC CONDUCTANCE umhos/cm: 360/365/365/370 pH 5.95/5.75/5.75/5.75

SAMPLING METHOD AND MATERIAL: Pump discharge

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None
TAL metals	1L poly	HNO3
Cr+6/CN	.5L poly/1L poly	None/NaOH

REMARKS: 83 feet of submergence; packer inflated to 85 psi. MS and MSD samples here.

SAMPLING PERSONNEL: Gary Williams/Tammie-Rae Bouchard

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1  
 SITE LOCATION: Grumman/Bethpage, NY  
 SITE/WELL NO.: GM-17S CODED/REPLICATE NO.: \_\_\_\_\_ DATE: 8/27/93  
 WEATHER: Sunny 80s TIME SAMPLING BEGAN 8:56 am TIME SAMPLING COMPLETED 10:00 am

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing  
 HEIGHT OF MP ABOVE/BELOW LAND SURFACE: \_\_\_\_\_ MP ELEVATION: \_\_\_\_\_  
 TOTAL SOUNDED DEPTH OF WELL BELOW MP: 48.00 WATER-LEVEL ELEVATION: \_\_\_\_\_  
 HELD: \_\_\_\_\_ DEPTH TO WATER BELOW MP: 44.93 DIAMETER OF CASING: 4-inch  
 WET: \_\_\_\_\_ WATER COLUMN IN WELL: 3.07 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 6gallons  
 GALLONS PER FOOT: 0.65 SAMPLING PUMP INTAKE SETTING (feet below land surface): \_\_\_\_\_  
 GALLONS IN WELL: 1.99  
 EVACUATION METHOD: Teflon bailer

SAMPLING DATA/FIELD PARAMETERS

COLOR: Orange ODOR: None  
 APPEARANCE: Turbid TEMPERATURE: 23.5/23/23.5 °C  
 OTHER (specific ion; OVA; HNU; etc): \_\_\_\_\_  
 SPECIFIC CONDUCTANCE umhos/cm: 75/80/80 pH 6.10/5.93/6.11  
 SAMPLING METHOD AND MATERIAL: Teflon bailer

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None
TAL metals	1L poly	HNO3
Cr+6/CN	.5L poly/1L poly	None/NaOH

REMARKS: \_\_\_\_\_  
 SAMPLING PERSONNEL: David Vines/Susan Peters

GAL./FT	WELL CASING VOLUMES			
	1-1/4"	2"	3"	4"
	= 0.077	= 0.16	= 0.37	= 0.65
	= 0.10	= 0.24	= 0.50	= 1.46

## WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/  
WELL NO.: GM-18S CODED/  
REPLICATE NO.: DATE: 8/23/93WEATHER: Sunny 80s TIME SAMPLING  
BEGAN 12:30 pm TIME SAMPLING  
COMPLETED 1:45 pm

## EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing

HEIGHT OF MP  
ABOVE/BELOW LAND SURFACE: MP ELEVATION:TOTAL SOUNDED  
DEPTH OF WELL BELOW MP: 67.00 WATER-LEVEL  
ELEVATION:HELD: DEPTH TO  
WATER BELOW MP: 42.72 DIAMETER  
OF CASING: 2-inchWET: WATER  
COLUMN IN WELL: 24.28 GALLONS PUMPED/BAILED  
PRIOR TO SAMPLING: 12 gallonsGALLONS PER FOOT: 0.16 SAMPLING PUMP INTAKE  
SETTING (feet below  
land surface):

GALLONS IN WELL: 3.89

EVACUATION METHOD: 2-inch Teflon bailer

## SAMPLING DATA/FIELD PARAMETERS

COLOR: Brown-black ODOR: None

APPEARANCE: Turbid TEMPERATURE: 19/19/18.5/18.5 °C

OTHER (specific ion; OVA; HNU; etc):

SPECIFIC CONDUCTANCE  
umhos/cm: 110/110/110/110 pH 5.9/6.0/5.9/6.1

SAMPLING METHOD AND MATERIAL: 2-inch Teflon bailer

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None
TAL metals	1L poly	HNO3
Cr+6/CN	.5L poly/1L poly	None/NaOH

REMARKS: Split sample with NYSDEC.

SAMPLING PERSONNEL: David Vines/Susan Peters

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

## WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/  
WELL NO.: GM-18I CODED/  
REPLICATE NO.: DATE: 8/23/93WEATHER: Sunny 80s TIME SAMPLING  
BEGAN 1:30 pm TIME SAMPLING  
COMPLETED 4:00 pm

## EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing

HEIGHT OF MP  
ABOVE/BELOW LAND SURFACE: MP ELEVATION:TOTAL SOUNDED  
DEPTH OF WELL BELOW MP: 105.00 WATER-LEVEL  
ELEVATION:HELD: DEPTH TO  
WATER BELOW MP: 43.98 DIAMETER  
OF CASING: 4-inchWET: WATER  
COLUMN IN WELL: 12 GALLONS PUMPED/BAILED  
PRIOR TO SAMPLING: 23.4 gallonsGALLONS PER FOOT: 0.65 SAMPLING PUMP INTAKE  
SETTING (feet below  
land surface):

GALLONS IN WELL: 7.8

EVACUATION METHOD: Permanent bladder pump with packer

## SAMPLING DATA/FIELD PARAMETERS

COLOR: Green to colorless ODOR:

APPEARANCE: Clear TEMPERATURE: 25/22/21/21 °C

OTHER (specific ion; OVA; HNU; etc):

SPECIFIC CONDUCTANCE  
umhos/cm: 105/105/105/105 pH 5.90/5.82/5.34/5.65

SAMPLING METHOD AND MATERIAL: Dedicated bladder pump discharge

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None
TAL metals	1L poly	HNO3
Cr+6/CN	.5L poly/1L poly	None/NaOH

REMARKS: 49 feet of submergence; packer inflated to 55 psi. Split sample with NYSDEC.  
MS and MSD samples collected here.

SAMPLING PERSONNEL: Gary Williams/Tammie-Rae Bouchard

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

## WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1  
 SITE LOCATION: Grumman/Bethpage, NY  
 SITE/WELL NO.: GM-19S CODED/REPLICATE NO.: \_\_\_\_\_ DATE: 8/30/93  
 WEATHER: Sunny 80s TIME SAMPLING BEGAN 3:35 pm TIME SAMPLING COMPLETED 5:30 pm

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing  
 HEIGHT OF MP ABOVE/BELOW LAND SURFACE: \_\_\_\_\_ MP ELEVATION: \_\_\_\_\_  
 TOTAL SOUNDED DEPTH OF WELL BELOW MP: 53.00 WATER-LEVEL ELEVATION: \_\_\_\_\_  
 HELD: DEPTH TO WATER BELOW MP: 45.50 DIAMETER OF CASING: 4-inch  
 WET: WATER COLUMN IN WELL: 7.5 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 14.6 gallons  
 GALLONS PER FOOT: 0.65 SAMPLING PUMP INTAKE SETTING (feet below land surface): \_\_\_\_\_  
 GALLONS IN WELL: 4.875  
 EVACUATION METHOD: Permanent bladder pump

SAMPLING DATA/FIELD PARAMETERS

COLOR: Colorless/colorless ODOR: None  
 APPEARANCE: Clear TEMPERATURE: 20/19/20/18 °C  
 OTHER (specific ion; OVA; HNU; etc): \_\_\_\_\_  
 SPECIFIC CONDUCTANCE  
 umhos/cm: 285/260/250/240 pH 5.16/5.40/4.44/4.94

SAMPLING METHOD AND MATERIAL: Pump discharge

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None
TAL metals	1L poly	HNO3
Cr+6/CN	.5L poly/1L poly	None/NaOH

REMARKS: \_\_\_\_\_

SAMPLING PERSONNEL: Gary Williams/Tammie-Rae Bouchard

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
	1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46

## WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/  
WELL NO.: GM-19I CODED/  
REPLICATE NO.: DATE: 8/30/93WEATHER: Cloudy 80s TIME SAMPLING  
BEGAN 12:30 pm TIME SAMPLING  
COMPLETED 3:30 pm

## EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing

HEIGHT OF MP  
ABOVE/BELOW LAND SURFACE:

MP ELEVATION:

TOTAL SOUNDED  
DEPTH OF WELL BELOW MP: 140.00WATER-LEVEL  
ELEVATION:HELD: DEPTH TO  
WATER BELOW MP: 45.69DIAMETER  
OF CASING: 4-inchWET: WATER  
COLUMN IN WELL: 12GALLONS PUMPED/BAILED  
PRIOR TO SAMPLING: 23.4 gallons

GALLONS PER FOOT: 0.65

SAMPLING PUMP INTAKE  
SETTING (feet below  
land surface):

GALLONS IN WELL: 7.8

EVACUATION METHOD: Permanent bladder pump with packer

## SAMPLING DATA/FIELD PARAMETERS

COLOR: Colorless

ODOR: None

APPEARANCE: Clear

TEMPERATURE: 19/19/20/20 °C

OTHER (specific ion; OVA; HNU; etc):

SPECIFIC CONDUCTANCE

umhos/cm: 125/105/110/110

pH 5.46/5.09/5.31/5.11

SAMPLING METHOD AND MATERIAL: Pump discharge

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None
TAL metals	1L poly	HNO3
Cr+6/CN	.5L poly/1L poly	None/NaOH

REMARKS: 82 feet of submergence; packer inflated to 85 psi.

SAMPLING PERSONNEL: Gary Williams/Tammie-Rae Bouchard

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

## WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1  
 SITE LOCATION: Grumman/Bethpage, NY  
 SITE/WELL NO.: GM-20S CODED/REPLICATE NO.: DATE: 8/23/93  
 WEATHER: Sunny 80s TIME SAMPLING BEGAN 1:52 pm TIME SAMPLING COMPLETED 2:55 pm

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing  
 HEIGHT OF MP ABOVE/BELOW LAND SURFACE: MP ELEVATION:  
 TOTAL SOUNDED DEPTH OF WELL BELOW MP: 67.00 WATER-LEVEL ELEVATION:  
 HELD: DEPTH TO WATER BELOW MP: 39.51 DIAMETER OF CASING: 2-inch  
 WET: WATER COLUMN IN WELL: 27.49 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 14 gallons  
 GALLONS PER FOOT: 0.16 SAMPLING PUMP INTAKE SETTING (feet below land surface):  
 GALLONS IN WELL: 4.40  
 EVACUATION METHOD: 2-inch Teflon bailer

SAMPLING DATA/FIELD PARAMETERS

COLOR: Tan-brown ODOR: None  
 APPEARANCE: Slightly turbid TEMPERATURE: 18/18/18 °C  
 OTHER (specific ion; OVA; HNU; etc):  
 SPECIFIC CONDUCTANCE umhos/cm: 75/95/95 pH 7.9/6.10/6.10

SAMPLING METHOD AND MATERIAL: 2-inch Teflon bailer

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None
TAL metals	1L poly	HNO3
Cr+6/CN	.5L poly/1L poly	None/NaOH

REMARKS: Split sample with NYSDEC.

SAMPLING PERSONNEL: David Vines/Susan Peters

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

WATER SAMPLING LOG
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PROJECT/NO.: NY0008.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/  
WELL NO.: GM-20I CODED/  
REPLICATE NO.: DATE: 8/24/93WEATHER: Overcast 75 TIME SAMPLING  
BEGAN 8:58 am TIME SAMPLING  
COMPLETED 11:35 amEVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing

HEIGHT OF MP  
ABOVE/BELOW LAND SURFACE: MP ELEVATION:TOTAL SOUNDED  
DEPTH OF WELL BELOW MP: 105.00 WATER-LEVEL  
ELEVATION:HELD: DEPTH TO  
WATER BELOW MP: 39.98 DIAMETER  
OF CASING: 4-inchWET: WATER  
COLUMN IN WELL: 12 GALLONS PUMPED/BAILED  
PRIOR TO SAMPLING: 23.4 gallonsGALLONS PER FOOT: 0.65 SAMPLING PUMP INTAKE  
SETTING (feet below

GALLONS IN WELL: 7.8 land surface):

EVACUATION METHOD: Permanent bladder pump with packer

SAMPLING DATA/FIELD PARAMETERS

COLOR: Brown ODOR: None

APPEARANCE: Turbid TEMPERATURE: 19/19/19/19 °C

OTHER (specific ion; OVA; HNU; etc):

SPECIFIC CONDUCTANCE  
umhos/cm: 215/900/750/600 pH 10.7/10.63/10.55/10.65

SAMPLING METHOD AND MATERIAL: Pump discharge

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None
TAL metals	1L poly	HNO3
Cr+6/CN	.5L poly/1L poly	None/NaOH

REMARKS: 53 feet of submergence; packer inflated to 70 psi. Split sample with NYSDEC.

SAMPLING PERSONNEL: Gary Williams

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	



## WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/  
WELL NO.: GM-20D CODED/  
REPLICATE NO.: DATE: 8/31/93WEATHER: Sunny 90s TIME SAMPLING  
BEGAN 10:30 am TIME SAMPLING  
COMPLETED 1:45 pm

## EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing

HEIGHT OF MP  
ABOVE/BELOW LAND SURFACE: MP ELEVATION:TOTAL SOUNDED  
DEPTH OF WELL BELOW MP: 216.00 WATER-LEVEL  
ELEVATION:HELD: DEPTH TO  
WATER BELOW MP: 41.25 DIAMETER  
OF CASING: 4-inchWET: WATER  
COLUMN IN WELL: 12 GALLONS PUMPED/BAILED  
PRIOR TO SAMPLING: 23.4 gallonsGALLONS PER FOOT: 0.65 SAMPLING PUMP INTAKE  
SETTING (feet below  
land surface):

GALLONS IN WELL: 7.8

EVACUATION METHOD: Permanent bladder pump with packer

## SAMPLING DATA/FIELD PARAMETERS

COLOR: Green to colorless ODOR: None

APPEARANCE: Clear TEMPERATURE: 17/19/20/19 °C

OTHER (specific ion; OVA; HNU; etc):

SPECIFIC CONDUCTANCE  
umhos/cm: 100/95/95/95 pH 6.84/5.44/5.49/5.65

SAMPLING METHOD AND MATERIAL: Pump discharge

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None
TAL metals	1L poly	HNO3
Cr+6/CN	.5L poly/1L poly	None/NaOH

REMARKS: 163 feet of submergence; packer inflated to 102 psi. Leaky packer.

SAMPLING PERSONNEL: Gary Williams/Tammie-Rae Bouchard

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1  
 SITE LOCATION: Grumman/Bethpage, NY  
 SITE/WELL NO.: GM-21S CODED/REPLICATE NO.: \_\_\_\_\_ DATE: 8/25/93  
 WEATHER: Sunny 90s TIME SAMPLING BEGAN 2:11 pm TIME SAMPLING COMPLETED 3:02 pm

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing  
 HEIGHT OF MP ABOVE/BELOW LAND SURFACE: \_\_\_\_\_ MP ELEVATION: \_\_\_\_\_  
 TOTAL SOUNDED DEPTH OF WELL BELOW MP: 67.00 WATER-LEVEL ELEVATION: \_\_\_\_\_  
 HELD: \_\_\_\_\_ DEPTH TO WATER BELOW MP: 39.25 DIAMETER OF CASING: 2-inch  
 WET: \_\_\_\_\_ WATER COLUMN IN WELL: 27.75 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 14 gallons  
 GALLONS PER FOOT: 0.16 SAMPLING PUMP INTAKE SETTING (feet below land surface): \_\_\_\_\_  
 GALLONS IN WELL: 4.44  
 EVACUATION METHOD: 2-inch submersible pump; Q-1.5 gpm T-10 min.

SAMPLING DATA/FIELD PARAMETERS

COLOR: Colorless ODOR: None  
 APPEARANCE: Turbid TEMPERATURE: 23/23.5/22.5/23.5 °C  
 OTHER (specific ion; OVA; HNU; etc): \_\_\_\_\_  
 SPECIFIC CONDUCTANCE umhos/cm: 95/110/110/110/105 pH 9.48/7.06/6.15/6.03/5.93

SAMPLING METHOD AND MATERIAL: Teflon bailer

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None

REMARKS: \_\_\_\_\_

SAMPLING PERSONNEL: David Vines/Susan Peters

GAL./FT		WELL CASING VOLUMES			
1-1/4"	= 0.077	2"	= 0.16	3"	= 0.37
1-1/2"	= 0.10	2-1/2"	= 0.24	3-1/2"	= 0.50
				4"	= 0.65
				6"	= 1.46

WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1

ITE LOCATION: Grumman/Bethpage, NY

SITE/WELL NO.: GM-211 CODED/REPLICATE NO.: DATE: 9/1/93

WEATHER: Sunny 90s TIME SAMPLING BEGAN 9:00 am TIME SAMPLING COMPLETED 12:00 pm

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing

HEIGHT OF MP ABOVE/BELOW LAND SURFACE: MP ELEVATION:

TOTAL SOUNDED DEPTH OF WELL BELOW MP: 140.00 WATER-LEVEL ELEVATION:

HELD: DEPTH TO WATER BELOW MP: 42.20 DIAMETER OF CASING: 4-inch

WET: WATER COLUMN IN WELL: 12 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 23.4 gallons

GALLONS PER FOOT: 0.65 SAMPLING PUMP INTAKE SETTING (feet below land surface):

GALLONS IN WELL: 7.8

EVACUATION METHOD: Permanent bladder pump with packer

SAMPLING DATA/FIELD PARAMETERS

COLOR: Beige ODOR: None

APPEARANCE: Turbid TEMPERATURE: 22/22/24/23 °C

OTHER (specific ion; OVA; HNU; etc):

SPECIFIC CONDUCTANCE umhos/cm: 900/900/700/900 pH 10.45/10.75/10.53/10.69

SAMPLING METHOD AND MATERIAL: Pump discharge

Table with 3 columns: CONSTITUENTS SAMPLED, CONTAINER DESCRIPTION FROM LAB x OR G&M, PRESERVATIVE. Row 1: TCL VOCs, Three 40-ml vials, None.

REMARKS: 86 feet of submergence; packer inflated to 85 psi. Leaky packer.

SAMPLING PERSONNEL: Gary Williams/Tammie-Rae Bouchard

Table with 2 rows: GAL./FT (1-1/4" = 0.077, 1-1/2" = 0.10) and WELL CASING VOLUMES (2" = 0.16, 2-1/2" = 0.24, 3" = 0.37, 3-1/2" = 0.50, 4" = 0.65, 6" = 1.46).

## WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1  
 SITE LOCATION: Grumman/Bethpage, NY  
 SITE/WELL NO.: GM-22S CODED/REPLICATE NO.: \_\_\_\_\_ DATE: 8/26/93  
 WEATHER: Sunny 90s TIME SAMPLING BEGAN 1:55 pm TIME SAMPLING COMPLETED 3:10 pm

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing  
 HEIGHT OF MP ABOVE/BELOW LAND SURFACE: \_\_\_\_\_ MP ELEVATION: \_\_\_\_\_  
 TOTAL SOUNDED DEPTH OF WELL BELOW MP: 45.20 WATER-LEVEL ELEVATION: \_\_\_\_\_  
 HELD: DEPTH TO WATER BELOW MP: 41.81 DIAMETER OF CASING: 4-inch  
 WET: WATER COLUMN IN WELL: 4.19 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 9 gallons  
 GALLONS PER FOOT: 0.65 SAMPLING PUMP INTAKE SETTING (feet below land surface): \_\_\_\_\_  
 GALLONS IN WELL: 2.72  
 EVACUATION METHOD: Teflon bailer

SAMPLING DATA/FIELD PARAMETERS

COLOR: Colorless ODOR: None  
 APPEARANCE: Clear TEMPERATURE: 19/19/19.5 °C  
 OTHER (specific ion; OVA; HNU; etc): \_\_\_\_\_  
 SPECIFIC CONDUCTANCE umhos/cm: 85/85/80 pH 6.04/5.86/5.82

SAMPLING METHOD AND MATERIAL: Teflon bailer

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None
TAL metals	1L poly	HNO3
Cr+6/CN	.5L poly/1L poly	None/NaOH

REMARKS: \_\_\_\_\_

SAMPLING PERSONNEL: David Vines/Susan Peters

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

## WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1  
 SITE LOCATION: Grumman/Bethpage, NY  
 SITE/WELL NO.: GM-22I CODED/REPLICATE NO.: GM-REP4 DATE: 8/27/93  
 WEATHER: Sunny 100s TIME SAMPLING BEGAN 1:30 pm TIME SAMPLING COMPLETED 3:45 pm

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing  
 HEIGHT OF MP ABOVE/BELOW LAND SURFACE: \_\_\_\_\_ MP ELEVATION: \_\_\_\_\_  
 TOTAL SOUNDED DEPTH OF WELL BELOW MP: 140.00 WATER-LEVEL ELEVATION: \_\_\_\_\_  
 HELD: DEPTH TO WATER BELOW MP: 42.86 DIAMETER OF CASING: 4-inch  
 WET: WATER COLUMN IN WELL: 11.00 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 22 gallons  
 GALLONS PER FOOT: 0.65 SAMPLING PUMP INTAKE SETTING (feet below land surface): \_\_\_\_\_  
 GALLONS IN WELL: 7.15  
 EVACUATION METHOD: Permanent bladder pump with packer

SAMPLING DATA/FIELD PARAMETERS

COLOR: Colorless ODOR: None  
 APPEARANCE: Clear TEMPERATURE: 21/21/21/21/21 °C  
 OTHER (specific ion; OVA; HNU; etc): \_\_\_\_\_  
 SPECIFIC CONDUCTANCE  
 umhos/cm: 122/100/98/98/95 pH 8.67/6.70/6.43/5.82/5.63

SAMPLING METHOD AND MATERIAL: Pump discharge

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None
TAL metals	1L poly	HNO3
Cr+6/CN	.5L poly/1L poly	None/NaOH

REMARKS: 85 feet of submergence; packer inflated to 90 psi.

SAMPLING PERSONNEL: David Vines/Susan Peters

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077 1-1/2" = 0.10	2" = 0.16 2-1/2" = 0.24	3" = 0.37 3-1/2" = 0.50	4" = 0.65 6" = 1.46

## WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1  
 SITE LOCATION: Grumman/Bethpage, NY  
 SITE/WELL NO.: GM-22D CODED/REPLICATE NO.: \_\_\_\_\_ DATE: 8/24/93  
 WEATHER: Clear 75 TIME SAMPLING BEGAN 12:28 TIME SAMPLING COMPLETED 3:00 pm

## EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing  
 HEIGHT OF MP ABOVE/BELOW LAND SURFACE: \_\_\_\_\_ MP ELEVATION: \_\_\_\_\_  
 TOTAL SOUNDED DEPTH OF WELL BELOW MP: 200.00 WATER-LEVEL ELEVATION: \_\_\_\_\_  
 HELD: \_\_\_\_\_ DEPTH TO WATER BELOW MP: 44.37 DIAMETER OF CASING: 4-inch  
 WET: \_\_\_\_\_ WATER COLUMN IN WELL: 12 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 23.4 gallons  
 GALLONS PER FOOT: 0.65 SAMPLING PUMP INTAKE SETTING (feet below land surface): \_\_\_\_\_  
 GALLONS IN WELL: 7.8  
 EVACUATION METHOD: Permanent bladder pump and packer.

## SAMPLING DATA/FIELD PARAMETERS

COLOR: Colorless ODOR: None  
 APPEARANCE: Clear TEMPERATURE: 21/21/21/22 °C  
 OTHER (specific ion; OVA; HNU; etc): \_\_\_\_\_  
 SPECIFIC CONDUCTANCE umhos/cm: 85/85/85/85 pH 5.99/5.99/5.6/5.6

SAMPLING METHOD AND MATERIAL: Pump discharge

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None
TAL metals	1L poly	HNO3
Cr+6/CN	.5L poly/1L poly	None/NaOH

REMARKS: 144 feet of submergence; packer inflated to 102 psi. Split sample with NYSDEC.

SAMPLING PERSONNEL: Gary Williams

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077 1-1/2" = 0.10	2" = 0.16 2-1/2" = 0.24	3" = 0.37 3-1/2" = 0.50	4" = 0.65 6" = 1.46

WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/WELL NO.: GM-23S CODED/REPLICATE NO.: DATE: 8/23/93

WEATHER: Sunny TIME SAMPLING BEGAN 10:31 am TIME SAMPLING COMPLETED 12:20 pm

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing

HEIGHT OF MP ABOVE/BELOW LAND SURFACE: MP ELEVATION:
TOTAL SOUNDED DEPTH OF WELL BELOW MP: 56.00 WATER-LEVEL ELEVATION:
HELD: DEPTH TO WATER BELOW MP: 52.40 DIAMETER OF CASING: 4-inch
WET: WATER COLUMN IN WELL: 3.60 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 8 gallons
GALLONS PER FOOT: 0.65 SAMPLING PUMP INTAKE SETTING (feet below land surface):
GALLONS IN WELL: 2.34

EVACUATION METHOD: 2-inch Teflon bailer

SAMPLING DATA/FIELD PARAMETERS

COLOR: Colorless ODOR: None
APPEARANCE: Clear TEMPERATURE: 18.5/18/18 C

OTHER (specific ion; OVA; HNU; etc):

SPECIFIC CONDUCTANCE umhos/cm: 350/365/385 pH 5.95/6.10/5.85

SAMPLING METHOD AND MATERIAL: 2-inch Teflon bailer

Table with 3 columns: CONSTITUENTS SAMPLED, CONTAINER DESCRIPTION FROM LAB x OR G&M, PRESERVATIVE. Rows include TCL VOCs, TAL metals, Cr+6/CN.

REMARKS: Split sample with NYSDEC.

SAMPLING PERSONNEL: David Vines/Susan Peters

WELL CASING VOLUMES table with columns for GAL./FT and casing diameters (1-1/4", 2", 2-1/2", 3", 3-1/2", 4", 6").

## WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1  
 SITE LOCATION: Grumman/Bethpage, NY  
 SITE/WELL NO.: GM-23I CODED/REPLICATE NO.: DATE: 8/24/93  
 WEATHER: Sunny 80s TIME SAMPLING BEGAN 3:20 pm TIME SAMPLING COMPLETED 5:00 pm

## EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing  
 HEIGHT OF MP ABOVE/BELOW LAND SURFACE: MP ELEVATION:  
 TOTAL SOUNDED DEPTH OF WELL BELOW MP: 120.00 WATER-LEVEL ELEVATION:  
 HELD: DEPTH TO WATER BELOW MP: 52.24 DIAMETER OF CASING: 4-inch  
 WET: WATER COLUMN IN WELL: 12 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 23.4 gallons  
 GALLONS PER FOOT: 0.65 SAMPLING PUMP INTAKE SETTING (feet below land surface):  
 GALLONS IN WELL: 7.0  
 EVACUATION METHOD: Permanent bladder pump with packer.

## SAMPLING DATA/FIELD PARAMETERS

COLOR: Colorless ODOR: None  
 APPEARANCE: Clear TEMPERATURE: 23/19/19/19 °C  
 OTHER (specific ion; OVA; HNU; etc):  
 SPECIFIC CONDUCTANCE umhos/cm: 220/240/240/230 pH 6.20/5.64/5.25/5.13

SAMPLING METHOD AND MATERIAL: Pump discharge

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None
TAL metals	1L poly	HNO3
Cr+6/CN	.5L poly/1L poly	None/NaOH

REMARKS: 55 feet of submergence; packer inflated to 80 psi. Split sample with NYSDEC.

SAMPLING PERSONNEL: Gary Williams/Tammie-Rae Bouchard

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	



## WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/  
WELL NO.: GM-32S CODED/  
REPLICATE NO.: DATE: 9/1/93WEATHER: Sunny 90s TIME SAMPLING  
BEGAN 3:45 pm TIME SAMPLING  
COMPLETED 5:30 pm

## EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing

HEIGHT OF MP  
ABOVE/BELOW LAND SURFACE: MP ELEVATION:TOTAL SOUNDED  
DEPTH OF WELL BELOW MP: 51.00 WATER-LEVEL  
ELEVATION:HELD: DEPTH TO  
WATER BELOW MP: 43.09 DIAMETER  
OF CASING: 4-inchWET: WATER  
COLUMN IN WELL: 6.91 GALLONS PUMPED/BAILED  
PRIOR TO SAMPLING: 15 gallonsGALLONS PER FOOT: 0.65 SAMPLING PUMP INTAKE  
SETTING (feet below

land surface):

EVACUATION METHOD: Permanent bladder pump

## SAMPLING DATA/FIELD PARAMETERS

COLOR: Colorless ODOR: None

APPEARANCE: Clear TEMPERATURE: 19/20/20 °C

OTHER (specific ion; OVA; HNU; etc):

SPECIFIC CONDUCTANCE  
umhos/cm: 195/195/200/200 pH 6.05/5.70/5.75/5.747

SAMPLING METHOD AND MATERIAL: Pump discharge

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None
TAL metals	1L poly	HNO3
Cr+6/CN	.5L poly/1L poly	None/NaOH

REMARKS:

SAMPLING PERSONNEL: Gary Williams/Tammie-Rae Bouchard

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

## WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1  
 SITE LOCATION: Grumman/Bethpage, NY  
 SITE/WELL NO.: GM-33D2 CODED/REPLICATE NO.: DATE: 8/24/93  
 WEATHER: Hazy 80s TIME SAMPLING BEGAN 9:00 am TIME SAMPLING COMPLETED 11:30 am

## EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing  
 HEIGHT OF MP ABOVE/BELOW LAND SURFACE: MP ELEVATION:  
 TOTAL SOUNDED DEPTH OF WELL BELOW MP: 520 WATER-LEVEL ELEVATION:  
 HELD: DEPTH TO WATER BELOW MP: 47.15 DIAMETER OF CASING: 4-inch  
 WET: WATER COLUMN IN WELL: 23.00 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 45 gallons  
 GALLONS PER FOOT: 0.65 SAMPLING PUMP INTAKE SETTING (feet below land surface):  
 GALLONS IN WELL: 14.95  
 EVACUATION METHOD: Permanent bladder pump with packer; Q=2.5 min/gal T=113

## SAMPLING DATA/FIELD PARAMETERS

COLOR: None ODOR:  
 APPEARANCE: Clear TEMPERATURE: 20/20/19.5/20 °C  
 OTHER (specific ion; OVA; HNU; etc):  
 SPECIFIC CONDUCTANCE umhos/cm: 110/110/102/102 pH 6.03/5.84/5.61/5.60/5.62

SAMPLING METHOD AND MATERIAL: Pump discharge

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None
TAL metals	1L poly	HNO3
Cr+6/CN	.5L poly/1L poly	None/NaOH

REMARKS: Packer inflated to 219 psi. Split sample with NYSDEC.

SAMPLING PERSONNEL: Greg Ernst

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

## WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1  
 SITE LOCATION: Grumman/Bethpage, NY  
 SITE/WELL NO.: GM-34D CODED/REPLICATE NO.: \_\_\_\_\_ DATE: 8/30/93  
 WEATHER: Clear 80s TIME SAMPLING BEGAN 9:00 am TIME SAMPLING COMPLETED 10:02 am

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing  
 HEIGHT OF MP ABOVE/BELOW LAND SURFACE: \_\_\_\_\_ MP ELEVATION: \_\_\_\_\_  
 TOTAL SOUNDED DEPTH OF WELL BELOW MP: 324.0 WATER-LEVEL ELEVATION: \_\_\_\_\_  
 HELD: \_\_\_\_\_ DEPTH TO WATER BELOW MP: 16.49 DIAMETER OF CASING: 2-inch  
 WET: \_\_\_\_\_ WATER COLUMN IN WELL: 307.51 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 148 gallons  
 GALLONS PER FOOT: 0.16 SAMPLING PUMP INTAKE SETTING (feet below land surface): \_\_\_\_\_  
 GALLONS IN WELL: 49.2  
 EVACUATION METHOD: 2-inch submersible pump; Q=5 gpm T=30 min.

SAMPLING DATA/FIELD PARAMETERS

COLOR: Colorless ODOR: None  
 APPEARANCE: Clear TEMPERATURE: 17.5/17/16.5/16 °C  
 OTHER (specific ion; OVA; HNU; etc): \_\_\_\_\_  
 SPECIFIC CONDUCTANCE umhos/cm: 200/150/160/160 pH 8.40/6.50/6.15/6.15

SAMPLING METHOD AND MATERIAL: Teflon bailer

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None
_____	_____	_____
_____	_____	_____

REMARKS: \_\_\_\_\_

SAMPLING PERSONNEL: Greg Ernst/David Vines

GAL./FT	WELL CASING VOLUMES			
	1-1/4"	2"	3"	4"
1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65	
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

## WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1  
 SITE LOCATION: Grumman/Bethpage, NY  
 SITE/WELL NO.: GM-34D2 CODED/REPLICATE NO.: DATE: 8/30/93  
 WEATHER: Clear 80s TIME SAMPLING BEGAN 10:00 am TIME SAMPLING COMPLETED 12:02 pm

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing  
 HEIGHT OF MP ABOVE/BELOW LAND SURFACE: MP ELEVATION:  
 TOTAL SOUNDED DEPTH OF WELL BELOW MP: 525.0 WATER-LEVEL ELEVATION:  
 HELD: DEPTH TO WATER BELOW MP: 18.37 DIAMETER OF CASING: 4-inch  
 WET: WATER COLUMN IN WELL: 506.63 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 988 gallons  
 GALLONS PER FOOT: 0.65 SAMPLING PUMP INTAKE SETTING (feet below land surface):  
 GALLONS IN WELL: 329.3  
 EVACUATION METHOD: Submersible pump; Q=18 gpm T=55 min.

SAMPLING DATA/FIELD PARAMETERS

COLOR: Brown ODOR:  
 APPEARANCE: Turbid TEMPERATURE: 16/15/15/15 °C  
 OTHER (specific ion; OVA; HNU; etc):  
 SPECIFIC CONDUCTANCE umhos/cm: 80/70/70/70 pH 7.10/6.10/6.15/6.10

SAMPLING METHOD AND MATERIAL: Teflon bailer

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None

REMARKS: Interrupted purge to dump water; tanker full. Field blank collected prior to sampling this well.

SAMPLING PERSONNEL: Greg Ernst/David Vines

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

## WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/  
WELL NO.: GM-35D2 CODED/  
REPLICATE NO.: DATE: 8/24/93WEATHER: Clear 80s TIME SAMPLING  
BEGAN 11:50 am TIME SAMPLING  
COMPLETED 2:15 pm

## EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing

HEIGHT OF MP  
ABOVE/BELOW LAND SURFACE:

MP ELEVATION:

TOTAL SOUNDED  
DEPTH OF WELL BELOW MP: 530.0WATER-LEVEL  
ELEVATION:HELD: DEPTH TO  
WATER BELOW MP: 41.49DIAMETER  
OF CASING: 4-inchWET: WATER  
COLUMN IN WELL: 23GALLONS PUMPED/BAILED  
PRIOR TO SAMPLING: 45 gallons

GALLONS PER FOOT: 0.65

SAMPLING PUMP INTAKE  
SETTING (feet below  
land surface):

GALLONS IN WELL: 14.95

EVACUATION METHOD: Permanent bladder pump with packer; Q=2.75 min/gal. T=124 min.

## SAMPLING DATA/FIELD PARAMETERS

COLOR: Colorless

ODOR: None

APPEARANCE: Clear

TEMPERATURE: 18.5/20/19/19/19 °C

OTHER (specific ion; OVA; HNU; etc):

SPECIFIC CONDUCTANCE

umhos/cm: 620/75/70/75/80

pH 10.67/5.17/5.30/5.34/5.35

SAMPLING METHOD AND MATERIAL: Pump discharge

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None

REMARKS: Packer inflated to 225 psi. MS and MSD samples collected here.

SAMPLING PERSONNEL: Greg Ernst

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
	1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46

WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/WELL NO.: GM-36D CODED/REPLICATE NO.: \_\_\_\_\_ DATE: 8/23/93

WEATHER: Clear 80s TIME SAMPLING BEGAN 12:30 pm TIME SAMPLING COMPLETED 2:30 pm

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing

HEIGHT OF MP ABOVE/BELOW LAND SURFACE: \_\_\_\_\_ MP ELEVATION: \_\_\_\_\_

TOTAL SOUNDED DEPTH OF WELL BELOW MP: 214.0 WATER-LEVEL ELEVATION: \_\_\_\_\_

HELD: \_\_\_\_\_ DEPTH TO WATER BELOW MP: 36.92 DIAMETER OF CASING: 4-inch

WET: \_\_\_\_\_ WATER COLUMN IN WELL: 12.00 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 24 gallons

GALLONS PER FOOT: 0.65 SAMPLING PUMP INTAKE SETTING (feet below land surface): \_\_\_\_\_

GALLONS IN WELL: 7.80

EVACUATION METHOD: Permanent bladder pump with packer; Q=4 min/gal. T=96 min.

SAMPLING DATA/FIELD PARAMETERS

COLOR: Colorless ODOR: None

APPEARANCE: Clear TEMPERATURE: 20/17/17.5/17.5 °C

OTHER (specific ion; OVA; HNU; etc): \_\_\_\_\_

SPECIFIC CONDUCTANCE umhos/cm: 130/95/95/97 pH 6.14/5.63/5.32/5.37

SAMPLING METHOD AND MATERIAL: Pump discharge

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None

REMARKS: Packer inflated to 97 psi. Split sample with NYSDEC.

SAMPLING PERSONNEL: Greg Ernst

GAL./FT	WELL CASING VOLUMES			
1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65	
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

## WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/WELL NO.: GM-36D2 CODED/REPLICATE NO.: DATE: 8/23/93

WEATHER: Clear 80s TIME SAMPLING BEGAN 9:00 am TIME SAMPLING COMPLETED 12:30 pm

## EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing

HEIGHT OF MP ABOVE/BELOW LAND SURFACE: MP ELEVATION:

TOTAL SOUNDED DEPTH OF WELL BELOW MP: 540.0 WATER-LEVEL ELEVATION:

HELD: DEPTH TO WATER BELOW MP: 39.32 DIAMETER OF CASING: 4-inch

WET: WATER COLUMN IN WELL: 22.00 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 43 gallons

GALLONS PER FOOT: 0.65 SAMPLING PUMP INTAKE SETTING (feet below land surface):

GALLONS IN WELL: 14.30

EVACUATION METHOD: Permanent bladder pump with packer; Q=4 min/gal. T=172 min.

## SAMPLING DATA/FIELD PARAMETERS

COLOR: Brown ODOR: None

APPEARANCE: Turbid TEMPERATURE: 20/19/17/17/17 °C

OTHER (specific ion; OVA; HNU; etc):

SPECIFIC CONDUCTANCE umhos/cm: 550/800/460/330/320 pH 10.82/11.00/10.67/10.48/10.44

SAMPLING METHOD AND MATERIAL: Pump discharge

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None

REMARKS: Packer inflated to 232 psi. Split sample with NYSDEC.

SAMPLING PERSONNEL: Greg Ernst

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/WELL NO.: GM-37D CODED/REPLICATE NO.: \_\_\_\_\_ DATE: 8/25/93

WEATHER: Clear 80s TIME SAMPLING BEGAN 8:50 am TIME SAMPLING COMPLETED 11:45 am

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing

HEIGHT OF MP ABOVE/BELOW LAND SURFACE: \_\_\_\_\_ MP ELEVATION: \_\_\_\_\_

TOTAL SOUNDED DEPTH OF WELL BELOW MP: 262.0 WATER-LEVEL ELEVATION: \_\_\_\_\_

HELD: \_\_\_\_\_ DEPTH TO WATER BELOW MP: 40.53 DIAMETER OF CASING: 4-inch

WET: \_\_\_\_\_ WATER COLUMN IN WELL: 22.00 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 48 gallons

GALLONS PER FOOT: 0.65 SAMPLING PUMP INTAKE SETTING (feet below land surface): \_\_\_\_\_

GALLONS IN WELL: 14.30

EVACUATION METHOD: Permanent bladder pump with packer; Q=3 min/gal. T=129 min.

SAMPLING DATA/FIELD PARAMETERS

COLOR: Colorless ODOR: None

APPEARANCE: Clear TEMPERATURE: 18/17/16.5/16.5/16.5 °C

OTHER (specific ion; OVA; HNU; etc): \_\_\_\_\_

SPECIFIC CONDUCTANCE umhos/cm: 205/205/160/155/160 pH 4.33/4.34/4.45/4.43/4.49

SAMPLING METHOD AND MATERIAL: Permanent bladder pump

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None

REMARKS: Packer inflated to 100 psi.

SAMPLING PERSONNEL: Greg Ernst

GAL./FT	WELL CASING VOLUMES			
1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65	
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	



WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1  
 SITE LOCATION: Grumman/Bethpage, NY  
 SITE/WELL NO.: GM-37D2 CODED/REPLICATE NO.: \_\_\_\_\_ DATE: 8/25/93  
 WEATHER: Clear 90s TIME SAMPLING BEGAN 11:50 am TIME SAMPLING COMPLETED 2:30 pm

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing  
 HEIGHT OF MP ABOVE/BELOW LAND SURFACE: \_\_\_\_\_ MP ELEVATION: \_\_\_\_\_  
 TOTAL SOUNDED DEPTH OF WELL BELOW MP: 390.0 WATER-LEVEL ELEVATION: \_\_\_\_\_  
 HELD: \_\_\_\_\_ DEPTH TO WATER BELOW MP: 40.92 DIAMETER OF CASING: 4-inch  
 WET: \_\_\_\_\_ WATER COLUMN IN WELL: 23.00 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 43 gallons  
 GALLONS PER FOOT: 0.65 SAMPLING PUMP INTAKE SETTING (feet below land surface): \_\_\_\_\_  
 GALLONS IN WELL: 14.30  
 EVACUATION METHOD: Permanent bladder pump with packer; Q=3.5 min/gal. T=151 min.

SAMPLING DATA/FIELD PARAMETERS

COLOR: Light brown ODOR: \_\_\_\_\_  
 APPEARANCE: Slightly turbid TEMPERATURE: 17/17/17/17 °C  
 OTHER (specific ion; OVA; HNU; etc): \_\_\_\_\_  
 SPECIFIC CONDUCTANCE umhos/cm: 160/165/165/165 pH 6.10/5.66/5.10/5.09

SAMPLING METHOD AND MATERIAL: Pump discharge

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None

REMARKS: Packer inflated to 180 psi.

SAMPLING PERSONNEL: Greg Ernst

GAL./FT		WELL CASING VOLUMES					
1-1/4"	= 0.077	2"	= 0.16	3"	= 0.37	4"	= 0.65
1-1/2"	= 0.10	2-1/2"	= 0.24	3-1/2"	= 0.50	6"	= 1.46

WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1  
 SITE LOCATION: Grumman/Bethpage, NY  
 SITE/WELL NO.: GM-38D CODED/REPLICATE NO.: \_\_\_\_\_ DATE: 8/26/93  
 WEATHER: Clear 90s TIME SAMPLING BEGAN 10:50 am TIME SAMPLING COMPLETED 1:35 pm

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing  
 HEIGHT OF MP ABOVE/BELOW LAND SURFACE: \_\_\_\_\_ MP ELEVATION: \_\_\_\_\_  
 TOTAL SOUNDED DEPTH OF WELL BELOW MP: 340.0 WATER-LEVEL ELEVATION: \_\_\_\_\_  
 HELD: \_\_\_\_\_ DEPTH TO WATER BELOW MP: 39.67 DIAMETER OF CASING: 4-inch  
 WET: \_\_\_\_\_ WATER COLUMN IN WELL: 23.00 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 45 gallons  
 GALLONS PER FOOT: 0.65 SAMPLING PUMP INTAKE SETTING (feet below land surface): \_\_\_\_\_  
 GALLONS IN WELL: 14.95  
 EVACUATION METHOD: Permanent bladder pump with packer; Q=3.5 min/gal. T=157 min.

SAMPLING DATA/FIELD PARAMETERS

COLOR: \_\_\_\_\_ ODOR: \_\_\_\_\_  
 APPEARANCE: \_\_\_\_\_ TEMPERATURE: 16.5/17.5/17/17 °C  
 OTHER (specific ion; OVA; HNU; etc): \_\_\_\_\_  
 SPECIFIC CONDUCTANCE umhos/cm: 110/95/95 pH 5.68/4.96/4.95

SAMPLING METHOD AND MATERIAL: Pump discharge

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None

REMARKS: Packer inflated to 143 psi.

SAMPLING PERSONNEL: Greg Ernst

GAL./FT	WELL CASING VOLUMES			
1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65	
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/WELL NO.: GM-38D2 CODED/REPLICATE NO.: DATE: 8/26/93

WEATHER: Clear 90s TIME SAMPLING BEGAN 9:00 am TIME SAMPLING COMPLETED 10:45 am

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing

HEIGHT OF MP ABOVE/BELOW LAND SURFACE: MP ELEVATION:

TOTAL SOUNDED DEPTH OF WELL BELOW MP: 495.0 WATER-LEVEL ELEVATION:

HELD: DEPTH TO WATER BELOW MP: 41.28 DIAMETER OF CASING: 4-inch

WET: WATER COLUMN IN WELL: 23.00 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 45 gallons

GALLONS PER FOOT: 0.65 SAMPLING PUMP INTAKE SETTING (feet below land surface):

GALLONS IN WELL: 14.95

EVACUATION METHOD: Permanent bladder pump with packer; Q=2 min/gal. T=90 min.

SAMPLING DATA/FIELD PARAMETERS

COLOR: Colorless ODOR: None

APPEARANCE: Clear TEMPERATURE: 21/17/16/16.5 °C

OTHER (specific ion; OVA; HNU; etc):

SPECIFIC CONDUCTANCE umhos/cm: 50/50/50/50 pH 5.66/4.70/4.52/4.53

SAMPLING METHOD AND MATERIAL: Pump discharge

Table with 3 columns: CONSTITUENTS SAMPLED, CONTAINER DESCRIPTION FROM LAB x OR G&M, PRESERVATIVE. Row 1: TCL VOCs, Three 40-ml vials, None.

REMARKS: Packer inflated to 215 psi.

SAMPLING PERSONNEL: Greg Ernst

Table with 2 columns: GAL./FT, WELL CASING VOLUMES. Rows: 1-1/4" = 0.077, 2" = 0.16, 3" = 0.37, 4" = 0.65; 1-1/2" = 0.10, 2-1/2" = 0.24, 3-1/2" = 0.50, 6" = 1.46.

## WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1  
 SITE LOCATION: Grumman/Bethpage, NY  
 SITE/WELL NO.: N-10816 CODED/REPLICATE NO.: DATE: 8/30/93  
 WEATHER: Cloudy 80s TIME SAMPLING BEGAN 1:55 pm TIME SAMPLING COMPLETED 2:30 pm

## EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing  
 HEIGHT OF MP ABOVE/BELOW LAND SURFACE: MP ELEVATION:  
 TOTAL SOUNDED DEPTH OF WELL BELOW MP: 130.0 WATER-LEVEL ELEVATION:  
 HELD: DEPTH TO WATER BELOW MP: 34.03 DIAMETER OF CASING: 2-inch  
 WET: WATER COLUMN IN WELL: 95.97 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 46 gallons  
 GALLONS PER FOOT: 0.16 SAMPLING PUMP INTAKE SETTING (feet below land surface):  
 GALLONS IN WELL: 15.36  
 EVACUATION METHOD: 2-inch submersible pump; Q=3 gpm T=16 min.

## SAMPLING DATA/FIELD PARAMETERS

COLOR: ODOR: None  
 APPEARANCE: TEMPERATURE: 16/16/16.5/17 °C  
 OTHER (specific ion; OVA; HNU; etc):  
 SPECIFIC CONDUCTANCE umhos/cm: 180/180/175/180 pH 8.90/6.80/5.80/5.80

SAMPLING METHOD AND MATERIAL: Teflon bailer

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None

REMARKS:

SAMPLING PERSONNEL: Greg Ernst/David Vines

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/WELL NO.: N-10999 CODED/REPLICATE NO.: \_\_\_\_\_ DATE: 8/30/93

WEATHER: Cloudy 80s TIME SAMPLING BEGAN 12:30 pm TIME SAMPLING COMPLETED 1:20 pm

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing

HEIGHT OF MP ABOVE/BELOW LAND SURFACE: \_\_\_\_\_ MP ELEVATION: \_\_\_\_\_

TOTAL SOUNDED DEPTH OF WELL BELOW MP: 330.0 WATER-LEVEL ELEVATION: \_\_\_\_\_

HELD: \_\_\_\_\_ DEPTH TO WATER BELOW MP: 34.55 DIAMETER OF CASING: 4-inch

WET: \_\_\_\_\_ WATER COLUMN IN WELL: 295.95 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 576 gallons

GALLONS PER FOOT: 0.65 SAMPLING PUMP INTAKE SETTING (feet below land surface): \_\_\_\_\_

GALLONS IN WELL: 192.04

EVACUATION METHOD: Submersible pump; Q=18 gpm T=32 min.

SAMPLING DATA/FIELD PARAMETERS

COLOR: Yellow/brown ODOR: Present

APPEARANCE: Slightly turbid TEMPERATURE: 17.5/15/14/14 °C

OTHER (specific ion; OVA; HNU; etc): \_\_\_\_\_

SPECIFIC CONDUCTANCE umhos/cm: 135/125/95/95 pH 6.30/6.50/5.50/5.50

SAMPLING METHOD AND MATERIAL: Teflon bailer

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None

REMARKS: \_\_\_\_\_

SAMPLING PERSONNEL: Greg Ernst/David Vines

GAL./FT	WELL CASING VOLUMES			
1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65	
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/WELL NO.: N-11000 CODED/REPLICATE NO.: DATE: 8/30/93

WEATHER: Cloudy 80s TIME SAMPLING BEGAN 1:20 pm TIME SAMPLING COMPLETED 1:45 pm

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): Top of casing

HEIGHT OF MP ABOVE/BELOW LAND SURFACE: MP ELEVATION:

TOTAL SOUNDED DEPTH OF WELL BELOW MP: 126.0 WATER-LEVEL ELEVATION:

HELD: DEPTH TO WATER BELOW MP: 33.35 DIAMETER OF CASING: 2-inch

WET: WATER COLUMN IN WELL: 92.65 GALLONS PUMPED/BAILED PRIOR TO SAMPLING: 45 gallons

GALLONS PER FOOT: 0.16 SAMPLING PUMP INTAKE SETTING (feet below land surface): 14.82

EVACUATION METHOD: 2-inch Submersible pump; Q=3.5 T=13 min.

SAMPLING DATA/FIELD PARAMETERS

COLOR: ODOR: None

APPEARANCE: TEMPERATURE: 16/15/15/15 °C

OTHER (specific ion; OVA; HNU; etc):

SPECIFIC CONDUCTANCE umhos/cm: 290/290/290/290 pH 9.16/7.20/6.25/6.25

SAMPLING METHOD AND MATERIAL: Teflon bailer

Table with 3 columns: CONSTITUENTS SAMPLED, CONTAINER DESCRIPTION FROM LAB x OR G&M, PRESERVATIVE. Row 1: TCL VOCs, Three 40-ml vials, None.

REMARKS:

SAMPLING PERSONNEL: Greg Ernst/David Vines

Table with 2 columns: GAL./FT, WELL CASING VOLUMES. Rows: 1-1/4" = 0.077, 2" = 0.16, 3" = 0.37, 4" = 0.65; 1-1/2" = 0.10, 2-1/2" = 0.34, 3-1/2" = 0.50, 6" = 1.46.

WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/WELL NO.: GP-1 CODED/REPLICATE NO.: \_\_\_\_\_ DATE: 8/24/93

WEATHER: Sunny 80s TIME SAMPLING BEGAN 1:55 pm TIME SAMPLING COMPLETED 2:00 pm

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): \_\_\_\_\_

HEIGHT OF MP ABOVE/BELOW LAND SURFACE: _____	MP ELEVATION: _____
TOTAL SOUNDED DEPTH OF WELL BELOW MP: _____	WATER-LEVEL ELEVATION: _____
HELD: _____ DEPTH TO WATER BELOW MP: _____	DIAMETER OF CASING: _____
WET: _____ WATER COLUMN IN WELL: _____	GALLONS PUMPED/BAILED PRIOR TO SAMPLING: _____
GALLONS PER FOOT: _____	SAMPLING PUMP INTAKE SETTING (feet below land surface): _____
GALLONS IN WELL: _____	_____

EVACUATION METHOD: \_\_\_\_\_

SAMPLING DATA/FIELD PARAMETERS

COLOR: Colorless ODOR: None  
 APPEARANCE: Clear TEMPERATURE: 15 °C

OTHER (specific ion; OVA; HNU; etc): \_\_\_\_\_

SPECIFIC CONDUCTANCE umhos/cm: 95 pH 4.94

SAMPLING METHOD AND MATERIAL: Spigot

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None
_____	_____	_____
_____	_____	_____

REMARKS: Continuously running

SAMPLING PERSONNEL: Tammie-Rae Bouchard

GAL./FT	WELL CASING VOLUMES			
1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65	
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

## WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/  
WELL NO.: GP-2 CODED/  
REPLICATE NO.: DATE: 8/30/93WEATHER: Cloudy 90s TIME SAMPLING  
BEGAN 11:20 am TIME SAMPLING  
COMPLETED 11:25 am

## EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP):

HEIGHT OF MP  
ABOVE/BELOW LAND SURFACE:

MP ELEVATION:

TOTAL SOUNDED  
DEPTH OF WELL BELOW MP:WATER-LEVEL  
ELEVATION:HELD: DEPTH TO  
WATER BELOW MP:DIAMETER  
OF CASING:WET: WATER  
COLUMN IN WELL:GALLONS PUMPED/BAILED  
PRIOR TO SAMPLING:

GALLONS PER FOOT:

SAMPLING PUMP INTAKE  
SETTING (feet below  
land surface):

GALLONS IN WELL:

EVACUATION METHOD:

## SAMPLING DATA/FIELD PARAMETERS

COLOR: Colorless

ODOR: None

APPEARANCE: Clear

TEMPERATURE: 15 °C

OTHER (specific ion; OVA; HNU; etc):

SPECIFIC CONDUCTANCE

umhos/cm: 136

pH 5.02

SAMPLING METHOD AND MATERIAL: Spigot

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None

REMARKS: Continuously running

SAMPLING PERSONNEL: Tammie-Rae Bouchard

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	



## WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/  
WELL NO.: GP-5 CODED/  
REPLICATE NO.: DATE: 8/30/93WEATHER: Cloudy 90s TIME SAMPLING  
BEGAN 11:10 am TIME SAMPLING  
COMPLETED 11:15 am

## EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP):

HEIGHT OF MP  
ABOVE/BELOW LAND SURFACE: \_\_\_\_\_ MP ELEVATION: \_\_\_\_\_

TOTAL SOUNDED  
DEPTH OF WELL BELOW MP: \_\_\_\_\_ WATER-LEVEL  
ELEVATION: \_\_\_\_\_

HELD: \_\_\_\_\_ DEPTH TO  
WATER BELOW MP: \_\_\_\_\_ DIAMETER  
OF CASING: \_\_\_\_\_

WET: \_\_\_\_\_ WATER  
COLUMN IN WELL: \_\_\_\_\_ GALLONS PUMPED/BAILED  
PRIOR TO SAMPLING: \_\_\_\_\_

GALLONS PER FOOT: \_\_\_\_\_ SAMPLING PUMP INTAKE  
SETTING (feet below  
land surface): \_\_\_\_\_

GALLONS IN WELL: \_\_\_\_\_

EVACUATION METHOD: \_\_\_\_\_

## SAMPLING DATA/FIELD PARAMETERS

COLOR: Colorless ODOR: None

APPEARANCE: Clear TEMPERATURE: 15 °C

OTHER (specific ion; OVA; HNU; etc): \_\_\_\_\_

SPECIFIC CONDUCTANCE  
umhos/cm: 100 pH 5.13

SAMPLING METHOD AND MATERIAL: Spigot

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None
_____	_____	_____
_____	_____	_____

REMARKS: Continuously running

SAMPLING PERSONNEL: Tammie-Rae Bouchard

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

## WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1  
 SITE LOCATION: Grumman/Bethpage, NY  
 SITE/  
 WELL NO.: GP-8 CODED/  
 REPLICATE NO.: GM-REP5 DATE: 8/30/93  
 WEATHER: Cloudy 90s TIME SAMPLING  
 BEGAN 10:55 am TIME SAMPLING  
 COMPLETED 11:05 am

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP): \_\_\_\_\_

HEIGHT OF MP  
 ABOVE/BELOW LAND SURFACE: \_\_\_\_\_ MP ELEVATION: \_\_\_\_\_  
 TOTAL SOUNDED  
 DEPTH OF WELL BELOW MP: \_\_\_\_\_ WATER-LEVEL  
 ELEVATION: \_\_\_\_\_  
 HELD: \_\_\_\_\_ DEPTH TO  
 WATER BELOW MP: \_\_\_\_\_ DIAMETER  
 OF CASING: \_\_\_\_\_  
 WET: \_\_\_\_\_ WATER  
 COLUMN IN WELL: \_\_\_\_\_ GALLONS PUMPED/BAILED  
 PRIOR TO SAMPLING: \_\_\_\_\_  
 GALLONS PER FOOT: \_\_\_\_\_ SAMPLING PUMP INTAKE  
 SETTING (feet below  
 land surface): \_\_\_\_\_  
 GALLONS IN WELL: \_\_\_\_\_

EVACUATION METHOD: \_\_\_\_\_

SAMPLING DATA/FIELD PARAMETERS

COLOR: Colorless ODOR: None  
 APPEARANCE: Clear TEMPERATURE: 15 °C  
 OTHER (specific ion; OVA; HNU; etc): \_\_\_\_\_  
 SPECIFIC CONDUCTANCE  
 umhos/cm: 2100 pH 5.40

SAMPLING METHOD AND MATERIAL: Spigot

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None
_____	_____	_____
_____	_____	_____

REMARKS: Continuously runningSAMPLING PERSONNEL: Tammie-Rae Bouchard

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
	1-1/2" = 0.10	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46

## WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/  
WELL NO.: GP-14 CODED/  
REPLICATE NO.: DATE: 8/30/93WEATHER: Cloudy 90s TIME SAMPLING  
BEGAN 10:45 am TIME SAMPLING  
COMPLETED 10:55 amEVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP):

HEIGHT OF MP  
ABOVE/BELOW LAND SURFACE: MP ELEVATION:TOTAL SOUNDED  
DEPTH OF WELL BELOW MP: WATER-LEVEL  
ELEVATION:HELD: DEPTH TO  
WATER BELOW MP: DIAMETER  
OF CASING:WET: WATER  
COLUMN IN WELL: GALLONS PUMPED/BAILED  
PRIOR TO SAMPLING:GALLONS PER FOOT: SAMPLING PUMP INTAKE  
SETTING (feet below  
land surface):

GALLONS IN WELL:

EVACUATION METHOD:

SAMPLING DATA/FIELD PARAMETERS

COLOR: Colorless ODOR: None

APPEARANCE: Clear TEMPERATURE: 15 °C

OTHER (specific ion; OVA; HNU; etc):

SPECIFIC CONDUCTANCE  
umhos/cm: 960 pH 5.39

SAMPLING METHOD AND MATERIAL: Spigot

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None

REMARKS: Continuously running

SAMPLING PERSONNEL: Tammie-Rae Bouchard

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
1-1/2" = 0.10	2-1/2" = 0.34	3-1/2" = 0.50	6" = 1.46	

WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/WELL NO.: N-8767 CODED/REPLICATE NO.: GM-REP6 DATE: 9/2/93

WEATHER: Cloudy 80s TIME SAMPLING BEGAN 1:30 pm TIME SAMPLING COMPLETED 1:35 pm

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP):

HEIGHT OF MP ABOVE/BELOW LAND SURFACE: MP ELEVATION:
TOTAL SOUNDED DEPTH OF WELL BELOW MP: WATER-LEVEL ELEVATION:
HELD: DEPTH TO WATER BELOW MP: DIAMETER OF CASING:
WET: WATER COLUMN IN WELL: GALLONS PUMPED/BAILED PRIOR TO SAMPLING:
GALLONS PER FOOT: SAMPLING PUMP INTAKE SETTING (feet below land surface):
GALLONS IN WELL:

EVACUATION METHOD:

SAMPLING DATA/FIELD PARAMETERS

COLOR: Colorless ODOR: None
APPEARANCE: Clear TEMPERATURE: 15 C

OTHER (specific ion; OVA; HNU; etc):

SPECIFIC CONDUCTANCE umhos/cm: 68 pH 5.89

SAMPLING METHOD AND MATERIAL: Spigot

Table with 3 columns: CONSTITUENTS SAMPLED, CONTAINER DESCRIPTION FROM LAB x OR G&M, PRESERVATIVE. Row 1: TCL VOCs, Three 40-ml vials, None.

REMARKS: Continuously running.

SAMPLING PERSONNEL: Tammie-Rae Bouchard

WELL CASING VOLUMES table with columns: GAL./FT, 1-1/4", 1-1/2", 2", 2-1/2", 3", 3-1/2", 4", 6".

## WATER SAMPLING LOG

PROJECT/NO.: NY0008.030 PAGE 1 OF 1

SITE LOCATION: Grumman/Bethpage, NY

SITE/  
WELL NO.: N-8768 CODED/  
REPLICATE NO.: DATE: 9/2/93WEATHER: Cloudy 80s TIME SAMPLING  
BEGAN 1:40 pm TIME SAMPLING  
COMPLETED 1:45 pm

## EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP):

HEIGHT OF MP  
ABOVE/BELOW LAND SURFACE: MP ELEVATION:TOTAL SOUNDED  
DEPTH OF WELL BELOW MP: WATER-LEVEL  
ELEVATION:HELD: DEPTH TO  
WATER BELOW MP: DIAMETER  
OF CASING:WET: WATER  
COLUMN IN WELL: GALLONS PUMPED/BAILED  
PRIOR TO SAMPLING:

GALLONS PER FOOT: SAMPLING PUMP INTAKE

GALLONS IN WELL: SETTING (feet below  
land surface):

EVACUATION METHOD:

## SAMPLING DATA/FIELD PARAMETERS

COLOR: Colorless ODOR: None

APPEARANCE: Clear TEMPERATURE: 15 °C

OTHER (specific ion; OVA; HNU; etc):

SPECIFIC CONDUCTANCE  
umhos/cm: 40.0 pH 5.84

SAMPLING METHOD AND MATERIAL: Spigot

CONSTITUENTS SAMPLED	CONTAINER DESCRIPTION FROM LAB x OR G&M	PRESERVATIVE
TCL VOCs	Three 40-ml vials	None

REMARKS: Continuously running.

SAMPLING PERSONNEL: Tammie-Rae Bouchard

GAL./FT	WELL CASING VOLUMES			
	1-1/4" = 0.077	2" = 0.16	3" = 0.37	4" = 0.65
1-1/2" = 0.19	2-1/2" = 0.24	3-1/2" = 0.50	6" = 1.46	

**CHAIN-OF-CUSTODY RECORD**

Project Number SCUMMAN NY0008030

Project Location BETHPAGE NY

Laboratory IEA

Sampler(s) D. VINES, G. WILLIAMS

TR BOUCHARD, S. PETERS

S. PETERS  
Date

SAMPLE BOTTLE / CONTAINER DESCRIPTION

40ML Glass Vial  
 TCL VOC (UNPRESERVED)  
 500ML PLASTIC  
 (UNPRESERVED) \*\*

SAMPLE IDENTITY

Sampled

TOTAL

SAMPLE IDENTITY	Sampled	40ML Glass Vial TCL VOC (UNPRESERVED)	500ML PLASTIC (UNPRESERVED) **									TOTAL
FB823	8-23-93	3	1									3
TB8231	8-23-93	2	1									2
GM-65	8-23-93	3	1									4
GM-6I	8-23-93	3	1									4
Gm-13S	8-23-93	3	1									4
Gm-18S	8-23-93	3	1									4
Gm-23S	8-23-93	3	1									4
Gm-20S	8-23-93	3	1									4
Gm-36D	8-23-93	3	1									3
Gm-36D2	8-23-93	3	1									3
* Gm-18I	8-23-93	9	3									12
REP-2	8-23-93	3	1									4

Total No. of Bottles/  
Containers

51

Relinquished by: [Signature]

[Signature]

Organization:

Straightly Miller Inc

Date: 8-23-93

Time: 11:25

Seal Intact?  
Yes No N/A

Relinquished by: \_\_\_\_\_

Received by: \_\_\_\_\_

Organization: \_\_\_\_\_

Organization: \_\_\_\_\_

Date: 1 1

Time: \_\_\_\_\_

Seal Intact?  
Yes No N/A

Special Instructions/Remarks: \* Please use this sample for the MS/MSD analysis

\*\* Hexavalent chromium has a short holding time Analyze immediately.

LTO # 06131

Delivery Method:

In Person

Common Carrier TUD Ex

Lab Courier

Other

**CHAIN-OF-CUSTODY RECORD**

Project Number GRUMMAN NY0008030

Project Location BETHPAGE, NY

Laboratory IEA

Sampler(s) D. VINES, G. WILLIAMS, TR. BOUCHARD, B. ERNST, S. PETER

SAMPLE BOTTLE / CONTAINER DESCRIPTION

SAMPLE IDENTITY	Date Sampled	3 L PLASTIC TAL METALS	3 L PLASTIC TAL METALS	3 L PLASTIC TAL METALS	3 L PLASTIC TAL METALS							TOTAL
REP-2	8-23-93	1	1	1								3
GM-6S	8-23-93	1	1	1								1
GM-6I	8-23-93	1	1	1								1
GM-13S	8-23-93	1	1	1								1
GM-18S	8-23-93	1	1	1								1
* GM-18I	8-23-93	1	1	3								3 <sup>sup</sup>
GM-20S	8-23-93	1	1	1								1
GM-23S	8-23-93	1	1	1								1

Total No. of Bottles/Containers 10/12

Relinquished by: <u>[Signature]</u>	Organization: <u>Geraghty - Muller Inc</u>	Date: <u>8/23/93</u> Time: <u>17:25</u>	Seal Intact? Yes No N/A
Received by: _____	Organization: _____	Date: <u>1/1</u> Time: _____	Seal Intact? Yes No N/A
Relinquished by: _____	Organization: _____	Date: <u>1/1</u> Time: _____	Seal Intact? Yes No N/A
Received by: _____	Organization: _____	Date: <u>1/1</u> Time: _____	Seal Intact? Yes No N/A

Special Instructions/Remarks: \* Please use this sample for the MS/MSD Analyses

LTO # 06131

Delivery Method:  In Person  Common Carrier TDX  Lab Courier  Other \_\_\_\_\_





# CHAIN-OF-CUSTODY RECORD

Project Number **GRIMMAN NY0008030**

Project Location **BETHPAGE, NY**

Laboratory **IEA**

Sampler(s) **D. VINES, J. P. BOUCHARD  
G. WILLIAMS, J. PETERS, G. ERNST**

SAMPLE BOTTLE / CONTAINER DESCRIPTION

SAMPLE IDENTITY	Date Sampled	SAMPLE BOTTLE / CONTAINER DESCRIPTION							TOTAL
		1 LITER PLASTIC TAL METALS (TOTAL) (HNO <sub>3</sub> )	1 LITER PLASTIC TAL METALS (DISSOLVED) (HNO <sub>3</sub> )						
GM-4S	8-24-93	1	1						2
GM-4I	8-24-93	1	1						2
GM-5S	8-24-93	1	1						2
GM-5I	8-24-93	1	1						2
GM-9S	8-24-93	1	1						2
GM-9I	8-24-93	1	1						2
GM-20 I	8-24-93	1	1						2
GM-22 D	8-24-93	1	1						2
GM-33 D2	8-24-93	1	1						2
GM 23 T	8-24-93	1	1						2

Total No. of Bottles/  
Containers

**20**

Relinquished by: <u>[Signature]</u>	Organization: <u>GRABENHANS MILLIK</u>	Date: <u>8/24/93</u> Time: <u>6:20</u>	Seal Intact? Yes No N/A
Received by: _____	Organization: _____	Date: <u>1 1</u> Time: _____	
Relinquished by: _____	Organization: _____	Date: <u>1 1</u> Time: _____	Seal Intact? Yes No N/A
Received by: _____	Organization: _____	Date: <u>1 1</u> Time: _____	

Special Instructions/Remarks: \_\_\_\_\_

LTO #06131

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



CHAIN-OF-CUSTODY RECORD

Project Number GRUNMAN NY0008030

Project Location BETHPAGE, NY

Laboratory IEA

Sampler(s) DVINS TR BOUCHARD  
G.WILLIAMS, S.PETERS, G.ERNST

SAMPLE BOTTLE / CONTAINER DESCRIPTION

1 LITER PLASTIC CYANIDE

NACHI ASC 500ml PLASTIC CRT 6 DWP

SAMPLE IDENTITY	Date Sampled											TOTAL
GM-4S	8-24-93	1	1									2
GM-4I	8-24-93	1	1									2
GM-5S	8-24-93	1	1									2
GM-5I	8-24-93	1	1									2
GM-9S	8-24-93	1	1									2
GM-9I	8-24-93	1	1									2
GM-20I	8-24-93	1	1									2
GM-22D	8-24-93	1	1									2
GM-33D2	8-24-93	1	1									2
GM 23I	8-24-93	1	1									2

Total No. of Bottles/Containers 20

Relinquished by: <u>[Signature]</u>	Organization: <u>GERARDY AND MILLER</u>	Date: <u>8-24-93</u> Time: <u>6:20</u>	Seal Intact? Yes No N/A
Received by: _____	Organization: _____	Date: <u>1/1</u> Time: _____	Yes No N/A
Relinquished by: _____	Organization: _____	Date: <u>1/1</u> Time: _____	Seal Intact? Yes No N/A
Received by: _____	Organization: _____	Date: <u>1/1</u> Time: _____	Yes No N/A

Special Instructions/Remarks: \_\_\_\_\_

LTO # 06131

Delivery Method:  In Person  Common Carrier FED EX  Lab Courier  Other \_\_\_\_\_

**CHAIN-OF-CUSTODY RECORD**

Project Number GRUMMAN NY0008030

Project Location BETHPAGE, NY

Laboratory IEA

Sampler(s) D VINES, G. WILLIAMS  
TR. BOUCHARD, S. PEERS, G. ERNST

40 ML GLASS VIALS  
TEL VOC (UNP)

SAMPLE BOTTLE / CONTAINER DESCRIPTION

SAMPLE IDENTITY	Date Sampled											TOTAL
TB-824I	8-24-93	2										2
FB-824	8-24-93	2										2
GM-4IS	8-24-93	3										3
GM-4II	8-24-93	3										3
GM-5S	8-24-93	3										3
GM-5I	8-24-93	3										3
GM-9S	8-24-93	3										3
GM-9I	8-24-93	3										3
GM-20I	8-24-93	3										3
GM-22D	8-24-93	3										3
GP-1	8-24-93	3										3
GM-33D2	8-24-93	3										3
GM-35D2	8-24-93	9										9
GM-23I	8-24-93	3										3

Total No. of Bottles/Containers 46

Relinquished by: <u>T. Bouchard</u>	Organization: <u>Grumman</u>	Date: <u>10/11/93</u> Time: <u>11:30</u>	Seal Intact? Yes No N/A
Received by: _____	Organization: _____	Date: <u>1/1</u> Time: _____	
Relinquished by: _____	Organization: _____	Date: <u>1/1</u> Time: _____	Seal Intact? Yes No N/A
Received by: _____	Organization: _____	Date: <u>1/1</u> Time: _____	

Special Instructions/Remarks: XX Please use this sample for the ms/msd analyses

LTO # 06631

Delivery Method:  In Person  Common Carrier EED EX  Lab Courier  Other

Project Number GRUMMAN NY0008030

Project Location BETHPAGE, NY

Laboratory IEA

Sampler(s)/Affiliation G. WILLIAMS, T. BOUCHARD  
D. VINES, S. PETERS, G. ERNST

SAMPLE BOTTLE / CONTAINER DESCRIPTION

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	40 mL glass vial TELVOC	1 Liter (LUMP) cyanide plastic	1 Liter (LUMP) TAL metal plastic	1 Liter (LUMP) TAL metal plastic (HNO <sub>3</sub> )	300 mL (HNO <sub>3</sub> ) Ce for plastic **	(None)	TOTAL
TB-8251	L	8/25/93		2	-	-	-	-		2
FB-825	L	8/25/93		3	-	-	-	-		3
REP-1	L	8/25/93		3	-	-	-	-		3
GM-1S	L	8/25/93		3	-	-	-	-		5
GM-1I	L	8/25/93		3	-	-	-	-		6
GM-2S	L	8/25/93		3	-	-	-	-		6
GM-2I	L	8/25/93		3	-	-	-	-		4
GM-3S	L	8/25/93		3	-	-	-	-		4
GM-8S	L	8/25/93		3	-	-	-	-		5
GM-10S	L	8/25/93		3	-	-	-	-		5
GM-21S	L	8/25/93		3	-	-	-	-		5
GM-31D	L	8/25/93		3	-	-	-	-		5
GM-31D2	L	8/25/93		3	-	-	-	-		3
										3

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

Total No. of Bottles/  
Containers

56

Relinquished by: <u>Juan A. [Signature]</u>	Organization: <u>Craghty Miller</u>	Date: <u>8/25/93</u> Time: _____	Seal Intact? Yes No N/A
Received by: _____	Organization: _____	Date: _____ Time: _____	
Relinquished by: _____	Organization: _____	Date: _____ Time: _____	Seal Intact? Yes No N/A
Received by: _____	Organization: _____	Date: _____ Time: _____	

Special Instructions/Remarks: \*\* Short holding time

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

Project Number: GRIMMAN NY0008030  
 Project Location: BETHPAGE, NY  
 Laboratory: IEA  
 Sampler(s)/Affiliation: WILLIAMS, TR BUCHARD  
DYNES SPITERS GEMINIST

SAMPLE IDENTITY		Date/Time Sampled	Lab ID	SAMPLE BOTTLE / CONTAINER DESCRIPTION							TOTAL	
GM-8S	L	8-25-93		1 Liter Plastic (DISSOLVED) TAL Metals (HNO <sub>3</sub> )								2
REP-1	L	8-25-93		1 Liter Plastic (DISSOLVED) TAL Metals (HNO <sub>3</sub> )								2
GM-1I	L	8-25-93		1 Liter Plastic (DISSOLVED) TAL Metals (HNO <sub>3</sub> )								1
GM-2I	L	8-25-93		1 Liter Plastic (DISSOLVED) TAL Metals (HNO <sub>3</sub> )								3
GM-10S	L	8-25-93		1 Liter Plastic (DISSOLVED) TAL Metals (HNO <sub>3</sub> )								2
GM-2S	L	8-25-93		1 Liter Plastic (DISSOLVED) TAL Metals (HNO <sub>3</sub> )								3
GM-1S	L	8-25-93		1 Liter Plastic (DISSOLVED) TAL Metals (HNO <sub>3</sub> )								1
GM-2IS	L	8-25-93		1 Liter Plastic (DISSOLVED) TAL Metals (HNO <sub>3</sub> )								2
GM-3S	L	8-25-93		1 Liter Plastic (DISSOLVED) TAL Metals (HNO <sub>3</sub> )								2

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

Total No. of Bottles/Containers: 18

Relinquished by: [Signature] Organization: Straighty Miller Inc  
 Received by: \_\_\_\_\_ Organization: \_\_\_\_\_ Date: 8/25/93 Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Organization: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Organization: \_\_\_\_\_ Date:   /  /   Time: \_\_\_\_\_

Seal Intact?  
 Yes No N/A  
 Yes No N/A

Special Instructions/Remarks: \_\_\_\_\_

Delivery Method:  In Person  Common Carrier FedEx  Lab Courier  Other \_\_\_\_\_

Project Number GRUMMAN NY0008030

Project Location BETHPAGE, NY

Laboratory IEA

Sampler(s)/Affiliation G. WILLIAMS, T. BOUCHARD, D. VINES, S. PETERS, G. ERNST

DATE/TIME Code Sampled Lab ID

SAMPLE BOTTLE / CONTAINER DESCRIPTION

40 ml glass vial  
 TC/VOC  
 1 liter (UNP)  
 cyanide Plastic  
 1 liter (UNP)  
 AL metal plastic  
 1 liter (UNP)  
 AL metal plastic  
 300 ml (UNP)  
 CE or plastic  
 (None)

DATE/TIME Code Sampled Lab ID	40 ml glass vial TC/VOC	1 liter (UNP) cyanide Plastic	1 liter (UNP) AL metal plastic	1 liter (UNP) AL metal plastic	300 ml (UNP) CE or plastic	(None)	TOTAL
TB-8251 L 8/25/93	2	1	1	1	1		2
FB-825 L 8/25/93	3	1	1	1	1		3
GP-1 L 8/25/93	3	1	1	1	1		5
GM-1S L 8/25/93	3	1	1	1	1		6
GM-1I L 8/25/93	3	1	1	1	1		6
GM-2S L 8/25/93	3	1	1	1	1		4
GM-2I L 8/25/93	3	1	1	1	1		4
GM-3S L 8/25/93	3	1	1	1	1		5
GM-8S L 8/25/93	3	1	1	1	1		5
GM-10S L 8/25/93	3	1	1	1	1		5
GM-21S L 8/25/93	3	1	1	1	1		5
GM-31D L 8/25/93	3	1	1	1	1		5
GM-31D2 L 8/25/93	3	1	1	1	1		5
							3

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

Total No. of Bottles/Containers

56

Relinquished by: Juan A. [Signature]  
 Received by: \_\_\_\_\_

Organization: Raghty Miller  
 Organization: \_\_\_\_\_

Date 8/25/93 Time \_\_\_\_\_

Seal Intact?  
 Yes No N/A

Relinquished by: \_\_\_\_\_  
 Received by: \_\_\_\_\_

Organization: \_\_\_\_\_  
 Organization: \_\_\_\_\_

Date   /  /   Time \_\_\_\_\_

Seal Intact?  
 Yes No N/A

Special Instructions/Remarks: \*\* Short holding time

Delivery Method:  In Person

Common Carrier Fed Ex

Lab Courier

Other

SPECIFY

SPECIFY

Project Number N40008.030  
 Project Location Bethpage, NY  
 Laboratory IEA, Inc.

Sampler(s)/Affiliation G. Ernst, G. Williams, D. Vines  
S. Peters, J.L. Buchwald

*1 - Plastic  
 HNO3 / Metals  
 Dissolving  
 100 mL Plastic  
 CR 67*

SAMPLE BOTTLE / CONTAINER DESCRIPTION

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID										TOTAL
GM-7B	L	8-26-93		1	1								2
GM-7T	L			1	1								1
GM-22-S	L			1	1								2
GM-16-S	L			1	1								2
GM-75	L			1	1								2
GM-15-S	L			1	1								2
GM-14-S	L			1	1								2

Sample Code: L = Liquid; S = Solid; A = Air Total No. of Bottles/Containers 13

Relinquished by: [Signature] Organization: [Signature] Date: 8/26/93 Time: 5:00 Seal Intact?  Yes  No  N/A  
 Received by: \_\_\_\_\_ Organization: \_\_\_\_\_ Date:     /     /     Time: \_\_\_\_\_ Seal Intact?  Yes  No  N/A

Special Instructions/Remarks: \_\_\_\_\_

Delivery Method:  In Person  Common Carrier Fed Ex  Lab Courier  Other \_\_\_\_\_  
SPECIFY SPECIFY

Project Number N40008.030

Project Location Bethpage, N.Y.

Laboratory IEA, Inc.

Sampler(s)/Affiliation G. Ernst, G. Williams  
D. Vines, S. Peters, T. Boucher

Date/Time

SAMPLE IDENTITY Code Sampled Lab ID

SAMPLE BOTTLE / CONTAINER DESCRIPTION											
											TOTAL
GM-380	L	8-26-93	3								3
GM-3802	L		3								3
GM-7E	L		3	1	1	1					6
GM-7D	L		3	1	1						5
GM-3E	L		3								3
GM-225	L		3	1	1						5
GM-125	L		3								3
GM-165	L		3	1	1						5
GM-155	L		3	1	1						5
GM-145	L		3	1	1						5
FB-826	L		3								3
GM-75	L		3	1	1						5
TB-8261	L		3								3

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

Total No. of Bottles/Containers

54

Relinquished by: [Signature] Organization: [Signature]  
Received by: \_\_\_\_\_ Organization: \_\_\_\_\_ Date 8/26/93 Time 5:00 PM

Seal Intact?  
Yes No N/A

Relinquished by: \_\_\_\_\_ Organization: \_\_\_\_\_  
Received by: \_\_\_\_\_ Organization: \_\_\_\_\_ Date 1 1 Time \_\_\_\_\_

Seal Intact?  
Yes No N/A

Special Instructions/Remarks: \_\_\_\_\_

Delivery Method:  In Person  Common Carrier Fed Ex  Lab Courier  Other \_\_\_\_\_



Project Number: 6500MUN NYC000020

Project Location: Rethoro NY

Laboratory: IEA Labs Tr

Sampler(s)/Affiliation: Dennis G. Elmer, Williams Safeters, TR Corbridge

DATE/TIME SAMPLED: \_\_\_\_\_ LAB ID: \_\_\_\_\_

SAMPLE BOTTLE / CONTAINER DESCRIPTION									
40ml Glass Vial	1L Plastic (HDPE)	1L Plastic (HDPE)	1L Plastic (HDPE)	50ml Glass Vial	1L Plastic (HDPE)	1L Plastic (HDPE)			
TLL VOC	TAL Metals	TAL Metals	TAL Metals						

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	40ml Glass Vial	1L Plastic (HDPE)	1L Plastic (HDPE)	1L Plastic (HDPE)	50ml Glass Vial	1L Plastic (HDPE)	1L Plastic (HDPE)	TOTAL
SM-13-D	L	8/27/93		3	1	1	1	1	1		7
SM-Rep-3	L			3	1	1	1	1	1		7
SM-17	L			3	1	1	1	1	1		7
SM-Rep-4	L			3	1	1	1	1	1		7
SM-22 I	L			3	1	1	1	1	1		7
SM-8 I	L	↓		3	1	1	1	1	1		7
FB-827	L	8/27/93		3	1	1	1	1	1		7
SM-10 I	L	↓		9	1	1	1	1	1		14
FB-827(1)	L	↓		3	1	1	1	1	1		7
SM-12 I	L	↓		3	1	1	1	1	1		7

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

Total No. of Bottles/Containers: 59

Relinquished by: [Signature] Organization: Franghty & Miller  
 Received by: \_\_\_\_\_ Organization: \_\_\_\_\_ Date: 8/27/93 Time: 1730  
 Seal Intact? Yes No N/A

Relinquished by: \_\_\_\_\_ Organization: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Organization: \_\_\_\_\_ Date: 1/1 Time: \_\_\_\_\_  
 Seal Intact? Yes No N/A

Special Instructions/Remarks: xx Please use this sample for the MCM/DES analysis

Delivery Method:  In Person  Common Carrier  Truck  Lab Courier  Other

Project Number: Grumman Aerospace (Hydrocarbons)

Project Location: Rethpage, NY

Laboratory: IEA Labs Inc.

Sampler(s)/Affiliation: D. Nelson, G. East  
6. Williams, T. Parker

DATE/TIME SAMPLED:       
LAB ID:     

SAMPLE BOTTLE / CONTAINER DESCRIPTION							
40 ml Glass Vials VOCs-TCL (Comp)	1 Liter Plastic TAL Metals-TOTAL	1 Liter Plastic TAL Metals-TOTAL	1 Liter Dissolved Metals (LHW)	1 Liter Plastic CYANIDE (LHW)	500 ml Plastic Cr+6 (Comp)		

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	40 ml Glass Vials VOCs-TCL (Comp)	1 Liter Plastic TAL Metals-TOTAL	1 Liter Plastic TAL Metals-TOTAL	1 Liter Dissolved Metals (LHW)	1 Liter Plastic CYANIDE (LHW)	500 ml Plastic Cr+6 (Comp)	TOTAL
FB-00000	L	8/30/93		3						3
FB-00001	L	8/30/93		2						3
FB-00002	L	8/30/93		3						3
Com-3462	L	8/30/93		3						3
N-10816	L	8/30/93		3						3
N-10999	L	8/30/93		3						3
N-11000	L	8/30/93		3						3
Com-14J	L	8/30/93		3	1	1	1	1		7
Com-19I	L	8/30/93		3	1	1	1	1		7
Com-19S	L	8/30/93		3	1	1	1	1		7
FB-8-302	L	8/30/93							1	1

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

Total No. of Bottles/Containers: 43

Relinquished by: Danielle Organization: DeGrady & Miller Inc  
 Received by: \_\_\_\_\_ Organization: \_\_\_\_\_ Date: 8/30/93 Time: 6:00 PM Seal Intact? Yes No N/A

Relinquished by: \_\_\_\_\_ Organization: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Organization: \_\_\_\_\_ Date:      Time:      Seal Intact? Yes No N/A

Special Instructions/Remarks: \* Dissolved Metals total filtered through 0.45 micron filter.

Delivery Method:  In Person  Common Carrier FedEx  Lab Courier  Other \_\_\_\_\_  
SPECIFY



**RAGHTY  
LLER, INC.**  
Environmental Services

Laboratory Task Order No. 0613

**CHAIN-OF-CUSTODY RECORD**

Page 1 of 1

Project Number NY 0008.030  
Project Location Gumman  
Laboratory JFA

Sampler(s)/Affiliation D Vines G. Emond  
G Williams  
Buckel

SAMPLE BOTTLE / CONTAINER DESCRIPTION

10 x 19 glass vials  
 VOCs - TC L amp.

SAMPLE IDENTITY Code Date/Time Sampled Lab ID

				SAMPLE BOTTLE / CONTAINER DESCRIPTION								TOTAL	
GP-2	L	8/30/93		3									3
GP-5	L			3									3
GP-8	L			3									3
GP-14	L			3									3
GSM-Rep 5	L			3									3

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

Total No. of Bottles/Containers 15

Relinquished by: Gary Williams Organization: GSM  
 Received by: \_\_\_\_\_ Organization: \_\_\_\_\_ Date: 7/27/93 Time: 10:00 PM  
 Seal Intact? Yes No N/A

Relinquished by: \_\_\_\_\_ Organization: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Organization: \_\_\_\_\_ Date: / / Time: \_\_\_\_\_  
 Seal Intact? Yes No N/A

Special Instructions/Remarks: \_\_\_\_\_

Delivery Method:  In Person  Common Carrier  Lab Courier  Other \_\_\_\_\_

Project Number: NY 0008 030

Project Location: Cumman

Laboratory: IEA

Sampler(s)/Affiliation: O Vinco G. Ernst  
G Williams T

Date/Time Sampled: 8/31/93  
 Boucher

SAMPLE BOTTLE / CONTAINER DESCRIPTION							
40 ml glass vial							
100 ml glass vial							
1 L Poly (HDPE)							
1 L Poly (HDPE)							
1 L Poly (HDPE)							
1 L Poly (HDPE)							
1 L Poly (HDPE)							
1 L Poly (HDPE)							
500 ml glass vial							
1 L Poly (HDPE)							

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID							TOTAL
RB 831-1	L	8/31/93		2						2
GM-13J	L	"		3	1	1	1	1		7
GM-20D	L	"		2	1	1	1	1		6
GM-15J	L	"		3	1	1	1	1		7
FB 831	L	"		3						3
FB 831-2	L	"			1					1

Sample Code: L - Liquid; S = Solid; A = Air

Total No. of Bottles/Containers: 21

Relinquished by: T Bouchard Organization: G4M

Received by: \_\_\_\_\_ Organization: \_\_\_\_\_ Date: 8/31/93 Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Organization: \_\_\_\_\_

Received by: \_\_\_\_\_ Organization: \_\_\_\_\_ Date: 1/1 Time: \_\_\_\_\_

Seal Intact?  Yes  No  N/A

Seal Intact?  Yes  No  N/A

Special Instructions/Remarks: \* Dissolved metals field filtered through 0.15 micron filter  
\* Hexavalent Chromium has a short holding time  
Please analyze immediately.

Delivery Method:  In Person  Common Carrier Fed Ex  Lab Courier  Other \_\_\_\_\_

Project Number: NY 0008.030

Project Location: Gumman

Laboratory: IEA

Sampler(s)/Affiliation: G Williams

D Vines

T Bouchard

Date/Time

SAMPLE IDENTITY Code Sampled Lab ID

SAMPLE BOTTLE / CONTAINER DESCRIPTION

40 ml vials  
no H<sub>2</sub>O  
TCL  
VDCe  
1 L poly  
TAL metals (6 total)  
HNO<sub>3</sub> DCE  
1 L poly  
TAL metals (6 total)  
HNO<sub>3</sub> DCE  
1 L poly  
TAL metals (6 total)  
HNO<sub>3</sub> DCE  
Cyanide (CN)  
NaOH  
500 ml  
no H<sub>2</sub>O  
Hexavalent Chromium  
POLY  
POLY

SAMPLE IDENTITY	Code	Sampled	Lab ID	1	2	3	4	5	6	7	8	9	10	TOTAL
GM-31S	L	9/1/93		3	1	1	1	1						7
GM-32S	L			3	1	1	1	1						7
GM-16I	L			3	1	1	1	1						7
GM-16IAS	L			3	1	1	1	1						7
GM-16IAD	L			3	1	1	1	1						7
GM-21I	L			3										3
TB-9-1B	L	↓		2										2

Sample Code: (L) Liquid; S = Solid; A = Air

Total No. of Bottles/Containers

40

Relinquished by: T.R. Bouchard

Organization: GEM

Received by:

Organization:

Date: 9/1/93 Time: 6:30 pm

Seal Intact?  
(Yes) No N/A

Relinquished by:

Organization:

Received by:

Organization:

Date: 1/1 Time:

Seal Intact?  
Yes No N/A

Special Instructions/Remarks:

\* Dissolved metals field filtered through 0.45 micron filter

\*\* Hexavalent Chromium has a short holding time Please analyze

Delivery Method:

In Person

Common Carrier

Federal Express

Lab Courier

Other



Project Number NY 0008 030

Project Location Gwinman

Laboratory IEA

Sampler(s)/Affiliation T. Bouchard  
G.M.

SAMPLE IDENTITY Code Date/Time Sampled Lab ID

SAMPLE BOTTLE / CONTAINER DESCRIPTION											
<u>N-8768</u>	<u>L</u>	<u>9/20/93</u>	<u>3</u>								TOTAL
<u>N-8768MS</u>	<u>L</u>	<u> </u>	<u>3</u>								<u>3</u>
<u>N-8768MSD</u>	<u>L</u>	<u> </u>	<u>3</u>								<u>3</u>
<u>TB92093</u>	<u>L</u>	<u> </u>	<u>3</u>								<u>3</u>

3 40 ml vial  
TCL 1000  
20 pres.

Sample Code: (L) = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 12

Relinquished by: <u>TR Bouchard</u>	Organization: <u>County of Miller</u>	Date: <u>9-1-93</u> Time: <u>10:00</u>	Seal Intact? (Yes) No N/A
Received by: _____	Organization: _____	Date: <u>  </u> Time: <u>  </u>	Seal Intact? Yes No N/A

Special Instructions/Remarks:

Delivery Method:  In Person  Common Carrier FEDEX  Lab Courier  Other \_\_\_\_\_

Project Number N400808  
Project Location Grumman, Bethpage  
Laboratory NET  
Sampler(s)/Affiliation D. Monsen

SAMPLE IDENTITY Code Date/Time Sampled Lab ID

SAMPLE BOTTLE / CONTAINER DESCRIPTION											
<b>200000</b>											
VOA Jar TCL VOC'S	Soil Jar CN, Cr+6, TAL Metals	500 ml PLASTIC	500 ml PLASTIC	1 LITER PLASTIC Metals	40 ml vial VOCS						TOTAL

<u>FB-821</u>	<u>L</u>	<u>8/21/92</u>					<u>1</u>	<u>1</u>	<u>1</u>	<u>2</u>		<u>5</u>
<u>TB-821</u>	<u>L</u>	<u>8/21/92</u>								<u>2</u>		<u>2</u>
<u>B-4(4-6)</u>	<u>S</u>	<u>8/21/92</u>				<u>1</u>	<u>1</u>					<u>2</u>

Total No. of Bottles/Containers 9

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

Relinquished by: Donald Masser Organization: Geraghty + Miller Date: 8-24-92 0950  
Received by: Stephen Salvatore Organization: NET-Thorofare, Inc. Date: 8/21/92 Time: 4:00

Seal Intact?  
Yes No N/A

Relinquished by: \_\_\_\_\_ Organization: \_\_\_\_\_ Date: 1 1 Time: \_\_\_\_\_  
Received by: \_\_\_\_\_ Organization: \_\_\_\_\_

Seal Intact?  
Yes No N/A

Special Instructions/Remarks: \_\_\_\_\_

Delivery Method:  In Person  Common Carrier Fed-ex  Lab Courier  Other \_\_\_\_\_  
SPECIFY

000000





Project Number NY00808  
Project Location Grumman Bethpage NY  
Laboratory NET  
Sampler(s)/Affiliation D. Monsen

SAMPLE BOTTLE / CONTAINER DESCRIPTION											
TCL VOC's	40 ml vial	TCL VOC's	VOC 38L	TAL Metals	CN, Cr+6	TAL Metals	1 LITER PLASTIC	Cyanide	500 ml plastic	Cr + 6	500 ml plastic

000003

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	TCL VOC's	40 ml vial	TCL VOC's	VOC 38L	TAL Metals	CN, Cr+6	TAL Metals	1 LITER PLASTIC	Cyanide	500 ml plastic	Cr + 6	500 ml plastic	TOTAL
FB-824	L	8/24/92		2				1			1					5
FB-824	L	8/24/92		2												2
B-6(6-8)	S	8/24/92			1		1									2
B-7(0-2)	S	8/24/92			1		1									2
															Total No. of Bottles/Containers	11

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

Relinquished by: Donald Monsen Organization: Geraghty + Miller Date: 8/24/92 Time: 3:30 Seal Intact? Yes No N/A

Received by: \_\_\_\_\_ Organization: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Organization: M. R. ... NET INC Date: 8/25/92 Time: 9:30 Seal Intact?  Yes No N/A

Received by: \_\_\_\_\_ Organization: \_\_\_\_\_

Special Instructions/Remarks: \_\_\_\_\_

Delivery Method:  In Person  Common Carrier Fed Ex  Lab Courier  Other \_\_\_\_\_

SPECIFY

Project Number N Y00808  
 Project Location Grumman Bethpage  
 Laboratory NET  
 Sampler(s)/Affiliation D. Monahan

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	SAMPLE BOTTLE / CONTAINER DESCRIPTION							TOTAL			
				VOC's 40 ml vial	VOC's Soil Jar	TAL Metals, CN, CR+6	TAL Metals, 1 Liter (Jar)	CN 1 Liter PLASTIC	500 ml PLASTIC CR+6	500 ml PLASTIC				
FB-825	L	8/25		2				1	1	1				5
TB-825	L	8/25		2										2
B-5(10-2)	S	8/25			1	1								2
B-5(18-10)	S	8/25			1	1								2
B-5(18-20)	S	8/25			1	1								2
											Total No. of Bottles/ Containers	13		

100000

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

Relinquished by: Dorely Monahan Organization: GFA Date: 8/25/92 Time: 4:00  
 Received by: Sharon Sabatini Organization: NET Atlantic, Inc Date: 8/26/92 Time: 0930

Seal Intact?  
Yes No N/A  
 Seal Intact?  
Yes No N/A

Special Instructions/Remarks:

Delivery Method:  In Person  Common Carrier FedEx  Lab Courier  Other

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**APPENDIX D**

**DATA VALIDATION MEMORANDUMS**



MEMORANDUM

To: Carlo San Giovanni  
From: Lauren Sjogren and Susan Peters *LS/SLP*  
Date: November 2, 1992  
Subject: Data Validation of Samples Collected at the Grumman Site on August 21, August 24 and August 25, 1992, Bethpage, New York (Project No. NY00808).

Six soil samples were analyzed for the volatile organic Target Compound List (TCL) and Target Analyte List (TAL) parameters by NET-Thorofare Division Laboratory using the New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol (ASP) September 1989, revised December, 1991. Validation of the data was performed following the quality assurance/quality control (QA/QC) criteria set forth in the NYSDEC ASP, September 1989, revised December 1991, the United States Environmental Protection Agency (USEPA) Contract Laboratory Program National Functional Guidelines for Organic Data Review, December, 1990, revised June, 1991 and the USEPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses, July 1988.

In addition to the volatile organic TCL and TAL parameters, all samples were analyzed for hexavalent chromium. The hexavalent chromium data was reviewed and found to be acceptable.

This data package provided by the laboratory consisted of six soil samples, three field blanks and three trip blanks as listed in Table 1.

The organic and inorganic data validation results are discussed below. The quality of the data was acceptable with the appropriate qualifications described in this memorandum.

NET Thorofare Job Numbers 92.23380, 92.23460, 92.23640

## VOLATILE ORGANIC DATA SUMMARY

### I. HOLDING TIMES

Sample B-4 (4-6), TB-821, and FB-821 were collected and sent to the laboratory on August 21, 1992. The laboratory received the sample cooler on August 22, 1992 and promptly refrigerated the sample cooler. The cooler was not opened until August 24, 1992 which is the date that appears on the chain of custody. Verified time of sample receipt of samples B-4 (4-6), trip blank 8/21/92, and field blank 8/21/92 is August 22, 1992. All samples were analyzed within the holding time of 7 days from VTSR.

### II. GC/MS INSTRUMENT PERFORMANCE CHECK

Each set of tuning data meets the required ion abundance criteria. All of the samples were analyzed within the 12-hour tune time limit.

### III. INITIAL CALIBRATION

Two initial calibrations were performed with all compound relative response factors (RRFs)  $\geq 0.050$ . All percent relative standard deviations (%RSDs) were  $\leq 30\%$  for the initial calibration conducted on August 28, 1992. All %RSDs were  $\leq 30\%$  for the initial calibration conducted on August 21, 1992 except for chloroethane and acetone which were reported with %RSDs of 34.7% and 37.6%, respectively. Acetone was detected in sample B-7 (0-2) and qualified as estimated (J) due to the initial calibration results. Acetone was not detected in any other sample associated with this initial calibration, therefore, further qualification of the data was not necessary based on the initial calibration results.

#### IV. CONTINUING CALIBRATION

Three continuing calibrations were performed with all RRFs  $\geq 0.050$ . All percent difference (%Ds) values were  $\leq 25\%$  except for the continuing calibration conducted on September 1, 1992. Methylene chloride, acetone, 2-butanone, 4-methyl-2-pentanone, and 2-hexanone were reported with %D values of 26.4%, 26.7%, 38.2%, 32.2%, and 36.5%, respectively. All compounds were qualified as estimated (J) if detected and estimated (UJ) if not detected for the samples associated with this continuing calibration. The samples associated with this continuing calibration were B-5 (18-20)MS and B-5 (18-20)MSD. No other qualification of the data was necessary based on the continuing calibration results.

#### V. BLANKS

Four method blanks were analyzed with this sample set. Trichloroethene was detected in method blank VBLKA1 at an estimated concentration of 2 micrograms per liter (ug/L). 2-Butanone was detected in method blank VBLKS1 at an estimated concentration of 5 micrograms per kilogram (ug/kg). 2-Butanone was also detected in method blank VBLKS2 at a concentration of 11 ug/kg. Methylene chloride and 2-butanone were detected in method blank VBLKM1 at concentrations of 170 ug/kg and 7300 ug/kg, respectively. All 2-butanone results for samples associated with method blank VBLKM1 were qualified as unusable (R) since 2-butanone was detected in the method blank above five times the contract required quantitation limit (CRQL). The following sample results were qualified as not detected (U) due to the associated method blank results:

<u>Sample ID</u>	<u>Compound</u>	<u>Concentration (ug/kg)</u>
B-5 (0-2)	Methylene chloride	5500 U
B-5 (8-10)	Methylene chloride	71000 U

Tentatively identified compounds (TICs) were not detected in any of the method blanks, therefore, further qualification of the data was not necessary based on the method

blank results.

Three trip blanks were analyzed with this sample set. No target compounds or TICs were detected in trip blank 8/21/92. Chloroform was detected in trip blank 8/24/92 and trip blank 8/25/92 both at estimated concentrations of 3 ug/L. TICs were not detected in either of these trip blanks. Chloroform was only detected in field blank 8/24/92 and field blank 8/25/92. These chloroform results were qualified as not detected (U) due to the associated trip blank results.

Three field blanks were analyzed with this sample set. Methylene chloride and chloroform were detected in field blank 8/21/92 both at estimated concentrations of 2 ug/L. In addition, toluene and styrene were detected in field blank 8/21/92, both at estimated concentrations of 1 ug/L. Methylene chloride was detected in field blank 8/24/92 at an estimated concentration of 1 ug/L. Chloroform was detected in both field blank 8/24/92 and field blank 8/25/92 but was previously qualified as not detected (U) based on the associated trip blank results. TICs were not detected in any of the field blanks. Methylene chloride was detected in sample B-7 (0-2) and qualified as not detected (U) based on the associated field blank results. None of the other compounds discussed above were detected in any other sample, therefore, further qualification of the data was not necessary based on the trip or field blank results.

#### **VI. SYSTEM MONITORING COMPOUNDS (Surrogate Spikes)**

All surrogate spike recoveries were within the set criteria.

#### **VII. MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD)**

Two MS/MSDs were analyzed with this sample set. Sample B-5 (18-20) was designated for the low level MS/MSD analyses. Sample B-5 (0-2) was designated for the medium level MS/MSD analyses. Two MS/MSD spike recoveries were above QC limits and

one relative percent difference (RPD) values was above QC limits for the low level MS/MSD analyses. The MS/MSD spike recoveries and RPD values on the medium level soil analyses were all within QC limits. It is this data reviewer's opinion that, qualification of the data was not necessary based on the low and medium level MS/MSD results.

#### **VIII. LABORATORY CONTROL SAMPLES**

Analysis of laboratory control samples is not applicable since these samples were analyzed following the multi-media, multi-concentration Statement of Work (SOW).

#### **IX. REGIONAL QUALITY ASSURANCE AND QUALITY CONTROL (Field Duplicates)**

Samples were collected following the procedures specified in the Quality Assurance Project Plan (QAPP) dated March 1990. The QAPP did not require the collection of field duplicates.

#### **X. INTERNAL STANDARD**

All internal standard area counts and retention times met QC requirements.

#### **XI. TARGET COMPOUND IDENTIFICATION**

All relative retention times met QC requirements and all compounds were reported correctly.

#### **XII. COMPOUND QUANTITATION AND REPORTED CRQLs**

All compound detection limits were met or adjusted for dilution factors.



**XIII. TENTATIVELY IDENTIFIED COMPOUNDS**

All TICs were reported correctly.

**XIV. SYSTEM PERFORMANCE**

The performance of the instrument during the volatile organic analyses is acceptable.

**XV. OVERALL ASSESSMENT OF DATA FOR THE CASE**

The quality of the volatile organic data presented in this QC package is acceptable with the appropriate qualifiers specified in this report.

## INORGANIC DATA SUMMARY

### I. HOLDING TIMES

All samples were analyzed within the NYSDEC ASP specified holding times.

### II. CALIBRATION

#### A. Initial Calibration

All initial calibration requirements were met.

#### B. Continuing Calibration

All continuing calibration requirements were met.

### III. BLANKS

Three initial calibration blanks (ICB) and nine continuing calibration blanks (CCB) were analyzed.

Lead at a concentration of 1.0 ug/L was detected in the second ICB analyzed. No qualification of the lead sample results was necessary since the concentrations of lead detected in the associated samples were greater than five times the blank value. No other analytes were detected in any of the other ICBs.

Potassium was detected in the first CCB following the first ICB at a concentration of 113 ug/L. Potassium was also detected in the second and fourth CCBs following the first ICB at concentrations of 197 ug/L and 141 ug/L, respectively.

The following potassium results were qualified as not detected (U) based on the associated CCB results:

<u>Sample I.D.</u>	<u>Concentration</u>	<u>Units</u>
FB-821	155U	ug/L
FB-824	183U	ug/L
FB-825	141U	ug/L
FB-821 DUP	141U	ug/L
B-6 (6-8)	97.3U	mg/kg
B-7 (0-2)	178U	mg/kg
B-5 (0-2)	160U	mg/kg
B-5 (0-2) DUP	160U	mg/kg

Antimony was detected in the fourth CCB following the first ICB at a concentration of 27.0 ug/L. None of the samples in this data set were associated with the CCB result; therefore, no qualification of the antimony data was necessary.

Lead was detected in the fourth CCB following the second ICB at a concentration of 1.0 ug/L. Qualification of the associated lead sample results was not necessary since the concentrations detected were greater than five times the blank value.

One water preparation blank was analyzed with no analytes detected. One soil preparation blank was analyzed with calcium, potassium, and sodium detected at concentrations of 12.0 milligrams per kilogram (mg/kg), 22.6 mg/kg, and 6.2 mg/kg, respectively. No other analytes were detected in this preparation blank.

The following sample results were qualified as not detected (U) based on the associated preparation blank results:

<u>Sample I.D.</u>	<u>Analyte</u>	<u>Concentration (mg/kg)</u>
B-6 (6-8)	Calcium	41.0U
	Sodium	17.9U
B-4 (4-6)	Sodium	29.3U
B-5 (18-20)	Potassium	89.9U
	Sodium	18.4U
B-5 (8-10)	Potassium	130U

Three field blanks were analyzed with the following analytes detected:

Field Blank: FB-821

<u>Analyte</u>	<u>Concentration (ug/L)</u>
Calcium	29.0B
Zinc	4.0B

Field Blank: FB-824

<u>Analyte</u>	<u>Concentration (ug/L)</u>
Calcium	34.0B
Iron	29.0B
Sodium	28.0B

Field Blank: FB-825

<u>Analyte</u>	<u>Concentration (ug/L)</u>
Calcium	28.0B
Lead	1.0B

The "B" qualifier indicates that the concentration is between the contract required detection limit (CRDL) and the instrument detection limit (IDL).

No qualification of the sample results was necessary since the analytes listed above were either not detected, detected at a concentration greater than five times the blank concentration, or were previously qualified as not detected based on other blank results.

#### **IV. ICP INTERFERENCE CHECK SAMPLE (ICS)**

The percent recoveries for all the ICS analyses were within the control limits of  $\pm 20\%$  of the true value.

#### **V. LABORATORY CONTROL SAMPLE (LCS)**

All LCS results were within the control limits.

#### **VI. DUPLICATE SAMPLE ANALYSIS**

Field blank FB-821 was analyzed twice by the laboratory for the duplicate run. However, since all the samples in this data set are soils, the field blank duplicate results are not used to evaluate the data. Samples B-4 (4-6) and B-5 (0-2) were designated for the soil duplicate analysis. All duplicate analysis results were found to be within the control limit of  $\pm 35\%$ .

#### **VII. MATRIX SPIKE SAMPLE ANALYSIS**

Field blank FB-821 was spiked and analyzed by the laboratory for the matrix spike run. However, since all the samples in this data set are soils, the field blank matrix spike results are not used to evaluate the data.

Sample B-5 (0-2) was designated by the sampler on the chain-of-custody to be used for the matrix spike analysis. In addition, the laboratory also spiked and analyzed sample B-4 (4-6). The recovery of manganese was 137.8% and the recovery of selenium was 70.0%,

both outside the control limits of 75-125% for the matrix spike analysis of B-4 (4-6). The manganese and selenium detected in sample B-4 (4-6) were qualified as estimated (J).

For the matrix spike analysis of sample B-5 (0-2), the recoveries of antimony, selenium, and silver were reported outside the control limits of 75-125% with recoveries of 74.0%, 60.0%, and 158.1%, respectively. Samples B-5 (0-2), B-5 (8-10), B-5 (18-20), B-6 (6-8), and B-7 (0-2) are associated with this matrix spike analysis. All antimony and selenium results for these samples were qualified as estimated (J) if detected and estimated (UJ) if not detected. Silver was not detected in any of the samples, therefore, no qualification of the silver data was necessary based on the matrix spike results.

#### **VIII. FURNACE ATOMIC ABSORPTION QC**

The metals determined using Furnace Atomic Absorption included: arsenic, lead, selenium, and thallium. Duplicate injections of every sample analyzed for these metals with concentrations greater than the CRDL agreed within  $\pm 20\%$  RSD. The lead result for sample B-7 (0-2) was performed using the method of standard addition (MSA). No problems were encountered within this MSA result. All other post-digestion spike recoveries were within the control limits of 85-115%.

#### **IX. ICP SERIAL DILUTION**

Field blank FB-821 was diluted and analyzed for the ICP serial dilution. However, since all the samples in this data set are soils, the field blank ICP serial dilution results are not used to evaluate the data.

Samples B-4 (4-6) and B-5 (0-2) were used for the ICP serial dilution analyses. All ICP serial dilution results were acceptable.

**X. SAMPLE RESULT VERIFICATION**

Cyanide was originally reported as not detected in sample B-5 (0-2). After review of the raw data, cyanide was detected in this sample at a concentration of 1.20 mg/kg.

**XI. FIELD DUPLICATES**

Soil field duplicates were not required as per the March 1990 QAPP.

**XII. OVERALL ASSESSMENT OF DATA FOR THE CASE**

The QC presented in the data validation package is acceptable with the qualifications listed above.

**XIII. CONTRACT VIOLATIONS**

All contract requirements were met by the laboratory.

Table 1. Sample Identification Collection Dates, and Laboratory Received Dates for Samples Analyzed Under NET Thorofare Report Numbers 92.2338, 92.2346, and 92.2364.

Geraghty & Miller, Inc. I.D.	Laboratory I.D.	Date Sampled	Date Received
FB-821	92.2338-96717	8/21/92	8/22/92
TB-821	92.2338-96716	8/21/92	8/22/92
B-4 (4-6)	92.2338-96715	8/21/92	8/22/92
FB-824	92.2346-96953	8/24/92	8/25/92
TB-824	92.2346-96954	8/24/92	8/25/92
B-6 (6-8)	92.2346-96955	8/24/92	8/25/92
B-7 (0-2)	92.2346-96956	8/24/92	8/25/92
FB-825	92.2364-97073	8/25/92	8/26/92
TB-825	92.2364-97074	8/25/92	8/26/92
B-5 (0-2)	92.2364-97075	8/25/92	8/26/92
B-5 (8-10)	92.2364-97076	8/25/92	8/26/92
B-5 (18-20)	92.2364-97077	8/25/92	8/26/92



MEMORANDUM

**TO:** John Schafer and Carlo San Giovanni  
**FROM:** Lauren Sjogren and Susan Peters *SP / TS*  
**DATE:** December 3, 1993  
**SUBJECT:** Data Validation of Samples Collected at Grumman Aerospace Corporation in August and September 1993, Bethpage, New York (Project No. NY0008.030).

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Groundwater samples were collected at the Grumman Aerospace Corporation in Bethpage, New York in August and September 1993. The samples were sent to Industrial and Environmental Analysts, Inc. (IEA) in Monroe, Connecticut for the analysis of Target Compound List (TCL) volatile organic compounds (VOCs) and Target Analyte List (TAL) inorganic parameters following the United States Environmental Protection Agency (USEPA) Contract Laboratory Program (CLP) Statements of Work (SOWs) for Organics and Inorganics as specified in the New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol (ASP) dated September 1989, revised December 1991. In addition, several samples were analyzed for hexavalent chromium.

Validation was performed following the quality assurance/quality control (QA/QC) criteria set forth in the USEPA CLP "National Function Guidelines for Organic Data Review" draft document dated December 1990 and revised June 1991, the "USEPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses" dated July, 1988 and the NYSDEC ASP. Sixty-seven groundwater samples, five replicates for organics, three replicates for inorganics and hexavalent chromium, seven field blanks, and ten trip blanks were sent to IEA for analysis. Sample identification, collection dates, and laboratory received dates are listed in Tables 1 through 6.

The quality of the data was acceptable with the appropriate qualifications described in this memorandum.

**ORGANIC DATA VALIDATION**

**I. HOLDING TIMES**

Volatile Organic Compounds: All samples were analyzed within seven days from verified time of sample receipt (VTSR).

**II. GAS CHROMATOGRAPH/MASS SPECTROMETER INSTRUMENT PERFORMANCE CHECK**

Volatile Organic Compounds: All tuning criteria were met. All samples were analyzed within the 12-hour tune time limit.

**III. INITIAL CALIBRATION**

Volatile Organic Compounds: All compound relative response factors (RRFs) were greater than 0.050. All percent relative standard deviations (%RSDs) were less than 30% with the following exceptions:

Calibration Date: 8/27/93

Instrument: A

<u>Compound</u>	<u>%RSD</u>
Acetone	43.3

Associated samples: GM-4S, GM-5S, GM-9S, and GM-9I

Calibration Date: 8/17/93

Instrument: B

<u>Compound</u>	<u>%RSD</u>
Acetone	37.5

Associated samples: GM-36D, GM-4I, GM-5I, GM-20I, and GM-22D

Calibration Date: 7/27/93

Instrument: G

<u>Compound</u>	<u>%RSD</u>
Chloromethane	31.1
Acetone	42.6
2-Butanone	35.5

Associated samples: FB-823, TB-8231, GM-6S, GM-6I, GM-18S, GM-20S, GM-36D2, GM-18I, GM-18IMS, GM-18IMSD, MSBGM-18I, GM-REP-2, GM-13S, and GM-23S

The acetone detected in samples GM-13S and GM-18S was qualified as estimated (J) based on the initial calibration results. Acetone was also detected in samples GM-5I and GM-20I, but was qualified as not detected (U) based on the method blank results (see Section V). Chloromethane and 2-butanone were not detected in any of the associated samples and acetone was not detected in any of the other samples, therefore, further qualification of the data based on the initial calibration results was not necessary.

#### IV. CONTINUING CALIBRATION

Volatile Organic Compounds: Five continuing calibrations were performed with this sample set. All RRFs were greater than 0.050 and all percent differences (%Ds) were less than 25% with the following exceptions:

Calibration Date: 8/27/93

Instrument: A

<u>Compound</u>	<u>%D</u>
Acetone	51.1

Associated samples: GM-4S, GM-5S, GM-9S and GM-9I

Calibration Date: 8/27/93

Instrument: B

<u>Compound</u>	<u>%D</u>
Chloromethane	48.0
Vinyl chloride	34.9

Associated sample: GM-36D

Calibration Date: 8/28/93

Instrument: B

<u>Compound</u>	<u>%D</u>
Chloromethane	30.6
Acetone	34.7

Associated samples: GM-4I, GM-5I, GM-20I and GM-22D

Calibration Date: 8/26/93

Instrument: G

<u>Compound</u>	<u>%D</u>
Chloromethane	51.4
Vinyl chloride	37.3

Associated samples: FB-823 and TB-8231

- All %Ds were less than 25% for the continuing calibration conducted on August 27, 1993 using instrument G. Acetone detected in two samples was already qualified as estimated (J) due to the initial calibration results. None of the other compounds listed above were detected in any of the associated samples, therefore, all associated non-detect chloromethane, vinyl chloride and acetone sample results were qualified as estimated (UJ).

## V. BLANKS

Volatile Organic Compounds: Five method blanks were analyzed with this sample set. The following compounds were detected in the method blanks:

Method Blank: VBLKGY

<u>Compound</u>	<u>Concentration</u> <u>Micrograms per liter (ug/L)</u>
Acetone	6 J

Associated samples: FB-823 and TB-8231

Method Blank: VBLKBX

<u>Compound</u>	<u>Concentration (ug/L)</u>
Acetone	6 J

Associated sample: GM-36D

Method Blank: VBLKAF

<u>Compound</u>	<u>Concentration (ug/L)</u>
Methylene chloride	11
Acetone	22

Associated samples: GM-4S, GM-5S, GM-9S and GM-9I

Method Blank: VBLKG1

<u>Compound</u>	<u>Concentration (ug/L)</u>
Methylene chloride	2 J

Associated samples: GM-6S, GM-6I, GM-18S, GM-20S, GM-36D2, GM-18I, GM-18IMS, GM-18IMSD, MSBGM-18I, GM-REP-2, GM-13S and GM-23S

Method Blank: VBLKBY

<u>Compound</u>	<u>Concentration (ug/L)</u>
Acetone	14

Associated samples: GM-4I, GM-5I, GM-20I and GM-22D

The following sample results were qualified as not detected (U) based on the method blank results:

<u>Sample ID</u>	<u>Compound</u>	<u>Concentration (ug/L)</u>
GM-6S	Methylene chloride	10 U
GM-13S	Methylene chloride	50 U
GM-18I	Methylene chloride	10 U
GM-5S	Methylene chloride	10 U
GM-5I	Acetone	11 U
GM-20I	Acetone	20 U

No other qualification of the data was necessary based on the method blank results.

Field blanks FB-823 and FB-824 are associated with samples from this sample set. Only samples collected using a bailer are associated with the field blank collected the same day. The other samples were collected using a dedicated pump and therefore, no field blank was required. Field blank FB-823 is associated with samples GM-6S, GM-13S, GM-18S, GM-23S and GM-20S. Field blank FB-824 is associated with samples GM-4S, GM-4I, GM-5S, GM-5I, GM-9S and GM-9I. Field blank FB-823 is contained in this data package. Field blank FB-824 is contained in IEA Sample Delivery Group (SDG) Number A0927. No compounds were detected in field blank FB-824. Methylene chloride was detected in field blank FB-823 at an estimated concentration of 3 ug/L. Methylene chloride was also detected in associated samples GM-6S, GM-13S, GM-18I, and GM-5S but was already qualified as not detected (U) based on the method blank results. The methylene chloride detected in TB-8231 was qualified as not detected (U) based on the field blank results.

Two trip blanks are associated with samples from this sample set. Trip blank TB-8231, which is contained in this data package, is associated with samples GM-6S, GM-6I, GM-13S,

GM-18S, GM-20S, GM-36D, GM-36D2, GM-18I, GM-REP-2 and GM-23S. Trip blank TB-8241, which is contained in IEA SDG Number A0927, is associated with samples GM-4S, GM-5S, GM-9S, GM-4I, GM-5I, GM-20I, GM-22D and GM-9I, which are contained in this data package. Methylene chloride was detected in trip blank TB-8231 but was qualified as not detected (U) based on the field blank results. Chloroform was detected in trip blank TB-8231 at an estimated concentration of 0.9 ug/L. Chloroform was not detected in any of the associated samples. Toluene was detected in trip blank TB-8241 at an estimated concentration of 1 ug/L. Toluene was not detected in any of the associated samples. Therefore, qualification of the data was not necessary based on the trip blank results.

#### **VI. SYSTEM MONITORING COMPOUNDS (Surrogate Spikes)**

Volatile Organic Compounds: All surrogate spike recoveries were within the set criteria.

#### **VII. MATRIX SPIKE/MATRIX SPIKE DUPLICATE**

Volatile Organic Compounds: Sample GM-18I was spiked with the MS/MSD compounds. All spike recoveries and relative percent difference (RPD) values were within QC limits. NYSDEC also requires that a matrix spike blank (MSB) be analyzed along with the MS/MSD analyses. All spike recoveries were within QC limits. No qualification of the data was necessary based on the MS/MSD/MSB analyses.

#### **VIII. LABORATORY CONTROL SAMPLES**

Analysis of laboratory control samples is not applicable since these samples were analyzed following the multi-media, multi-concentration SOW.

## IX. REGIONAL QUALITY ASSURANCE/QUALITY CONTROL (Field Replicates)

Volatile Organic Compounds: Five samples were collected for replicate analyses. One replicate was contained in this data package. A replicate of sample GM-6I was collected and labeled GM-REP-2. The following compounds were detected in sample GM-6I and its replicate with the RPD values also noted:

<u>Compound</u>	<u>GM-6I Concentration (ug/L)</u>	<u>GM-REP-2 Concentration (ug/L)</u>	<u>RPD</u>
1,1-Dichloroethene	1 J	1 J	0
1,1,1-Trichloroethane	2 J	2 J	0

This replicate is acceptable.

## X. INTERNAL STANDARDS

Volatile Organic Compounds: All internal standard area counts and retention times met QC requirements.

## XI. TARGET COMPOUND IDENTIFICATION

- Volatile Organic Compounds: All compounds were reported correctly.

## XII. COMPOUND QUANTITATION AND REPORTED CONTRACT REQUIRED QUANTITATION LIMITS

Volatile Organic Compounds: All compound detection limits were met or adjusted for dilution factors.



### **XIII. TENTATIVELY IDENTIFIED COMPOUNDS**

Volatile Organic Compounds: All TICs were reported correctly.

### **XIV. SYSTEM PERFORMANCE**

Volatile Organic Compounds: The performance of the instrument during the volatile organic analyses is acceptable.

### **XV. OVERALL ASSESSMENT OF DATA FOR THE CASE**

Volatile Organic Compounds: The quality of the volatile organic data presented in this QC package is acceptable with the appropriate qualifications described in this memorandum.

## INORGANIC DATA VALIDATION

Two separate data packages were provided by the laboratory for dissolved metal sample results and total metal and cyanide sample results. Therefore, the validation results for both data packages are discussed separately below.

### **I. HOLDING TIMES**

Total Metals and Cyanide: All samples were analyzed within holding time requirements.

Dissolved Metals: All samples were analyzed within holding time requirements.

### **II. CALIBRATION**

Total Metals and Cyanide: The thallium correlation coefficients for the September 4, 1993 run and the lead correlation coefficient for the September 15, 1993 run were less than 0.995. The thallium detected in associated sample GM-18I run was qualified as estimated (J) based on the correlation coefficient results. The lead detected in associated samples GM-20S, GM-20I, and GM-22D was qualified as estimated (J) based on the correlation coefficient results. Lead was not detected in associated sample GM-REP-2 and therefore, the non-detect lead result was qualified as estimated (UJ) based on the correlation coefficient results. All other initial and continuing calibration requirements were met.

Dissolved Metals: The thallium correlation coefficient for the September 4, 1993 run was less than 0.995. Thallium was not detected in associated samples GM-20I and GM-22D and therefore, the non-detect thallium results were qualified as estimated (UJ) based on the correlation coefficient. All other initial and continuing calibration requirements were met.

### III. BLANKS

Total Metals and Cyanide: The following analytes were detected in the initial calibration blanks (ICBs) and continuing calibration blanks (CCBs) greater than the instrument detection limit (IDL) or negative contract required detection limit (CRDL):

<u>Blank ID</u>	<u>Analyte</u>	<u>Concentration (ug/L)</u>
ICB (9/13/93)	Nickel	8.6 B
CCB1 (9/13/93)	Aluminum	15.7 B
	Calcium	11.2 B
CCB2 (9/13/93)	Nickel	10.4 B
CCB3 (9/13/93)	Nickel	15.8 B
CCB4 (9/13/93)	Calcium	7.5 B
ICB (9/3/93)	Arsenic	1.2 B
CCB1 (9/3/93)	Arsenic	1.1 B
CCB2 (9/3/93)	Arsenic	1.1 B
CCB2 (9/4/93)	Thallium	1.2 B
CCB3 (9/3/93)	Arsenic	1.0 B

The "B" qualifier indicates that the sample concentration is between the IDL and the CRDL. No analytes were detected in the preparation blank greater than the IDL or negative CRDL. The five samples on either side of an ICB or CCB outside the control limits were qualified. The following sample results were qualified as not detected (U) based on the ICB and CCB results:

<u>Sample ID</u>	<u>Analyte</u>	<u>Concentration (ug/L)</u>
GM-6S	Nickel	32.2 U
	Arsenic	4.3 U
GM-18S	Arsenic	2.1 U
GM-23S	Arsenic	1.0 U
GM-20S	Nickel	22.2 U

<u>Sample ID</u>	<u>Analyte</u>	<u>Concentration (ug/L)</u>
GM-18I	Arsenic	1.3 U
	Nickel	9.2 U
	Thallium	1.3 U
GM-20I	Nickel	14.4 U
GM-22D	Nickel	8.6 U

All of the other analytes listed above were either not detected in any of the associated samples or detected in the associated sample at a concentration greater than five times the blank value. Therefore, further qualification of the data was not necessary based on the ICB and CCB results.

Dissolved Metals: The following analytes were detected in the ICBs and CCBs greater than the IDL or negative CRDL:

<u>Blank ID</u>	<u>Analyte</u>	<u>Concentration (ug/L)</u>
CCB3 (9/13/93)	Chromium	8.4 B
ICB1 (9/3/93)	Arsenic	1.2 B
CCB1 (9/3/93)	Arsenic	1.1 B
CCB2 (9/3/93)	Arsenic	1.1 B
CCB2 (9/4/93)	Thallium	1.2 B

No analytes were detected in the preparation blank greater than the IDL or negative CRDL. The five samples on either side of an ICB or CCB outside the control limits were qualified. The following sample results were qualified as not detected (U) based on the ICB and CCB results:

<u>Sample ID</u>	<u>Analyte</u>	<u>Concentration (ug/L)</u>
GM-20I	Chromium	15.5 U
GM-22D	Arsenic	1.2 U

Thallium was not detected in any of the associated samples and chromium and arsenic were not detected in any of the other associated samples, therefore, further qualification of the data was not necessary.

Two filtering apparatus' were used in the field when filtering samples for dissolved metals. A field blank of each of the filtering apparatus (including a filter) were collected during this sample round. The data for field blank FB-8312 is contained in SDG D0927. The data for field blank FB-8302 is contained in SDG C0927. The following analytes were detected in these two field blanks:

Field Blank FB-8302

<u>Analyte</u>	<u>Concentration (ug/L)</u>
Aluminum	19.4 B
Calcium	61.5 B
Zinc	10.1 B

Field Blank FB-8312

<u>Analyte</u>	<u>Concentration (ug/L)</u>
Aluminum	24.6 B
Calcium	72.0 B
Copper	19.8 B
Iron	103
Nickel	9.5 B
Sodium	103 B
Zinc	20.3

The field crew did not record which filtering apparatus was used when filtering a particular sample. Therefore, since the data reviewer can not determine which filtering apparatus was used to filter which samples, a combination of both field blank results was used to qualify the data.

The following sample results were qualified as not detected (U) based on the field blank results:

<u>Sample ID</u>	<u>Analyte</u>	<u>Concentration (ug/L)</u>
GM-6S	Aluminum	67.0 U
	Copper	14.0 U
	Nickel	11.1 U
	Zinc	59.9 U
GM-6I	Aluminum	15.0 U
	Copper	14.8 U
	Zinc	56.8 U
GM-13S	Aluminum	111 U
	Iron	347 U
	Zinc	31.5 U
GM-18S	Copper	81.1 U
	Iron	267 U
	Nickel	9.7 U
	Zinc	77.3 U
GM-23S	Aluminum	65.6 U
	Copper	7.0 U
	Zinc	46.1 U
GM-20S	Zinc	40.3U
GM-18I	Aluminum	26.3 U
	Copper	9.2 U
	Zinc	24.0 U
GM-REP-2	Zinc	34.5 U
GM-20I	Zinc	17.3 U
GM-22D	Aluminum	21.6U
	Zinc	25.9 U

#### IV. INDUCTIVELY COUPLED PLASMA INTERFERENCE CHECK SAMPLE

Total Metals and Cyanide: The percent recoveries for all inductively coupled plasma interference check sample (ICS) analyses were within the control limits of  $\pm 20\%$  of the true value.

Dissolved Metals: The percent recoveries for all ICS analyses were within the control limits of  $\pm 20\%$  of the true value.

#### V. LABORATORY CONTROL SAMPLE

Total Metals and Cyanide: All laboratory control sample (LCS) results were within the control limits.

Dissolved Metals: All LCS results were within the control limits.

#### VI. DUPLICATE SAMPLE ANALYSIS

Total Metals and Cyanide: Sample GM-18I was designated for the duplicate analysis. All duplicate sample results were within the control limits.

Dissolved Metals: Sample GM-18I was designated for the duplicate analysis. All duplicate sample results were within the control limits.

#### VII. MATRIX SPIKE SAMPLE ANALYSIS

Total Metals and Cyanide: Sample GM-18I was designated for the matrix spike sample analysis. All matrix spike recoveries were within the control limits.

Dissolved Metals: Sample GM-18I was designated for the matrix spike sample analysis. All matrix spike recoveries were within the control limits.

## VIII. FURNACE ATOMIC ABSORPTION QUALITY CONTROL

Total Metals and Cyanide: The metals determined using Furnace Atomic Absorption included: arsenic, selenium, thallium, and lead. For sample concentration greater than the CRDL, all duplicate injections agreed within  $\pm 20\%$  RSD. The lead post-digestion spike recoveries for samples GM-13S, GM-18S, and GM-18I were outside the criteria of 85-115% with recoveries of 50.5%, 69.0%, and 69.0%, respectively. Lead was detected in all three samples, therefore, the lead results for samples GM-13S, GM-18S, and GM-18I were qualified as estimated (J).

The selenium post-digestion spike recoveries for samples GM-6S and GM-23S were outside the criteria of 85-115% with recoveries of 84.0% and 75.0%, respectively. Selenium was not detected in either sample, therefore, the selenium non-detect results for samples GM-6S and GM-23S were qualified as estimated (UJ).

The thallium post-digestion spike recovery for sample GM-18I was outside the criteria of 85-115% with a recovery of 83.5%. Therefore, the non-detect thallium result, qualified as non-detect based on the ICB and CCB results, for sample GM-18I was qualified as estimated (UJ). All blanks and other sample post-digestion spike recoveries were within control limits.

Dissolved Metals: The metals determined using Furnace Atomic Absorption included: arsenic, thallium, lead, and selenium. For sample concentrations greater than the CRDL, duplicate injections agreed within  $\pm 20\%$  RSD. The lead post-digestion spike recoveries for samples GM-20S and GM-REP-2 were outside the criteria of 85-115% with recoveries of 83.0% and 84.0%, respectively. Lead was not detected in either sample, therefore, the lead non-detect results for samples GM-20S and GM-REP-2 were qualified as estimated (UJ). All blanks and other sample post-digestion spike recoveries were within control limits.



## IX. INDUCTIVELY COUPLED PLASMA SERIAL DILUTION

Total Metals and Cyanide: Sample GM-20I was used for the ICP serial analysis. The percent difference for aluminum, barium and manganese were greater than the control limits of 10%. All aluminum, barium and manganese results were qualified as estimated (J) if detected and estimated (UJ) if not detected. All other ICP serial dilution results were within the control limits.

Dissolved Metals: Sample GM-9S was used for the ICP serial analysis. All ICP serial results were within the control limits.

## X. SAMPLE RESULT VERIFICATION

Total Metals and Cyanide: No discrepancies were found between the reported results and the QC data package.

Dissolved Metals: No discrepancies were found between the reported results and the QC data package.

## XI. FIELD REPLICATES

Total Metals and Cyanide: Three samples were collected for replicate analysis. One replicate is contained in this data package. A replicate of sample GM-6I was collected and labelled GM-REP-2. The following analytes were detected in sample GM-6I and its replicate with the RPD values also noted:

<u>Analyte</u>	<u>GM-6I Concentration (ug./L)</u>	<u>GM-REP-2 Concentration (ug/L)</u>	<u>RPD</u>
Barium	31.1 B	29.4 B	6
Calcium	9120	8880	3
Copper	13.7 B	5.0 U	200

<u>Analyte</u>	<u>GM-6I Concentration (ug/L)</u>	<u>GM-REP-2 Concentration (ug/L)</u>	<u>RPD</u>
Lead	1.8 B	1.0 U	200
Magnesium	2650 B	2560 B	3
Manganese	4.0 B	3.4 B	16
Potassium	1720 B	1530 B	12
Sodium	4250 B	4480 B	14
Zinc	16.6 B	7.6 B	74

This replicate is considered acceptable.

Dissolved Metals: Three samples were collected for replicate analysis. One replicate is contained in this data package. A replicate of sample GM-6I was collected and labelled GM-REP-2. The following analytes were detected in sample GM-6I and its replicate and the RPD values are also noted:

<u>Analyte</u>	<u>GM-6I Concentration (ug/L)</u>	<u>GM-REP-2 Concentration (ug/L)</u>	<u>RPD</u>
Aluminum	15.0 B	15.0 U	200
Barium	21.9 B	21.9 B	0
Calcium	9430	9860	4
Copper	14.8 B	5.0 U	200
Lead	2.0 B	1.0 U	200
Magnesium	2650 B	2760 B	0.7
Manganese	6.7 B	3.9 B	53
Potassium	1440 B	1860 B	25
Sodium	4600 B	4680 B	2
Zinc	56.8	34.5	68

This replicate is considered acceptable.

## XII. OVERALL ASSESSMENT OF DATA FOR THE CASE

Total Metals and Cyanide: The quality of the inorganic data presented in this QC data package is acceptable with the appropriate qualifications described in this memorandum.

Dissolved Metals: The quality of the inorganic data presented in this QC package is acceptable with the appropriate qualification described in this memorandum.

## CLASSICAL CHEMISTRY

Samples GM-6S, GM-6I, GM-13S, GM-18S, GM-23S, GM-20S, GM-18I, GM-REP-2, GM-4S, GM-4I, GM-5S, GM-5I, GM-9S, GM-9I, GM-20I, and GM-22D were analyzed for hexavalent chromium. The results of the hexavalent chromium data review are discussed below.

### **I. HOLDING TIMES**

All samples were analyzed within holding time requirements.

### **II. CALIBRATION**

All initial and continuing calibration requirements were met.

### **III. BLANKS**

No analytes were detected in any of the ICBs, CCBs, or preparation blanks.

### **IV. LABORATORY CONTROL SAMPLE**

- All LCS results were within the control limits.

### **V. DUPLICATE SAMPLE ANALYSIS**

Sample GM-18I was designated for the duplicate analysis. All duplicate results were within the control limits.

## **VI. MATRIX SPIKE ANALYSIS**

Sample GM-18I was designated for the matrix spike sample analysis. All matrix spike recoveries were within control limits.

## **VII. SAMPLE RESULT VERIFICATION**

No discrepancies were found between the reported results and the QC data package.

## **VIII. FIELD REPLICATES**

Three samples were collected for replicate analysis. One replicate is contained in the data package. A replicate of sample GM-6I was collected and labelled GM-REP-2. Hexavalent chromium was not detected in either the sample or replicate. This replicate is acceptable.

## **IX. OVERALL ASSESSMENT OF DATA FOR THE CASE**

The quality of the hexavalent chromium data presented in this QC package is acceptable with the appropriate qualification described in this memorandum.

IEA Project Number 30930-0927A.

## ORGANIC DATA VALIDATION

### I. HOLDING TIMES

Volatile Organic Compounds: All samples were analyzed within 7 days from VTSR.

### II. GAS CHROMATOGRAPH/MASS SPECTROMETER INSTRUMENT PERFORMANCE CHECK

Volatile Organic Compounds: All tuning criteria were met. All samples were analyzed within the 12-hour tune time limit.

### III. INITIAL CALIBRATION

Volatile Organic Compounds: All compound RRFs were greater than 0.050. All %RSDs were less than 30% with the following exceptions:

Calibration Date: 8/27/93

Instrument: A

<u>Compound</u>	<u>%RSD</u>
Acetone	43.3

Associated sample: GM-33D2

Calibration Date: 8/17/93

Instrument: B

<u>Compound</u>	<u>%RSD</u>
Acetone	37.5

Associated samples: TB-8241, FB-824, GM-35D2, GM-35D2MSD, MSBGM-35D2, GP-1, GM-10S, GM-21S, and GM-3S

Calibration Date: 7/27/93

Instrument: G

<u>Compound</u>	<u>%RSD</u>
Chloromethane	31.1
Acetone	42.6
2-Butanone	35.5

Associated samples: GM-8S, GM-REP-1, GM-1I, GM-2I, GM-2S, GM-1S, GM-37D, GM-37D2, TB-8251, GM-23I, GM-35D2MS, FB-825, and GM-38D

Acetone was detected in samples GM-35D2 and GM-3S but was qualified as not detected (U) based on the method blank results (see Section V). Acetone was not detected in any of the other samples. Chloromethane and 2-butanone were not detected in any of the associated samples, therefore, qualification of the data was not necessary based on the initial calibration results.

#### IV. CONTINUING CALIBRATION

Volatile Organic Compounds: Six continuing calibrations were performed with this sample set. All RRFs were greater than 0.050 and all percent difference (%Ds) were less than 25% with the following exceptions:

Calibration Date: 8/27/93

Instrument: A

<u>Compound</u>	<u>%D</u>
Acetone	51.1

Associated sample: GM-33D2

Calibration Date: 8/27/93

Instrument: B

<u>Compound</u>	<u>%D</u>
Chloromethane	48.0
Vinyl chloride	34.9

Associated samples: TB-8241 and FB-824

Calibration Date: 8/28/93

Instrument: B

<u>Compound</u>	<u>%D</u>
Chloromethane	30.6
Acetone	34.7

Associated samples: GM-35D2, GM-35D2MSD, MSBGM-35D2, GP-1, GM-10S, GM21S and GM-3S

Calibration Date: 8/27/93

Instrument: G

<u>Compound</u>	<u>%D</u>
Carbon tetrachloride	-30.2

Associated samples: GM-8S, GM-REP-1, GM-1I, GM-2I, GM-2S and GM-1S

Calibration Date: 8/28/93

Instrument: G

<u>Compound</u>	<u>%D</u>
Carbon tetrachloride	-25.4

Associated samples: GM-37D, GM-37D2 and TB-8251

All %Ds were less than 25% for the continuing calibration conducted on August 30, 1993 using instrument G. Carbon tetrachloride, acetone, chloromethane, and vinyl chloride were not detected in any of the associated samples, therefore, all carbon tetrachloride, chloromethane, acetone, and vinyl chloride results were qualified as estimated (UJ).

## V. BLANKS

Volatile Organic Compounds: Six method blanks were analyzed with this sample set. The following compounds were detected in the method blanks:



Method blank: VBLKAF

<u>Compound</u>	<u>Concentration (ug/L)</u>
Methylene chloride	11
Acetone	22

Associated sample: GM-33D2

Method blank: VBLKG2

<u>Compound</u>	<u>Concentration (ug/L)</u>
Acetone	18
2-Butanone	7 J

Associated samples: GM-8S, GM-REP-1, GM-1I, GM-2I, GM-2S, and GM-1S

Method blank :VBLKBX

<u>Compound</u>	<u>Concentration (ug/L)</u>
Acetone	6J

Associated samples: TB-8241 and FB-824

Method blank: VBLKBY

<u>Compound</u>	<u>Concentration (ug/L)</u>
Acetone	14

Associated samples: GM-35D2, GM-35D2MSD, MSBGM-35D2, GP-1, GM-10S, GM-21S, and GM-3S

Method blank: VBLKG3

<u>Compound</u>	<u>Concentration (ug/L)</u>
Acetone	26

Associated samples: GM-37D, GM-37D2, and TB-8251

No compounds were detected in method blank VBLKG4. The acetone detected in samples GM-35D2 and GM-3S was qualified as not detected (U) based on the associated method blank results. None of the other compounds listed above were detected in any of the other samples, therefore, further qualification of the data was not necessary based on the method blank results.

Three field blanks are associated with the samples in this set. The data for two of the field blanks, FB-824 and FB-825, was included with the samples. The data for the third field blank, FB-826, was contained in a separate data package under IEA SDG Number B0927. No compounds were detected in field blanks FB-824 and FB-826. Chloroform and toluene were detected in field blank FB-825 at estimated concentrations of 0.8 ug/L and 0.5 ug/L, respectively. The following sample result was qualified as not detected (U) based on the associated field blank results:

<u>Sample ID</u>	<u>Compound</u>	<u>Concentration (ug/L)</u>
GM37D	Chloroform	10U

Further qualification of the data based on the field blank results was not necessary since chloroform was not detected in any other associated samples and toluene was not detected in any of the associated samples.

Three trip blanks are associated with the samples in this set. The data for two of the trip blanks, TB-8241 and TB-8251, was included with the samples. The data for the third trip blank, TB-8261, was contained in a separate data package under IEA SDG Number B0927. No compounds were detected in trip blank TB-8251. Toluene at an estimated concentration of 1 ug/L was detected in trip blank TB-8241. Chloroform at an estimated concentration of 1 ug/L was detected in trip blank TB-8261. Sample GM-38D was the only sample in this data package associated with trip blank TB-8261. The chloroform result for sample GM-38D was qualified as not detected (U) based on the associated trip blank results.

Further qualification of the data based on the trip blank results was not necessary since toluene was not detected in any of the associated samples.

#### **VI. SYSTEM MONITORING COMPOUNDS (Surrogate Spikes)**

Volatile Organic Compounds: All surrogate spike recoveries were within QC limits.

#### **VII. MATRIX SPIKE/MATRIX SPIKE DUPLICATE**

Volatile Organic Compounds: Sample GM-35D2 was designated for the MS/MSD analyses. The trichloroethene spike recovery was above QC limits for the MS analysis. All other MS spike recoveries were within QC limits and all MSD spike recoveries were within QC limits. The RPDs for 1,1-dichloroethene, trichloroethene, and benzene were above QC limits. A MSB was also analyzed along with the MS/MSD analyses. All spike recoveries were within QC limits for the MSB analyses. In this data reviewer's opinion, no qualification of the data was necessary based on the MS/MSD/MSB analyses.

#### **VIII. LABORATORY CONTROL SAMPLES**

Analysis of laboratory control samples is not applicable since these samples were analyzed following the multi-media, multi-concentration SOW.

#### **IX. REGIONAL QUALITY ASSURANCE/QUALITY CONTROL (Field Replicates)**

Volatile Organic Compounds: Five samples were collected for replicate analyses. One replicate was contained in this data package. A replicate of sample GM-21 was collected and labeled GM-REP-1. No compounds were detected in either sample GM-21 or replicate GM-REP-1. This replicate is acceptable.

**X. INTERNAL STANDARD**

Volatile Organic Compounds: All internal standard area counts and retention times met QC requirements.

**XI. TARGET COMPOUND IDENTIFICATION**

Volatile Organic Compounds: All compounds were reported correctly.

**XII. COMPOUND QUANTITATION AND REPORTED CONTRACT REQUIRED QUANTITATION LIMITS**

Volatile Organic Compounds: All compound detection limits were met or adjusted for dilution factors.

**XIII. TENTATIVELY IDENTIFIED COMPOUNDS**

Volatile Organic Compounds: All TICs were reported correctly.

**XIV. SYSTEM PERFORMANCE**

Volatile Organic Compounds: The performance of the instrument during the volatile organic analyses is acceptable.

**XV. OVERALL ASSESSMENT OF DATA FOR THE CASE**

Volatile Organic Compounds: The quality of the volatile data presented in this data package is acceptable with the appropriate qualifications described in this memorandum.

## INORGANIC DATA VALIDATION

Since the laboratory has included both total and dissolved metals data in one package, the discussion below applies to both except where noted. In the laboratory raw data, all dissolved metal sample identifications started with an "F" and all total metal sample identifications started with a "T".

### I. HOLDING TIMES

All samples were analyzed within holding time requirements.

### II. CALIBRATION

All initial and continuing calibrations requirements were met.

### III. BLANKS

The following analytes were detected in the ICBs greater than the IDL or negative CRDL:

<u>Blank ID</u>	<u>Analyte</u>	<u>Concentration (ug/L)</u>
ICB (9/3/93)	Arsenic	1.2 B
ICB (9/13/93 pm)	Nickel	8.6 B

The following analytes were detected in the CCBs greater than the IDL or negative CRDL:

<u>Blank ID</u>	<u>Analyte</u>	<u>Concentration (ug/L)</u>
CCB3 (9/13/93 am)	Chromium	8.4 B
CCB1 (9/3/93)	Arsenic	1.1 B
CCB2 (9/3/93)	Arsenic	1.1 B
CCB3 (9/3/93)	Arsenic	1.0 B
CCB2 (9/9/93)	Thallium	1.2 B

<u>Blank ID</u>	<u>Analyte</u>	<u>Concentration (ug/L)</u>
CCB1 (9/13/93 pm)	Aluminum	15.7 B
	Calcium	11.2 B
CCB2 (9/13/93 pm)	Nickel	10.4 B
CCB3 (9/13/93 pm)	Nickel	15.8 B
CCB4 (9/13/93 pm)	Calcium	7.5 B
CCB1 (9/14/93)	Barium	3.2 B
CCB2 (9/14/93)	Cadmium	2.0 B

The "B" qualifier indicates that the blank concentration is between the IDL and the CRDL. No analytes were detected in the preparation blanks greater than the IDL or negative CRDL. The five samples on either side of a CCB outside the control limits were qualified. The following samples results were qualified as not detected (U) based on the associated ICBs or CCBs:

<u>Sample ID</u>	<u>Analyte</u>	<u>Concentration (ug/L)</u>
GM-33D2 (Total)	Nickel	10.2 U
GM-1S (Total)	Cadmium	2.4 U

All the other analytes were either detected in the associated samples at concentrations greater than five times the blank value or were not detected. Two filtering apparatus' were used in the field when filtering samples for dissolved metals. A field blank of each of the filtering apparatus (including a filter) were collected during this sample round. The data for field blank FB-8312 is contained in SDG D0927. The data for field blank FB-8302 is contained in SDG C0927. The following analytes were detected in these two field blanks:

#### Field Blank FB-8302

<u>Analyte</u>	<u>Concentration (ug/L)</u>
Aluminum	19.4 B
Calcium	61.5 B
Zinc	10.1 B

## Field Blank FB-8312

<u>Analyte</u>	<u>Concentration (ug/L)</u>
Aluminum	24.6 B
Calcium	72.0 B
Copper	19.8 B
Iron	103
Nickel	9.5 B
Sodium	103 B
Zinc	20.3

The field crew did not record which filtering apparatus was used when filtering a particular sample. Therefore, since the data reviewer can not determine which filtering apparatus was used to filter which samples, a combination of both field blank results was used to qualify the data.

The following sample results were qualified as not detected (u) based on the field blank results:

<u>Sample ID</u>	<u>Analyte</u>	<u>Concentration (ug/L)</u>
GM-33D2 (Dissolved)	Zinc	45.1 U
GM-23I (Dissolved)	Zinc	21.3 U
GM-8S (Dissolved)	Aluminum	29.8 U
	Copper	34.8 U
	Zinc	34.5 U
GM-1I (Dissolved)	Aluminum	32.4 U
	Copper	30.7 U
	Zinc	30.8 U
GM-1S (Dissolved)	Aluminum	16.0 U
	Copper	25.1 U
	Zinc	32.7 U

No other qualification of the data was necessary based on the blank results.

#### **IV. INDUCTIVELY COUPLED PLASMA INTERFERENCE CHECK SAMPLE**

The percent recoveries for all the ICS analytes were within the control limits of  $\pm 20\%$  of the true value. A few times a negative antimony result was observed with an absolute value of greater than the IDL for the ICSs analyzed. Since comparable or higher levels of interferents were not detected in the samples, qualification of the antimony data was not necessary.

#### **V. LABORATORY CONTROL SAMPLE**

All LCS results were within the control limits.

#### **VI. DUPLICATE SAMPLE ANALYSIS**

Samples GM-18I (Total) and GM-18I (Dissolved) were designated for the duplicate analyses. The data for these duplicates were contained in a separate data package under IEA SDG Number Z0927. In addition, samples GM-33D2 (Total) and GM-22S (Total) duplicate results for mercury and cyanide, respectively, were also included in this data package. All duplicate samples results were within the control limits.

#### **VII. MATRIX SPIKE SAMPLE ANALYSIS**

Samples GM-18I (Total) and GM-18I (Dissolved) were designated for the matrix spike sample analyses. The data for these matrix spike samples were contained in a separate data package under IEA SDG Number Z0927. In addition, samples GM-33D2 (Total) and GM-22S (Total) matrix spike results for mercury and cyanide, respectively, were also included in this data package. All matrix spike recoveries were within the control limits.



## VIII. FURNACE ATOMIC ABSORPTION QUALITY CONTROL

The metals determined using Furnace Atomic Absorption included: arsenic, selenium, lead, and thallium. For sample concentrations greater than the CRDL, duplicate injections agreed within  $\pm 20\%$  RSD. The selenium post-digestion spike recoveries for samples GM-1S (Dissolved) and GM-1S (Total) were outside the criteria of 85-115% with recoveries of 82% and 83%, respectively. Therefore, the selenium detected in sample GM-1S (Total) was qualified as estimated (J) and the non-detected selenium result for sample GM-1S (Dissolved) was qualified as estimated (UJ). The thallium post-digestion spike recoveries for samples GM-8S (Dissolved) and GM-8S (Total) were outside the criteria of 85-115% with recoveries of 73% and 123%, respectively. Therefore, the non-detect thallium results for samples GM-8S (Dissolved) and GM-8S (Total) were qualified as estimated (UJ). All blanks and other sample post-digestion spike recoveries were within control limits.

## IX. INDUCTIVELY COUPLED PLASMA SERIAL DILUTION

Sample GM-8S (Total) was used for the ICP serial dilution analysis. The percent difference between the initial magnesium sample result and the magnesium serial dilution sample result was greater than 10%. Therefore, all positive magnesium sample results were qualified as estimated (J) and all non-detect magnesium sample results were qualified as estimated (UJ). All other ICP dilution results were within the control limits.

## X. SAMPLE RESULT VERIFICATION

No discrepancies were found between the reported results and the QC data package.

**XI. FIELD REPLICATES**

Three samples were collected in replicate. Replicate results can be found in the other data packages provided by the laboratory for this sampling round. None of the sample data was qualified based on the replicate results.

**XII. OVERALL ASSESSMENT OF DATA FOR THE CASE**

The quality of the inorganic data presented in this QC package is acceptable with the appropriate qualifications described in this memorandum.

## CLASSICAL CHEMISTRY

Samples GM-33D2 and GM-23I were analyzed for hexavalent chromium. The results of the hexavalent chromium data review are discussed below.

### **I. HOLDING TIMES**

Both samples were analyzed within holding time requirements.

### **II. CALIBRATION**

All initial and continuing calibration requirements were met.

### **III. BLANKS**

Hexavalent chromium was not detected in any of the blanks associated with the two samples in this data package.

### **IV. LABORATORY CONTROL SAMPLE**

- All LCS results were within the control limits.

### **V. DUPLICATE SAMPLE ANALYSIS**

Sample GM-22D was designated for the duplicate analysis. All duplicate sample results were within the control limits.

## **VI. MATRIX SPIKE SAMPLE ANALYSIS**

Sample GM-22D was designated for the matrix spike sample analysis. All matrix spike recoveries were within the control limits.

## **VII. SAMPLE RESULT VERIFICATION**

No discrepancies were found between the reported results and the QC data package.

## **VIII. FIELD REPLICATES**

Three samples were collected in replicate. Replicate results can be found in the other data packages provided by the laboratory for this sampling round. None of the sample data was qualified based on the replicate results.

## **IX. OVERALL ASSESSMENT OF DATA FOR THE CASE**

The quality of the hexavalent chromium data presented in this QC data package is acceptable with the appropriate qualification described in this memorandum.

IEA Project Number 30930-0927B.

## ORGANIC DATA VALIDATION

### **I. HOLDING TIMES**

Volatile Organic Compounds: All samples were analyzed within 7 days from VTSR.

### **II. GAS CHROMATOGRAPH/MASS SPECTROMETER INSTRUMENT PERFORMANCE CHECK**

Volatile Organic Compounds: All tuning criteria were met. All samples were analyzed within the 12-hour tune time limit.

### **III. INITIAL CALIBRATION**

Volatile Organic Compounds: Two initial calibrations were performed with this sample set. All compound RRFs were greater than 0.050. All %RSDs were less than 30% with the following exceptions:

Calibration Date: 8/17/93

<u>Compound</u>	<u>%RSD</u>
Acetone	37.5

Associated samples: FB-827, GM-22S, GM-12S, GM-16S, GM-15S, GM-14S, GM-REP-3, GM-17S, GM-ERP-4, GM-22I, GM-8I, GM-10I, GM-7S, GM-13D, GM-10IMS, GM-10IMSD, and MSBGM-10I

Calibration Date: 7/27/93

<u>Compound</u>	<u>%RSD</u>
Chloromethane	31.1
Acetone	42.6
2-Butanone	35.5

Associated samples: GM-7D, GM-3I, GM-7I, GM-38D2, TB-8261, and FB-826

Acetone was detected in samples GM-3I, GM-15S, GM-14S, GM-7S, GM-13D, GM-REP-3, GM-17S, GM-8I and GM-10I but was qualified as not detected due to blank contamination (see Section V). None of the other compounds listed above were detected in any of the associated samples therefore, qualification of the data was not necessary based on the initial calibration results.

#### IV. CONTINUING CALIBRATION

Volatile Organic Compounds: Five continuing calibrations were performed with this sample set. All RRFs were greater than 0.050. All %D values were less than 25% with the following exceptions:

Calibration Date: September 1, 1993

Time: 09:30

<u>Compound</u>	<u>%D</u>
Chloromethane	57.8
Vinyl chloride	35.8
1,2-Dichloropropane	-32.7
4-Methyl-2-pentanone	-47.2
2-Hexanone	-40.2
Toluene	-27.3

Associated samples: FB-827, GM-22S, GM-12S, GM-16S, GM-15S, GM-14S, GM-REP-3, GM-17S, GM-REP-4, GM-22I, GM-8I, and GM-10I

Calibration Date: September 1, 1993

Time: 23:16

<u>Compound</u>	<u>%D</u>
Chloromethane	41.6
2-Butanone	-30.1
4-Methyl-2-pentanone	-32.8
2-Hexanone	-29.3

Associated samples: GM-7S, GM-13D, GM-10IMS, GM-10IMSD, and MSBGM-10I

Calibration Date: August 29, 1993

Time: 11:47

<u>Compound</u>	<u>%D</u>
Carbon tetrachloride	-25.4

Associated samples: GM-7D and GM-3I

All %D values were less than 25% for the continuing calibrations performed on August 30, 1993 and August 31, 1993. None of the compounds listed above were detected in any of the associated samples. Therefore, all compounds listed above in the associated samples were qualified as estimated (UJ) based on the continuing calibration results.

## V. BLANKS

Volatile Organic Compounds: Five method blanks were analyzed with this sample set. No compounds were detected in method blank VBLKG4. The following compounds were detected in the other method blanks:

Method Blank: VBLKG3

<u>Compound</u>	<u>Concentration (ug/L)</u>
Acetone	26

Associated samples: GM-7D and GM-3I

Method Blank: VBLKG5

<u>Compound</u>	<u>Concentration (ug/L)</u>
Methylene chloride	2 J
Acetone	17

Associated samples: FB-826 and TB-8261

Method Blank: VBLKB3

<u>Compound</u>	<u>Concentration (ug/L)</u>
Acetone	10

Associated samples: FB-827, GM-22S, GM-12S, GM-16S, GM-15S, GM-14S, GM-REP-3, GM-17S, GM-REP-4, GM-22I, GM-8I, and GM-10I

Method Blank: VBLKB4

<u>Compound</u>	<u>Concentration (ug/L)</u>
Methylene chloride	2 J
Acetone	6 J

Associated samples: GM-7S, GM-13D, GM-10IMS, GM-10IMSD, and MSBGM-10I

No TICs were detected in any of the method blanks. The following compounds were detected in the associated samples and qualified as not detected based on the method blank results:

<u>Sample ID</u>	<u>Compound</u>	<u>Concentration (ug/L)</u>
GM-3I	Acetone	10 U
GM-15S	Acetone	21 U
GM-14S	Acetone	10 U



<u>Sample ID</u>	<u>Compound</u>	<u>Concentration (ug/L)</u>
GM-7S	Methylene chloride	10 U
	Acetone	10 U
GM-13D	Methylene chloride	20 U
	Acetone	25 U
GM-REP-3	Acetone	10 U
GM-17S	Acetone	10 U
GM-8I	Acetone	15 U
GM-10I	Acetone	10 U

No other compounds were detected in any of the associated samples, therefore further qualification of the data was not necessary.

Two field blanks are associated with samples from this sample set. Field blanks FB-826 and FB-827 are contained in this data package. No compounds were detected in either field blank FB-826 or FB-827, therefore, qualification of the data was not necessary based on the field blank results.

Two trip blanks are associated with samples from this sample set. Trip blank TB-8261, which is contained in this data package, is associated with samples GM-38D2, GM-7I, GM-7D, GM-3I, GM-22S, GM-12S, GM-16S, GM-15S, GM-14S, and GM-7S. Trip blank TB-8271, which is contained in IEA SDG Number C0927, is associated with samples GM-13D, GM-REP-3, GM-17S, GM-REP-4, GM-22I, GM-8I, GM-10I, and GM-12I, which are contained in this data package.

Chloroform was detected in trip blank TB-8261 at an estimated concentration of 1 ug/L. Chloroform was not detected in any of the associated samples, therefore, qualification of the data was not necessary based on trip blank TB-8261 results.

Methylene chloride was detected in trip blank TB-8271 at an estimated concentration of 2 ug/L. Methylene chloride was detected in sample GM-13D but was already qualified as not detected based on the method blank results. Methylene chloride was not detected in any of the other associated samples, therefore, further qualification of the data was not necessary based on trip blank TB-8271 results.

#### **VI. SYSTEM MONITORING COMPOUNDS (Surrogate Spikes)**

Volatile Organic Compounds: All surrogate spike recoveries were within the set criteria.

#### **VII. MATRIX SPIKE/MATRIX SPIKE DUPLICATE**

Volatile Organic Compounds: Sample GM-10I was spiked with the MS/MSD compounds. All spike recoveries and RPD values were within QC limits. NYSDEC also requires that a MSB be analyzed along with the MS/MSD analyses. All spike recoveries were within QC limits for the MSB analyses. No qualification of the data was necessary based on the MS/MSD/MSB analyses.

#### **VIII. LABORATORY CONTROL SAMPLES**

- Analysis of laboratory control samples is not applicable since these samples were analyzed following the multi-media, multi-concentration SOW.

#### **IX. REGIONAL QUALITY ASSURANCE/QUALITY CONTROL (Field Replicates)**

Volatile Organic Compounds: Five samples were collected for replicate analysis. Two replicates were contained in this data package. A replicate of sample GM-17S was collected and labeled GM-REP-3. The acetone detected in samples GM-17S and GM-REP-3 was qualified as not detected (U) based on the method blank results (see Section V). This replicate is acceptable. No other compounds were detected in samples GM-17S and GM-REP-3. A replicate of sample

GM-22I was collected and labeled GM-REP-4. The following compounds were detected in sample GM-22I and its replicate with the RPD values also noted:

<u>Compound</u>	<u>GM-22I Concentration (ug/L)</u>	<u>GM-REP-4 Concentration (ug/L)</u>	<u>RPD</u>
Trichloroethene	4 J	4 J	0
Tetrachloroethene	1 J	10 U	200

In this data reviewer's opinion, this replicate is acceptable.

#### **X. INTERNAL STANDARD**

Volatile Organic Compounds: All internal standard area counts and retention times met QC requirements.

#### **XI. TARGET COMPOUND IDENTIFICATION**

Volatile Organic Compounds: All compounds were reported correctly.

#### **XII. COMPOUND QUANTITATION AND REPORTED CONTRACT REQUIRED QUANTITATION LIMITS**

Volatile Organic Compounds: All detection limits were met or adjusted for dilution factors.

#### **XIII. TENTATIVELY IDENTIFIED COMPOUNDS**

Volatile Organic Compounds: All TICs were reported correctly.

#### **XIV. SYSTEM PERFORMANCE**

Volatile Organic Compounds: The performance of the instrument during the volatile organic analyses is acceptable.

#### **XV. OVERALL ASSESSMENT OF DATA FOR THE CASE**

Volatile Organic Compounds: The quality of the volatile organic data presented in this QC package is acceptable with the appropriate qualifications described in this report.

## INORGANIC DATA VALIDATION

Two separate data packages were provided by the laboratory for dissolved metal samples results and total metal and cyanide sample results. Therefore, the validation results for both data packages is discussed separately below.

### **I. HOLDING TIMES**

Total Metals and Cyanide: All samples were analyzed within holding time requirements.

Dissolved Metals: All samples were analyzed within holding time requirements.

### **II. CALIBRATION**

Total Metals and Cyanide: All initial and continuing calibration requirements were met.

Dissolved Metals: All initial and continuing calibration requirements were met.

### **III. BLANKS**

- Total Metals and Cyanide: No analytes were detected in any of the ICBs, CCBs, or preparation blanks greater than the IDL or negative CRDL that were associated with the samples in this data package. No qualification of the data was necessary.

Dissolved Metals: No analytes were detected in any of the ICBs greater than the IDL or negative CRDL. The following analytes were detected in the CCBs greater than the IDL or negative CRDL:

<u>Blank ID</u>	<u>Analyte</u>	<u>Concentration (ug/L)</u>
CCB1 (9/14/93)	Barium	3.2 B
CCB2 (9/14/93)	Cadmium	2.0 B
CCB1 (9/15/93)	Arsenic	1.3 B

The "B" qualifier indicates that the sample concentration is between the IDL and CRDL. The five samples on either side of a CCB outside the control limits were qualified. The cadmium detected in associated sample GM-22S was qualified as not detected (U) based on the CCB results. Arsenic and barium were not detected in any of the associated samples, therefore further qualification of the data was not necessary.

Two filtering apparatus' were used in the field when filtering samples for dissolved metals. A field blank of each of the filtering apparatus (including a filter) were collected during this sample round. The data for field blank FB-8312 is contained in SDG D0927. The data for field blank FB-8302 is contained in SDG C0927. The following analytes were detected in these two field blanks:

Field Blank FB-8302

<u>Analyte</u>	<u>Concentration (ug/L)</u>
Aluminum	19.4 B
Calcium	61.5 B
Zinc	10.1 B

Field Blank FB-8312

<u>Analyte</u>	<u>Concentration (ug/L)</u>
Aluminum	24.6 B
Calcium	72.0 B
Copper	19.8 B
Iron	103

<u>Analyte</u>	<u>Concentration (ug/L)</u>
Nickel	9.5 B
Sodium	103 B
Zinc	20.3

The field crew did not record which filtering apparatus was used when filtering a particular sample. Therefore, since the data reviewer can not determine which filtering apparatus was used to filter which samples, a combination of both field blank results was used to qualify the data.

The following sample results were qualified as not detected (U) based on the field blank results:

<u>Sample ID</u>	<u>Analyte</u>	<u>Concentration (ug/L)</u>
GM-7I	Copper	18.4 U
	Zinc	15.8 U
GM-7D	Copper	6.1 U
	Zinc	10.9 U
GM-22S	Copper	5.3 U
	Zinc	26.3 U
GM-16S	Copper	5.3 U
	Zinc	22.6 U
GM-15S	Zinc	18.3 U
GM-14S	Zinc	23.6 U
GM-7S	Zinc	19.7 U
GM-13D	Zinc	9.8 U
GM-REP-3	Zinc	8.7 U
GM-17S	Aluminum	19.6 U
	Zinc	11.8 U

<u>Sample ID</u>	<u>Analyte</u>	<u>Concentration (ug/L)</u>
GM-REP-4	Nickel	13.2 U
	Zinc	83.2 U
GM-22I	Nickel	8.0 U
	Zinc	86.8 U
GM-8I	Zinc	18.0 U

#### IV. INDUCTIVELY COUPLED PLASMA INTERFERENCE CHECK SAMPLE

Total Metals and Cyanide: The percent recoveries for all the ICS analyses were within the control limits of  $\pm 20\%$  of the true value.

Dissolved Metals: The percent recoveries for all ICS analyses were within the control limits of  $\pm 20\%$  of the true value. A few times a negative antimony result was observed with an absolute value greater than the IDL for the ICSs analyzed. Since comparable or higher levels of interferents were not detected in the samples, no qualification of the antimony data was necessary.

#### V. LABORATORY CONTROL SAMPLE

Total Metals and Cyanide: All LCS results were within the control limits.

Dissolved Metals: All LCS results were within the control limits.

#### VI. DUPLICATE SAMPLE ANALYSIS

Total Metals and Cyanide: Sample GM-7I was designated for the duplicate analysis. All duplicate sample results were within the control limits.



Dissolved Metals: Sample GM-7I was designated for the duplicate analysis. All duplicate results were within the control limits.

## VII. MATRIX SPIKE SAMPLE ANALYSIS

Total Metals and Cyanide: Sample GM-7I was designated for the matrix spike sample analysis. All matrix spike recoveries were within the control limits.

Dissolved Metals: Sample GM-7I was designated for the matrix spike sample analysis. All matrix spike recoveries were within the control limits.

## VIII. FURNACE ATOMIC ABSORPTION QUALITY CONTROL

Total Metals and Cyanide: The metals determined using Furnace Atomic Absorption included: arsenic, selenium, lead, and thallium. For sample concentrations greater than the CRDL, duplicate injections agreed within  $\pm 20\%$  RSD. The selenium post-digestion spike recovery for sample GM-16S was outside of the control limits of 85-115% with a recovery of 83.0%. Selenium was not detected in this sample, therefore, the selenium non-detect results for sample GM-16S was qualified as estimated (UJ). All blanks and other sample post-digestion spike recoveries were within the control limits.

Dissolved Metals: The metals determined using Furnace Atomic Absorption included: arsenic, selenium, thallium, and lead. For sample concentrations greater than the CRDL, duplicate injections agreed within  $\pm 20\%$  RSD.

The thallium post-digestion spike recovery for samples GM-7D, GM-15S, and GM-14S were outside the control limits of 85-115% with recoveries of 76.0%, 69.0%, and 69.5%, respectively. Thallium was not detected in any of these samples, therefore, the thallium non-

detected results for samples GM-7D, GM-15S, and GM-14S were qualified as estimated (UJ). All blank and other sample post-digestion spike recoveries were within the control limits of 85-115%.

#### **IX. INDUCTIVELY COUPLED PLASMA SERIAL DILUTION**

Total Metals and Cyanide: Sample GM-7I was used for the ICP serial dilution analysis. All ICP serial dilution results were within the control limits.

Dissolved Metals: Sample GM-7I was used for the ICP serial dilution analysis. All ICP serial dilution results were within the control limits.

#### **X. SAMPLE RESULT VERIFICATION**

Total Metals and Cyanide: No discrepancies were found between the reported results and the QC data package.

Dissolved Metals: No discrepancies were found between the reported results and the QC data package.

#### **XI- FIELD REPLICATES**

Total Metals and Cyanide: Three samples were collected for replicate analysis. Two replicates are contained in this data package. A replicate of sample GM-17S was collected and labeled GM-REP-3. The following analytes were detected in sample GM-17S and its replicate and the RPD values are also noted:

<u>Analyte</u>	<u>GM-17S Concentration (ug/L)</u>	<u>GM-REP-3 Concentration (ug/L)</u>	<u>RPD</u>
Aluminum	8220	9070	9.8
Arsenic	9.3 B	8.2 B	13
Barium	32.2 B	30.5 B	5.4
Beryllium	1.2 B	1.2 B	0
Calcium	8270	6380	26
Chromium	36.1	37.1	2.7
Cobalt	8.2 B	8.2 B	0
Copper	106	114	7.3
Iron	49900	53500	7.0
Lead	11.8	6.6	57
Magnesium	1410 B	1410 B	0
Manganese	252	271	7.3
Potassium	1620 B	1800 B	11
Silver	4.1 B	4.1 B	0
Sodium	8380	8360	0.2
Vanadium	26.4 B	25.6 B	3.1
Zinc	53.6	55.3	0.6
Cyanide	13.8	10 U	200

In this data reviewer's opinion, this replicate is acceptable. A replicate of sample GM-22I was collected and labeled GM-REP-4. The following analytes were detected in sample GM-22I and its replicate with the RPD values also noted:

<u>Analyte</u>	<u>GM-22I Concentration (ug/L)</u>	<u>GM-REP-4 Concentration (ug/L)</u>	<u>RPD</u>
Aluminum	48.3 B	60.8 B	23
Barium	17.2 B	19.4 B	12
Calcium	4920 B	5020	2.0
Chromium	8.7 B	8.9 B	2.3
Copper	6.0 B	5.0 U	200
Iron	74.0 U	123	200
Magnesium	1450 B	1490 B	2.7
Manganese	8.3 B	8.3 B	0
Nickel	8.4 B	8.0 U	200
Potassium	1130 B	1530 B	30
Sodium	10300	10600	2.9
Zinc	89.2	90.7	1.7

In this data reviewer's opinion, this replicate is acceptable.

Dissolved Metals: Three samples were collected for replicate analysis. Two replicates were contained in the data package. A replicate of sample GM-17S was collected and labeled GM-REP-3. The following analytes were detected in sample GM-17S and its replicate with the RPD values also noted:

<u>Analyte</u>	<u>GM-17S Concentration (ug/L)</u>	<u>GM-REP-3 Concentration (ug/L)</u>	<u>RPD</u>
Aluminum	19.6 B	15.0 U	200
Barium	7.9 B	7.4 B	6.5
Calcium	4660 B	4590 B	1.5
Lead	1.7 B	1.0 B	52
Magnesium	1170 B	1170 B	0
Sodium	8400	8340	0.7
Zinc	11.8 B	8.7 B	30

In this data reviewer's opinion, this replicate is acceptable. A replicate of sample GM-22I was collected and labeled GM-REP-4. The following analytes were detected in sample GM-22I and its replicate with the RPD values also noted:

<u>Analyte</u>	<u>GM-22I Concentration (ug/L)</u>	<u>GM-REP-4 Concentration (ug/L)</u>	<u>RPD</u>
Barium	19.4 B	20.0 B	3.0
Calcium	5090	5050	0.8
Chromium	6.9 B	6.6 B	4.4
Magnesium	1500 B	1480 B	1.3
Manganese	8.1 B	9.2 B	13
Nickel	8.0 B	13.2 B	49
Sodium	10700	10700	0
Zinc	86.8	83.2	4.2

In this data reviewer's opinion, this replicate is acceptable.

## **XII. OVERALL ASSESSMENT OF DATA FOR THE CASE**

Total Metals and Cyanide: The quality of the inorganic data presented in this QC data package is acceptable with the appropriate qualifications described in this memorandum.

Dissolved Metals: The quality of the inorganic data presented in this QC data package is acceptable with the appropriate qualifications described in this memorandum.

## CLASSICAL CHEMISTRY

Samples GM-7I, GM-7D, GM-22S, GM-16S, GM-15S, GM-14S, GM-7S, GM-13D, GM-REP-3, GM-17S, GM-REP-4, GM-22I, and GM-8I were analyzed for hexavalent chromium. The results of the hexavalent chromium data review are discussed below.

### **I. HOLDING TIMES**

All samples were analyzed within holding time requirements.

### **II. CALIBRATION**

All initial and continuing calibration requirements were met.

### **III. BLANKS**

Hexavalent chromium was not detected in any of the ICBs, CCBs, and preparation blanks.

### **IV. LABORATORY CONTROL SAMPLES**

- All LCS results were within the control limits.

### **V. DUPLICATE SAMPLE ANALYSIS**

Samples GM-13D and GM-14S were designated for the duplicate analysis. All duplicate sample results were within the control limits.

## **VI. MATRIX SPIKE SAMPLE ANALYSIS**

Samples GM-13D and GM-14S were designated for the matrix spike sample analysis. All matrix spike recoveries were within the control limits.

## **VII. SAMPLE RESULTS VERIFICATION**

No discrepancies were found between the reported results and the QC data package.

## **VIII. FIELD REPLICATES**

Three samples were collected for replicate analysis. Two replicates are contained in this data package. A replicate of sample GM-17S was collected and labeled GM-REP-3. Hexavalent chromium was not detected in GM-17S and GM-REP-3. A replicate sample GM-22I was collected and labeled GM-REP-4. Hexavalent chromium was not detected in GM-22I and GM-REP-4. These replicates are acceptable.

## **IX. OVERALL ASSESSMENT OF DATA FOR A CASE**

The quality of the hexavalent chromium data presented in this QC data package is acceptable with the appropriate qualification described in this memorandum.

IEA Project Number 30930-0927C.

### ORGANIC DATA VALIDATION

#### I. HOLDING TIMES

Volatile Organic Compounds: All samples were analyzed within seven days from VTSR.

#### II. GAS CHROMATOGRAPH/MASS SPECTROMETER INSTRUMENT PERFORMANCE CHECK

Volatile Organic Compounds: All tuning criteria were met. All samples were analyzed within the 12-hour tune time limit.

#### III. INITIAL CALIBRATION

Volatile Organic Compounds: Two initial calibrations were performed with this sample set. All RRFs were greater than 0.050. All %RSDs were less than 30% with the following exceptions:

Calibration Date: 8/17/93

<u>Compound</u>	<u>%RSD</u>
Acetone	37.5

Associated samples: TB-8271 and TB-8301

Calibration Date: 9/1/93

<u>Compound</u>	<u>%RSD</u>
Chloromethane	30.4

Associated samples: GM-12I, FB-830, GM-34D, GM-34D2, N-10816, N-10999, N-11000, TB-8311, GM-14I, GM-19I, GM-19S, GP-5, GM-13I, GP-8, GM-REP-5, GP-2, and GP-14



Acetone was detected in several samples, but was qualified as not detected (U) based on the method blank results (see Section V). Chloromethane was not detected in any of the associated samples. No qualification of the data was necessary based on the initial calibration results.

#### IV. CONTINUING CALIBRATION

Volatile Organic Compounds: Six continuing calibration were performed with this sample set. All RRFs were greater than 0.050. All %Ds were less than 25% with the following exceptions:

Calibration Date: 9/1/93

Time: 09:30

<u>Compound</u>	<u>%D</u>
Chloromethane	57.8
Vinyl chloride	35.8
1,2-Dichloropropane	-32.7
4-Methyl-2-pentanone	-47.2
2-Hexanone	-40.2
Toluene	-27.3

Associated sample: TB-8271

Calibration Date: 9/1/93

Time: 23:16

<u>Compound</u>	<u>%D</u>
Chloromethane	41.6
2-Butanone	-30.1
4-Methyl-2-pentanone	-32.8
2-Hexanone	-29.3

Associated sample: TB-8301

Calibration Date: 9/4/93

Time 09:24

<u>Compound</u>	<u>%D</u>
Acetone	29.0
2-Butanone	26.4

Associated samples: TB-8311, GM-14I, GM-19I, GM-19S, GP-5 and GM-13I

Calibration Date: 9/7/93

Time: 09:34

<u>Compound</u>	<u>%D</u>
Acetone	28.7
2-Butanone	29.1

Associated samples: GP-8, GM-REP-5, GP-2, and GP-14

All %Ds were less than 25% for the continuing calibrations performed on September 3, 1993 at 08:46 and September 3, 1993 at 21:03. None of the compounds listed above were detected in any of the associated samples, therefore, these compounds were qualified as estimated (UJ) in the associated samples.

## V. BLANKS

- Volatile Organic Compounds: Six method blanks were analyzed with this sample set. The following compounds were detected in the method blanks:

Method blank: VBLKB3

<u>Compound</u>	<u>Concentration (ug/L)</u>
Acetone	10

Associated sample: TB-8271

Method blank: VBLKB4

<u>Compound</u>	<u>Concentration (ug/L)</u>
Methylene chloride	2 J
Acetone	6 J

Associated sample: TB-8301

Method blank: VBLKG9

<u>Compound</u>	<u>Concentration (ug/L)</u>
Methylene chloride	1 J
Acetone	8 J

Associated sample: GM-12I

Method blank: VBLKGB

<u>Compound</u>	<u>Concentration (ug/L)</u>
Methylene chloride	1 J
Acetone	17
2-Butanone	8 J

Associated samples: FB-830, GM-34D, GM-34D2, N-10816, N-10999, and N-11000

Method blank: VBLKGC

<u>Compound</u>	<u>Concentration (ug/L)</u>
Acetone	9 J

Associated samples: TB-8311, GM-14I, GM-19I, GM-19S, GP-5, GM-13I

Method blank: VBLKGD

<u>Compound</u>	<u>Concentration (ug/L)</u>
Methylene chloride	1 J
Acetone	9 J
Toluene	1 J

Associated samples: GP-8, GM-REP-5, GP-2, and GP-14

The following sample results were qualified as not detected (U) based on the method blank results:

<u>Sample ID</u>	<u>Compound</u>	<u>Concentration (ug/L)</u>
TB-8301	Methylene chloride	10 U
GM-12I	Methylene chloride	100 U
	Acetone	200 U
GM-34D2	Acetone	10 U
N-10816	Acetone	10 U
N-10999	Acetone	10 U
N-11000	Methylene chloride	10 U
	Acetone	10 U
GM-14I	Acetone	43 U
GP-2	Methylene chloride	200 U
	Acetone	200 U
	Toluene	200 U
GP-8	Methylene chloride	50 U
	Acetone	50 U
	Toluene	50 U
GM-REP-5	Methylene chloride	50 U
	Acetone	50 U

No other compounds were detected in the associated samples, therefore, further qualification of the data was not necessary.

Three field blanks are associated with the samples from this sample set. No compounds were detected in field blank FB-830, associated with samples N-10816, N-10999, N-11000, and GM-19S. Field blank FB-827 is contained in IEA SDG Number B0927. No compounds were detected in field blank FB-827, associated with sample GM-12I. Field blank FB-831 is contained in IEA SDG Number D0927. Methylene chloride was detected in this field blank but was qualified as not detected based on the method blank results (see Section V of IEA SDG Number D0927). No other compounds were detected in this field blank. Therefore, qualification of the data was not necessary based on the field blank results.

Three trip blanks are associated with the samples from this sample set. Trip blank TB-8271, contained in this data package, is associated with sample GM-12I. Trip blank TB-8301, also contained in this data package, is associated with samples GM-34D, GM-34D2, N-10816, N-10999, N-11000, GM-14I, GM-19I, GM-19S, GP-2, GP-5, GP-8, GP-14, and GM-REP-5. Trip blank TB-8311, also contained in this data package, is associated with sample GM-13I.

Methylene chloride was detected in trip blank TB-8271 at an estimated concentration of 2 ug/L. Methylene chloride was detected in associated sample GM-12I but was already qualified as not detected (U) based on the method blank results. Methylene chloride was detected in trip blank TB-8301 but was qualified as not detected based on the method blank results. No other compounds were detected in this trip blank. Chloroform was detected in trip blank TB-8311 at an estimated concentration of 1 ug/L. Chloroform was not detected in associated sample GM-13I. Therefore, qualification of the data was not necessary based on the trip blank results.

## **VI. SYSTEM MONITORING COMPOUNDS (Surrogate Spikes)**

Volatile Organic Compounds: All surrogate spike recoveries were within the set criteria.

## VII. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Volatile Organic Compounds: Sample GM-35D2 was spike with the MS/MSD compounds. Sample GM-35D2 is contained in IEA SDG Number A0927. All spike recoveries and RPD values were within the set criteria. NYSDEC also requires that a MSB also be analyzed. All spike recoveries were within QC limits for the MSB analysis. No qualification of the data was necessary based on the MS/MSD/MSB results.

## VIII. LABORATORY CONTROL SAMPLES

Analysis of laboratory control samples is not applicable since these samples were analyzed following the multi-media, multi-concentration SOW.

## IX. REGIONAL QUALITY ASSURANCE/QUALITY CONTROL (Field Replicates)

Volatile Organic Compounds: Five samples were collected for replicate analysis. One replicate is contained in this data package. A replicate of GP-8 was collected and labelled GM-REP-5. The following compounds were detected in sample GP-8 and its replicate with the RPD values also noted:

<u>Compound</u>	<u>GP-8 Concentration (ug/L)</u>	<u>GM-REP-5 Concentration (ug/L)</u>	<u>RPD</u>
1,1-Dichloroethene	290	420	37
1,1-Dichloroethane	11 J	50 U	200
Chloroform	50 U	9 J	200
1,1,1-Trichloroethane	410	550	29
Trichloroethene	180	240	29
Tetrachloroethene	250	310	21

This replicate is acceptable.

**X. INTERNAL STANDARD**

Volatile Organic Compounds: All internal standard area counts and retention times met QC limits.

**XI. TARGET COMPOUND IDENTIFICATION**

Volatile Organic Compounds: All compounds were reported correctly.

**XII. COMPOUND QUANTITATION AND REPORTED CONTRACT REQUIRED QUANTITATION LIMITS**

Volatile Organic Compounds: All detection limits were met or adjusted for dilution factors.

**XIII. TENTATIVELY IDENTIFIED COMPOUNDS**

Volatile Organic Compounds: All TICs were reported correctly.

**XIV. SYSTEM PERFORMANCE**

- Volatile Organic Compounds: The performance of the instrument during the volatile organic analyses is acceptable.

**XV. OVERALL ASSESSMENT OF DATA FOR THE CASE**

Volatile Organic Compounds: The quality of the volatile data presented in this QC package is acceptable with the appropriate qualification described in this memorandum.

## INORGANIC DATA VALIDATION

Since the laboratory has included both total and dissolved metals data in one package, the discussion below applies to both except where noted. In the laboratory raw data, all dissolved metal sample identifications start with an "F" and all total metal identifications start with a "T".

### I. HOLDING TIMES

All samples were analyzed within holding time requirements.

### II. CALIBRATION

The correlation coefficient for thallium on September 20, 1993 was less than 0.995. All samples were analyzed on September 20, 1993, therefore, all thallium results were qualified as estimated (J) if detected and estimated (UJ) if not detected. All other initial calibration requirements were met. All continuing calibration requirements were met.

### III. BLANKS

No analytes were detected in any of the ICBs greater than the IDL or negative CRDL. The following analytes were detected in the CCBs or preparation blanks greater than the IDL or negative CRDL:

<u>Blank ID</u>	<u>Analyte</u>	<u>Concentration (ug/L)</u>
CCB1 (9/14/93)	Barium	3.2 B
CCB2 (9/14/93)	Cadmium	2.0 B
PBW	Lead	1.2 B
CCB1 (9/22/93)	Calcium	7.4 B
CCB4 (9/22/93)	Calcium	8.0 B



The "B" qualifier indicates that the sample concentration is between the IDL and CRDL. No analytes were detected in any of the other CCBs and preparation blank PBW2. The five samples on either side of a CCB outside of control limits were qualified. The following lead results were qualified as not detected (U) based on the preparation blank results:

<u>Sample ID</u>	<u>Concentration (ug/L)</u>
GM-19I (Dissolved)	1.4 U
GM-19S (Dissolved)	1.0 U
GM-13I (Dissolved)	1.1 U

Two filtering apparatus' were used in the field when filtering samples for dissolved metals. A field blank of each of the filtering apparatus (including a filter) were collected during this sample round. The data for field blank FB-8312 is contained in this data package. The data for field blank FB-8302 is contained in SDG C0927. The following analytes were detected in these two field blanks:

Field Blank FB-8302

<u>Analyte</u>	<u>Concentration (ug/L)</u>
Aluminum	19.4 B
Calcium	61.5 B
Zinc	10.1 B

Field Blank FB-8312

<u>Analyte</u>	<u>Concentration (ug/L)</u>
Aluminum	24.6 B
Calcium	72.0 B
Copper	19.8 B
Iron	103
Nickel	9.5 B
Sodium	103 B
Zinc	20.3

The field crew did not record which filtering apparatus was used when filtering a particular sample. Therefore, since the data reviewer can not determine which filtering apparatus was used to filter which samples, a combination of both field blank results was used to qualify the data.

The following sample results were qualified as not detected (U) based on the field blank results:

<u>Sample ID</u>	<u>Analyte</u>	<u>Concentration (ug/L)</u>
GM-14I (Dissolved)	Zinc	9.6 U
GM-19I (Dissolved)	Zinc	14.7 U
GM-19S (Dissolved)	Aluminum	79.2 U
	Zinc	53.5 U
GM-13I (Dissolved)	Calcium	66.3 U
	Iron	105 U
	Zinc	16.6 U

None of the other analytes listed above associated with any of the samples, therefore, further qualification of the data was not necessary.

#### **IV. INDUCTIVELY COUPLED PLASMA INTERFERENCE CHECK SAMPLE**

The percent recoveries for all the ICS analyses were within the control limits of  $\pm 20\%$  of the true value.

#### **V. LABORATORY CONTROL SAMPLE**

All LCS results were within the control limits.

## **VI. DUPLICATE SAMPLE ANALYSIS**

Sample GM-7I was designated for the duplicate analysis. All duplicate sample results were within the control limits.

## **VII. MATRIX SPIKE SAMPLE ANALYSIS**

Sample GM-7I was designated for the matrix spike sample analysis. All matrix spike recoveries were within the control limits.

## **VIII. FURNACE ATOMIC ABSORPTION QUALITY CONTROL**

The metals determined using Furnace Atomic Absorption included: arsenic, lead, selenium, and thallium. For sample concentrations greater than the CRDL, duplicate injections agreed within  $\pm 20\%$  RSD. The selenium post-digestion spike recoveries for samples GM-14I (Total), GM-19I (Total), GM-19S (Total), GM-14I (Dissolved), GM-19I (Dissolved), and GM-19S (Dissolved) were outside the criteria of 85-115% with recoveries of 68.0%, 80.0%, 52.0%, 73.0%, 75.0%, and 59.0%, respectively. Selenium was not detected in any of these samples, therefore the selenium non-detect results for samples GM-14I (Total), GM-19I (Total), GM-19S (Total), GM-14I (Dissolved), GM-19I (Dissolved), and GM-19S (Dissolved) were qualified as estimated (UJ).

The lead post-digestion spike recovery for sample GM14I (Total) was outside of the criteria of 85-115% with a recovery of 115.5%. Lead was not detected in this sample, therefore the lead non-detect results for sample GM-14I (Total) was qualified as estimated (UJ). All blank and other sample post-digestion spike recoveries were within the control limits.

## **IX. INDUCTIVELY COUPLED PLASMA SERIAL DILUTION**

Sample GM-13I was used for the ICP serial dilution analysis. The %D between the initial sample result and the ICP serial dilution result was greater than 10% for aluminum, iron and manganese. Therefore, all aluminum, iron and manganese results were qualified as estimated (J) if detected. All other ICP serial dilution results were within the control limits.

## **X. SAMPLE RESULT VERIFICATION**

No discrepancies were found between the reported results and the QC data package.

## **XI. FIELD REPLICATES**

Three samples were collected for replicate analysis. Replicate results can be found in the other data packages provided by the laboratory for this sampling round. None of the sample data was qualified based on the replicate results.

## **XII. OVERALL ASSESSMENT OF DATA FOR THE CASE**

The quality of the inorganic data presented in this QC package is acceptable with the appropriate qualification described in this memorandum.

## CLASSICAL CHEMISTRY REVIEW

Samples GM-14I, GM-19I, GM-19S, and GM-13I were analyzed for hexavalent chromium. The results of the hexavalent chromium data review are discussed below.

### **I. HOLDING TIMES**

All samples were analyzed within holding time requirements.

### **II. CALIBRATION**

All initial and continuing calibration requirements were met.

### **III. BLANKS**

Hexavalent chromium was not detected in any of the ICBs, CCBs, or the preparation blank.

### **IV. LABORATORY CONTROL SAMPLE**

All LCS results were within control limits.

### **V. DUPLICATE SAMPLE ANALYSIS**

Sample GM-20D was designated for the duplicate analysis. All duplicate sample results were within the control limits.

### **VI. MATRIX SPIKE SAMPLE ANALYSIS**

Sample GM-20D was designated for the matrix spike sample analysis. All matrix spike recoveries were within the control limits.

**VII. SAMPLE RESULT VERIFICATION**

No discrepancies were found between the reported results and the QC data package.

**VIII. FIELD REPLICATES**

Three samples were collected for replicate analysis. Replicate results can be found in other data packages provided by the laboratory for this sampling round. No qualification of the sample data was necessary based on the replicate results.

**IX. OVERALL ASSESSMENT OF DATA OF THE CASE**

The quality of the hexavalent chromium data presented in this QC data package is acceptable with the appropriate qualification described in this memorandum.

IEA Project Number 30930-0927D.

## **ORGANIC DATA VALIDATION**

### **I. HOLDING TIMES**

Volatile Organic Compounds: All samples were analyzed within seven days from VTSR.

### **II. GAS CHROMATOGRAPH/MASS SPECTROMETER INSTRUMENT PERFORMANCE CHECK**

Volatile Organic Compounds: All tuning criteria were met. All samples were analyzed within the 12-hour tune time limit.

### **III. INITIAL CALIBRATION**

Volatile Organic Compounds: One initial calibration was performed with this sample set. All RRFs were greater than 0.050. All %RSDs were less than 30% except for chloromethane. The %RSD for chloromethane was 30.4%. Chloromethane was not detected in any of the associated samples, therefore, no qualification of the data was necessary based on the initial calibration results.

### **IV. CONTINUING CALIBRATION**

Volatile Organic Compounds: Three continuing calibration were performed with this sample set. All RRFs were greater than 0.050. All %Ds were less than 25% with the following exceptions:

Calibration Date: 9/6/93

<u>Compound</u>	<u>%D</u>
Acetone	27.3

Associated sample: GM-20D

Calibration Date: 9/7/93

<u>Compound</u>	<u>%D</u>
Acetone	28.7
2-Butanone	29.1

Associated samples: TB-9011, TB-9021, FB-831, GM-15I, GM-31S, GM-32S, and GM-16I

Calibration Date: 9/8/93

<u>Compound</u>	<u>%D</u>
Chloromethane	54.9
Vinyl chloride	29.9

Associated samples: GM-16IMS, GM-16IMSD, GM-16IMSB, GM-21I, and N-8767

Acetone, chloromethane, 2-butanone, and vinyl chloride were not detected in any of the associated samples. Therefore, the acetone, chloromethane, 2-butanone, and vinyl chloride results in the associated samples were qualified as estimated (UJ). No other qualification of the data was necessary based on the continuing calibration results.

#### IV. BLANKS

Volatile Organic Compounds: Three method blanks were analyzed with this sample set. The following compounds were detected in the method blanks:



Method blank: VBLKGM

<u>Compound</u>	<u>Concentration (ug/L)</u>
Acetone	7 J
Trichloroethene	3 J

Associated sample: GM-20D

Method blank: VBLKGD

<u>Compound</u>	<u>Concentration (ug/L)</u>
Methylene chloride	1 J
Acetone	9 J
Toluene	1 J

Associated samples: TB-9011, TB-9021, FB-831, GM-15I, GM-31S, GM-32S, and GM-16I

Method blank: VBLKGG

<u>Compound</u>	<u>Concentration (ug/L)</u>
Acetone	3 J

Associated samples: GM-16IMS, GM-16IMSD, GM-16IMSB, GM-21I, and N-8767

The following sample results were qualified as not detected (U) based on the method blank results:

<u>Sample ID</u>	<u>Compound</u>	<u>Concentration (ug/L)</u>
GM-20D	Trichloroethene	10 U
FB-831	Methylene chloride	10 U
TB-9011	Methylene chloride	10 U

None of the other samples contained any of the compounds listed above, therefore, further qualification of the data was not necessary based on the method blank results.

One field blank is associated with samples from this sample set. Field blank FB-831, which is contained in this data package, corresponds to sample N-8767. Methylene chloride was detected in field blank FB-831 but was qualified as not detected (U) based on the method blank results. No other compounds were detected in this field blank, therefore, further qualification of the data was not necessary based on the field blank results.

Three trip blanks are associated with samples from this sample set. Trip blank TB-8311, which is contained in IEA SDG Number C0927, is associated with samples GM-20D and GM-15I. Trip blank TB-9011, which is contained in this data package, is associated with samples GM-31S, GM-32S, GM-16I, and GM-21I. Trip blank TB-9021, which is also contained in this data package, is associated with sample N-8767.

Chloroform was detected in trip blank TB-8311 at an estimated concentration of 1 ug/L. Chloroform was not detected in the associated samples. Methylene chloride was detected in trip blank TB-9011 but was qualified as not detected (U) based on the method blank results. No other compounds were detected in this trip blank. 1,2-Dichloroethene (total) was detected in trip blank TB-9021 at an estimated concentration of 1 ug/L. 1,2-Dichloroethene (total) was not detected in the associated sample. Therefore, qualification of the data was not necessary based on the trip blank results.

#### **VI- SYSTEM MONITORING COMPOUNDS (Surrogate Spikes)**

Volatile Organic Compounds: All surrogate spike recoveries were within the set criteria.

#### **VII. MATRIX SPIKE/MATRIX SPIKE DUPLICATE**

Volatile Organic Compounds: Sample GM-16I was spiked with the MS/MSD compounds. All spike recoveries and RPD values were within QC limits. NYSDEC also requires that a MSB be analyzed along with the MS/MSD analyses. All spike recoveries were within QC limits. No qualification of the data was necessary based on the MS/MSD/MSB results.

## VIII. LABORATORY CONTROL SAMPLES

Analysis of laboratory control samples is not applicable since these samples were analyzed following the multi-media, multi-concentration SOW.

## IX. REGIONAL QUALITY ASSURANCE/QUALITY CONTROL (Field Replicates)

Volatile Organic Compounds: Five samples were collected for replicate analysis. Both vials of sample GM-REP-6 were received broken at the laboratory. Replicate results can be found in other data packages provided by the laboratory for this sampling round. None of the sample data was qualified based on the replicate results.

## X. INTERNAL STANDARD

Volatile Organic Compounds: All internal standard area counts and retention times met QC requirements.

## XI. TARGET COMPOUND IDENTIFICATION

Volatile Organic Compounds: All compounds were reported correctly.

## XII. COMPOUND QUANTITATION AND REPORTED CONTRACT REQUIRED QUANTITATION LIMITS

Volatile Organic Compounds: All detection limits were met or adjusted for dilution factors.

## XIII. TENTATIVELY IDENTIFIED COMPOUNDS

Volatile Organic Compounds: All TICs were reported correctly.

#### **XIV. SYSTEM PERFORMANCE**

Volatile Organic Compounds: The performance of the instrument during the volatile organic analyses is acceptable.

#### **XV. OVERALL ASSESSMENT OF DATA FOR THE CASE**

Volatile Organic Compounds: The quality of the volatile organic data presented in this QC package is acceptable with the appropriate qualifications described in this memorandum.

## INORGANIC DATA VALIDATION

Since the laboratory has included both total and dissolved metals data in one package, the discussion below applies to both except where noted. In the laboratory raw data, all dissolved metal sample identification start with an "F" and all total metal sample identifications start with a "T".

### I. HOLDING TIMES

All samples were analyzed within holding time requirements.

### II. CALIBRATION

All initial and continuing calibration requirements were met.

### III. BLANKS

No analytes were detected in the ICBs or the preparation blank greater than the IDL or negative CRDL. The following analytes were detected in the CCBs greater than the IDL or negative CRDL:

<u>Blank ID</u>	<u>Analyte</u>	<u>Concentration (ug/L)</u>
CCB2 (9/26/93)	Calcium	.8.4 B
	Iron	92.9 B

The "B" qualifier indicates that the sample concentration was between the IDL and CRDL. The five samples on either side of the CCB outside control limits were qualified. The following sample results were qualified as not detected (U) based on the CCB results:

<u>Sample ID</u>	<u>Analyte</u>	<u>Concentration (ug/L)</u>
FB-831 (Dissolved)	Iron	103 U
GM-31S (Dissolved)	Iron	83.0 U

No other analytes were detected in the CCBs at concentrations greater than the IDL or negative CRDL. Therefore, further qualification of the data was not necessary based on the ICB, CCB, and preparation blank results.

Two filtering apparatus' were used in the field when filtering samples for dissolved metals. A field blank of each of the filtering apparatus (including a filter) were collected during this sample round. The data for field blank FB-8312 is contained in this data package. The data for field blank FB-8302 is contained in SDG C0927. The following analytes were detected in these two field blanks:

#### Field Blank FB-8302

<u>Analyte</u>	<u>Concentration (ug/L)</u>
Aluminum	19.4 B
Calcium	61.5 B
Zinc	10.1 B

#### Field Blank FB-8312

<u>Analyte</u>	<u>Concentration (ug/L)</u>
Aluminum	24.6 B
Calcium	72.0 B
Copper	19.8 B
Iron	103
Nickel	9.5 B
Sodium	103 B
Zinc	20.3

The field crew did not record which filtering apparatus was used when filtering a particular sample. Therefore, since the data reviewer can not determine which filtering apparatus was used to filter which samples, a combination of both field blank results was used to qualify the data.

The following sample results were qualified as not detected (U) based on the field blank results:

<u>Sample ID</u>	<u>Analyte</u>	<u>Concentration (ug/L)</u>
GM-20D (Dissolved)	Aluminum	33.6 U
	Copper	22.9 U
	Zinc	42.1 U
GM-15I (Dissolved)	Aluminum	36.9 U
	Copper	22.9 U
	Nickel	9.5 U
	Zinc	24.6 U
GM-31S (Dissolved)	Aluminum	30.7 U
	Copper	18.5 U
	Zinc	15.0 U
GM-32S (Dissolved)	Aluminum	15.9 U
	Zinc	15.1 U
GM-16I (Dissolved)	Copper	36.2 U
	Zinc	21.6 U

#### IV. INDUCTIVELY COUPLED PLASMA INTERFERENCE CHECK SAMPLE

The percent recoveries for all ICS analyses were within the control limits of  $\pm 20\%$  of the true value.

#### V. LABORATORY CONTROL SAMPLE

All LCS results were within the control limits.

## **VI. DUPLICATE SAMPLE ANALYSIS**

Samples GM-16I (Total) and GM-16I (Dissolved) were designated for the duplicate analysis. All duplicate sample results were within the control limits.

## **VII. MATRIX SPIKE SAMPLE ANALYSIS**

Samples GM-16I (Total) and GM-16I (Dissolved) were designated for the matrix spike sample analysis. The iron matrix spike recovery for sample GM-16I (Total) was below control limits (50.2%). However, since the amount of iron detected in the sample was over four times more than the iron in the spike, no qualification of the iron sample results was necessary. All other matrix spike recoveries were within control limits.

## **VIII. FURNACE ATOMIC ABSORPTION QUALITY CONTROL**

The metals determined using Furnace Atomic Absorption included: arsenic, lead, selenium, and thallium. For sample concentrations greater than the CRDL, duplicate injections agreed within  $\pm 20\%$  RSD. The arsenic post-digestion spike recoveries for samples GM-20D (Dissolved), GM-16I (Dissolved), GM-31S (Dissolved), and GM-15I (Total) were outside the control limits of 85-115% with recoveries of 67.0%, 58.5%, 77.0% and 82.5%, respectively. Arsenic was not detected in any of these samples. The arsenic non-detect results for samples GM-20D (Dissolved), GM-16I (Dissolved), GM-31S (Dissolved) and GM-15I (Total) were qualified as estimated (UJ).

The selenium post-digestion spike recoveries for samples GM-15I (Total) and GM-15I (Dissolved) were outside the control limits of 85-115% with recoveries of 117% and 79.0%, respectively. Selenium was not detected in sample GM-15I (Dissolved). The selenium non-detect result for sample GM-15I (Dissolved) was qualified as estimated (UJ). Selenium was detected in sample GM-15I (Total). The selenium result for sample GM-15I (Total) was qualified



as estimated (J). All blank and other sample post-digestion spike recoveries were within the control limits.

#### **IX. INDUCTIVELY COUPLED PLASMA SERIAL DILUTION**

Sample GM-16I(Total) was used for the ICP serial dilution analysis. All ICP serial dilution results were within control limits.

#### **X. SAMPLE RESULT VERIFICATION**

No discrepancies were found between the reported results and the QC data package.

#### **XI. FIELD REPLICATES**

Three samples were collected for replicate analysis. Replicate results can be found in other data packages provided by the laboratory for this sampling round. None of the samples were qualified based on the replicate results.

#### **XII. OVERALL ASSESSMENT OF DATA FOR THE CASE**

- The quality of the inorganic data presented in this QC package is acceptable with the appropriate qualification described in this memorandum

## CLASSICAL CHEMISTRY

Samples GM-20D, GM-15I, GM-31S, GM-32S, and GM-16I were analyzed for hexavalent chromium. The hexavalent chromium data review results are discussed below.

### **I. HOLDING TIMES**

All samples were analyzed within holding time requirements.

### **II. CALIBRATION**

All initial and continuing calibration requirements were met.

### **III. BLANKS**

Hexavalent chromium was not detected in any of the ICBs, CCBs, or the preparation blank.

### **IV. LABORATORY CONTROL SAMPLES**

All LCS results were within the control limits.

### **V. DUPLICATE SAMPLE ANALYSIS**

Sample GM-16I was designated for the duplicate sample analysis. All duplicate sample results were within the control limits.

### **VI. MATRIX SPIKE SAMPLE ANALYSIS**

Sample GM-16I was designated for the matrix spike sample analysis. All matrix spike recoveries were within the control limits.

**VII. SAMPLE RESULTS VERIFICATION**

No discrepancies were found between the reported results and the QC data package.

**VIII. FIELD REPLICATES**

Three samples were collected for replicate analysis. Replicate results can be found in other data packages provided by the laboratory for this sampling round. None of the sample results were qualified based on the replicate results.

**IX. OVERALL ASSESSMENT OF DATA FOR THE CASE**

The quality of the hexavalent chromium data presented in this QC data package is acceptable with the appropriate qualification described in this memorandum.

IEA Project Number 30930-1031Z.

## ORGANIC DATA VALIDATION

### **I. HOLDING TIMES**

Volatile Organic Compounds: All samples were analyzed within seven days from VTSR.

### **II. GAS CHROMATOGRAPH/MASS SPECTROMETER INSTRUMENT PERFORMANCE CHECK**

Volatile Organic Compounds: All tuning criteria were met. All samples were analyzed within the 12-hour tune time limit.

### **III. INITIAL CALIBRATION**

Volatile Organic Compounds: One initial calibration was performed with this sample set. All RRFs were greater than 0.050. All %RSDs were less than 30% with the exception of acetone. Acetone was reported with a %RSD of 37.5%. Acetone was not detected in the associated sample, therefore, qualification of the data was not necessary based on the %RSD result.

### **IV. CONTINUING CALIBRATION**

Volatile Organic Compounds: One continuing calibration was performed with this sample set. All RRF were greater than 0.050. All %Ds were less than 25% with the exception of vinyl chloride and acetone. Vinyl chloride and acetone were reported with %Ds of -31.4% and 40.5%, respectively. Vinyl chloride and acetone were not detected in any of the associated samples, therefore, all vinyl chloride and acetone results were qualified as estimated (UJ).

## V. BLANKS

Volatile Organic Compounds: One method blank was analyzed with this sample set. Methylene chloride was detected in this method blank at an estimated concentration of 2 ug/L. The methylene chloride detected in trip blank TB-9301 was qualified as not detected (U) based on the method blank results. Methylene chloride was not detected in associated sample N-8768.

No other compounds were detected in the trip blank besides methylene chloride, therefore, qualification of the data was not necessary based on the trip blank results.

## VI. SYSTEM MONITORING COMPOUNDS (Surrogate Spikes)

Volatile Organic Compounds: All surrogate spike recoveries were within the set criteria.

## VII. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Volatile Organic Compounds: Sample N-8768 was spiked with the matrix spike/matrix spike duplicate compounds. All spike recoveries were within QC limits. All RPD values were within QC limits except for chlorobenzene. Since both spike recoveries were within QC limits for chlorobenzene, it is this data reviewer's opinion that no qualification of the data was necessary. A matrix spike blank was also analyzed. All spike recoveries were within QC limits.

## VIII. LABORATORY CONTROL SAMPLE

Analysis of laboratory control samples is not applicable since these samples were analyzed following the multi-media, multi-concentration SOW.

**IX. REGIONAL QUALITY ASSURANCE/QUALITY CONTROL (Field Replicates)**

Volatile Organic Compounds: Five samples were collected for replicate analysis. Replicate results can be found in other data packages provided by the laboratory for this sampling round. None of the sample data was qualified based on the replicate results.

**X. INTERNAL STANDARD**

Volatile Organic Compounds: All internal standard area counts and retention times met QC requirements.

**XI. TARGET COMPOUND IDENTIFICATION**

Volatile Organic Compounds: All compounds were reported correctly.

**XII. COMPOUND QUANTITATION AND REPORTED CONTRACT REQUIRED QUANTITATION LIMITS**

Volatile Organic Compounds: All detection limits were met or adjusted for dilution factors.

**XIII. TENTATIVELY IDENTIFIED COMPOUNDS**

Volatile Organic Compounds: All TICs were reported correctly.

**XIV. SYSTEM PERFORMANCE**

Volatile Organic Compounds: The performance of the instrument during the volatile organic analyses is acceptable.

**XV. OVERALL ASSESSMENT OF DATA FOR THE CASE**

Volatile Organic Compounds: The quality of the volatile organic data presented in this QC package is acceptable with the appropriate qualification described in this memorandum.

Table 1. Sample Identification, Collection Dates, and Laboratory Received Dates for Samples Analyzed Under IEA Project Number 30930-0927A.

Geraghty and Miller, Inc.			
ID	Laboratory ID	Date Collected	Date Received
GM-33D2	GM-33D2	8/24/93	8/25/93
GM-23I	GM-23I	8/24/93	8/25/93
GP-1	GP-1	8/24/93	8/25/93
GM-35D2	GM-35D2	8/24/93	8/25/93
TB-8241	TB-8241	8/24/93	8/25/93
FB-824	FB-824	8/24/93	8/25/93
GM-8S	GM-8S	8/25/93	8/26/93
GM-REP-1	GM-REP-1	8/25/93	8/26/93
GM-1I	GM-1I	8/25/93	8/26/93
GM-2I	GM-2I	8/25/93	8/26/93
GM-10S	GM-10S	8/25/93	8/26/93
GM-2S	GM-2S	8/25/93	8/26/93
GM-1S	GM-1S	8/25/93	8/26/93
GM-21S	GM-21S	8/25/93	8/26/93
GM-3S	GM-3S	8/25/93	8/26/93
GM-37D	GM-37D	8/25/93	8/26/93
GM-37D2	GM-37D2	8/25/93	8/26/93
FB-825	FB-825	8/25/93	8/26/93
TB-8251	TB-8251	8/25/93	8/26/93
GM-38D	GM-38D	8/26/93	8/27/93



Table 2. Sample Identification, Collection Dates, and Laboratory Received Dates for Samples Analyzed Under IEA Project Number 30930-0927B.

Geraghty and Miller, Inc.				
ID	Laboratory ID	Date Collected	Date Received	
GM-38D2	GM-38D2	8/26/93	8/27/93	
GM-7I	GM-7I	8/26/93	8/27/93	
GM-7D	GM-7D	8/26/93	8/27/93	
GM-22S	GM-22S	8/26/93	8/27/93	
GM-12S	GM-12S	8/26/93	8/27/93	
GM-16S	GM-16S	8/26/93	8/27/93	
GM-15S	GM-15S	8/26/93	8/27/93	
GM-14S	GM-14S	8/26/93	8/27/93	
FB-826	FB-826	8/26/93	8/27/93	
GM-7S	GM-7S	8/26/93	8/27/93	
TB-8261	TB-8261	8/26/93	8/27/93	
GM-13D	GM-13D	8/27/93	8/28/93	
GM-REP-3	GM-REP-3	8/27/93	8/28/93	
GM-17S	GM-17S	8/27/93	8/28/93	
GM-REP-4	GM-REP-4	8/27/93	8/28/93	
GM-22I	GM-22I	8/27/93	8/28/93	
GM-8I	GM-8I	8/27/93	8/28/93	
FB-827	FB-827	8/27/93	8/28/93	
GM-10I	GM-10I	8/27/93	8/28/93	

Table 3. Sample Identification, Collection Dates, and Laboratory Received Dates for Samples Analyzed Under IEA Project Number 30930-0927C.

Geraghty and Miller, Inc. ID	Laboratory ID	Date Collected	Date Received
TB-8271	7B-8271	8/27/93	8/27/93
GM-12I	GM-12I	8/27/93	8/28/93
FB-830	FB 083093	8/30/93	8/30/93
TB-8301	TB 083093	8/30/93	8/31/93
GM-34D	GM-34D	8/30/93	8/31/93
GM-34D2	GM-34D2	8/30/93	8/31/93
N-10816	N-10816	8/30/93	8/31/93
N-10999	N-10999	8/30/93	8/31/93
N-11000	N-11000	8/30/93	8/31/93
GM-14I	GM-14I	8/30/93	8/31/93
GM-19I	GM-19I	8/30/93	8/31/93
GM-19S	GM-19S	8/30/93	8/31/93
GP-2	GP-2	8/30/93	8/31/93
GP-5	GP-5	8/30/93	8/31/93
GP-8	GP-8	8/30/93	8/31/93
GP-14	GP-14	8/30/93	8/31/93
GM-REP-5	GM-REP5	8/30/93	8/31/93
TB-8311	TB 831-1	8/31/93	9/1/93
GM-13I	GM-13I	8/31/93	9/1/93

Table 4. Sample Identification, Collection Dates, and Laboratory Received Dates for Samples Analyzed Under IEA Project Number 30930-0927D.

Geraghty and Miller, Inc.				
ID	Laboratory ID	Date Collected	Date Received	
GM-20D	GM-20D	8/31/93	9/1/93	
GM-15I	GM-15I	8/31/93	9/1/93	
FB-831	FB 831	8/31/93	9/1/93	
GM-31S	GM-31S	9/1/93	9/2/93	
GM-32S	GM-32S	9/1/93	9/2/93	
GM-16I	GM-16I	9/1/93	9/2/93	
GM-21I	GM-21I	9/1/93	9/2/93	
TB-9011	TB-9-1-93	9/1/93	9/2/93	
TB-9021	TB-9-2-93	9/2/93	9/3/93	
N-8767	N-8767	9/2/93	9/3/93	

Table 5. Sample Identification, Collection Dates, and Laboratory Received Dates for Samples Analyzed Under IEA Project Number 30930-0927Z.

Geraghty and Miller, Inc.				
ID	Laboratory ID	Date Collected	Date Received	
FB-823	FB-823	8/23/93	8/24/93	
TB-8231	TB-8231	8/23/93	8/24/93	
GM-6S	GM-6S	8/23/93	8/24/93	
GM-6I	GM-6I	8/23/93	8/24/93	
GM-13S	GM-13S	8/23/93	8/24/93	
GM-23S	GM-23S	8/23/93	8/24/93	--
GM-20S	GM-20S	8/23/93	8/24/93	
GM-36D	GM-36D	8/23/93	8/24/93	
GM-36D2	GM-36D2	8/23/93	8/24/93	
GM-18I	GM-18I	8/23/93	8/24/93	
GM-REP-2	REP-2	8/23/93	8/24/93	
GM-4S	GM-4S	8/24/93	8/25/93	
GM-4I	GM-4I	8/24/93	8/25/93	
GM-5S	GM-5S	8/24/93	8/25/93	
GM-5I	GM-5I	8/24/93	8/25/93	
GM-9S	GM-9S	8/24/93	8/25/93	
GM-9I	GM-9I	8/24/93	8/25/93	
GM-20I	GM-20I	8/24/93	8/25/93	
GM-22D	GM-22D	8/24/93	8/25/93	

Table 6. Sample Identification, Collection Dates, and Laboratory Received Dates for Samples Analyzed Under IEA Project Number 30930-1031Z.

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Geraghty and Miller, Inc.			
ID	Laboratory ID	Date Collected	Date Received
N-8768	N-8768	9/20/93	9/21/93
TB-9201	TB 092093	9/20/93	9/21/93

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**APPENDIX E**

**LABORATORY DATA SHEETS**



1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B-4(4-6)

Lab Name: NET THOROFARE

Contract:

Code:

Case No.: 2338

SAS No.:

SDG No.:

Matrix: (soil/water) SOIL

Lab Sample ID: 96715

Sample wt/vol: 5.0 (g/mL) G

Lab File ID: E9191

Level: (low/med) LOW

Date Received: 08/22/92

% Moisture: not dec. 4

Date Analyzed: 08/27/92

GC Column: CAP ID: 0.530 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:  
(ug/L or ug/Kg) UG/KG

CAS NO.                      COMPOUND                      Q

74-87-3-----	Chloromethane	10	U
74-83-9-----	Bromomethane	10	U
75-01-4-----	Vinyl Chloride	10	U
75-00-3-----	Chloroethane	10	U
75-09-2-----	Methylene Chloride	10	U
67-64-1-----	Acetone	10	U
75-15-0-----	Carbon Disulfide	10	U
75-35-4-----	1,1-Dichloroethene	10	U
75-34-3-----	1,1-Dichloroethane	10	U
540-59-0-----	1,2-Dichloroethene (total)	10	U
67-66-3-----	Chloroform	10	U
107-06-2-----	1,2-Dichloroethane	10	U
78-93-3-----	2-Butanone	10	U
71-55-6-----	1,1,1-Trichloroethane	10	U
56-23-5-----	Carbon Tetrachloride	10	U
75-27-4-----	Bromodichloromethane	10	U
78-87-5-----	1,2-Dichloropropane	10	U
10061-01-5-----	cis-1,3-Dichloropropene	10	U
79-01-6-----	Trichloroethene	10	U
124-48-1-----	Dibromochloromethane	10	U
79-00-5-----	1,1,2-Trichloroethane	10	U
71-43-2-----	Benzene	10	U
10061-02-6-----	trans-1,3-Dichloropropene	10	U
75-25-2-----	Bromoform	10	U
108-10-1-----	4-Methyl-2-Pentanone	10	U
591-78-6-----	2-Hexanone	10	U
127-18-4-----	Tetrachloroethene	10	U
79-34-5-----	1,1,2,2-Tetrachloroethane	10	U
108-88-3-----	Toluene	10	U
108-90-7-----	Chlorobenzene	10	U
100-41-4-----	Ethylbenzene	10	U
100-42-5-----	Styrene	10	U
1330-20-7-----	Xylene (total)	10	U

FORM I VOA

3/90

000035

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B-5(0-2)

Lab Name: NET THOROFARE

Contract:

Code:

Case No.: 2338

SAS No.:

SDG No.:

Matrix: (soil/water) SOIL

Lab Sample ID: 97075

Sample wt/vol: 5.0 (g/mL) G

Lab File ID: E9226

Level: (low/med) MED

Date Received: 08/26/92

% Moisture: not dec. 13

Date Analyzed: 08/31/92

GC Column: CAP ID: 0.530 (mm)

Dilution Factor: 1.0

Soil Extract Volume: 5000 (uL)

Soil Aliquot Volume: 10.0(uL)

CONCENTRATION UNITS:  
(ug/L or ug/Kg) UG/KG

CAS NO.

COMPOUND

Q

74-87-3-----	Chloromethane	5500	U
74-83-9-----	Bromomethane	5500	U
75-01-4-----	Vinyl Chloride	5500	U
75-00-3-----	Chloroethane	5500	U
75-09-2-----	Methylene Chloride ✓	<del>5500</del> 2300	<del>U</del> BJ U
67-64-1-----	Acetone	5500	U
75-15-0-----	Carbon Disulfide	5500	U
75-35-4-----	1,1-Dichloroethene	5500	U
75-34-3-----	1,1-Dichloroethane	5500	U
540-59-0-----	1,2-Dichloroethene (total)	1300	J
67-66-3-----	Chloroform	5500	U
107-06-2-----	1,2-Dichloroethane	5500	U
78-93-3-----	2-Butanone	5500	U
71-55-6-----	1,1,1-Trichloroethane	5500	U
56-23-5-----	Carbon Tetrachloride	5500	U
75-27-4-----	Bromodichloromethane	5500	U
78-87-5-----	1,2-Dichloropropane	5500	U
10061-01-5-----	cis-1,3-Dichloropropene	5500	U
79-01-6-----	Trichloroethene	36000	
124-48-1-----	Dibromochloromethane	5500	U
79-00-5-----	1,1,2-Trichloroethane	5500	U
71-43-2-----	Benzene	5500	U
10061-02-6-----	trans-1,3-Dichloropropene	5500	U
75-25-2-----	Bromoform	5500	U
108-10-1-----	4-Methyl-2-Pentanone	5500	U
591-78-6-----	2-Hexanone	5500	U
127-18-4-----	Tetrachloroethene	5500	U
79-34-5-----	1,1,2,2-Tetrachloroethane	5500	U
108-88-3-----	Toluene	5500	U
108-90-7-----	Chlorobenzene	5500	U
100-41-4-----	Ethylbenzene	5500	U
100-42-5-----	Styrene	5500	U
1330-20-7-----	Xylene (total)	5500	U



1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B-5(18-20)

Lab Name: NET THOROFARE

Contract:

Code:

Case No.: 2338

SAS No.:

SDG No.:

Matrix: (soil/water) SOIL

Lab Sample ID: 97077

Sample wt/vol: 1.0 (g/mL) G

Lab File ID: E9197

Level: (low/med) LOW

Date Received: 08/26/92

% Moisture: not dec. 3

Date Analyzed: 08/27/92

GC Column: CAP ID: 0.530 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
---------	----------	---	---

74-87-3-----	Chloromethane	52	U
74-83-9-----	Bromomethane	52	U
75-01-4-----	Vinyl Chloride	52	U
75-00-3-----	Chloroethane	52	U
75-09-2-----	Methylene Chloride	52	U
67-64-1-----	Acetone	52	U
75-15-0-----	Carbon Disulfide	52	U
75-35-4-----	1,1-Dichloroethene	52	U
75-34-3-----	1,1-Dichloroethane	52	U
540-59-0-----	1,2-Dichloroethene (total)	52	U
67-66-3-----	Chloroform	52	U
107-06-2-----	1,2-Dichloroethane	52	U
78-93-3-----	2-Butanone	52	U
71-55-6-----	1,1,1-Trichloroethane	52	U
56-23-5-----	Carbon Tetrachloride	52	U
75-27-4-----	Bromodichloromethane	52	U
78-87-5-----	1,2-Dichloropropane	52	U
10061-01-5-----	cis-1,3-Dichloropropene	52	U
79-01-6-----	Trichloroethene	640	U
124-48-1-----	Dibromochloromethane	52	U
79-00-5-----	1,1,2-Trichloroethane	52	U
71-43-2-----	Benzene	52	U
10061-02-6-----	trans-1,3-Dichloropropene	52	U
75-25-2-----	Bromoform	52	U
108-10-1-----	4-Methyl-2-Pentanone	52	U
591-78-6-----	2-Hexanone	52	U
127-18-4-----	Tetrachloroethene	52	U
79-34-5-----	1,1,2,2-Tetrachloroethane	52	U
108-88-3-----	Toluene	52	U
108-90-7-----	Chlorobenzene	52	U
100-41-4-----	Ethylbenzene	52	U
100-42-5-----	Styrene	52	U
1330-20-7-----	Xylene (total)	52	U

000048

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B-5(8-10)

Lab Name: NET THOROFARE	Contract:
Lab Code:	Case No.: 2338      SAS No.:      SDG No.:
Matrix: (soil/water) SOIL	Lab Sample ID: 97076
Sample wt/vol: 5.0 (g/mL) G	Lab File ID: E9229
Level: (low/med) MED	Date Received: 08/26/92
% Moisture: not dec. 32	Date Analyzed: 08/31/92
GC Column: CAP      ID: 0.530 (mm)	Dilution Factor: 1.0
Soil Extract Volume: 5000 (uL)	Soil Aliquot Volume: 1.0(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	-----Chloromethane	71000	U
74-83-9	-----Bromomethane	71000	U
75-01-4	-----Vinyl Chloride	71000	U
75-00-3	-----Chloroethane	71000	U
75-09-2	-----Methylene Chloride	47000	BJ
67-64-1	-----Acetone	71000	U
75-15-0	-----Carbon Disulfide	71000	U
75-35-4	-----1,1-Dichloroethene	71000	U
75-34-3	-----1,1-Dichloroethane	71000	U
540-59-0	-----1,2-Dichloroethene (total)	71000	U
67-66-3	-----Chloroform	71000	U
107-06-2	-----1,2-Dichloroethane	71000	U
78-93-3	-----2-Butanone	71000	U
71-55-6	-----1,1,1-Trichloroethane	71000	U
56-23-5	-----Carbon Tetrachloride	71000	U
75-27-4	-----Bromodichloromethane	71000	U
78-87-5	-----1,2-Dichloropropane	71000	U
10061-01-5	-----cis-1,3-Dichloropropene	71000	U
79-01-6	-----Trichloroethene ✓	1200000	
124-48-1	-----Dibromochloromethane	71000	U
79-00-5	-----1,1,2-Trichloroethane	71000	U
71-43-2	-----Benzene	71000	U
10061-02-6	-----trans-1,3-Dichloropropene	71000	U
75-25-2	-----Bromoform	71000	U
108-10-1	-----4-Methyl-2-Pentanone	71000	U
591-78-6	-----2-Hexanone	71000	U
127-18-4	-----Tetrachloroethene	71000	U
79-34-5	-----1,1,2,2-Tetrachloroethane	71000	U
108-88-3	-----Toluene	71000	U
108-90-7	-----Chlorobenzene	71000	U
100-41-4	-----Ethylbenzene	71000	U
100-42-5	-----Styrene	71000	U
1330-20-7	-----Xylene (total)	71000	U

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B-6(6-8)

Name: NET THOROFARE	Contract:		
Lab Code:	Case No.: 2338	SAS No.:	SDG No.:
Matrix: (soil/water) SOIL		Lab Sample ID: 96955	
Sample wt/vol: 5.0 (g/mL) G		Lab File ID: E9192	
Level: (low/med) LOW		Date Received: 08/25/92	
% Moisture: not dec. 3		Date Analyzed: 08/27/92	
GC Column: CAP	ID: 0.530 (mm)	Dilution Factor: 1.0	
Soil Extract Volume: (uL)		Soil Aliquot Volume: (uL)	

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
---------	----------	---	---

74-87-3-----Chloromethane	10	U
74-83-9-----Bromomethane	10	U
75-01-4-----Vinyl Chloride	10	U
75-00-3-----Chloroethane	10	U
75-09-2-----Methylene Chloride	10	U
67-64-1-----Acetone	10	U
75-15-0-----Carbon Disulfide	10	U
75-35-4-----1,1-Dichloroethene	10	U
75-34-3-----1,1-Dichloroethane	10	U
540-59-0-----1,2-Dichloroethene (total)	10	U
67-66-3-----Chloroform	10	U
107-06-2-----1,2-Dichloroethane	10	U
78-93-3-----2-Butanone	10	U
71-55-6-----1,1,1-Trichloroethane	10	U
56-23-5-----Carbon Tetrachloride	10	U
75-27-4-----Bromodichloromethane	10	U
78-87-5-----1,2-Dichloropropane	10	U
10061-01-5-----cis-1,3-Dichloropropene	10	U
79-01-6-----Trichloroethene	10	U
124-48-1-----Dibromochloromethane	10	U
79-00-5-----1,1,2-Trichloroethane	10	U
71-43-2-----Benzene	10	U
10061-02-6-----trans-1,3-Dichloropropene	10	U
75-25-2-----Bromoform	10	U
108-10-1-----4-Methyl-2-Pentanone	10	U
591-78-6-----2-Hexanone	10	U
127-18-4-----Tetrachloroethene	10	U
79-34-5-----1,1,2,2-Tetrachloroethane	10	U
108-88-3-----Toluene	10	U
108-90-7-----Chlorobenzene	10	U
100-41-4-----Ethylbenzene	10	U
100-42-5-----Styrene	10	U
1330-20-7-----Xylene (total)	10	U

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B-7(0-2)

Name: NET THOROFARE Contract: \_\_\_\_\_

Lab Code: Case No.: 2338 SAS No.: \_\_\_\_\_ SDG No.: \_\_\_\_\_

Matrix: (soil/water) SOIL Lab Sample ID: 96956

Sample wt/vol: 5.0 (g/mL) G Lab File ID: E9193

Level: (low/med) LOW Date Received: 08/25/92

% Moisture: not dec. 10 Date Analyzed: 08/27/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	3	J
67-64-1	Acetone	22	
75-15-0	Carbon Disulfide	11	U
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	1	J
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	29	
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
591-78-6	2-Hexanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	11	U
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FB-821

Name: NET THOROFARE

Contract:

Lab Code:

Case No.: 2338

SAS No.:

SDG No.:

Matrix: (soil/water) WATER

Lab Sample ID: 96716

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: E9207

Level: (low/med) LOW

Date Received: 08/22/92

% Moisture: not dec.

Date Analyzed: 08/28/92

GC Column: CAP ID: 0.530 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
---------	----------	--	---

74-87-3-----	Chloromethane	10	U
74-83-9-----	Bromomethane	10	U
75-01-4-----	Vinyl Chloride	10	U
75-00-3-----	Chloroethane	10	U
75-09-2-----	Methylene Chloride	2	J
67-64-1-----	Acetone	10	U
75-15-0-----	Carbon Disulfide	10	U
75-35-4-----	1,1-Dichloroethene	10	U
75-34-3-----	1,1-Dichloroethane	10	U
540-59-0-----	1,2-Dichloroethene (total)	10	U
67-66-3-----	Chloroform	2	J
107-06-2-----	1,2-Dichloroethane	10	U
78-93-3-----	2-Butanone	10	U
71-55-6-----	1,1,1-Trichloroethane	10	U
56-23-5-----	Carbon Tetrachloride	10	U
75-27-4-----	Bromodichloromethane	10	U
78-87-5-----	1,2-Dichloropropane	10	U
10061-01-5-----	cis-1,3-Dichloropropene	10	U
79-01-6-----	Trichloroethene	10	U
124-48-1-----	Dibromochloromethane	10	U
79-00-5-----	1,1,2-Trichloroethane	10	U
71-43-2-----	Benzene	10	U
10061-02-6-----	trans-1,3-Dichloropropene	10	U
75-25-2-----	Bromoform	10	U
108-10-1-----	4-Methyl-2-Pentanone	10	U
591-78-6-----	2-Hexanone	10	U
127-18-4-----	Tetrachloroethene	10	U
79-34-5-----	1,1,2,2-Tetrachloroethane	10	U
108-88-3-----	Toluene	1	J
108-90-7-----	Chlorobenzene	10	U
100-41-4-----	Ethylbenzene	10	U
100-42-5-----	Styrene	1	J
1330-20-7-----	Xylene (total)	10	U

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FB-824

Name: NET THOROPARE Contract: \_\_\_\_\_

Lab Code: \_\_\_\_\_ Case No.: 2338 SAS No.: \_\_\_\_\_ SDG No.: \_\_\_\_\_

Matrix: (soil/water) WATER Lab Sample ID: 96953

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: E9209

Level: (low/med) LOW Date Received: 08/25/92

% Moisture: not dec. Date Analyzed: 08/28/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	-----Chloromethane	10	U
74-83-9	-----Bromomethane	10	U
75-01-4	-----Vinyl Chloride	10	U
75-00-3	-----Chloroethane	10	U
75-09-2	-----Methylene Chloride	1	J
67-64-1	-----Acetone	10	U
75-15-0	-----Carbon Disulfide	10	U
75-35-4	-----1,1-Dichloroethene	10	U
75-34-3	-----1,1-Dichloroethane	10	U
540-59-0	-----1,2-Dichloroethene (total)	10	U
67-66-3	-----Chloroform	1	J
107-06-2	-----1,2-Dichloroethane	10	U
78-93-3	-----2-Butanone	10	U
71-55-6	-----1,1,1-Trichloroethane	10	U
56-23-5	-----Carbon Tetrachloride	10	U
75-27-4	-----Bromodichloromethane	10	U
78-87-5	-----1,2-Dichloropropane	10	U
10061-01-5	-----cis-1,3-Dichloropropene	10	U
79-01-6	-----Trichloroethene	10	U
124-48-1	-----Dibromochloromethane	10	U
79-00-5	-----1,1,2-Trichloroethane	10	U
71-43-2	-----Benzene	10	U
10061-02-6	-----trans-1,3-Dichloropropene	10	U
75-25-2	-----Bromoform	10	U
108-10-1	-----4-Methyl-2-Pentanone	10	U
591-78-6	-----2-Hexanone	10	U
127-18-4	-----Tetrachloroethene	10	U
79-34-5	-----1,1,2,2-Tetrachloroethane	10	U
108-88-3	-----Toluene	10	U
108-90-7	-----Chlorobenzene	10	U
100-41-4	-----Ethylbenzene	10	U
100-42-5	-----Styrene	10	U
1330-20-7	-----Xylene (total)	10	U

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FB-825

Lab Name: NET THOROFARE

Contract:

Code:

Case No.: 2338

SAS No.:

SDG No.:

Matrix: (soil/water) WATER

Lab Sample ID: 97073

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: E9211

Level: (low/med) LOW

Date Received: 08/26/92

% Moisture: not dec.

Date Analyzed: 08/28/92

GC Column: CAP ID: 0.530 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.

COMPOUND

CONCENTRATION UNITS:  
(ug/L or ug/Kg) UG/L

Q

74-87-3-----	Chloromethane	10	U
74-83-9-----	Bromomethane	10	U
75-01-4-----	Vinyl Chloride	10	U
75-00-3-----	Chloroethane	10	U
75-09-2-----	Methylene Chloride	10	U
67-64-1-----	Acetone	10	U
75-15-0-----	Carbon Disulfide	10	U
75-35-4-----	1,1-Dichloroethene	10	U
75-34-3-----	1,1-Dichloroethane	10	U
540-59-0-----	1,2-Dichloroethene (total)	10	U
67-66-3-----	Chloroform	2	J
107-06-2-----	1,2-Dichloroethane	10	U
78-93-3-----	2-Butanone	10	U
71-55-6-----	1,1,1-Trichloroethane	10	U
56-23-5-----	Carbon Tetrachloride	10	U
75-27-4-----	Bromodichloromethane	10	U
78-87-5-----	1,2-Dichloropropane	10	U
10061-01-5-----	cis-1,3-Dichloropropene	10	U
79-01-6-----	Trichloroethene	10	U
124-48-1-----	Dibromochloromethane	10	U
79-00-5-----	1,1,2-Trichloroethane	10	U
71-43-2-----	Benzene	10	U
10061-02-6-----	trans-1,3-Dichloropropene	10	U
75-25-2-----	Bromoform	10	U
108-10-1-----	4-Methyl-2-Pentanone	10	U
591-78-6-----	2-Hexanone	10	U
127-18-4-----	Tetrachloroethene	10	U
79-34-5-----	1,1,2,2-Tetrachloroethane	10	U
108-88-3-----	Toluene	10	U
108-90-7-----	Chlorobenzene	10	U
100-41-4-----	Ethylbenzene	10	U
100-42-5-----	Styrene	10	U
1330-20-7-----	Xylene (total)	10	U

FORM I VOA

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1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TB-821

Name: NET THOROFARE	Contract:	
Lab Code:	Case No.: 2338	SAS No.:
		SDG No.:
Matrix: (soil/water) WATER		Lab Sample ID: 96717
Sample wt/vol: 5.0 (g/mL) ML		Lab File ID: E9208
Level: (low/med) LOW		Date Received: 08/22/92
% Moisture: not dec.		Date Analyzed: 08/28/92
GC Column: CAP	ID: 0.530 (mm)	Dilution Factor: 1.0
Soil Extract Volume: (uL)		Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
---------	----------	--	---

74-87-3-----Chloromethane	10	U
74-83-9-----Bromomethane	10	UU
75-01-4-----Vinyl Chloride	10	UU
75-00-3-----Chloroethane	10	UU
75-09-2-----Methylene Chloride	10	UU
67-64-1-----Acetone	10	UU
75-15-0-----Carbon Disulfide	10	UU
75-35-4-----1,1-Dichloroethene	10	UU
75-34-3-----1,1-Dichloroethane	10	UU
540-59-0-----1,2-Dichloroethene (total)	10	UU
67-66-3-----Chloroform	10	UU
107-06-2-----1,2-Dichloroethane	10	UU
78-93-3-----2-Butanone	10	UU
71-55-6-----1,1,1-Trichloroethane	10	UU
56-23-5-----Carbon Tetrachloride	10	UU
75-27-4-----Bromodichloromethane	10	UU
78-87-5-----1,2-Dichloropropane	10	UU
10061-01-5-----cis-1,3-Dichloropropene	10	UU
79-01-6-----Trichloroethene	10	UU
124-48-1-----Dibromochloromethane	10	UU
79-00-5-----1,1,2-Trichloroethane	10	UU
71-43-2-----Benzene	10	UU
10061-02-6-----trans-1,3-Dichloropropene	10	UU
75-25-2-----Bromoform	10	UU
108-10-1-----4-Methyl-2-Pentanone	10	UU
591-78-6-----2-Hexanone	10	UU
127-18-4-----Tetrachloroethene	10	UU
79-34-5-----1,1,2,2-Tetrachloroethane	10	UU
108-88-3-----Toluene	10	UU
108-90-7-----Chlorobenzene	10	UU
100-41-4-----Ethylbenzene	10	UU
100-42-5-----Styrene	10	UU
1330-20-7-----Xylene (total)	10	U



1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TB-824

Name: NET THOROFARE Contract: \_\_\_\_\_

Lab Code: \_\_\_\_\_ Case No.: 2338 SAS No.: \_\_\_\_\_ SDG No.: \_\_\_\_\_

Matrix: (soil/water) WATER Lab Sample ID: 96954

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: E9210

Level: (low/med) LOW Date Received: 08/25/92

% Moisture: not dec. Date Analyzed: 08/28/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO. COMPOUND CONCENTRATION UNITS:  
(ug/L or ug/Kg) UG/L Q

74-87-3-----	Chloromethane	10	U
74-83-9-----	Bromomethane	10	U
75-01-4-----	Vinyl Chloride	10	U
75-00-3-----	Chloroethane	10	U
75-09-2-----	Methylene Chloride	10	U
67-64-1-----	Acetone	10	U
75-15-0-----	Carbon Disulfide	10	U
75-35-4-----	1,1-Dichloroethene	10	U
75-34-3-----	1,1-Dichloroethane	10	U
540-59-0-----	1,2-Dichloroethene (total)	10	U
67-66-3-----	Chloroform	3	J
107-06-2-----	1,2-Dichloroethane	10	U
78-93-3-----	2-Butanone	10	U
71-55-6-----	1,1,1-Trichloroethane	10	U
56-23-5-----	Carbon Tetrachloride	10	U
75-27-4-----	Bromodichloromethane	10	U
78-87-5-----	1,2-Dichloropropane	10	U
10061-01-5-----	cis-1,3-Dichloropropene	10	U
79-01-6-----	Trichloroethene	10	U
124-48-1-----	Dibromochloromethane	10	U
79-00-5-----	1,1,2-Trichloroethane	10	U
71-43-2-----	Benzene	10	U
10061-02-6-----	trans-1,3-Dichloropropene	10	U
75-25-2-----	Bromoform	10	U
108-10-1-----	4-Methyl-2-Pentanone	10	U
591-78-6-----	2-Hexanone	10	U
127-18-4-----	Tetrachloroethene	10	U
79-34-5-----	1,1,2,2-Tetrachloroethane	10	U
108-88-3-----	Toluene	10	U
108-90-7-----	Chlorobenzene	10	U
100-41-4-----	Ethylbenzene	10	U
100-42-5-----	Styrene	10	U
1330-20-7-----	Xylene (total)	10	U

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TB-825

Name: NET THOROFARE Contract: \_\_\_\_\_

Lab Code: \_\_\_\_\_ Case No.: 2338 SAS No.: \_\_\_\_\_ SDG No.: \_\_\_\_\_

Matrix: (soil/water) WATER Lab Sample ID: 97074

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: E9212

Level: (low/med) LOW Date Received: 08/26/92

% Moisture: not dec. Date Analyzed: 08/28/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS NO. COMPOUND CONCENTRATION UNITS:  
(ug/L or ug/Kg) UG/L Q

74-87-3-----	Chloromethane	10	U
74-83-9-----	Bromomethane	10	U
75-01-4-----	Vinyl Chloride	10	U
75-00-3-----	Chloroethane	10	U
75-09-2-----	Methylene Chloride	10	U
67-64-1-----	Acetone	10	U
75-15-0-----	Carbon Disulfide	10	U
75-35-4-----	1,1-Dichloroethene	10	U
75-34-3-----	1,1-Dichloroethane	10	U
540-59-0-----	1,2-Dichloroethene (total)	10	U
67-66-3-----	Chloroform	3	J
107-06-2-----	1,2-Dichloroethane	10	U
78-93-3-----	2-Butanone	10	U
71-55-6-----	1,1,1-Trichloroethane	10	U
56-23-5-----	Carbon Tetrachloride	10	U
75-27-4-----	Bromodichloromethane	10	U
78-87-5-----	1,2-Dichloropropane	10	U
10061-01-5-----	cis-1,3-Dichloropropene	10	U
79-01-6-----	Trichloroethene	10	U
124-48-1-----	Dibromochloromethane	10	U
79-00-5-----	1,1,2-Trichloroethane	10	U
71-43-2-----	Benzene	10	U
10061-02-6-----	trans-1,3-Dichloropropene	10	U
75-25-2-----	Bromoform	10	U
108-10-1-----	4-Methyl-2-Pentanone	10	U
591-78-6-----	2-Hexanone	10	U
127-18-4-----	Tetrachloroethene	10	U
79-34-5-----	1,1,2,2-Tetrachloroethane	10	U
108-88-3-----	Toluene	10	U
108-90-7-----	Chlorobenzene	10	U
100-41-4-----	Ethylbenzene	10	U
100-42-5-----	Styrene	10	U
1330-20-7-----	Xylene (total)	10	U

1  
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

B-4(-6)

Name: NET ATLANTIC (THOROFARE)

Contract:

Lab Code:

Case No.:

SAS No.: 92.2338

SDG No.: 96715

Matrix (soil/water): SOIL

Lab Sample ID: 23380-018

Level (low/med): LOW

Date Received: 08/22/92

% Solids: 95.7

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2110.00			P
7440-36-0	Antimony	3.80	U	+	P
7440-38-2	Arsenic	1.20	B		F
7440-39-3	Barium	7.50	B		P
7440-41-7	Beryllium	0.63	U		P
7440-41-7	Cadmium	0.42	U		P
7440-70-2	Calcium	331.00	B		P
7440-47-3	Chromium	3.80		+	P
7440-48-4	Cobalt	1.50	B		P
7440-50-8	Copper	2.70	B		P
7439-89-6	Iron	7570.00			P
7439-92-1	Lead	1.70			F
7439-95-4	Magnesium	609.00	B		P
7439-96-5	Manganese	105.00		JN*	P
7439-97-6	Mercury	0.07	U	+	CV
7440-02-0	Nickel	1.90	B		P
7440-09-7	Potassium	257.00	B		P
7782-49-2	Selenium	0.21	B	JN	F
7440-22-4	Silver	2.10	U	+	P
7440-23-5	Sodium	29.30	B	u	P
7440-28-0	Thallium	0.21	U		F
7440-62-2	Vanadium	5.00	B		P
7440-66-6	Zinc	6.10			P
	Cyanide	1.00	U		C

26  
11/2/92

9/25/92  
RW

Color Before:

Clarity Before:

Texture:

Color After:

Clarity After:

Artifacts:

Comments:

96715

1  
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

B-5(0-2)

Name: NET ATLANTIC (THOROFARE) Contract:

Lab Code: Case No.: SAS No.: 92.2338 SDG No.: 96715

Matrix (soil/water): SOIL Lab Sample ID: 23380-075

Level (low/med): LOW Date Received: 08/26/92

% Solids: 87.0

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3210.00			P
7440-36-0	Antimony	4.10	U	JN	P
7440-38-2	Arsenic	6.20			F
7440-39-3	Barium	32.40	B		P
7440-41-7	Beryllium	0.69	U		P
7440-41-7	Cadmium	0.46	U		P
7440-70-2	Calcium	1110.00	B		P
7440-47-3	Chromium	17.50		*	P
7440-48-4	Cobalt	1.80	B		P
7440-50-8	Copper	9.40			P
7439-89-6	Iron	5940.00			P
7439-92-1	Lead	28.70			F
7439-95-4	Magnesium	293.00	B		P
7439-96-5	Manganese	360.00		**	P
7439-97-6	Mercury	0.32		*	CV
7440-02-0	Nickel	3.00	B		P
7440-09-7	Potassium	160.00	X	u	P
7782-49-2	Selenium	0.46	B	JN	F
7440-22-4	Silver	2.30	U	N	P
7440-23-5	Sodium	634.00	B		P
7440-28-0	Thallium	0.23	U		F
7440-62-2	Vanadium	9.40	B		P
7440-66-6	Zinc	19.50			P
	Cyanide	<del>1.10</del>	U		C
		1.20			

15  
8/2/92

9/25/92  
W

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

97075

1  
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

B-5(8-10)

Name: NET ATLANTIC (THORDFARE)

Contract:

Lab Code:

Case No.:

SAS No.: 92.2338

SDG No.: 96715

Matrix (soil/water): SOIL

Lab Sample ID: 23380-085

Level (low/med): LOW

Date Received: 08/26/92

% Solids: 68.1

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2070.00			P
7440-36-0	Antimony	4.60	B	JN	P
7440-38-2	Arsenic	7.80			F
7440-39-3	Barium	26.70	B		P
7440-41-7	Beryllium	0.73	U		P
7440-41-7	Cadmium	0.49	U		P
7440-70-2	Calcium	2830.00			P
7440-47-3	Chromium	25.50		*	P
7440-48-4	Cobalt	2.20	B		P
7440-50-8	Copper	18.80			P
7439-89-6	Iron	4750.00			P
7439-92-1	Lead	17.90			F
7439-95-4	Magnesium	300.00	B		P
7439-96-5	Manganese	44.10		4*	P
7439-97-6	Mercury	0.18		*	CV
7440-02-0	Nickel	4.20	B		P
7440-09-7	Potassium	130.00		U	P
7782-49-2	Selenium	0.47	B	JN	F
7440-22-4	Silver	2.40	U	N	P
7440-23-5	Sodium	52.60	B		P
7440-28-0	Thallium	0.23	U		F
7440-62-2	Vanadium	12.50			P
7440-66-6	Zinc	23.70			P
	Cyanide	1.50	U		C

25  
11/2/92

9/25/92  
W

Color Before:

Clarity Before:

Texture:

Color After:

Clarity After:

Artifacts:

Comments:

97076

1  
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

B-5(18-20)

Site Name: NET ATLANTIC (THOROFARE) Contract: \_\_\_\_\_  
 Lab Code: \_\_\_\_\_ Case No.: \_\_\_\_\_ SAS No.: 92.2338 SDG No.: 96715  
 Matrix (soil/water): SOIL Lab Sample ID: 23380-09S  
 Level (low/med): LOW Date Received: 08/26/92  
 % Solids: 96.8

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	689.00			P
7440-36-0	Antimony	3.50	B	JN	P
7440-38-2	Arsenic	1.10	B		F
7440-39-3	Barium	3.50	B		P
7440-41-7	Beryllium	0.52	U		P
7440-41-7	Cadmium	0.35	U		P
7440-70-2	Calcium	66.20	B		P
7440-47-3	Chromium	1.00	B	*	P
7440-48-4	Cobalt	0.69	U		P
7440-50-8	Copper	1.40	B		P
7439-89-6	Iron	1490.00			P
7439-92-1	Lead	1.20			F
7439-95-4	Magnesium	117.00	B		P
7439-96-5	Manganese	35.80		**	P
7439-97-6	Mercury	0.10	U	*	CV
7440-02-0	Nickel	1.20	U		P
7440-09-7	Potassium	89.90	<del>X</del> U		P
7782-49-2	Selenium	0.18	U	JN	F
7440-22-4	Silver	1.70	U	N	P
7440-23-5	Sodium	18.40	<del>X</del> U		P
7440-28-0	Thallium	0.18	U		F
7440-62-2	Vanadium	1.20	B		P
7440-66-6	Zinc	1.00	B		P
	Cyanide	1.00	U		C

*us*  
11/2/92

9/25/92  
*(signature)*

Color Before: \_\_\_\_\_ Clarity Before: \_\_\_\_\_ Texture: \_\_\_\_\_  
 Color After: \_\_\_\_\_ Clarity After: \_\_\_\_\_ Artifacts: \_\_\_\_\_  
 Comments: \_\_\_\_\_

97077

1  
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

B-6(6-8)

Name: NET ATLANTIC (THOROFARE)

Contract:

Lab Code:

Case No.:

SAS No.: 92.2338

SDG No.: 96715

Matrix (soil/water): SOIL

Lab Sample ID: 23380-048

Level (low/med): LOW

Date Received: 08/25/92

% Solids: 96.8

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	708.00			P
7440-36-0	Antimony	3.30	U	JN	P
7440-38-2	Arsenic	0.40	B		F
7440-39-3	Barium	3.80	B		P
7440-41-7	Beryllium	0.55	U		P
7440-41-7	Cadmium	0.37	U		P
7440-70-2	Calcium	41.00	<del>X</del> U		P
7440-47-3	Chromium	0.73	U	*	P
7440-48-4	Cobalt	0.73	U		P
7440-50-8	Copper	0.73	B		P
7439-89-6	Iron	2300.00			P
7439-92-1	Lead	0.99			F
7439-95-4	Magnesium	99.10	B		P
7439-96-5	Manganese	109.00		4*	P
7439-97-6	Mercury	0.10	U	*	CV
7440-02-0	Nickel	1.30	U		P
7440-09-7	Potassium	97.30	<del>X</del> U		P
7782-49-2	Selenium	0.20	U	JN	F
7440-22-4	Silver	1.80	U	N	P
7440-23-5	Sodium	17.90	<del>X</del> U		P
7440-28-0	Thallium	0.20	U		F
7440-62-2	Vanadium	0.91	B		P
7440-66-6	Zinc	0.73	U		P
	Cyanide	1.00	U		C

23  
11/2/92

9/25/92  
20

Color Before:

Clarity Before:

Texture:

Color After:

Clarity After:

Artifacts:

Comments:

96955

1  
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

B-7(0-2)

Name: NET ATLANTIC (THOROFARE)

Contract:

Lab Code:

Case No.:

SAS No.: 92.2338

SDG No.: 96715

Matrix (soil/water): SOIL

Lab Sample ID: 23380-056

Level (low/med): LOW

Date Received: 08/25/92

% Solids:

89.6

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	G	M
7429-90-5	Aluminum	4150.00			P
7440-36-0	Antimony	3.90	U	N	P
7440-38-2	Arsenic	1.70	B		F
7440-39-3	Barium	16.30	B		P
7440-41-7	Beryllium	0.65	U		P
7440-41-7	Cadmium	0.43	U		P
7440-70-2	Calcium	5540.00			P
7440-47-3	Chromium	4.10		*	P
7440-48-4	Cobalt	0.87	B		P
7440-50-8	Copper	4.80	B		P
7439-89-6	Iron	6960.00			P
7439-92-1	Lead	20.50		S	F
7439-95-4	Magnesium	458.00	B		P
7439-96-5	Manganese	58.10		**	P
7439-97-6	Mercury	0.11	U	*	CV
7440-02-0	Nickel	1.50	U		P
7440-09-7	Potassium	178.00	<del>B</del>	U	P
7782-49-2	Selenium	0.21	U	N	F
7440-22-4	Silver	2.20	U	N	P
7440-23-5	Sodium	61.50	B		P
7440-28-0	Thallium	0.21	U		F
7440-62-2	Vanadium	7.20	B		P
7440-66-6	Zinc	9.30			P
	Cyanide	1.10	U		C

25  
11/2/92

7/25/92  
ml

Color Before:

Clarity Before:

Texture:

Color After:

Clarity After:

Artifacts:

Comments:

96956



1  
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

FB-821

Name: NET ATLANTIC (THOROFARE)

Contract:

Lab Code:

Case No.:

SAS No.: 92.2338 SDG No.: 96715

Matrix (soil/water): WATER

Lab Sample ID: 23380-026

Level (low/med): LOW

Date Received: 08/22/92

% Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

23  
11/2/92

CAS No.	Analyte	Concentration	U	Q	M
7429-90-5	Aluminum	18.00	U		P
7440-36-0	Antimony	18.00	U		P
7440-38-2	Arsenic	1.00	U		F
7440-39-3	Barium	6.00	U		P
7440-41-7	Beryllium	3.00	U		P
7440-41-7	Cadmium	2.00	U		P
7440-70-2	Calcium	29.00	B		P
7440-47-3	Chromium	4.00	U		P
7440-48-4	Cobalt	4.00	U		P
7440-50-8	Copper	3.00	U		P
7439-89-6	Iron	24.00	U		P
7439-92-1	Lead	1.00	U		F
7439-95-4	Magnesium	26.00	U		P
7439-96-5	Manganese	3.00	U		P
7439-97-6	Mercury	0.20	U	N	CV
7440-02-0	Nickel	7.00	U		P
7440-09-7	Potassium	155.00	U		P
7782-49-2	Selenium	1.00	U		F
7440-22-4	Silver	10.00	U		P
7440-23-5	Sodium	25.00	U		P
7440-28-0	Thallium	1.00	U		F
7440-62-2	Vanadium	3.00	U		P
7440-66-6	Zinc	4.00	B		P
	Cyanide	10.00	U		C

Color Before:

Clarity Before:

Texture:

Color After:

Clarity After:

Artifacts:

Comments:

96716

1  
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

FB-824

Name: NET ATLANTIC (THOROFARE)

Contract:

Lab Code:

Case No.:

SAS No.: 92.2338

SDG No.: 96715

Matrix (soil/water): WATER

Lab Sample ID: 23380-039

Level (low/med): LOW

Date Received: 08/25/92

% Solids:

0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	G	M
7429-90-5	Aluminum	18.00	U		P
7440-36-0	Antimony	18.00	U		P
7440-38-2	Arsenic	1.00	U		F
7440-39-3	Barium	6.00	U		P
7440-41-7	Beryllium	3.00	U		P
7440-41-7	Cadmium	2.00	U		P
7440-70-2	Calcium	38.00	B		P
7440-47-3	Chromium	4.00	U		P
7440-48-4	Cobalt	4.00	U		P
7440-50-8	Copper	3.00	U		P
7439-89-6	Iron	29.00	B		P
7439-92-1	Lead	1.00	U		F
7439-95-4	Magnesium	26.00	U		P
7439-96-5	Manganese	3.00	U		P
7439-97-6	Mercury	0.20	U	N	CV
7440-02-0	Nickel	7.00	U		P
7440-09-7	Potassium	183.00	U		P
7782-49-2	Selenium	1.00	U		F
7440-22-4	Silver	10.00	U		P
7440-23-5	Sodium	28.00	B		P
7440-28-0	Thallium	1.00	U		F
7440-62-2	Vanadium	3.00	U		P
7440-66-6	Zinc	4.00	U		P
	Cyanide	10.00	U		C

*us*  
*11/2/92*

Color Before:

Clarity Before:

Texture:

Color After:

Clarity After:

Artifacts:

Comments:

96953

1  
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

FB-825

Site Name: NET ATLANTIC (THOROFARE)

Contract:

Lab Code:

Case No.:

SAS No.: 92.2338

SDG No.: 96715

Matrix (soil/water): WATER

Lab Sample ID: 23380-065

Level (low/med): LOW

Date Received: 08/26/92

% Solids:

0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	18.00	U		P
7440-36-0	Antimony	18.00	U		P
7440-38-2	Arsenic	2.00	U		F
7440-39-3	Barium	6.00	U		P
7440-41-7	Beryllium	3.00	U		P
7440-41-7	Cadmium	2.00	U		P
7440-70-2	Calcium	28.00	B		P
7440-47-3	Chromium	4.00	U		P
7440-48-4	Cobalt	4.00	U		P
7440-50-8	Copper	3.00	U		P
7439-89-6	Iron	24.00	U		P
7439-92-1	Lead	1.00	B		F
7439-95-4	Magnesium	26.00	U		P
7439-96-5	Manganese	3.00	U		P
7439-97-6	Mercury	0.20	U	N	CV
7440-02-0	Nickel	7.00	U		P
7440-09-7	Potassium	141.00	U		P
7782-49-2	Selenium	1.00	U		F
7440-22-4	Silver	10.00	U		P
7440-23-5	Sodium	25.00	U		P
7440-28-0	Thallium	1.00	U		F
7440-62-2	Vanadium	3.00	U		P
7440-66-6	Zinc	4.00	U		P
	Cyanide	10.00	U		C

*us*  
*11/2/92*

Color Before:

Clarity Before:

Texture:

Color After:

Clarity After:

Artifacts:

Comments:

97073

NATIONAL ENVIRONMENTAL TESTING, INC.  
Thorofare Division

REPORT OF ANALYSIS

Client: GERAGHTY & MILLER, INC.  
Job No: 92.23380  
Sample No: 96715  
Client Sample ID: B-4 (4-6)

<u>Parameter</u>	<u>Results</u>	<u>Units</u>
Hexavalent Chromium	<1	mg/Kg

< - LESS THAN  
dw - DRY WEIGHT

000006

NATIONAL ENVIRONMENTAL TESTING, INC.  
Thorofare Division

REPORT OF ANALYSIS

Client: GERAGHTY & MILLER, INC.  
Job No: 92.23640  
Sample No: 97075  
Client Sample ID: B-5 (0-2) (MS/MSD)

<u>Parameter</u>	<u>Results</u>	<u>Units</u>
Hexavalent Chromium	1.0	mg/Kg

< - LESS THAN  
dw - DRY WEIGHT

000012

NATIONAL ENVIRONMENTAL TESTING, INC.  
Thorofare Division

REPORT OF ANALYSIS

Client: GERAGHTY & MILLER, INC.  
Job No: 92.23640  
Sample No: 97076  
Client Sample ID: B-5 (8-10)

<u>Parameter</u>	<u>Results</u>	<u>Units</u>
Hexavalent Chromium	<1.0	mg/Kg

< - LESS THAN  
dw - DRY WEIGHT

000013

NATIONAL ENVIRONMENTAL TESTING, INC.  
Therofare Division

REPORT OF ANALYSIS

Client: GERAGHTY & MILLER, INC.  
Job No: 92.23640  
Sample No: 97077  
Client Sample ID: B-5 (18-20)

<u>Parameter</u>	<u>Results</u>	<u>Units</u>
Hexavalent Chromium	<1.0	mg/Kg

< - LESS THAN  
dw - DRY WEIGHT

000014

NATIONAL ENVIRONMENTAL TESTING, INC.  
Thorofare Division

REPORT OF ANALYSIS

Client: GERAGHTY & MILLER, INC.  
Job No: 92.23460  
Sample No: 96955  
Client Sample ID: B-6 (6-8)

<u>Parameter</u>	<u>Results</u>	<u>Units</u>
Hexavalent Chromium	<1.0	mg/Kg

< - LESS THAN  
dw - DRY WEIGHT

000009



NATIONAL ENVIRONMENTAL TESTING, INC.  
Thorofare Division

REPORT OF ANALYSIS

Client: GERAGHTY & MILLER, INC.  
Job No: 92.23460  
Sample No: 96956  
Client Sample ID: B-7 (0-2)

<u>Parameter</u>	<u>Results</u>	<u>Units</u>
Hexavalent Chromium	<10.0	mg/Kg

< - LESS THAN  
dw - DRY WEIGHT

000010

NATIONAL ENVIRONMENTAL TESTING, INC.  
Thorofare Division

REPORT OF ANALYSIS

Client: GERAGHTY & MILLER, INC.  
Job No: 92.23380  
Sample No: 96716  
Client Sample ID: FB-821

<u>Parameter</u>	<u>Results</u>	<u>Units</u>
Hexavalent Chromium	<0.01	mg/L

< - LESS THAN  
dw - DRY WEIGHT

000007

NATIONAL ENVIRONMENTAL TESTING, INC.  
Thorofare Division

REPORT OF ANALYSIS

Client: GERAGHTY & MILLER, INC.  
Job No: 92.23460  
Sample No: 96953  
Client Sample ID: FB-824

<u>Parameter</u>	<u>Results</u>	<u>Units</u>
Hexavalent Chromium	0.01	mg/L

< - LESS THAN  
dw - DRY WEIGHT

000008

NATIONAL ENVIRONMENTAL TESTING, INC.  
Thorofare Division

REPORT OF ANALYSIS

Client: GERAGHTY & MILLER, INC.  
Job No: 92.23640  
Sample No: 97073  
Client Sample ID: FB-825

<u>Parameter</u>	<u>Results</u>	<u>Units</u>
Hexavalent Chromium	<0.01	mg/L

< - LESS THAN  
dw - DRY WEIGHT

000011

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-1S

Lab Name: IEA/CT

Contract:

Lab Code: IEACT

Case No.: 0927A

SAS No.:

SDG No.: A0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927033

0126

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: G7215.D

Level: (low/med) LOW

Date Received: 08/26/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 08/28/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

UJ

SUP  
11/16/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-1I

Lab Name: IEA/CT Contract: \_\_\_\_\_

Lab Code: IEACT Case No.: 0927A SAS No.: \_\_\_\_\_ SDG No.: A0927 **0104**

Matrix: (soil/water) WATER Lab Sample ID: 0927029

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: G7208.D

Level: (low/med) LOW Date Received: 08/26/93

% Moisture: not dec. \_\_\_\_\_ Data Analyzed: 08/28/93

GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

UJ

SUP  
11/16/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-2S

Lab Name: IEA/CT

Contract:

Lab Code: IEACT

Case No.: 0927A

SAS No.:

SDG No.: A0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927032

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: G7214.D

0121

Level: (low/med) LOW

Date Received: 08/26/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 08/28/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CONCENTRATION UNITS:  
CAS NO.                      COMPOUND                      (ug/L or ug/Kg) UG/L                      Q

74-87-3-----	Chloromethane	10	U
74-83-9-----	Bromomethane	10	U
75-01-4-----	Vinyl Chloride	10	U
75-00-3-----	Chloroethane	10	U
75-09-2-----	Methylene Chloride	10	U
67-64-1-----	Acetone	10	U
75-15-0-----	Carbon Disulfide	10	U
75-35-4-----	1,1-Dichloroethene	10	U
75-34-3-----	1,1-Dichloroethane	10	U
540-59-0-----	1,2-Dichloroethene (total)	10	U
67-66-3-----	Chloroform	10	U
107-06-2-----	1,2-Dichloroethane	10	U
78-93-3-----	2-Butanone	10	U
71-55-6-----	1,1,1-Trichloroethane	10	U
56-23-5-----	Carbon Tetrachloride	10	U
75-27-4-----	Bromodichloromethane	10	U
78-87-5-----	1,2-Dichloropropane	10	U
10061-01-5-----	cis-1,3-Dichloropropene	10	U
79-01-6-----	Trichloroethene	10	U
124-48-1-----	Dibromochloromethane	10	U
79-00-5-----	1,1,2-Trichloroethane	10	U
71-43-2-----	Benzene	10	U
10061-02-6-----	trans-1,3-Dichloropropene	10	U
75-25-2-----	Bromoform	10	U
108-10-1-----	4-Methyl-2-Pentanone	10	U
591-78-6-----	2-Hexanone	10	U
127-18-4-----	Tetrachloroethene	10	U
79-34-5-----	1,1,2,2-Tetrachloroethane	10	U
108-88-3-----	Toluene	10	U
108-90-7-----	Chlorobenzene	10	U
100-41-4-----	Ethylbenzene	10	U
100-42-5-----	Styrene	10	U
1330-20-7-----	Xylene (total)	10	U

U

SUP  
11/16/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-2I

0109

Lab Name: IEA/CT

Contract:

Lab Code: IEACT

Case No.: 0927A

SAS No.:

SDG No.: A0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927030

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: G7209.D

Level: (low/med) LOW

Date Received: 08/26/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 08/28/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

UJ

SUP  
11/16/93



1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.  
GM-2I TRS

REP-1

Lab Name: IEA/CT

Contract:

Lab Code: IEACT

Case No.: 0927A

SAS No.:

SDG No.: A0927

0099

Matrix: (soil/water) WATER

Lab Sample ID: 0927028

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: G7206.D

Level: (low/med) LOW

Date Received: 08/26/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 08/28/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

SLP  
1/16/93



1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

64

GM-3I

Lab Name: IEA/CT

Contract:

Lab Code: IEACT

Case No.: 0927B

SAS No.:

SDG No.: B0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927044

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: G7228.D

Level: (low/med) LOW

Date Received: 08/27/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 08/28/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.                      COMPOUND                      CONCENTRATION UNITS:  
(ug/L or ug/Kg) UG/L                      Q

74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	2	J
67-64-1	Acetone	10 U	J
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	2	J
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	7	J
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

SLD  
11/16/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-4S

149

Lab Name: IEA/CT Contract: \_\_\_\_\_  
 Lab Code: IEACT Case No.: 0927 SAS No.: \_\_\_\_\_ SDG No.: Z0927  
 Matrix: (soil/water) WATER Lab Sample ID: 0927013  
 Sample wt/vol: 5.0 (g/mL) ML Lab File ID: A7806.D  
 Level: (low/med) LOW Date Received: 08/25/93  
 % Moisture: not dec. \_\_\_\_\_ Data Analyzed: 08/27/93  
 GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0  
 Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	18	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

SUD  
11/16/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-4I

151

Lab Name: IEA/CT

Contract:

Lab Code: IEACT

Case No.: 0927

SAS No.:

SDG No.: Z0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927014

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: B6136.D

Level: (low/med) LOW

Date Received: 08/25/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 08/28/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U UJ
74-83-9	Bromomethane	10	U U
75-01-4	Vinyl Chloride	10	U U
75-00-3	Chloroethane	10	U U
75-09-2	Methylene Chloride	10	U U
67-64-1	Acetone	10	U U UJ
75-15-0	Carbon Disulfide	10	U U
75-35-4	1,1-Dichloroethene	10	U U
75-34-3	1,1-Dichloroethane	10	U U
540-59-0	1,2-Dichloroethene (total)	10	U U
67-66-3	Chloroform	10	U U
107-06-2	1,2-Dichloroethane	10	U U
78-93-3	2-Butanone	10	U U
71-55-6	1,1,1-Trichloroethane	4	J U
56-23-5	Carbon Tetrachloride	10	U U
75-27-4	Bromodichloromethane	10	U U
78-87-5	1,2-Dichloropropane	10	U U
10061-01-5	cis-1,3-Dichloropropene	10	U U
79-01-6	Trichloroethene	2	J U
124-48-1	Dibromochloromethane	10	U U
79-00-5	1,1,2-Trichloroethane	10	U U
71-43-2	Benzene	10	U U
10061-02-6	trans-1,3-Dichloropropene	10	U U
75-25-2	Bromoform	10	U U
108-10-1	4-Methyl-2-Pentanone	10	U U
591-78-6	2-Hexanone	10	U U
127-18-4	Tetrachloroethene	9	J U
79-34-5	1,1,2,2-Tetrachloroethane	10	U U
108-88-3	Toluene	10	U U
108-90-7	Chlorobenzene	10	U U
100-41-4	Ethylbenzene	10	U U
100-42-5	Styrene	10	U U
1330-20-7	Xylene (total)	10	U

SUP  
11/16/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-5S	159
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Lab Name: IEA/CT

Contract:

Lab Code: IEACT

Case No.: 0927

SAS No.:

SDG No.: Z0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927015

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: A7808.D

Level: (low/med) LOW

Date Received: 08/25/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 08/27/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO. COMPOUND CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Q

74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10 u	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

SLP  
11/16/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-5I

105

Lab Name: IEA/CT Contract: \_\_\_\_\_  
 Lab Code: IEACT Case No.: 0927 SAS No.: \_\_\_\_\_ SDG No.: Z0927  
 Matrix: (soil/water) WATER Lab Sample ID: 0927016  
 Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B6137.D  
 Level: (low/med) LOW Date Received: 08/25/93  
 % Moisture: not dec. \_\_\_\_\_ Data Analyzed: 08/28/93  
 GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0  
 Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U UJ
74-83-9	Bromomethane	10	U U
75-01-4	Vinyl Chloride	10	U U
75-00-3	Chloroethane	10	U U
75-09-2	Methylene Chloride	10	U U
67-64-1	Acetone	11	U U
75-15-0	Carbon Disulfide	10	U U
75-35-4	1,1-Dichloroethene	10	U U
75-34-3	1,1-Dichloroethane	10	U U
540-59-0	1,2-Dichloroethene (total)	10	U U
67-66-3	Chloroform	10	U U
107-06-2	1,2-Dichloroethane	10	U U
78-93-3	2-Butanone	10	U U
71-55-6	1,1,1-Trichloroethane	10	U U
56-23-5	Carbon Tetrachloride	10	U U
75-27-4	Bromodichloromethane	10	U U
78-87-5	1,2-Dichloropropane	10	U U
10061-01-5	cis-1,3-Dichloropropene	10	U U
79-01-6	Trichloroethene	10	U U
124-48-1	Dibromochloromethane	10	U U
79-00-5	1,1,2-Trichloroethane	10	U U
71-43-2	Benzene	10	U U
10061-02-6	trans-1,3-Dichloropropene	10	U U
75-25-2	Bromoform	10	U U
108-10-1	4-Methyl-2-Pentanone	10	U U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	20	
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U U
108-90-7	Chlorobenzene	10	U U
100-41-4	Ethylbenzene	10	U U
100-42-5	Styrene	10	U U
1330-20-7	Xylene (total)	10	U

SUP  
11/16/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. 070

GM-6S

Lab Name: IEA/CT

Contract:

Lab Code: IEACT

Case No.: 0927

SAS No.:

SDG No.: Z0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927003

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: G7187.D

Level: (low/med) LOW

Date Received: 08/24/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 08/27/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10 U	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

10 U 1 JS SLD 11/10/93



1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-6I

076

Lab Name: IEA/CT

Contract:

Lab Code: IEACT

Case No.: 0927

SAS No.:

SDG No.: Z0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927004

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: G7188.D

Level: (low/med) LOW

Date Received: 08/24/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 08/27/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	-----Chloromethane	10	U
74-83-9	-----Bromomethane	10	U
75-01-4	-----Vinyl Chloride	10	U
75-00-3	-----Chloroethane	10	U
75-09-2	-----Methylene Chloride	10	U
67-64-1	-----Acetone	10	U
75-15-0	-----Carbon Disulfide	10	U
75-35-4	-----1,1-Dichloroethene	1	J
75-34-3	-----1,1-Dichloroethane	10	U
540-59-0	-----1,2-Dichloroethene (total)	10	U
67-66-3	-----Chloroform	10	U
107-06-2	-----1,2-Dichloroethane	10	U
78-93-3	-----2-Butanone	10	U
71-55-6	-----1,1,1-Trichloroethane	2	J
56-23-5	-----Carbon Tetrachloride	10	U
75-27-4	-----Bromodichloromethane	10	U
78-87-5	-----1,2-Dichloropropane	10	U
10061-01-5	-----cis-1,3-Dichloropropene	10	U
79-01-6	-----Trichloroethene	10	U
124-48-1	-----Dibromochloromethane	10	U
79-00-5	-----1,1,2-Trichloroethane	10	U
71-43-2	-----Benzene	10	U
10061-02-6	-----trans-1,3-Dichloropropene	10	U
75-25-2	-----Bromoform	10	U
108-10-1	-----4-Methyl-2-Pentanone	10	U
591-78-6	-----2-Hexanone	10	U
127-18-4	-----Tetrachloroethene	10	U
79-34-5	-----1,1,2,2-Tetrachloroethane	10	U
108-88-3	-----Toluene	10	U
108-90-7	-----Chlorobenzene	10	U
100-41-4	-----Ethylbenzene	10	U
100-42-5	-----Styrene	10	U
1330-20-7	-----Xylene (total)	10	U

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.  
GM-6I TRB

REP-2

108

Lab Name: IEA/CT

Contract:

Lab Code: IEACT

Case No.: 0927

SAS No.:

SDG No.: Z0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927012

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: G7199.D

Level: (low/med) LOW

Date Received: 08/24/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 08/27/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	1	J
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	2	J
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-7S

109

Lab Name: IEA/CT Contract: \_\_\_\_\_  
 Lab Code: IEACT Case No.: 0927B SAS No.: \_\_\_\_\_ SDG No.: B0927  
 Matrix: (soil/water) WATER Lab Sample ID: 0927051  
 Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B6245.D  
 Level: (low/med) LOW Date Received: 08/27/93  
 % Moisture: not dec. \_\_\_\_\_ Data Analyzed: 09/02/93  
 GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0  
 Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U UJ
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10 U	U
67-64-1	Acetone	10 U	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U UJ
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U UJ
591-78-6	2-Hexanone	10	U UJ
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

sup  
11/16/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

48

GM-7I

Lab Name: IEA/CT

Contract:

Lab Code: IEACT

Case No.: 0927B

SAS No.:

SDG No.: B0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927042

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: G7236.D

Level: (low/med) LOW

Date Received: 08/27/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 08/30/93

GC Column:007-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	4	J
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	21	
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	2	J
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

56

GM-7D

Lab Name: IEA/CT Contract: \_\_\_\_\_  
 Lab Code: IEACT Case No.: 0927B SAS No.: \_\_\_\_\_ SDG No.: B0927  
 Matrix: (soil/water) WATER Lab Sample ID: 0927043  
 Sample wt/vol: 5.0 (g/mL) ML Lab File ID: G7227.D  
 Level: (low/med) LOW Date Received: 08/27/93  
 % Moisture: not dec. \_\_\_\_\_ Data Analyzed: 08/28/93  
 GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0  
 Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	3	J
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	16	
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	3	J
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

*SLP*  
*1/16/93*

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-8S

0093

Lab Name: IEA/CT Contract: \_\_\_\_\_  
 Lab Code: IEACT Case No.: 0927A SAS No.: \_\_\_\_\_ SDG No.: A0927  
 Matrix: (soil/water) WATER Lab Sample ID: 0927027  
 Sample wt/vol: 5.0 (g/mL) ML Lab File ID: G7205.D  
 Level: (low/med) LOW Date Received: 08/26/93  
 % Moisture: not dec. \_\_\_\_\_ Data Analyzed: 08/28/93  
 GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0  
 Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS:	
		(ug/L or ug/Kg)	UG/L
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	2	J
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

SJD  
11/16/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

159

GM-8I

Lab Name: IEA/CT Contract: \_\_\_\_\_

Lab Code: IEACT Case No.: 0927B SAS No.: \_\_\_\_\_ SDG No.: B0927

Matrix: (soil/water) WATER Lab Sample ID: 0927058

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B6239.D

Level: (low/med) LOW Date Received: 08/28/93

% Moisture: not dec. \_\_\_\_\_ Data Analyzed: 09/01/93

GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U UJ
74-83-9	Bromomethane	10	U U
75-01-4	Vinyl Chloride	10	U UJ
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	15	X 4
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U UJ
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U UJ
591-78-6	2-Hexanone	10	U UJ
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U UJ
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

SUP  
11/16/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-9S

172

Lab Name: IEA/CT

Contract:

Lab Code: IEACT

Case No.: 0927

SAS No.:

SDG No.: Z0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927017

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: A7810.D

Level: (low/med) LOW

Date Received: 08/25/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 08/27/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	-----Chloromethane	10	U
74-83-9	-----Bromomethane	10	U
75-01-4	-----Vinyl Chloride	10	U
75-00-3	-----Chloroethane	10	U
75-09-2	-----Methylene Chloride	10	U
67-64-1	-----Acetone	10	U W
75-15-0	-----Carbon Disulfide	10	U
75-35-4	-----1,1-Dichloroethene	10	U
75-34-3	-----1,1-Dichloroethane	10	U
540-59-0	-----1,2-Dichloroethene (total)	10	U
67-66-3	-----Chloroform	10	U
107-06-2	-----1,2-Dichloroethane	10	U
78-93-3	-----2-Butanone	10	U
71-55-6	-----1,1,1-Trichloroethane	10	U
56-23-5	-----Carbon Tetrachloride	10	U
75-27-4	-----Bromodichloromethane	10	U
78-87-5	-----1,2-Dichloropropane	10	U
10061-01-5	-----cis-1,3-Dichloropropene	10	U
79-01-6	-----Trichloroethene	10	U
124-48-1	-----Dibromochloromethane	10	U
79-00-5	-----1,1,2-Trichloroethane	10	U
71-43-2	-----Benzene	10	U
10061-02-6	-----trans-1,3-Dichloropropene	10	U
75-25-2	-----Bromoform	10	U
108-10-1	-----4-Methyl-2-Pentanone	10	U
591-78-6	-----2-Hexanone	10	U
127-18-4	-----Tetrachloroethene	10	U
79-34-5	-----1,1,2,2-Tetrachloroethane	10	U
108-88-3	-----Toluene	10	U
108-90-7	-----Chlorobenzene	10	U
100-41-4	-----Ethylbenzene	10	U
100-42-5	-----Styrene	10	U
1330-20-7	-----Xylene (total)	10	U

*SJD*  
*11/16/93*



1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-9I 82

Lab Name: IEA/CT

Contract:

Lab Code: IEACT

Case No.: 0927

SAS No.:

SDG No.: Z0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927018

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: A7811.D

Level: (low/med) LOW

Date Received: 08/25/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 08/27/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	-----Chloromethane	10	U
74-83-9	-----Bromomethane	10	U
75-01-4	-----Vinyl Chloride	10	U
75-00-3	-----Chloroethane	10	U
75-09-2	-----Methylene Chloride	10	U
67-64-1	-----Acetone	10	U
75-15-0	-----Carbon Disulfide	10	U
75-35-4	-----1,1-Dichloroethene	10	U
75-34-3	-----1,1-Dichloroethane	10	U
540-59-0	-----1,2-Dichloroethene (total)	10	U
67-66-3	-----Chloroform	10	U
107-06-2	-----1,2-Dichloroethane	10	U
78-93-3	-----2-Butanone	10	U
71-55-6	-----1,1,1-Trichloroethane	10	U
56-23-5	-----Carbon Tetrachloride	10	U
75-27-4	-----Bromodichloromethane	10	U
78-87-5	-----1,2-Dichloropropane	10	U
10061-01-5	-----cis-1,3-Dichloropropene	10	U
79-01-6	-----Trichloroethene	10	U
124-48-1	-----Dibromochloromethane	10	U
79-00-5	-----1,1,2-Trichloroethane	10	U
71-43-2	-----Benzene	10	U
10061-02-6	-----trans-1,3-Dichloropropene	10	U
75-25-2	-----Bromoform	10	U
108-10-1	-----4-Methyl-2-Pentanone	10	U
591-78-6	-----2-Hexanone	10	U
127-18-4	-----Tetrachloroethene	10	U
79-34-5	-----1,1,2,2-Tetrachloroethane	10	U
108-88-3	-----Toluene	10	U
108-90-7	-----Chlorobenzene	10	U
100-41-4	-----Ethylbenzene	10	U
100-42-5	-----Styrene	10	U
1330-20-7	-----Xylene (total)	10	U

UJ

SLP  
1/16/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-10S

Lab Name: IEA/CT Contract: \_\_\_\_\_

Lab Code: IEACT Case No.: 0927A SAS No.: \_\_\_\_\_ SDG No.: A0927 0114

Matrix: (soil/water) WATER Lab Sample ID: 0927031

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B6147.D

Level: (low/med) LOW Date Received: 08/26/93

% Moisture: not dec. \_\_\_\_\_ Data Analyzed: 08/28/93

GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U UJ
74-83-9	Bromomethane	10	U U
75-01-4	Vinyl Chloride	10	U U
75-00-3	Chloroethane	10	U U
75-09-2	Methylene Chloride	10	U U
67-64-1	Acetone	10	U U UJ
75-15-0	Carbon Disulfide	10	U U
75-35-4	1,1-Dichloroethene	10	U U
75-34-3	1,1-Dichloroethane	10	U U
540-59-0	1,2-Dichloroethene (total)	10	U U
67-66-3	Chloroform	10	U U
107-06-2	1,2-Dichloroethane	10	U U
78-93-3	2-Butanone	10	U U
71-55-6	1,1,1-Trichloroethane	10	U U
56-23-5	Carbon Tetrachloride	10	U U
75-27-4	Bromodichloromethane	10	U U
78-87-5	1,2-Dichloropropane	10	U U
10061-01-5	cis-1,3-Dichloropropene	10	U U
79-01-6	Trichloroethene	4	J
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	2	J
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

SLP  
11/16/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-10I

170

Lab Name: IEA/CT

Contract:

Lab Code: IEACT

Case No.: 0927B

SAS No.:

SDG No.: B0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927060

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: B6240.D

Level: (low/med) LOW

Date Received: 08/28/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 09/01/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U UJ
74-83-9	Bromomethane	10	U U
75-01-4	Vinyl Chloride	10	U UJ
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10 U	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	3	J
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	J
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U UJ
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	19	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U UJ
591-78-6	2-Hexanone	10	U UJ
127-18-4	Tetrachloroethene	6	J
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U UJ
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

JUP  
11/16/93





1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-12S

78

Lab Name: IEA/CT Contract: \_\_\_\_\_  
 Lab Code: IEACT Case No.: 0927B SAS No.: \_\_\_\_\_ SDG No.: B0927  
 Matrix: (soil/water) WATER Lab Sample ID: 0927046  
 Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B6229.D  
 Level: (low/med) LOW Date Received: 08/27/93  
 % Moisture: not dec. \_\_\_\_\_ Data Analyzed: 09/01/93  
 GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0  
 Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	-----Chloromethane	10	U UJ
74-83-9	-----Bromomethane	10	U U
75-01-4	-----Vinyl Chloride	10	U UJ
75-00-3	-----Chloroethane	10	U U
75-09-2	-----Methylene Chloride	1	J J
67-64-1	-----Acetone	10	U U
75-15-0	-----Carbon Disulfide	10	U U
75-35-4	-----1,1-Dichloroethene	10	U U
75-34-3	-----1,1-Dichloroethane	10	U U
540-59-0	-----1,2-Dichloroethene (total)	10	U U
67-66-3	-----Chloroform	10	U U
107-06-2	-----1,2-Dichloroethane	10	U U
78-93-3	-----2-Butanone	10	U U
71-55-6	-----1,1,1-Trichloroethane	10	U U
56-23-5	-----Carbon Tetrachloride	10	U U
75-27-4	-----Bromodichloromethane	10	U U
78-87-5	-----1,2-Dichloropropane	10	U UJ
10061-01-5	-----cis-1,3-Dichloropropene	10	U
79-01-6	-----Trichloroethene	20	U
124-48-1	-----Dibromochloromethane	10	U
79-00-5	-----1,1,2-Trichloroethane	10	U U
71-43-2	-----Benzene	10	U U
10061-02-6	-----trans-1,3-Dichloropropene	10	U U
75-25-2	-----Bromoform	10	U U
108-10-1	-----4-Methyl-2-Pentanone	10	U UJ
591-78-6	-----2-Hexanone	10	U UJ
127-18-4	-----Tetrachloroethene	10	U U
79-34-5	-----1,1,2,2-Tetrachloroethane	10	U U
108-88-3	-----Toluene	10	U UJ
108-90-7	-----Chlorobenzene	10	U U
100-41-4	-----Ethylbenzene	10	U U
100-42-5	-----Styrene	10	U U
1330-20-7	-----Xylene (total)	10	U

SUP  
11/16/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. 063

GM-12I

Lab Name: IEA/CT Contract: \_\_\_\_\_  
 Lab Code: IEACT Case No.: 0927C SAS No.: \_\_\_\_\_ SDG No.: C0927  
 Matrix: (soil/water) WATER Lab Sample ID: 0927062  
 Sample wt/vol: 5.0 (g/mL) ML Lab File ID: G7341.D  
 Level: (low/med) LOW Date Received: 08/28/93  
 % Moisture: not dec. \_\_\_\_\_ Data Analyzed: 09/03/93  
 GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 10.0  
 Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	100	U
74-83-9	Bromomethane	100	U
75-01-4	Vinyl Chloride	100	U
75-00-3	Chloroethane	100	U
75-09-2	Methylene Chloride	100	U
67-64-1	Acetone	200	U
75-15-0	Carbon Disulfide	100	U
75-35-4	1,1-Dichloroethene	100	U
75-34-3	1,1-Dichloroethane	100	U
540-59-0	1,2-Dichloroethene (total)	100	U
67-66-3	Chloroform	100	U
107-06-2	1,2-Dichloroethane	100	U
78-93-3	2-Butanone	100	U
71-55-6	1,1,1-Trichloroethane	100	U
56-23-5	Carbon Tetrachloride	100	U
75-27-4	Bromodichloromethane	100	U
78-87-5	1,2-Dichloropropane	100	U
10061-01-5	cis-1,3-Dichloropropene	100	U
79-01-6	Trichloroethene	1000	U
124-48-1	Dibromochloromethane	100	U
79-00-5	1,1,2-Trichloroethane	100	U
71-43-2	Benzene	100	U
10061-02-6	trans-1,3-Dichloropropene	100	U
75-25-2	Bromoform	100	U
108-10-1	4-Methyl-2-Pentanone	100	U
591-78-6	2-Hexanone	100	U
127-18-4	Tetrachloroethene	100	U
79-34-5	1,1,2,2-Tetrachloroethane	100	U
108-88-3	Toluene	13	J
108-90-7	Chlorobenzene	100	U
100-41-4	Ethylbenzene	100	U
100-42-5	Styrene	100	U
1330-20-7	Xylene (total)	100	U

1004

JLP  
11/18/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-13S

08:

Lab Name: IEA/CT

Contract:

Lab Code: IEACT

Case No.: 0927

SAS No.:

SDG No.: Z0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927005

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: G7201.D

Level: (low/med) LOW

Date Received: 08/24/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 08/27/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 5.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	50	U
74-83-9	Bromomethane	50	U
75-01-4	Vinyl Chloride	50	U
75-00-3	Chloroethane	50	U
75-09-2	Methylene Chloride	50	U
67-64-1	Acetone	59	U
75-15-0	Carbon Disulfide	50	U
75-35-4	1,1-Dichloroethene	62	U
75-34-3	1,1-Dichloroethane	110	U
540-59-0	1,2-Dichloroethene (total)	210	U
67-66-3	Chloroform	50	U
107-06-2	1,2-Dichloroethane	50	U
78-93-3	2-Butanone	50	U
71-55-6	1,1,1-Trichloroethane	760	U
56-23-5	Carbon Tetrachloride	50	U
75-27-4	Bromodichloromethane	50	U
78-87-5	1,2-Dichloropropane	50	U
10061-01-5	cis-1,3-Dichloropropene	50	U
79-01-6	Trichloroethene	140	U
124-48-1	Dibromochloromethane	50	U
79-00-5	1,1,2-Trichloroethane	50	U
71-43-2	Benzene	50	U
10061-02-6	trans-1,3-Dichloropropene	50	U
75-25-2	Bromoform	50	U
108-10-1	4-Methyl-2-Pentanone	50	U
591-78-6	2-Hexanone	50	U
127-18-4	Tetrachloroethene	600	U
79-34-5	1,1,2,2-Tetrachloroethane	50	U
108-88-3	Toluene	50	U
108-90-7	Chlorobenzene	50	U
100-41-4	Ethylbenzene	50	U
100-42-5	Styrene	50	U
1330-20-7	Xylene (total)	50	U

50u

J

SUP  
11/16/93



1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-13I	232
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Lab Name: IEA/CT

Contract:

Lab Code: IEACT

Case No.: 0927C

SAS No.:

SDG No.: C0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927080

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: G7388.D

Level: (low/med) LOW

Date Received: 09/01/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 09/04/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U UJ
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	5	J
75-34-3	1,1-Dichloroethane	5	J
540-59-0	1,2-Dichloroethene (total)	16	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U UJ
71-55-6	1,1,1-Trichloroethane	32	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	28	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	87	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

SUP  
11/18/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

122

Lab Name: IEA/CT

Contract:

GM-13D

Lab Code: IEACT

Case No.: 0927B

SAS No.:

SDG No.: B0927

Matrix: (soil/water) WATER

Lab Sample ID: 0937053

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: B6246.D

Level: (low/med) LOW

Date Received: 08/28/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 09/02/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 2.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	-----Chloromethane	20	U UJ
74-83-9	-----Bromomethane	20	U U
75-01-4	-----Vinyl Chloride	20	U U
75-00-3	-----Chloroethane	20	U U
75-09-2	-----Methylene Chloride	20	U U
67-64-1	-----Acetone	20	U U
75-15-0	-----Carbon Disulfide	25	U U
75-35-4	-----1,1-Dichloroethene	20	U U
75-34-3	-----1,1-Dichloroethane	99	U U
540-59-0	-----1,2-Dichloroethene (total)	42	U U
67-66-3	-----Chloroform	260	U U
107-06-2	-----1,2-Dichloroethane	20	U U
78-93-3	-----2-Butanone	20	U U
71-55-6	-----1,1,1-Trichloroethane	20	U U
56-23-5	-----Carbon Tetrachloride	92	U U
75-27-4	-----Bromodichloromethane	20	U U
78-87-5	-----1,2-Dichloropropane	20	U U
10061-01-5	-----cis-1,3-Dichloropropene	20	U U
79-01-6	-----Trichloroethene	20	U U
124-48-1	-----Dibromochloromethane	340	U U
79-00-5	-----1,1,2-Trichloroethane	20	U U
71-43-2	-----Benzene	20	U U
10061-02-6	-----trans-1,3-Dichloropropene	20	U U
75-25-2	-----Bromoform	20	U U
108-10-1	-----4-Methyl-2-Pentanone	20	U U
591-78-6	-----2-Hexanone	20	U U
127-18-4	-----Tetrachloroethene	20	U U
79-34-5	-----1,1,2,2-Tetrachloroethane	64	U U
108-88-3	-----Toluene	20	U U
108-90-7	-----Chlorobenzene	20	U U
100-41-4	-----Ethylbenzene	20	U U
100-42-5	-----Styrene	20	U U
1330-20-7	-----Xylene (total)	20	U U

20 u 7

SJD  
11/16/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-14S

97

Lab Name: IEA/CT Contract: \_\_\_\_\_

Lab Code: IEACT Case No.: 0927B SAS No.: \_\_\_\_\_ SDG No.: B0927

Matrix: (soil/water) WATER Lab Sample ID: 0927049

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B6232.D

Level: (low/med) LOW Date Received: 08/27/93

% Moisture: not dec. \_\_\_\_\_ Data Analyzed: 09/01/93

GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U UJ
74-83-9	Bromomethane	10	U U
75-01-4	Vinyl Chloride	10	U UJ
75-00-3	Chloroethane	10	U U
75-09-2	Methylene Chloride	10	U U
67-64-1	Acetone	10	U U
75-15-0	Carbon Disulfide	10	U U
75-35-4	1,1-Dichloroethene	10	U U
75-34-3	1,1-Dichloroethane	10	U U
540-59-0	1,2-Dichloroethene (total)	10	U U
67-66-3	Chloroform	10	U U
107-06-2	1,2-Dichloroethane	10	U U
78-93-3	2-Butanone	10	U U
71-55-6	1,1,1-Trichloroethane	10	U U
56-23-5	Carbon Tetrachloride	10	U U
75-27-4	Bromodichloromethane	10	U U
78-87-5	1,2-Dichloropropane	10	U UJ
10061-01-5	cis-1,3-Dichloropropene	10	U U
79-01-6	Trichloroethene	10	U U
124-48-1	Dibromochloromethane	10	U U
79-00-5	1,1,2-Trichloroethane	10	U U
71-43-2	Benzene	10	U U
10061-02-6	trans-1,3-Dichloropropene	10	U U
75-25-2	Bromoform	10	U U
108-10-1	4-Methyl-2-Pentanone	10	U UJ
591-78-6	2-Hexanone	10	U UJ
127-18-4	Tetrachloroethene	2	J U
79-34-5	1,1,2,2-Tetrachloroethane	10	U U
108-88-3	Toluene	10	U UJ
108-90-7	Chlorobenzene	10	U U
100-41-4	Ethylbenzene	10	U U
100-42-5	Styrene	10	U U
1330-20-7	Xylene (total)	10	U

SUP  
11/16/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-14I

Lab Name: IEA/CT Contract: \_\_\_\_\_

Lab Code: IEACT Case No.: 0927C SAS No.: \_\_\_\_\_ SDG No.: C0927

Matrix: (soil/water) WATER Lab Sample ID: 0927070

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: G7379.D

Level: (low/med) LOW Date Received: 08/31/93

% Moisture: not dec. \_\_\_\_\_ Data Analyzed: 09/04/93

GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 4.0

Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	40	U
74-83-9	Bromomethane	40	U
75-01-4	Vinyl Chloride	40	U
75-00-3	Chloroethane	40	U
75-09-2	Methylene Chloride	8	J
67-64-1	Acetone	43	<del>X</del> UJ
75-15-0	Carbon Disulfide	40	U
75-35-4	1,1-Dichloroethene	50	
75-34-3	1,1-Dichloroethane	29	J
540-59-0	1,2-Dichloroethene (total)	98	
67-66-3	Chloroform	40	U
107-06-2	1,2-Dichloroethane	40	U
78-93-3	2-Butanone	40	U UJ
71-55-6	1,1,1-Trichloroethane	56	
56-23-5	Carbon Tetrachloride	40	U
75-27-4	Bromodichloromethane	40	U
78-87-5	1,2-Dichloropropane	40	U
10061-01-5	cis-1,3-Dichloropropene	40	U
79-01-6	Trichloroethene	320	
124-48-1	Dibromochloromethane	40	U
79-00-5	1,1,2-Trichloroethane	40	U
71-43-2	Benzene	40	U
10061-02-6	trans-1,3-Dichloropropene	40	U
75-25-2	Bromoform	40	U
108-10-1	4-Methyl-2-Pentanone	40	U
591-78-6	2-Hexanone	40	U
127-18-4	Tetrachloroethene	380	
79-34-5	1,1,2,2-Tetrachloroethane	40	U
108-88-3	Toluene	40	U
108-90-7	Chlorobenzene	40	U
100-41-4	Ethylbenzene	40	U
100-42-5	Styrene	40	U
1330-20-7	Xylene (total)	40	U

SUP  
11/18/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

90

GM-15S

Lab Name: IEA/CT Contract: \_\_\_\_\_

Lab Code: IEACT Case No.: 0927B SAS No.: \_\_\_\_\_ SDG No.: B0927

Matrix: (soil/water) WATER Lab Sample ID: 0927048

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B6231.D

Level: (low/med) LOW Date Received: 08/27/93

% Moisture: not dec. \_\_\_\_\_ Data Analyzed: 09/01/93

GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	21	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	2	J
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

SLP  
11/16/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-15I

Lab Name: IEA/CT Contract: \_\_\_\_\_

Lab Code: IEACT Case No.: 0927D SAS No.: \_\_\_\_\_ SDG No.: D0927

Matrix: (soil/water) WATER Lab Sample ID: 0927082

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: G7415.D

Level: (low/med) LOW Date Received: 09/01/93

% Moisture: not dec. \_\_\_\_\_ Data Analyzed: 09/07/93

GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

SUP  
11/18/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

85

Lab Name: IEA/CT

Contract:

GM-16S

Lab Code: IEACT

Case No.: 0927B

SAS No.:

SDG No.: B0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927047

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: B6230.D

Level: (low/med) LOW

Date Received: 08/27/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 09/01/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U UJ
74-83-9	Bromomethane	10	U UJ
75-01-4	Vinyl Chloride	10	U UJ
75-00-3	Chloroethane	10	U UJ
75-09-2	Methylene Chloride	10	U UJ
67-64-1	Acetone	10	U UJ
75-15-0	Carbon Disulfide	10	U UJ
75-35-4	1,1-Dichloroethene	10	U UJ
75-34-3	1,1-Dichloroethane	10	U UJ
540-59-0	1,2-Dichloroethene (total)	10	U UJ
67-66-3	Chloroform	10	U UJ
107-06-2	1,2-Dichloroethane	10	U UJ
78-93-3	2-Butanone	10	U UJ
71-55-6	1,1,1-Trichloroethane	10	U UJ
56-23-5	Carbon Tetrachloride	10	U UJ
75-27-4	Bromodichloromethane	10	U UJ
78-87-5	1,2-Dichloropropane	10	U UJ
10061-01-5	cis-1,3-Dichloropropene	10	U UJ
79-01-6	Trichloroethene	10	U UJ
124-48-1	Dibromochloromethane	10	U UJ
79-00-5	1,1,2-Trichloroethane	10	U UJ
71-43-2	Benzene	10	U UJ
10061-02-6	trans-1,3-Dichloropropene	10	U UJ
75-25-2	Bromoform	10	U UJ
108-10-1	4-Methyl-2-Pentanone	10	U UJ
591-78-6	2-Hexanone	10	U UJ
127-18-4	Tetrachloroethene	10	U UJ
79-34-5	1,1,2,2-Tetrachloroethane	10	U UJ
108-88-3	Toluene	10	U UJ
108-90-7	Chlorobenzene	10	U UJ
100-41-4	Ethylbenzene	10	U UJ
100-42-5	Styrene	10	U UJ
1330-20-7	Xylene (total)	10	U UJ

SLP  
11/16/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

70

GM-16I

Lab Name: IEA/CT Contract: \_\_\_\_\_

Lab Code: IEACT Case No.: 0927D SAS No.: \_\_\_\_\_ SDG No.: D0927

Matrix: (soil/water) WATER Lab Sample ID: 0927087

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: G7421.D

Level: (low/med) LOW Date Received: 09/02/93

% Moisture: not dec. \_\_\_\_\_ Data Analyzed: 09/07/93

GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	2	J
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	8	J
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	J
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	58	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	8	J
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

UJ

UJ

SUP  
11/18/93



1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-16IMS

173

Lab Name: IEA/CT Contract: \_\_\_\_\_

Lab Code: IEACT Case No.: 0927D SAS No.: \_\_\_\_\_ SDG No.: D0927

Matrix: (soil/water) WATER Lab Sample ID: 0927087MS

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: G7457.D

Level: (low/med) LOW Date Received: 09/02/93

% Moisture: not dec. \_\_\_\_\_ Data Analyzed: 09/09/93

GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	3	JB
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	58	
75-34-3	1,1-Dichloroethane	1	J
540-59-0	1,2-Dichloroethene (total)	10	
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	J
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	110	
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	42	
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	8	J
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	49	
108-90-7	Chlorobenzene	49	
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-16IMSD

177

Lab Name: IEA/CT Contract: \_\_\_\_\_  
 Lab Code: IEACT Case No.: 0927D SAS No.: \_\_\_\_\_ SDG No.: D0927  
 Matrix: (soil/water) WATER Lab Sample ID: 0927087MSD  
 Sample wt/vol: 5.0 (g/mL) ML Lab File ID: G7458.D  
 Level: (low/med) LOW Date Received: 09/02/93  
 % Moisture: not dec. \_\_\_\_\_ Data Analyzed: 09/09/93  
 GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0  
 Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	-----Chloromethane	10	U
74-83-9	-----Bromomethane	10	U
75-01-4	-----Vinyl Chloride	10	U
75-00-3	-----Chloroethane	10	U
75-09-2	-----Methylene Chloride	10	U
67-64-1	-----Acetone	10	U
75-15-0	-----Carbon Disulfide	10	U
75-35-4	-----1,1-Dichloroethene	10	U
75-34-3	-----1,1-Dichloroethane	63	U
540-59-0	-----1,2-Dichloroethene (total)	10	U
67-66-3	-----Chloroform	11	U
107-06-2	-----1,2-Dichloroethane	10	U
78-93-3	-----2-Butanone	10	U
71-55-6	-----1,1,1-Trichloroethane	10	U
56-23-5	-----Carbon Tetrachloride	5	J
75-27-4	-----Bromodichloromethane	10	U
78-87-5	-----1,2-Dichloropropane	10	U
10061-01-5	-----cis-1,3-Dichloropropene	10	U
79-01-6	-----Trichloroethene	10	U
124-48-1	-----Dibromochloromethane	110	U
79-00-5	-----1,1,2-Trichloroethane	10	U
71-43-2	-----Benzene	10	U
10061-02-6	-----trans-1,3-Dichloropropene	42	U
75-25-2	-----Bromoform	10	U
108-10-1	-----4-Methyl-2-Pentanone	10	U
591-78-6	-----2-Hexanone	10	U
127-18-4	-----Tetrachloroethene	10	U
79-34-5	-----1,1,2,2-Tetrachloroethane	8	J
108-88-3	-----Toluene	10	U
108-90-7	-----Chlorobenzene	51	U
100-41-4	-----Ethylbenzene	50	U
100-42-5	-----Styrene	10	U
1330-20-7	-----Xylene (total)	10	U

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.  
GM-175 TRB

135

GM-REP-3

Lab Name: IEA/CT

Contract:

Lab Code: IEACT

Case No.: 0927B

SAS No.:

SDG No.: B0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927054

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: B6235.D

Level: (low/med) LOW

Date Received: 08/28/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 09/01/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	-----Chloromethane	10	U UJ
74-83-9	-----Bromomethane	10	U U
75-01-4	-----Vinyl Chloride	10	U UJ
75-00-3	-----Chloroethane	10	U U
75-09-2	-----Methylene Chloride	10	U U
67-64-1	-----Acetone	10	U U
75-15-0	-----Carbon Disulfide	10	U U
75-35-4	-----1,1-Dichloroethene	10	U U
75-34-3	-----1,1-Dichloroethane	10	U U
540-59-0	-----1,2-Dichloroethene (total)	10	U U
67-66-3	-----Chloroform	10	U U
107-06-2	-----1,2-Dichloroethane	10	U U
78-93-3	-----2-Butanone	10	U U
71-55-6	-----1,1,1-Trichloroethane	10	U U
56-23-5	-----Carbon Tetrachloride	10	U U
75-27-4	-----Bromodichloromethane	10	U U
78-87-5	-----1,2-Dichloropropane	10	U U UJ
10061-01-5	-----cis-1,3-Dichloropropene	10	U U
79-01-6	-----Trichloroethene	10	U U
124-48-1	-----Dibromochloromethane	10	U U
79-00-5	-----1,1,2-Trichloroethane	10	U U
71-43-2	-----Benzene	10	U U
10061-02-6	-----trans-1,3-Dichloropropene	10	U U
75-25-2	-----Bromoform	10	U U
108-10-1	-----4-Methyl-2-Pentanone	10	U U UJ
591-78-6	-----2-Hexanone	10	U U UJ
127-18-4	-----Tetrachloroethene	10	U U
79-34-5	-----1,1,2,2-Tetrachloroethane	10	U U
108-88-3	-----Toluene	10	U U UJ
108-90-7	-----Chlorobenzene	10	U U
100-41-4	-----Ethylbenzene	10	U U
100-42-5	-----Styrene	10	U U
1330-20-7	-----Xylene (total)	10	U U

10U 6

SEP  
11/16/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-18S

096

Lab Name: IEA/CT

Contract:

Lab Code: IEACT

Case No.: 0927

SAS No.:

SDG No.: Z0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927006

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: G7190.D

Level: (low/med) LOW

Date Received: 08/24/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 08/27/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	5	J
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	2	J
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	8	J
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	8	J
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

J

SLP  
11/16/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-18I

Lab Name: IEA/CT

Contract:

Lab Code: IEACT

Case No.: 0927

SAS No.:

SDG No.: Z0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927011

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: G7195.D

Level: (low/med) LOW

Date Received: 08/24/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 08/27/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	104	JB
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	5	J
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	2	J
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

SUP  
11/16/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-18IMS
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344

Lab Name: IEA/CT	Contract:	
Lab Code: IEACT	Case No.: 0927	SAS No.:                      SDG No.: Z0927
Matrix: (soil/water) WATER		Lab Sample ID: 0927011MS
Sample wt/vol:              5.0 (g/mL) ML		Lab File ID:    G7196.D
Level:    (low/med)    LOW		Date Received: 08/24/93
% Moisture: not dec.    _____		Data Analyzed: 08/27/93
GC Column:007-624    ID: 0.53 (mm)		Dilution Factor: 1.0
Soil Extract Volume: _____ (uL)		Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	60	
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	59	
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	55	
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	54	
108-90-7	Chlorobenzene	52	
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

348

GM-18IMSD

Lab Name: IEA/CT Contract: \_\_\_\_\_  
 Lab Code: IEACT Case No.: 0927 SAS No.: \_\_\_\_\_ SDG No.: Z0927  
 Matrix: (soil/water) WATER Lab Sample ID: 0927011MSD  
 Sample wt/vol: 5.0 (g/mL) ML Lab File ID: G7197.D  
 Level: (low/med) LOW Date Received: 08/24/93  
 % Moisture: not dec. \_\_\_\_\_ Data Analyzed: 08/27/93  
 GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0  
 Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	1	JB
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	63	
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	57	
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	55	
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	51	
108-90-7	Chlorobenzene	52	
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Lab Name: IEA/CT

Contract:

GM-19S

Lab Code: IEACT

Case No.: 0927C

SAS No.:

SDG No.: C0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927072

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: G7382.D

Level: (low/med) LOW

Date Received: 08/31/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 09/04/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

54P  
11/18/93



1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Lab Name: IEA/CT

Contract:

GM-19I

43

Lab Code: IEACT

Case No.: 0927C

SAS No.:

SDG No.: C0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927071

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: G7381.D

Level: (low/med) LOW

Date Received: 08/31/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 09/04/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.

COMPOUND

CONCENTRATION UNITS:  
(ug/L or ug/Kg) UG/L

Q

74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	2	J
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	16	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	1	J
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	9	J
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

SUP  
11/18/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-20S

Lab Name: IEA/CT Contract: \_\_\_\_\_

Lab Code: IEACT Case No.: 0927 SAS No.: \_\_\_\_\_ SDG No.: Z0927

Matrix: (soil/water) WATER Lab Sample ID: 0927008

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: G7192.D

Level: (low/med) LOW Date Received: 08/24/93

% Moisture: not dec. \_\_\_\_\_ Data Analyzed: 08/27/93

GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	-----Chloromethane	10	U
74-83-9	-----Bromomethane	10	U
75-01-4	-----Vinyl Chloride	10	U
75-00-3	-----Chloroethane	10	U
75-09-2	-----Methylene Chloride	10	U
67-64-1	-----Acetone	10	U
75-15-0	-----Carbon Disulfide	10	U
75-35-4	-----1,1-Dichloroethene	10	U
75-34-3	-----1,1-Dichloroethane	10	U
540-59-0	-----1,2-Dichloroethene (total)	10	U
67-66-3	-----Chloroform	10	U
107-06-2	-----1,2-Dichloroethane	10	U
78-93-3	-----2-Butanone	10	U
71-55-6	-----1,1,1-Trichloroethane	10	U
56-23-5	-----Carbon Tetrachloride	10	U
75-27-4	-----Bromodichloromethane	10	U
78-87-5	-----1,2-Dichloropropane	10	U
10061-01-5	-----cis-1,3-Dichloropropene	10	U
79-01-6	-----Trichloroethene	10	U
124-48-1	-----Dibromochloromethane	10	U
79-00-5	-----1,1,2-Trichloroethane	10	U
71-43-2	-----Benzene	10	U
10061-02-6	-----trans-1,3-Dichloropropene	10	U
75-25-2	-----Bromoform	10	U
108-10-1	-----4-Methyl-2-Pentanone	10	U
591-78-6	-----2-Hexanone	10	U
127-18-4	-----Tetrachloroethene	10	U
79-34-5	-----1,1,2,2-Tetrachloroethane	10	U
108-88-3	-----Toluene	10	U
108-90-7	-----Chlorobenzene	10	U
100-41-4	-----Ethylbenzene	10	U
100-42-5	-----Styrene	10	U
1330-20-7	-----Xylene (total)	10	U

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-20I
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101

Lab Name: IEA/CT	Contract:	
Lab Code: IEACT	Case No.: 0927	SAS No.:
Matrix: (soil/water) WATER		SDG No.: Z0927
Sample wt/vol: 5.0 (g/mL) ML		Lab Sample ID: 0927019
Level: (low/med) LOW		Lab File ID: B6138.D
% Moisture: not dec. _____		Date Received: 08/25/93
GC Column: 007-624	ID: 0.53 (mm)	Data Analyzed: 08/28/93
Soil Extract Volume: _____ (uL)		Dilution Factor: 1.0
		Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	-----Chloromethane	10	U
74-83-9	-----Bromomethane	10	U
75-01-4	-----Vinyl Chloride	10	U
75-00-3	-----Chloroethane	10	U
75-09-2	-----Methylene Chloride	10	U
67-64-1	-----Acetone	20	U
75-15-0	-----Carbon Disulfide	10	U
75-35-4	-----1,1-Dichloroethene	10	U
75-34-3	-----1,1-Dichloroethane	10	U
540-59-0	-----1,2-Dichloroethene (total)	10	U
67-66-3	-----Chloroform	10	U
107-06-2	-----1,2-Dichloroethane	10	U
78-93-3	-----2-Butanone	10	U
71-55-6	-----1,1,1-Trichloroethane	10	U
56-23-5	-----Carbon Tetrachloride	10	U
75-27-4	-----Bromodichloromethane	10	U
78-87-5	-----1,2-Dichloropropane	10	U
10061-01-5	-----cis-1,3-Dichloropropene	10	U
79-01-6	-----Trichloroethene	4	J
124-48-1	-----Dibromochloromethane	10	U
79-00-5	-----1,1,2-Trichloroethane	10	U
71-43-2	-----Benzene	10	U
10061-02-6	-----trans-1,3-Dichloropropene	10	U
75-25-2	-----Bromoform	10	U
108-10-1	-----4-Methyl-2-Pentanone	10	U
591-78-6	-----2-Hexanone	10	U
127-18-4	-----Tetrachloroethene	10	U
79-34-5	-----1,1,2,2-Tetrachloroethane	10	U
108-88-3	-----Toluene	10	U
108-90-7	-----Chlorobenzene	10	U
100-41-4	-----Ethylbenzene	10	U
100-42-5	-----Styrene	10	U
1330-20-7	-----Xylene (total)	10	U

SLP  
11/16/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

35

GM-20D

Lab Name: IEA/CT

Contract:

Lab Code: IEACT

Case No.: 0927D

SAS No.:

SDG No.: D0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927081

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: G7396.D

Level: (low/med) LOW

Date Received: 09/01/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 09/06/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

uJ

10U-2 JB

SLD  
11/18/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-21S

Lab Name: IEA/CT Contract: \_\_\_\_\_

Lab Code: IEACT Case No.: 0927A SAS No.: \_\_\_\_\_ SDG No.: A0927 0131

Matrix: (soil/water) WATER Lab Sample ID: 0927034

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B6148.D

Level: (low/med) LOW Date Received: 08/26/93

% Moisture: not dec. \_\_\_\_\_ Data Analyzed: 08/28/93

GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	-----Chloromethane	10	U
74-83-9	-----Bromomethane	10	U
75-01-4	-----Vinyl Chloride	10	U
75-00-3	-----Chloroethane	10	U
75-09-2	-----Methylene Chloride	10	U
67-64-1	-----Acetone	10	U
75-15-0	-----Carbon Disulfide	10	U
75-35-4	-----1,1-Dichloroethene	10	U
75-34-3	-----1,1-Dichloroethane	10	U
540-59-0	-----1,2-Dichloroethene (total)	10	U
67-66-3	-----Chloroform	10	U
107-06-2	-----1,2-Dichloroethane	10	U
78-93-3	-----2-Butanone	10	U
71-55-6	-----1,1,1-Trichloroethane	10	U
56-23-5	-----Carbon Tetrachloride	10	U
75-27-4	-----Bromodichloromethane	10	U
78-87-5	-----1,2-Dichloropropane	10	U
10061-01-5	-----cis-1,3-Dichloropropene	10	U
79-01-6	-----Trichloroethene	10	U
124-48-1	-----Dibromochloromethane	10	U
79-00-5	-----1,1,2-Trichloroethane	10	U
71-43-2	-----Benzene	10	U
10061-02-6	-----trans-1,3-Dichloropropene	10	U
75-25-2	-----Bromoform	10	U
108-10-1	-----4-Methyl-2-Pentanone	10	U
591-78-6	-----2-Hexanone	10	U
127-18-4	-----Tetrachloroethene	10	U
79-34-5	-----1,1,2,2-Tetrachloroethane	10	U
108-88-3	-----Toluene	10	U
108-90-7	-----Chlorobenzene	10	U
100-41-4	-----Ethylbenzene	10	U
100-42-5	-----Styrene	10	U
1330-20-7	-----Xylene (total)	10	U

UJ

UJ

SJD  
11/16/93



1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

73

GM-22S

Lab Name: IEA/CT Contract: \_\_\_\_\_

Lab Code: IEACT Case No.: 0927B SAS No.: \_\_\_\_\_ SDG No.: B0927

Matrix: (soil/water) WATER Lab Sample ID: 0927045

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B6228.D

Level: (low/med) LOW Date Received: 08/27/93

% Moisture: not dec. \_\_\_\_\_ Data Analyzed: 09/01/93

GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U UJ
74-83-9	Bromomethane	10	U U
75-01-4	Vinyl Chloride	10	U UJ
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U UJ
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U UJ
591-78-6	2-Hexanone	10	U UJ
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U UJ
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

SLD  
11/16/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-22I

153

Lab Name: IEA/CT Contract: \_\_\_\_\_  
 Lab Code: IEACT Case No.: 0927B SAS No.: \_\_\_\_\_ SDG No.: B0927  
 Matrix: (soil/water) WATER Lab Sample ID: 0927057  
 Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B6238.D  
 Level: (low/med) LOW Date Received: 08/28/93  
 % Moisture: not dec. \_\_\_\_\_ Data Analyzed: 09/01/93  
 GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0  
 Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U UJ
74-83-9	Bromomethane	10	U U
75-01-4	Vinyl Chloride	10	U UJ
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U UJ
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	4	J
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U UJ
591-78-6	2-Hexanone	10	U UJ
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U UJ
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

SUP  
11/16/93



1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.  
GM-221 TRB

146

GM-REP4

Lab Name: IEA/CT

Contract:

Lab Code: IEACT

Case No.: 0927B

SAS No.:

SDG No.: B0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927056

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: B6237.D

Level: (low/med) LOW

Date Received: 08/28/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 09/01/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U UJ
74-83-9	Bromomethane	10	U U
75-01-4	Vinyl Chloride	10	U UJ
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U UJ
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	4	J
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U UJ
591-78-6	2-Hexanone	10	U UJ
127-18-4	Tetrachloroethene	1	J
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U UJ
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

SUP  
11/16/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-22D

Lab Name: IEA/CT Contract: \_\_\_\_\_

Lab Code: IEACT Case No.: 0927 SAS No.: \_\_\_\_\_

Matrix: (soil/water) WATER Lab Sample ID: 0927020

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B6139.D

Level: (low/med) LOW Date Received: 08/25/93

% Moisture: not dec. \_\_\_\_\_ Data Analyzed: 08/28/93

GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U UJ
74-83-9	Bromomethane	10	U U
75-01-4	Vinyl Chloride	10	U U
75-00-3	Chloroethane	10	U U
75-09-2	Methylene Chloride	10	U U
67-64-1	Acetone	10	U U UJ
75-15-0	Carbon Disulfide	10	U U
75-35-4	1,1-Dichloroethene	10	U U
75-34-3	1,1-Dichloroethane	10	U U
540-59-0	1,2-Dichloroethene (total)	1	J
67-66-3	Chloroform	10	U U
107-06-2	1,2-Dichloroethane	10	U U
78-93-3	2-Butanone	10	U U
71-55-6	1,1,1-Trichloroethane	10	U U
56-23-5	Carbon Tetrachloride	10	U U
75-27-4	Bromodichloromethane	10	U U
78-87-5	1,2-Dichloropropane	10	U U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	17	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U U
71-43-2	Benzene	10	U U
10061-02-6	trans-1,3-Dichloropropene	10	U U
75-25-2	Bromoform	10	U U
108-10-1	4-Methyl-2-Pentanone	10	U U
591-78-6	2-Hexanone	10	U U
127-18-4	Tetrachloroethene	5	J
79-34-5	1,1,2,2-Tetrachloroethane	10	U U
108-88-3	Toluene	10	U U
108-90-7	Chlorobenzene	10	U U
100-41-4	Ethylbenzene	10	U U
100-42-5	Styrene	10	U U
1330-20-7	Xylene (total)	10	U

SUP  
11/16/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

105

GM-23S

Lab Name: IEA/CT Contract: \_\_\_\_\_

Lab Code: IEACT Case No.: 0927 SAS No.: \_\_\_\_\_ SDG No.: Z0927

Matrix: (soil/water) WATER Lab Sample ID: 0927007

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: G7202.D

Level: (low/med) LOW Date Received: 08/24/93

% Moisture: not dec. \_\_\_\_\_ Data Analyzed: 08/27/93

GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-23I

Lab Name: IEA/CT Contract: \_\_\_\_\_

Lab Code: IEACT Case No.: 0927A SAS No.: \_\_\_\_\_ SDG No.: A0927 0058

Matrix: (soil/water) WATER Lab Sample ID: 0927022

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: G7233.D

Level: (low/med) LOW Date Received: 08/25/93

% Moisture: not dec. \_\_\_\_\_ Data Analyzed: 08/30/93

GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	3	J
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	1	J
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	20	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	6	J
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. 56

GM-31S

Lab Name: IEA/CT Contract: \_\_\_\_\_

Lab Code: IEACT Case No.: 0927D SAS No.: \_\_\_\_\_ SDG No.: D0927

Matrix: (soil/water) WATER Lab Sample ID: 0927085

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: G7416.D

Level: (low/med) LOW Date Received: 09/02/93

% Moisture: not dec. \_\_\_\_\_ Data Analyzed: 09/07/93

GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	J
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	J
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

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SUP  
11/18/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

63

GM-32S

Lab Name: IEA/CT Contract: \_\_\_\_\_  
 Lab Code: IEACT Case No.: 0927D SAS No.: \_\_\_\_\_ SDG No.: D0927  
 Matrix: (soil/water) WATER Lab Sample ID: 0927086  
 Sample wt/vol: 5.0 (g/mL) ML Lab File ID: G7419.D  
 Level: (low/med) LOW Date Received: 09/02/93  
 % Moisture: not dec. \_\_\_\_\_ Data Analyzed: 09/07/93  
 GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0  
 Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	160	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

*SLP*  
*11/18/93*

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-33D2

Lab Name: IEA/CT Contract: \_\_\_\_\_

Lab Code: IEACT Case No.: 0927A SAS No.: \_\_\_\_\_ SDG No.: A0927

Matrix: (soil/water) WATER Lab Sample ID: 0927021

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: A7814.D

Level: (low/med) LOW Date Received: 08/25/93

% Moisture: not dec. \_\_\_\_\_ Data Analyzed: 08/28/93

GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

0051

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	-----Chloromethane	10	U
74-83-9	-----Bromomethane	10	U
75-01-4	-----Vinyl Chloride	10	U
75-00-3	-----Chloroethane	10	U
75-09-2	-----Methylene Chloride	10	U
67-64-1	-----Acetone	10	U
75-15-0	-----Carbon Disulfide	10	U
75-35-4	-----1,1-Dichloroethene	10	U
75-34-3	-----1,1-Dichloroethane	10	U
540-59-0	-----1,2-Dichloroethene (total)	10	U
67-66-3	-----Chloroform	10	U
107-06-2	-----1,2-Dichloroethane	10	U
78-93-3	-----2-Butanone	10	U
71-55-6	-----1,1,1-Trichloroethane	10	U
56-23-5	-----Carbon Tetrachloride	10	U
75-27-4	-----Bromodichloromethane	10	U
78-87-5	-----1,2-Dichloropropane	10	U
10061-01-5	-----cis-1,3-Dichloropropene	10	U
79-01-6	-----Trichloroethene	16	U
124-48-1	-----Dibromochloromethane	10	U
79-00-5	-----1,1,2-Trichloroethane	10	U
71-43-2	-----Benzene	10	U
10061-02-6	-----trans-1,3-Dichloropropene	10	U
75-25-2	-----Bromoform	10	U
108-10-1	-----4-Methyl-2-Pentanone	10	U
591-78-6	-----2-Hexanone	10	U
127-18-4	-----Tetrachloroethene	6	J
79-34-5	-----1,1,2,2-Tetrachloroethane	10	U
108-88-3	-----Toluene	10	U
108-90-7	-----Chlorobenzene	10	U
100-41-4	-----Ethylbenzene	10	U
100-42-5	-----Styrene	10	U
1330-20-7	-----Xylene (total)	10	U

UJ

SUP 11/16/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-34D

003

Lab Name: IEA/CT

Contract:

Lab Code: IEACT

Case No.: 0927C

SAS No.:

SDG No.: C0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927065

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: G7365.D

Level: (low/med) LOW

Date Received: 08/31/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 09/04/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	-----Chloromethane	10	U
74-83-9	-----Bromomethane	10	U
75-01-4	-----Vinyl Chloride	10	U
75-00-3	-----Chloroethane	10	U
75-09-2	-----Methylene Chloride	10	U
67-64-1	-----Acetone	10	U
75-15-0	-----Carbon Disulfide	10	U
75-35-4	-----1,1-Dichloroethene	4	J
75-34-3	-----1,1-Dichloroethane	2	J
540-59-0	-----1,2-Dichloroethene (total)	2	J
67-66-3	-----Chloroform	10	U
107-06-2	-----1,2-Dichloroethane	10	U
78-93-3	-----2-Butanone	10	U
71-55-6	-----1,1,1-Trichloroethane	2	J
56-23-5	-----Carbon Tetrachloride	10	U
75-27-4	-----Bromodichloromethane	10	U
78-87-5	-----1,2-Dichloropropane	10	U
10061-01-5	-----cis-1,3-Dichloropropene	10	U
79-01-6	-----Trichloroethene	68	
124-48-1	-----Dibromochloromethane	10	U
79-00-5	-----1,1,2-Trichloroethane	10	U
71-43-2	-----Benzene	10	U
10061-02-6	-----trans-1,3-Dichloropropene	10	U
75-25-2	-----Bromoform	10	U
108-10-1	-----4-Methyl-2-Pentanone	10	U
591-78-6	-----2-Hexanone	10	U
127-18-4	-----Tetrachloroethene	5	J
79-34-5	-----1,1,2,2-Tetrachloroethane	10	U
108-88-3	-----Toluene	10	U
108-90-7	-----Chlorobenzene	10	U
100-41-4	-----Ethylbenzene	10	U
100-42-5	-----Styrene	10	U
1330-20-7	-----Xylene (total)	10	U



1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-34D2	004
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Lab Name: IEA/CT Contract: \_\_\_\_\_

Lab Code: IEACT Case No.: 0927C SAS No.: \_\_\_\_\_ SDG No.: C0927

Matrix: (soil/water) WATER Lab Sample ID: 0927066

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: G7366.D

Level: (low/med) LOW Date Received: 08/31/93

% Moisture: not dec. \_\_\_\_\_ Data Analyzed: 09/04/93

GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	-----Chloromethane	10	U
74-83-9	-----Bromomethane	10	U
75-01-4	-----Vinyl Chloride	10	U
75-00-3	-----Chloroethane	10	U
75-09-2	-----Methylene Chloride	10	U
67-64-1	-----Acetone	10	U
75-15-0	-----Carbon Disulfide	10	U
75-35-4	-----1,1-Dichloroethene	10	U
75-34-3	-----1,1-Dichloroethane	0.9	J
540-59-0	-----1,2-Dichloroethene (total)	10	U
67-66-3	-----Chloroform	10	U
107-06-2	-----1,2-Dichloroethane	10	U
78-93-3	-----2-Butanone	10	U
71-55-6	-----1,1,1-Trichloroethane	10	U
56-23-5	-----Carbon Tetrachloride	10	U
75-27-4	-----Bromodichloromethane	10	U
78-87-5	-----1,2-Dichloropropane	10	U
10061-01-5	-----cis-1,3-Dichloropropene	10	U
79-01-6	-----Trichloroethene	35	U
124-48-1	-----Dibromochloromethane	10	U
79-00-5	-----1,1,2-Trichloroethane	10	U
71-43-2	-----Benzene	10	U
10061-02-6	-----trans-1,3-Dichloropropene	10	U
75-25-2	-----Bromoform	10	U
108-10-1	-----4-Methyl-2-Pentanone	10	U
591-78-6	-----2-Hexanone	10	U
127-18-4	-----Tetrachloroethene	2	J
79-34-5	-----1,1,2,2-Tetrachloroethane	10	U
108-88-3	-----Toluene	10	U
108-90-7	-----Chlorobenzene	10	U
100-41-4	-----Ethylbenzene	10	U
100-42-5	-----Styrene	10	U
1330-20-7	-----Xylene (total)	10	U

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11/18/93  
3/90

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-35D2

Lab Name: IEA/CT

Contract:

Lab Code: IEACT

Case No.: 0927A

SAS No.:

SDG No.: A0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927024

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: B6142.D

0073

Level: (low/med) LOW

Date Received: 08/25/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 08/28/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	5	J
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	4	J
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	29	
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

SUP  
11/16/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-35D2MS

Lab Name: IEA/CT Contract: \_\_\_\_\_

Lab Code: IEACT Case No.: 0927A SAS No.: \_\_\_\_\_ SDG No.: A0927

Matrix: (soil/water) WATER Lab Sample ID: 0927024MS 0330

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: G7234.D

Level: (low/med) LOW Date Received: 08/25/93

% Moisture: not dec. \_\_\_\_\_ Data Analyzed: 08/30/93

GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	73	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	4	J
56-23-5	Carbon Tetrachloride	5	J
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	90	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	58	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	53	U
108-90-7	Chlorobenzene	53	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-35D2MSD

0334

Lab Name: IEA/CT Contract: \_\_\_\_\_  
 Lab Code: IEACT Case No.: 0927A SAS No.: \_\_\_\_\_ SDG No.: A0927  
 Matrix: (soil/water) WATER Lab Sample ID: 0927024MSD  
 Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B6144.D  
 Level: (low/med) LOW Date Received: 08/25/93  
 % Moisture: not dec. \_\_\_\_\_ Data Analyzed: 08/28/93  
 GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0  
 Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	62	
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	4	J
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	77	
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	51	
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	50	
108-90-7	Chlorobenzene	50	
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

115

Lab Name: IEA/CT

Contract:

GM-36D

Lab Code: IEACT

Case No.: 0927

SAS No.:

SDG No.: Z0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927009

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: B6125.D

Level: (low/med) LOW

Date Received: 08/24/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 08/28/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 2.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	20	U UJ
74-83-9	Bromomethane	20	U U
75-01-4	Vinyl Chloride	20	U UJ
75-00-3	Chloroethane	20	U U
75-09-2	Methylene Chloride	20	U U
67-64-1	Acetone	20	U U
75-15-0	Carbon Disulfide	20	U U
75-35-4	1,1-Dichloroethene	20	U U
75-34-3	1,1-Dichloroethane	20	U U
540-59-0	1,2-Dichloroethene (total)	6	J J
67-66-3	Chloroform	20	U U
107-06-2	1,2-Dichloroethane	20	U U
78-93-3	2-Butanone	20	U U
71-55-6	1,1,1-Trichloroethane	3	J J
56-23-5	Carbon Tetrachloride	20	U U
75-27-4	Bromodichloromethane	20	U U
78-87-5	1,2-Dichloropropane	20	U U
10061-01-5	cis-1,3-Dichloropropene	20	U U
79-01-6	Trichloroethene	220	U
124-48-1	Dibromochloromethane	20	U
79-00-5	1,1,2-Trichloroethane	20	U U
71-43-2	Benzene	20	U U
10061-02-6	trans-1,3-Dichloropropene	20	U U
75-25-2	Bromoform	20	U U
108-10-1	4-Methyl-2-Pentanone	20	U U
591-78-6	2-Hexanone	20	U U
127-18-4	Tetrachloroethene	18	J J
79-34-5	1,1,2,2-Tetrachloroethane	20	U U
108-88-3	Toluene	20	U U
108-90-7	Chlorobenzene	20	U U
100-41-4	Ethylbenzene	20	U U
100-42-5	Styrene	20	U U
1330-20-7	Xylene (total)	20	U U

SUP  
11/16/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Lab Name: IEA/CT

Contract:

GM-36D2

124

Lab Code: IEACT

Case No.: 0927

SAS No.:

SDG No.: Z0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927010

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: G7194.D

Level: (low/med) LOW

Date Received: 08/24/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 08/27/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	0.5	J
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM37D

0142

Lab Name: IEA/CT

Contract:

Lab Code: IEACT

Case No.: 0927A

SAS No.:

SDG No.: A0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927036

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: G7219.D

Level: (low/med) LOW

Date Received: 08/26/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 08/28/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	4	J
75-34-3	1,1-Dichloroethane	10	
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10 U	J
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	7	J
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	2	J
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

UJ

SUP  
11/16/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM37D2

Lab Name: IEA/CT

Contract:

Lab Code: IEACT

Case No.: 0927A

SAS No.:

SDG No.: A0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927037

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: G7220.D

0152

Level: (low/med) LOW

Date Received: 08/26/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 08/28/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	1	J
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

UJ

SUP  
11/16/93



1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GM-38D

Lab Name: IEA/CT

Contract:

Lab Code: IEACT

Case No.: 0927A

SAS No.:

SDG No.: A0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927040

0170

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: G7239.D

Level: (low/med) LOW

Date Received: 08/26/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 08/30/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 5.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	50	U
74-83-9	Bromomethane	50	U
75-01-4	Vinyl Chloride	50	U
75-00-3	Chloroethane	50	U
75-09-2	Methylene Chloride	50	U
67-64-1	Acetone	50	U
75-15-0	Carbon Disulfide	50	U
75-35-4	1,1-Dichloroethene	50	U
75-34-3	1,1-Dichloroethane	50	U
540-59-0	1,2-Dichloroethene (total)	5	J
67-66-3	Chloroform	50 U	J
107-06-2	1,2-Dichloroethane	50	U
78-93-3	2-Butanone	50	U
71-55-6	1,1,1-Trichloroethane	50	U
56-23-5	Carbon Tetrachloride	50	U
75-27-4	Bromodichloromethane	50	U
78-87-5	1,2-Dichloropropane	50	U
10061-01-5	cis-1,3-Dichloropropene	50	U
79-01-6	Trichloroethene	610	
124-48-1	Dibromochloromethane	50	U
79-00-5	1,1,2-Trichloroethane	50	U
71-43-2	Benzene	50	U
10061-02-6	trans-1,3-Dichloropropene	50	U
75-25-2	Bromoform	50	U
108-10-1	4-Methyl-2-Pentanone	50	U
591-78-6	2-Hexanone	50	U
127-18-4	Tetrachloroethene	50	U
79-34-5	1,1,2,2-Tetrachloroethane	50	U
108-88-3	Toluene	50	U
108-90-7	Chlorobenzene	50	U
100-41-4	Ethylbenzene	50	U
100-42-5	Styrene	50	U
1330-20-7	Xylene (total)	50	U

SDP  
11/16/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

41

Lab Name: IEA/CT

Contract:

GM-38D2

Lab Code: IEACT

Case No.: 0927B

SAS No.:

SDG No.: B0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927041

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: G7240.D

Level: (low/med) LOW

Date Received: 08/27/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 08/30/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 5.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	-----Chloromethane	50	U
74-83-9	-----Bromomethane	50	U
75-01-4	-----Vinyl Chloride	50	U
75-00-3	-----Chloroethane	50	U
75-09-2	-----Methylene Chloride	50	U
67-64-1	-----Acetone	50	U
75-15-0	-----Carbon Disulfide	50	U
75-35-4	-----1,1-Dichloroethene	50	U
75-34-3	-----1,1-Dichloroethane	50	U
540-59-0	-----1,2-Dichloroethene (total)	8	J
67-66-3	-----Chloroform	50	U
107-06-2	-----1,2-Dichloroethane	50	U
78-93-3	-----2-Butanone	50	U
71-55-6	-----1,1,1-Trichloroethane	50	U
56-23-5	-----Carbon Tetrachloride	50	U
75-27-4	-----Bromodichloromethane	50	U
78-87-5	-----1,2-Dichloropropane	50	U
10061-01-5	-----cis-1,3-Dichloropropene	50	U
79-01-6	-----Trichloroethene	770	U
124-48-1	-----Dibromochloromethane	50	U
79-00-5	-----1,1,2-Trichloroethane	50	U
71-43-2	-----Benzene	50	U
10061-02-6	-----trans-1,3-Dichloropropene	50	U
75-25-2	-----Bromoform	50	U
108-10-1	-----4-Methyl-2-Pentanone	50	U
591-78-6	-----2-Hexanone	50	U
127-18-4	-----Tetrachloroethene	50	U
79-34-5	-----1,1,2,2-Tetrachloroethane	50	U
108-88-3	-----Toluene	50	U
108-90-7	-----Chlorobenzene	50	U
100-41-4	-----Ethylbenzene	50	U
100-42-5	-----Styrene	50	U
1330-20-7	-----Xylene (total)	50	U



1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-2	155
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Lab Name: IEA/CT

Contract:

Lab Code: IEACT

Case No.: 0927C

SAS No.:

SDG No.: C0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927074

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: G7409.D

Level: (low/med) LOW

Date Received: 08/31/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 09/07/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 20.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	200	U
74-83-9	Bromomethane	200	U
75-01-4	Vinyl Chloride	200	U
75-00-3	Chloroethane	200	U
75-09-2	Methylene Chloride	200 u	U
67-64-1	Acetone	33	U
75-15-0	Carbon Disulfide	200	U
75-35-4	1,1-Dichloroethene	200	U
75-34-3	1,1-Dichloroethane	30	U
540-59-0	1,2-Dichloroethene (total)	200	U
67-66-3	Chloroform	200	U
107-06-2	1,2-Dichloroethane	14	U
78-93-3	2-Butanone	200	U
71-55-6	1,1,1-Trichloroethane	200	U
56-23-5	Carbon Tetrachloride	24	U
75-27-4	Bromodichloromethane	200	U
78-87-5	1,2-Dichloropropane	200	U
10061-01-5	cis-1,3-Dichloropropene	200	U
79-01-6	Trichloroethene	200	U
124-48-1	Dibromochloromethane	3000	U
79-00-5	1,1,2-Trichloroethane	200	U
71-43-2	Benzene	200	U
10061-02-6	trans-1,3-Dichloropropene	200	U
75-25-2	Bromoform	200	U
108-10-1	4-Methyl-2-Pentanone	200	U
591-78-6	2-Hexanone	200	U
127-18-4	Tetrachloroethene	200	U
79-34-5	1,1,2,2-Tetrachloroethane	52	U
108-88-3	Toluene	200	U
108-90-7	Chlorobenzene	200 u	U
100-41-4	Ethylbenzene	200	U
100-42-5	Styrene	200	U
1330-20-7	Xylene (total)	200	U

SP  
11/18/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-5

Lab Name: IEA/CT Contract: \_\_\_\_\_  
 Lab Code: IEACT Case No.: 0927C SAS No.: \_\_\_\_\_ SDG No.: C0927  
 Matrix: (soil/water) WATER Lab Sample ID: 0927075  
 Sample wt/vol: 5.0 (g/mL) ML Lab File ID: G7384.D  
 Level: (low/med) LOW Date Received: 08/31/93  
 % Moisture: not dec. \_\_\_\_\_ Data Analyzed: 09/04/93  
 GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0  
 Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	23	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

SP  
11/18/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-8

Lab Name: IEA/CT

Contract:

Lab Code: IEACT

Case No.: 0927C

SAS No.:

SDG No.: C0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927076

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: G7407.D

Level: (low/med) LOW

Date Received: 08/31/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 09/07/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 5.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	50	U
74-83-9	Bromomethane	50	U
75-01-4	Vinyl Chloride	50	U
75-00-3	Chloroethane	50	U
75-09-2	Methylene Chloride	50	U
67-64-1	Acetone	50	U
75-15-0	Carbon Disulfide	50	U
75-35-4	1,1-Dichloroethene	290	U
75-34-3	1,1-Dichloroethane	11	J
540-59-0	1,2-Dichloroethene (total)	50	U
67-66-3	Chloroform	50	U
107-06-2	1,2-Dichloroethane	50	U
78-93-3	2-Butanone	50	U
71-55-6	1,1,1-Trichloroethane	50	U
56-23-5	Carbon Tetrachloride	410	U
75-27-4	Bromodichloromethane	50	U
78-87-5	1,2-Dichloropropane	50	U
10061-01-5	cis-1,3-Dichloropropene	50	U
79-01-6	Trichloroethene	180	U
124-48-1	Dibromochloromethane	50	U
79-00-5	1,1,2-Trichloroethane	50	U
71-43-2	Benzene	50	U
10061-02-6	trans-1,3-Dichloropropene	50	U
75-25-2	Bromoform	50	U
108-10-1	4-Methyl-2-Pentanone	50	U
591-78-6	2-Hexanone	50	U
127-18-4	Tetrachloroethene	250	U
79-34-5	1,1,2,2-Tetrachloroethane	50	U
108-88-3	Toluene	50	U
108-90-7	Chlorobenzene	50	U
100-41-4	Ethylbenzene	50	U
100-42-5	Styrene	50	U
1330-20-7	Xylene (total)	50	U

504-8 JB  
502K JBJ  
UJ  
UJ

504-3 JB

SP  
4/18/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.  
GP-8 TRB

GM-REP5 210

Lab Name: IEA/CT Contract: \_\_\_\_\_  
 Lab Code: IEACT Case No.: 0927C SAS No.: \_\_\_\_\_ SDG No.: C0927  
 Matrix: (soil/water) WATER Lab Sample ID: 0927078  
 Sample wt/vol: 5.0 (g/mL) ML Lab File ID: G7408.D  
 Level: (low/med) LOW Date Received: 08/31/93  
 % Moisture: not dec. \_\_\_\_\_ Data Analyzed: 09/07/93  
 GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 5.0  
 Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	50	U
74-83-9	Bromomethane	50	U
75-01-4	Vinyl Chloride	50	U
75-00-3	Chloroethane	50	U
75-09-2	Methylene Chloride	50	U
67-64-1	Acetone	50	U
75-15-0	Carbon Disulfide	50	U
75-35-4	1,1-Dichloroethene	420	U
75-34-3	1,1-Dichloroethane	50	U
540-59-0	1,2-Dichloroethene (total)	50	U
67-66-3	Chloroform	9	U
107-06-2	1,2-Dichloroethane	50	U
78-93-3	2-Butanone	50	U
71-55-6	1,1,1-Trichloroethane	550	U
56-23-5	Carbon Tetrachloride	50	U
75-27-4	Bromodichloromethane	50	U
78-87-5	1,2-Dichloropropane	50	U
10061-01-5	cis-1,3-Dichloropropene	50	U
79-01-6	Trichloroethene	240	U
124-48-1	Dibromochloromethane	50	U
79-00-5	1,1,2-Trichloroethane	50	U
71-43-2	Benzene	50	U
10061-02-6	trans-1,3-Dichloropropene	50	U
75-25-2	Bromoform	50	U
108-10-1	4-Methyl-2-Pentanone	50	U
591-78-6	2-Hexanone	50	U
127-18-4	Tetrachloroethene	310	U
79-34-5	1,1,2,2-Tetrachloroethane	50	U
108-88-3	Toluene	50	U
108-90-7	Chlorobenzene	50	U
100-41-4	Ethylbenzene	50	U
100-42-5	Styrene	50	U
1330-20-7	Xylene (total)	50	U

50 u  
50 28  
JB  
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SUP  
11/18/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

GP-14  
109

Lab Name: IEA/CT Contract: \_\_\_\_\_  
 Lab Code: IEACT Case No.: 0927C SAS No.: \_\_\_\_\_ SDG No.: C0927  
 Matrix: (soil/water) WATER Lab Sample ID: 0927077  
 Sample wt/vol: 5.0 (g/mL) ML Lab File ID: G7410.D  
 Level: (low/med) LOW Date Received: 08/31/93  
 % Moisture: not dec. \_\_\_\_\_ Data Analyzed: 09/07/93  
 GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 2.0  
 Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	20	U
74-83-9	Bromomethane	20	U
75-01-4	Vinyl Chloride	370	U
75-00-3	Chloroethane	20	U
75-09-2	Methylene Chloride	20	U
67-64-1	Acetone	20	U
75-15-0	Carbon Disulfide	20	U
75-35-4	1,1-Dichloroethene	20	U
75-34-3	1,1-Dichloroethane	5	J
540-59-0	1,2-Dichloroethene (total)	20	U
67-66-3	Chloroform	8	J
107-06-2	1,2-Dichloroethane	20	U
78-93-3	2-Butanone	20	U
71-55-6	1,1,1-Trichloroethane	20	U
56-23-5	Carbon Tetrachloride	9	J
75-27-4	Bromodichloromethane	20	U
78-87-5	1,2-Dichloropropane	20	U
10061-01-5	cis-1,3-Dichloropropene	20	U
79-01-6	Trichloroethene	20	U
124-48-1	Dibromochloromethane	92	U
79-00-5	1,1,2-Trichloroethane	20	U
71-43-2	Benzene	20	U
10061-02-6	trans-1,3-Dichloropropene	20	U
75-25-2	Bromoform	20	U
108-10-1	4-Methyl-2-Pentanone	20	U
591-78-6	2-Hexanone	20	U
127-18-4	Tetrachloroethene	20	U
79-34-5	1,1,2,2-Tetrachloroethane	47	U
108-88-3	Toluene	20	U
108-90-7	Chlorobenzene	20	U
100-41-4	Ethylbenzene	20	U
100-42-5	Styrene	20	U
1330-20-7	Xylene (total)	20	U

SUP  
11/18/93



1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

99

N-8767

Lab Name: IEA/CT Contract: \_\_\_\_\_  
 Lab Code: IEACT Case No.: 0927D SAS No.: \_\_\_\_\_ SDG No.: D0927  
 Matrix: (soil/water) WATER Lab Sample ID: 0927091  
 Sample wt/vol: 5.0 (g/mL) ML Lab File ID: G7461.D  
 Level: (low/med) LOW Date Received: 09/03/93  
 % Moisture: not dec. \_\_\_\_\_ Data Analyzed: 09/09/93  
 GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0  
 Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

sup  
11/18/93  
3/90

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

N-10816

103

Lab Name: IEA/CT Contract: \_\_\_\_\_  
 Lab Code: IEACT Case No.: 0927C SAS No.: \_\_\_\_\_ SDG No.: C0927  
 Matrix: (soil/water) WATER Lab Sample ID: 0927067  
 Sample wt/vol: 5.0 (g/mL) ML Lab File ID: G7367.D  
 Level: (low/med) LOW Date Received: 08/31/93  
 % Moisture: not dec. \_\_\_\_\_ Data Analyzed: 09/04/93  
 GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0  
 Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	-----Chloromethane	10	U
74-83-9	-----Bromomethane	10	U
75-01-4	-----Vinyl Chloride	10	U
75-00-3	-----Chloroethane	10	U
75-09-2	-----Methylene Chloride	10	U
67-64-1	-----Acetone	10	U
75-15-0	-----Carbon Disulfide	10 U	JB
75-35-4	-----1,1-Dichloroethene	10	U
75-34-3	-----1,1-Dichloroethane	10	U
540-59-0	-----1,2-Dichloroethene (total)	10	U
67-66-3	-----Chloroform	10	U
107-06-2	-----1,2-Dichloroethane	10	U
78-93-3	-----2-Butanone	10	U
71-55-6	-----1,1,1-Trichloroethane	10	U
56-23-5	-----Carbon Tetrachloride	10	U
75-27-4	-----Bromodichloromethane	10	U
78-87-5	-----1,2-Dichloropropane	10	U
10061-01-5	-----cis-1,3-Dichloropropene	10	U
79-01-6	-----Trichloroethene	10	U
124-48-1	-----Dibromochloromethane	10	U
79-00-5	-----1,1,2-Trichloroethane	10	U
71-43-2	-----Benzene	10	U
10061-02-6	-----trans-1,3-Dichloropropene	10	U
75-25-2	-----Bromoform	10	U
108-10-1	-----4-Methyl-2-Pentanone	10	U
591-78-6	-----2-Hexanone	10	U
127-18-4	-----Tetrachloroethene	10	U
79-34-5	-----1,1,2,2-Tetrachloroethane	10	U
108-88-3	-----Toluene	10	U
108-90-7	-----Chlorobenzene	10	U
100-41-4	-----Ethylbenzene	10	U
100-42-5	-----Styrene	10	U
1330-20-7	-----Xylene (total)	10	U

SUP  
11/18/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

N-10999

Lab Name: IEA/CT Contract: \_\_\_\_\_

Lab Code: IEACT Case No.: 0927C SAS No.: \_\_\_\_\_ SDG No.: C0927

Matrix: (soil/water) WATER Lab Sample ID: 0927068

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: G7368.D

Level: (low/med) LOW Date Received: 08/31/93

% Moisture: not dec. \_\_\_\_\_ Data Analyzed: 09/04/93

GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	2	J
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	2	J
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

104 4 JB

SD  
11/18/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

N-11000 118

Lab Name: IEA/CT Contract: \_\_\_\_\_  
 Lab Code: IEACT Case No.: 0927C SAS No.: \_\_\_\_\_ SDG No.: C0927  
 Matrix: (soil/water) WATER Lab Sample ID: 0927069  
 Sample wt/vol: 5.0 (g/mL) ML Lab File ID: G7369.D  
 Level: (low/med) LOW Date Received: 08/31/93  
 % Moisture: not dec. \_\_\_\_\_ Data Analyzed: 09/04/93  
 GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0  
 Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	-----Chloromethane	10	U
74-83-9	-----Bromomethane	10	U
75-01-4	-----Vinyl Chloride	10	U
75-00-3	-----Chloroethane	10	U
75-09-2	-----Methylene Chloride	10	U
67-64-1	-----Acetone	10u	JB
75-15-0	-----Carbon Disulfide	10	U
75-35-4	-----1,1-Dichloroethene	10	U
75-34-3	-----1,1-Dichloroethane	4	J
540-59-0	-----1,2-Dichloroethene (total)	10	U
67-66-3	-----Chloroform	10	U
107-06-2	-----1,2-Dichloroethane	10	U
78-93-3	-----2-Butanone	10	U
71-55-6	-----1,1,1-Trichloroethane	10	U
56-23-5	-----Carbon Tetrachloride	10	U
75-27-4	-----Bromodichloromethane	10	U
78-87-5	-----1,2-Dichloropropane	10	U
10061-01-5	-----cis-1,3-Dichloropropene	10	U
79-01-6	-----Trichloroethene	10	U
124-48-1	-----Dibromochloromethane	10	U
79-00-5	-----1,1,2-Trichloroethane	10	U
71-43-2	-----Benzene	10	U
10061-02-6	-----trans-1,3-Dichloropropene	10	U
75-25-2	-----Bromoform	10	U
108-10-1	-----4-Methyl-2-Pentanone	10	U
591-78-6	-----2-Hexanone	10	U
127-18-4	-----Tetrachloroethene	10	U
79-34-5	-----1,1,2,2-Tetrachloroethane	10	U
108-88-3	-----Toluene	10	U
108-90-7	-----Chlorobenzene	10	U
100-41-4	-----Ethylbenzene	10	U
100-42-5	-----Styrene	10	U
1330-20-7	-----Xylene (total)	10	U

30P  
11/18/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

05

FB823

Lab Name: IEA/CT Contract: \_\_\_\_\_  
 Lab Code: IEACT Case No.: 0927 SAS No.: \_\_\_\_\_ SDG No.: Z0927  
 Matrix: (soil/water) WATER Lab Sample ID: 0927001  
 Sample wt/vol: 5.0 (g/mL) ML Lab File ID: G7166.D  
 Level: (low/med) LOW Date Received: 08/24/93  
 % Moisture: not dec. \_\_\_\_\_ Data Analyzed: 08/26/93  
 GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0  
 Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U UJ
74-83-9	Bromomethane	10	U U
75-01-4	Vinyl Chloride	10	U U UJ
75-00-3	Chloroethane	10	U U
75-09-2	Methylene Chloride	3	J U
67-64-1	Acetone	10	U U
75-15-0	Carbon Disulfide	10	U U
75-35-4	1,1-Dichloroethene	10	U U
75-34-3	1,1-Dichloroethane	10	U U
540-59-0	1,2-Dichloroethene (total)	10	U U
67-66-3	Chloroform	10	U U
107-06-2	1,2-Dichloroethane	10	U U
78-93-3	2-Butanone	10	U U
71-55-6	1,1,1-Trichloroethane	10	U U
56-23-5	Carbon Tetrachloride	10	U U
75-27-4	Bromodichloromethane	10	U U
78-87-5	1,2-Dichloropropane	10	U U
10061-01-5	cis-1,3-Dichloropropene	10	U U
79-01-6	Trichloroethene	10	U U
124-48-1	Dibromochloromethane	10	U U
79-00-5	1,1,2-Trichloroethane	10	U U
71-43-2	Benzene	10	U U
10061-02-6	trans-1,3-Dichloropropene	10	U U
75-25-2	Bromoform	10	U U
108-10-1	4-Methyl-2-Pentanone	10	U U
591-78-6	2-Hexanone	10	U U
127-18-4	Tetrachloroethene	10	U U
79-34-5	1,1,2,2-Tetrachloroethane	10	U U
108-88-3	Toluene	10	U U
108-90-7	Chlorobenzene	10	U U
100-41-4	Ethylbenzene	10	U U
100-42-5	Styrene	10	U U
1330-20-7	Xylene (total)	10	U

*SUP*  
11/16/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FB-824

Lab Name: IEA/CT Contract: \_\_\_\_\_  
 Lab Code: IEACT Case No.: 0927A SAS No.: \_\_\_\_\_ SDG No.: A0927 0088  
 Matrix: (soil/water) WATER Lab Sample ID: 0927026  
 Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B6127.D  
 Level: (low/med) LOW Date Received: 08/25/93  
 % Moisture: not dec. \_\_\_\_\_ Data Analyzed: 08/28/93  
 GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0  
 Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

SUP  
11/10/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FB825

Lab Name: IEA/CT

Contract:

Lab Code: IEACT

Case No.: 0927A

SAS No.:

SDG No.: A0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927038

0158

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: G7235.D

Level: (low/med) LOW

Date Received: 08/26/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 08/30/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	-----Chloromethane	10	U
74-83-9	-----Bromomethane	10	U
75-01-4	-----Vinyl Chloride	10	U
75-00-3	-----Chloroethane	10	U
75-09-2	-----Methylene Chloride	10	U
67-64-1	-----Acetone	10	U
75-15-0	-----Carbon Disulfide	10	U
75-35-4	-----1,1-Dichloroethene	10	U
75-34-3	-----1,1-Dichloroethane	10	U
540-59-0	-----1,2-Dichloroethene (total)	10	U
67-66-3	-----Chloroform	0.8	J
107-06-2	-----1,2-Dichloroethane	10	U
78-93-3	-----2-Butanone	10	U
71-55-6	-----1,1,1-Trichloroethane	10	U
56-23-5	-----Carbon Tetrachloride	10	U
75-27-4	-----Bromodichloromethane	10	U
78-87-5	-----1,2-Dichloropropane	10	U
10061-01-5	-----cis-1,3-Dichloropropene	10	U
79-01-6	-----Trichloroethene	10	U
124-48-1	-----Dibromochloromethane	10	U
79-00-5	-----1,1,2-Trichloroethane	10	U
71-43-2	-----Benzene	10	U
10061-02-6	-----trans-1,3-Dichloropropene	10	U
75-25-2	-----Bromoform	10	U
108-10-1	-----4-Methyl-2-Pentanone	10	U
591-78-6	-----2-Hexanone	10	U
127-18-4	-----Tetrachloroethene	10	U
79-34-5	-----1,1,2,2-Tetrachloroethane	10	U
108-88-3	-----Toluene	0.5	J
108-90-7	-----Chlorobenzene	10	U
100-41-4	-----Ethylbenzene	10	U
100-42-5	-----Styrene	10	U
1330-20-7	-----Xylene (total)	10	U

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

104

FB826

Lab Name: IEA/CT Contract: \_\_\_\_\_  
 Lab Code: IEACT Case No.: 0927B SAS No.: \_\_\_\_\_ SDG No.: B0927  
 Matrix: (soil/water) WATER Lab Sample ID: 0927050  
 Sample wt/vol: 5.0 (g/mL) ML Lab File ID: G7271.D  
 Level: (low/med) LOW Date Received: 08/27/93  
 % Moisture: not dec. \_\_\_\_\_ Data Analyzed: 08/31/93  
 GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0  
 Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U



1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FB-827

165

Lab Name: IEA/CT Contract: \_\_\_\_\_

Lab Code: IEACT Case No.: 0927B SAS No.: \_\_\_\_\_ SDG No.: B0927

Matrix: (soil/water) WATER Lab Sample ID: 0927059

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B6227.D

Level: (low/med) LOW Date Received: 08/28/93

% Moisture: not dec. \_\_\_\_\_ Data Analyzed: 09/01/93

GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U UJ
74-83-9	Bromomethane	10	U U
75-01-4	Vinyl Chloride	10	U UJ
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U UJ
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U UJ
591-78-6	2-Hexanone	10	U UJ
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U UJ
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

SUP  
11/16/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FB083093

Lab Name: IEA/CT Contract: \_\_\_\_\_

Lab Code: IEACT Case No.: 0927C SAS No.: \_\_\_\_\_ SDG No.: C0927

Matrix: (soil/water) WATER Lab Sample ID: 0927063

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: G7363.D

Level: (low/med) LOW Date Received: 08/31/93

% Moisture: not dec. \_\_\_\_\_ Data Analyzed: 09/04/93

GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FB831

50

Lab Name: IEA/CT

Contract:

Lab Code: IEACT

Case No.: 0927D

SAS No.:

SDG No.: D0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927083

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: G7413.D

Level: (low/med) LOW

Date Received: 09/01/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 09/07/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO. COMPOUND CONCENTRATION UNITS:  
(ug/L or ug/Kg) UG/L Q

74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

104 1 JB  
UJ

SUD  
11/18/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. 003

Lab Name: IEA/CT

Contract:

TB8231

Lab Code: IEACT

Case No.: 0927

SAS No.:

SDG No.: Z0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927002

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: G7167.D

Level: (low/med) LOW

Date Received: 08/24/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 08/26/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U UJ
74-83-9	Bromomethane	10	U UJ
75-01-4	Vinyl Chloride	10	U UJ
75-00-3	Chloroethane	10	U UJ
75-09-2	Methylene Chloride	10	U UJ
67-64-1	Acetone	10	U UJ
75-15-0	Carbon Disulfide	10	U UJ
75-35-4	1,1-Dichloroethene	10	U UJ
75-34-3	1,1-Dichloroethane	10	U UJ
540-59-0	1,2-Dichloroethene (total)	10	U UJ
67-66-3	Chloroform	10	U UJ
107-06-2	1,2-Dichloroethane	0.9	U UJ
78-93-3	2-Butanone	10	U UJ
71-55-6	1,1,1-Trichloroethane	10	U UJ
56-23-5	Carbon Tetrachloride	10	U UJ
75-27-4	Bromodichloromethane	10	U UJ
78-87-5	1,2-Dichloropropane	10	U UJ
10061-01-5	cis-1,3-Dichloropropene	10	U UJ
79-01-6	Trichloroethene	10	U UJ
124-48-1	Dibromochloromethane	10	U UJ
79-00-5	1,1,2-Trichloroethane	10	U UJ
71-43-2	Benzene	10	U UJ
10061-02-6	trans-1,3-Dichloropropene	10	U UJ
75-25-2	Bromoform	10	U UJ
108-10-1	4-Methyl-2-Pentanone	10	U UJ
591-78-6	2-Hexanone	10	U UJ
127-18-4	Tetrachloroethene	10	U UJ
79-34-5	1,1,2,2-Tetrachloroethane	10	U UJ
108-88-3	Toluene	10	U UJ
108-90-7	Chlorobenzene	10	U UJ
100-41-4	Ethylbenzene	10	U UJ
100-42-5	Styrene	10	U UJ
1330-20-7	Xylene (total)	10	U

04

SUD  
11/16/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TB-8241

Lab Name: IEA/CT Contract: \_\_\_\_\_  
 Lab Code: IEACT Case No.: 0927A SAS No.: \_\_\_\_\_ SDG No.: A0927  
 Matrix: (soil/water) WATER Lab Sample ID: 0927025  
 Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B6126.D  
 Level: (low/med) LOW Date Received: 08/25/93  
 % Moisture: not dec. \_\_\_\_\_ Data Analyzed: 08/28/93  
 GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0  
 Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

0082

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	1	J
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

SUP  
11/16/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TB-8251

Lab Name: IEA/CT

Contract:

Lab Code: IEACT

Case No.: 0927A

SAS No.:

SDG No.: A0927 **0165**

Matrix: (soil/water) WATER

Lab Sample ID: 0927039

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: G7222.D

Level: (low/med) LOW

Date Received: 08/26/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 08/28/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	-----Chloromethane	10	U
74-83-9	-----Bromomethane	10	U
75-01-4	-----Vinyl Chloride	10	U
75-00-3	-----Chloroethane	10	U
75-09-2	-----Methylene Chloride	10	U
67-64-1	-----Acetone	10	U
75-15-0	-----Carbon Disulfide	10	U
75-35-4	-----1,1-Dichloroethene	10	U
75-34-3	-----1,1-Dichloroethane	10	U
540-59-0	-----1,2-Dichloroethene (total)	10	U
67-66-3	-----Chloroform	10	U
107-06-2	-----1,2-Dichloroethane	10	U
78-93-3	-----2-Butanone	10	U
71-55-6	-----1,1,1-Trichloroethane	10	U
56-23-5	-----Carbon Tetrachloride	10	U
75-27-4	-----Bromodichloromethane	10	U
78-87-5	-----1,2-Dichloropropane	10	U
10061-01-5	-----cis-1,3-Dichloropropene	10	U
79-01-6	-----Trichloroethene	10	U
124-48-1	-----Dibromochloromethane	10	U
79-00-5	-----1,1,2-Trichloroethane	10	U
71-43-2	-----Benzene	10	U
10061-02-6	-----trans-1,3-Dichloropropene	10	U
75-25-2	-----Bromoform	10	U
108-10-1	-----4-Methyl-2-Pentanone	10	U
591-78-6	-----2-Hexanone	10	U
127-18-4	-----Tetrachloroethene	10	U
79-34-5	-----1,1,2,2-Tetrachloroethane	10	U
108-88-3	-----Toluene	10	U
108-90-7	-----Chlorobenzene	10	U
100-41-4	-----Ethylbenzene	10	U
100-42-5	-----Styrene	10	U
1330-20-7	-----Xylene (total)	10	U

SUP  
11/16/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

116

Lab Name: IEA/CT

Contract:

TB8261

Lab Code: IEACT

Case No.: 0927B

SAS No.:

SDG No.: B0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927052

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: G7272.D

Level: (low/med) LOW

Date Received: 08/27/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 08/31/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	-----Chloromethane	10	U
74-83-9	-----Bromomethane	10	U
75-01-4	-----Vinyl Chloride	10	U
75-00-3	-----Chloroethane	10	U
75-09-2	-----Methylene Chloride	10	U
67-64-1	-----Acetone	10	U
75-15-0	-----Carbon Disulfide	10	U
75-35-4	-----1,1-Dichloroethene	10	U
75-34-3	-----1,1-Dichloroethane	10	U
540-59-0	-----1,2-Dichloroethene (total)	10	U
67-66-3	-----Chloroform	1	J
107-06-2	-----1,2-Dichloroethane	10	U
78-93-3	-----2-Butanone	10	U
71-55-6	-----1,1,1-Trichloroethane	10	U
56-23-5	-----Carbon Tetrachloride	10	U
75-27-4	-----Bromodichloromethane	10	U
78-87-5	-----1,2-Dichloropropane	10	U
10061-01-5	-----cis-1,3-Dichloropropene	10	U
79-01-6	-----Trichloroethene	10	U
124-48-1	-----Dibromochloromethane	10	U
79-00-5	-----1,1,2-Trichloroethane	10	U
71-43-2	-----Benzene	10	U
10061-02-6	-----trans-1,3-Dichloropropene	10	U
75-25-2	-----Bromoform	10	U
108-10-1	-----4-Methyl-2-Pentanone	10	U
591-78-6	-----2-Hexanone	10	U
127-18-4	-----Tetrachloroethene	10	U
79-34-5	-----1,1,2,2-Tetrachloroethane	10	U
108-88-3	-----Toluene	10	U
108-90-7	-----Chlorobenzene	10	U
100-41-4	-----Ethylbenzene	10	U
100-42-5	-----Styrene	10	U
1330-20-7	-----Xylene (total)	10	U

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. 057

TB-8271

Lab Name: IEA/CT

Contract:

Lab Code: IEACT

Case No.: 0927C

SAS No.:

SDG No.: C0927

Matrix: (soil/water) WATER

Lab Sample ID: 0927061

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: B6226.D

Level: (low/med) LOW

Date Received: 08/28/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 09/01/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U UJ
74-83-9	Bromomethane	10	U U
75-01-4	Vinyl Chloride	10	U UJ
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	2	J
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U UJ
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U UJ
591-78-6	2-Hexanone	10	U UJ
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U UJ
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

SUP  
11/18/93



1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TB083093

07

Lab Name: IEA/CT Contract: \_\_\_\_\_  
 Lab Code: IEACT Case No.: 0927C SAS No.: \_\_\_\_\_ SDG No.: C0927  
 Matrix: (soil/water) WATER Lab Sample ID: 0927064  
 Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B6252.D  
 Level: (low/med) LOW Date Received: 08/31/93  
 % Moisture: not dec. \_\_\_\_\_ Data Analyzed: 09/02/93  
 GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0  
 Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	-----Chloromethane	10	U
74-83-9	-----Bromomethane	10	U
75-01-4	-----Vinyl Chloride	10	U
75-00-3	-----Chloroethane	10	U
75-09-2	-----Methylene Chloride	10	U
67-64-1	-----Acetone	100 X	X
75-15-0	-----Carbon Disulfide	10	U
75-35-4	-----1,1-Dichloroethene	10	U
75-34-3	-----1,1-Dichloroethane	10	U
540-59-0	-----1,2-Dichloroethene (total)	10	U
67-66-3	-----Chloroform	10	U
107-06-2	-----1,2-Dichloroethane	10	U
78-93-3	-----2-Butanone	10	U
71-55-6	-----1,1,1-Trichloroethane	10	U
56-23-5	-----Carbon Tetrachloride	10	U
75-27-4	-----Bromodichloromethane	10	U
78-87-5	-----1,2-Dichloropropane	10	U
10061-01-5	-----cis-1,3-Dichloropropene	10	U
79-01-6	-----Trichloroethene	10	U
124-48-1	-----Dibromochloromethane	10	U
79-00-5	-----1,1,2-Trichloroethane	10	U
71-43-2	-----Benzene	10	U
10061-02-6	-----trans-1,3-Dichloropropene	10	U
75-25-2	-----Bromoform	10	U
108-10-1	-----4-Methyl-2-Pentanone	10	U
591-78-6	-----2-Hexanone	10	U
127-18-4	-----Tetrachloroethene	10	U
79-34-5	-----1,1,2,2-Tetrachloroethane	10	U
108-88-3	-----Toluene	10	U
108-90-7	-----Chlorobenzene	10	U
100-41-4	-----Ethylbenzene	10	U
100-42-5	-----Styrene	10	U
1330-20-7	-----Xylene (total)	10	U

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TB831-1

Lab Name: IEA/CT

Contract:

Lab Code: IEACT

Case No.: 0927C

SAS No.:

SDG No.: C0927

226

Matrix: (soil/water) WATER

Lab Sample ID: 0927079

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: G7374.D

Level: (low/med) LOW

Date Received: 09/01/93

% Moisture: not dec. \_\_\_\_\_

Data Analyzed: 09/04/93

GC Column: 007-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL)

Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	-----Chloromethane	10	U
74-83-9	-----Bromomethane	10	U
75-01-4	-----Vinyl Chloride	10	U
75-00-3	-----Chloroethane	10	U
75-09-2	-----Methylene Chloride	10	U
67-64-1	-----Acetone	10	U
75-15-0	-----Carbon Disulfide	10	U
75-35-4	-----1,1-Dichloroethene	10	U
75-34-3	-----1,1-Dichloroethane	10	U
540-59-0	-----1,2-Dichloroethene (total)	10	U
67-66-3	-----Chloroform	1	J
107-06-2	-----1,2-Dichloroethane	10	U
78-93-3	-----2-Butanone	10	U
71-55-6	-----1,1,1-Trichloroethane	10	U
56-23-5	-----Carbon Tetrachloride	10	U
75-27-4	-----Bromodichloromethane	10	U
78-87-5	-----1,2-Dichloropropane	10	U
10061-01-5	-----cis-1,3-Dichloropropene	10	U
79-01-6	-----Trichloroethene	10	U
124-48-1	-----Dibromochloromethane	10	U
79-00-5	-----1,1,2-Trichloroethane	10	U
71-43-2	-----Benzene	10	U
10061-02-6	-----trans-1,3-Dichloropropene	10	U
75-25-2	-----Bromoform	10	U
108-10-1	-----4-Methyl-2-Pentanone	10	U
591-78-6	-----2-Hexanone	10	U
127-18-4	-----Tetrachloroethene	10	U
79-34-5	-----1,1,2,2-Tetrachloroethane	10	U
108-88-3	-----Toluene	10	U
108-90-7	-----Chlorobenzene	10	U
100-41-4	-----Ethylbenzene	10	U
100-42-5	-----Styrene	10	U
1330-20-7	-----Xylene (total)	10	U

*SUP*  
*11/18/93*

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

87

TB-9-1-93

Lab Name: IEA/CT Contract: \_\_\_\_\_  
 Lab Code: IEACT Case No.: 0927D SAS No.: \_\_\_\_\_ SDG No.: D0927  
 Matrix: (soil/water) WATER Lab Sample ID: 0927089  
 Sample wt/vol: 5.0 (g/mL) ML Lab File ID: G7411.D  
 Level: (low/med) LOW Date Received: 09/02/93  
 % Moisture: not dec. \_\_\_\_\_ Data Analyzed: 09/07/93  
 GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0  
 Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

10 u 0.8 JB

SJD  
11/18/93

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

93

TB-9-2-93

Lab Name: IEA/CT Contract: \_\_\_\_\_

Lab Code: IEACT Case No.: 0927D SAS No.: \_\_\_\_\_ SDG No.: D0927

Matrix: (soil/water) WATER Lab Sample ID: 0927090

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: G7412.D

Level: (low/med) LOW Date Received: 09/03/93

% Moisture: not dec. \_\_\_\_\_ Data Analyzed: 09/07/93

GC Column: 007-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: \_\_\_\_\_ (uL) Soil Aliquot Volume: \_\_\_\_\_ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	1	J
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

*SJD*  
*11/18/93*

U.S. EPA - CLP

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

GM-65

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 0927

SAS No.:

SDG No.: T0927

Matrix (soil/water): WATER

Lab Sample ID: T92703

Level (low/med): LOW

Date Received: 08/24/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3320		J	F
7440-36-0	Antimony	28.0	U		F
7440-38-2	Arsenic	4.3	X	U	F
7440-39-3	Barium	130	B	J	F
7440-41-7	Beryllium	1.0	U		F
7440-43-9	Cadmium	2.0	U		F
7440-70-2	Calcium	23500			F
7440-47-3	Chromium	166			F
7440-48-4	Cobalt	3.0	U		F
7440-50-8	Copper	27.9			F
7439-89-6	Iron	14300			F
7439-92-1	Lead	4.3			F
7439-95-4	Magnesium	8860			F
7439-96-5	Manganese	35.5		J	F
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	32.2	X	U	F
7440-09-7	Potassium	3280	B		F
7782-49-2	Selenium	2.0	U	X	U
7440-22-4	Silver	3.0	U		F
7440-23-5	Sodium	46000			F
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	21.8	B		F
7440-66-6	Zinc	31.2			F
	Cyanide	10.0	U		AS

SUP 11/16/93

Color Before: BROWN

Clarity Before: CLOUDY

Texture:

Color After: COLORLESS

Clarity After: CLOUDY

Artifacts:

Comments:

1  
INORGANIC ANALYSIS DATA SHEET

GM-65

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 0927

SAS No.:

SDB No.: F0927

Matrix (soil/water): WATER

Lab Sample ID: F92703

Level (low/med): LOW

Date Received: 08/24/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	67.0	X	U	P
7440-36-0	Antimony	28.0	U		P
7440-38-2	Arsenic	1.0	U		F
7440-39-3	Barium	67.2	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	24800			P
7440-47-3	Chromium	4.0	U		P
7440-48-4	Cobalt	3.0	U		P
7440-50-8	Copper	14.0	X	U	P
7439-89-6	Iron	74.0	U		P
7439-92-1	Lead	1.0	B		F
7439-95-4	Magnesium	9110			P
7439-96-5	Manganese	16.2			P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	11.1	X	U	P
7440-09-7	Potassium	2030	B		P
7782-49-2	Selenium	1.0	U		F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	48600			P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	9.0	U		P
7440-66-6	Zinc	59.9		U	P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

SUP  
11/18/93

INORGANIC ANALYSIS DATA SHEET

GM-6I

Lab Name: IEA Contract:  
 Lab Code: IEA Case No.: 0927 SAS No.: SDG No.: T0927  
 Matrix (soil/water): WATER Lab Sample ID: T92704  
 Level (low/med): LOW Date Received: 08/24/93  
 % Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	15.0	UI	UJ	IF
7440-36-0	Antimony	28.0	UI		IF
7440-38-2	Arsenic	1.0	UI		IF
7440-39-3	Barium	31.1	BI	J	IF
7440-41-7	Beryllium	1.0	UI		IF
7440-43-9	Cadmium	2.0	UI		IF
7440-70-2	Calcium	9120			IF
7440-47-3	Chromium	4.0	UI		IF
7440-48-4	Cobalt	3.0	UI		IF
7440-50-8	Copper	13.7	BI		IF
7439-89-6	Iron	74.0	UI		IF
7439-92-1	Lead	1.8	BI		IF
7439-95-4	Magnesium	2650	BI		IF
7439-96-5	Manganese	4.0	BI	J	IF
7439-97-6	Mercury	0.20	UI		CV
7440-02-0	Nickel	8.0	UI		IF
7440-09-7	Potassium	1720	BI		IF
7782-49-2	Selenium	2.0	UI		IF
7440-22-4	Silver	3.0	UI		IF
7440-23-5	Sodium	4250	BI		IF
7440-28-0	Thallium	1.0	UI		IF
7440-62-2	Vanadium	9.0	UI		IF
7440-66-6	Zinc	16.6	BI		IF
	Cyanide	10.0	UI		AS

SUP 11/16/93

Color Before: COLORLESS Clarity Before: CLEAR Texture:  
 Color After: COLORLESS Clarity After: CLEAR Artifacts:  
 Comments:

U.S. EPA - CLP

1  
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.  
Gm-61 TRB

REP-2

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 0927

SAS No.:

SDG No.: T0927

Matrix (soil/water): WATER

Lab Sample ID: T92712

Level (low/med): LOW

Date Received: 08/24/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	15.0	U	X UJ	IF
7440-36-0	Antimony	28.0	U		IF
7440-38-2	Arsenic	1.0	U		IF
7440-39-3	Barium	29.4	B	X J	IF
7440-41-7	Beryllium	1.0	U		IF
7440-43-9	Cadmium	2.0	U		IF
7440-70-2	Calcium	8880			IF
7440-47-3	Chromium	4.0	U		IF
7440-48-4	Cobalt	3.0	U		IF
7440-50-8	Copper	5.0	U		IF
7439-89-6	Iron	74.0	U		IF
7439-92-1	Lead	1.0	U	UJ	IF
7439-95-4	Magnesium	2560	B		IF
7439-96-5	Manganese	3.4	B	X J	IF
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	8.0	U		IF
7440-09-7	Potassium	1530	B		IF
7782-49-2	Selenium	2.0	U		IF
7440-22-4	Silver	3.0	U		IF
7440-23-5	Sodium	4480	B		IF
7440-28-0	Thallium	1.0	U		IF
7440-62-2	Vanadium	9.0	U		IF
7440-66-6	Zinc	7.6	B		IF
	Cyanide	10.0	U		AS

50  
11/16/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:



1  
INORGANIC ANALYSIS DATA SHEET

GM-6I

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 0927

SAS No.:

SDG No.: F0927

Matrix (soil/water): WATER

Lab Sample ID: F92704

Level (low/med): LOW

Date Received: 08/24/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	15.0	X	U	IF
7440-36-0	Antimony	28.0	U		IF
7440-38-2	Arsenic	1.0	U		IF
7440-39-3	Barium	21.9	B		IF
7440-41-7	Beryllium	1.0	U		IF
7440-43-9	Cadmium	2.0	U		IF
7440-70-2	Calcium	9430			IF
7440-47-3	Chromium	4.0	U		IF
7440-48-4	Cobalt	3.0	U		IF
7440-50-8	Copper	14.8	X	U	IF
7439-89-6	Iron	74.0	U		IF
7439-92-1	Lead	2.0	B		IF
7439-95-4	Magnesium	2650	B		IF
7439-96-5	Manganese	6.7	B		IF
7439-97-6	Mercury	0.20	U		ICV
7440-02-0	Nickel	8.0	U		IF
7440-09-7	Potassium	1440	B		IF
7782-49-2	Selenium	1.0	U		IF
7440-22-4	Silver	3.0	U		IF
7440-23-5	Sodium	4600	B		IF
7440-28-0	Thallium	1.0	U		IF
7440-62-2	Vanadium	9.0	U		IF
7440-66-6	Zinc	56.8		U	IF
	Cyanide				INR

SLP 11/18/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

U.S. EPA - CLP

1  
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.  
*Gm-6I TRB*

REP-2

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 0927

SAS No.:

SDG No.: F0927

Matrix (soil/water): WATER

Lab Sample ID: F92712

Level (low/med): LOW

Date Received: 08/24/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	15.0	U		P
7440-36-0	Antimony	28.0	U		P
7440-38-2	Arsenic	1.0	U		P
7440-39-3	Barium	21.9	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	9860			P
7440-47-3	Chromium	4.0	U		P
7440-48-4	Cobalt	3.0	U		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	74.0	U		P
7439-92-1	Lead	1.0	U	U	P
7439-95-4	Magnesium	2760	B		P
7439-96-5	Manganese	3.9	B		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	8.0	U		P
7440-09-7	Potassium	1860	B		P
7782-49-2	Selenium	1.0	U		P
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	4680	B		P
7440-28-0	Thallium	1.0	U		P
7440-62-2	Vanadium	9.0	U		P
7440-66-6	Zinc	34.5	U		P
	Cyanide				NR

*SUP*  
*11/16/93*

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

USE, EPA - CUF

USE, EPA - CUF

INORGANIC ANALYSIS DATA SHEET

Lab Code: 12A

Contract:

Lab Code: 12A

Case No.: 09077

SAS No.:

SDB No.: 80177

Matrix (incl. Water): WATER

Lab Sample ID: T10751

Level (low-med): LBW

Date Received: 06/27/90

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	16400			P
7440-36-0	Antimony	28.0	U		P
7440-38-2	Arsenic	2.2	B		P
7440-39-3	Barium	164	B		P
7440-41-7	Beryllium	2.8	B		P
7440-43-9	Cadmium	2.4	B		P
7440-70-2	Calcium	16400			P
7440-47-3	Chromium	72.2			P
7440-48-4	Cobalt	3.0	U		P
7440-50-8	Copper	71.9			P
7439-89-6	Iron	210000			P
7439-92-1	Lead	42.7			P
7439-95-4	Magnesium	6420			P
7439-96-5	Manganese	229			P
7439-97-6	Mercury	0.50			CV
7440-02-0	Nickel	8.6	B		P
7440-09-7	Potassium	4490	B		P
7782-49-2	Selenium	1.0	U		P
7440-22-4	Silver	3.0	U		P
7440-23-3	Sodium	25200			P
7440-28-0	Thallium	1.0	U		P
7440-62-2	Vanadium	229			P
7440-66-6	Zinc	71.3			P
	Cyanide	10.0	U		AS

Color Before: ORANGE

Clarity Before: OPAGUE

Texture:

Color After: YELLOW

Clarity After: CLOUDY

Artifacts:

Comments:

ORGANIC ANALYSIS DATA SHEET

08-78

Lab Name: (E)

Company:

Lab Code: (E)

Case No.: 19278

SAS No.:

SDG No.: 819278

Matrix (soil/water): WATER

Lab Sample ID: F90751

Level (low/med): LOW

Date Received: 08/27/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	U	Q	IM
7429-90-5	Aluminum	15.0	UI		IP
7440-36-0	Antimony	28.0	UI		IP
7440-38-2	Arsenic	1.0	UI		IP
7440-39-3	Barium	110	BI		IP
7440-41-7	Beryllium	1.0	UI		IP
7440-43-9	Cadmium	2.1	BI		IP
7440-70-2	Calcium	15200			IP
7440-47-3	Chromium	4.0	UI		IP
7440-48-4	Cobalt	3.0	UI		IP
7440-50-8	Copper	5.0	UI		IP
7439-89-6	Iron	74.0	UI		IP
7439-92-1	Lead	1.0	UI		IP
7439-95-4	Magnesium	5740			IP
7439-96-5	Manganese	9.4	BI		IP
7439-97-6	Mercury	0.20	UI		IP
7440-02-0	Nickel	5.3	UI		IP
7440-09-7	Potassium	3060	BI		IP
7782-49-2	Selenium	1.0	UI		IP
7440-22-4	Silver	3.0	UI		IP
7440-23-5	Sodium	25200			IP
7440-28-0	Thallium	1.0	UI		IP
7440-62-2	Vanadium	5.0	UI		IP
7440-66-6	Zinc	19.7	XIU		IP
	Cyanide				INR

SUP 11/18/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

INORGANIC ANALYSIS DATA SHEET

Lab Name: IEA Contract: \_\_\_\_\_  
 Lab Code: IEA Case No.: 19177 SAS No.: \_\_\_\_\_ ID No.: 19177  
 Matrix (soil/water): WATER Lab Sample ID: 19177  
 Level (low/med): LOW Date Received: 05/27/83  
 % Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	31.2	BI		IF
7440-36-0	Antimony	28.0	UI		IF
7440-38-2	Arsenic	1.0	UI		IF
7440-39-3	Barium	19.9	BI		IF
7440-41-7	Beryllium	1.0	UI		IF
7440-43-7	Cadmium	2.0	UI		IF
7440-70-2	Calcium	2370	BI		IF
7440-47-3	Chromium	5.3	BI		IF
7440-48-4	Cobalt	3.0	UI		IF
7440-50-8	Copper	15.7	BI		IF
7439-89-6	Iron	74.0	UI		IF
7439-92-1	Lead	1.9	BI		IF
7439-95-4	Magnesium	821	BI		IF
7439-96-5	Manganese	4.7	BI		IF
7439-97-6	Mercury	0.20	UI		ICV
7440-02-0	Nickel	3.0	UI		IF
7440-09-7	Potassium	3240	BI		IF
7782-49-2	Selenium	1.0	UI		IF
7440-22-4	Silver	3.0	UI		IF
7440-23-5	Sodium	22200	BI		IF
7440-28-0	Thallium	1.0	UI		IF
7440-62-2	Vanadium	9.0	UI		IF
7440-66-6	Zinc	17.2	BI		IF
	Cyanide	10.0	UI		IAS

Color Before: COLORLESS Clarity Before: CLEAR Texture:  
 Color After: COLORLESS Clarity After: CLEAR Artifacts:  
 Comments:

ANALYTICAL DATA SHEET

Lab Name: LEA

Contract:

DN-71

Lab Code: LEA

Case No.: 07278

SAS No.:

SDS No.: 20927F

Matrix (soil/water): WATER

Lab Sample ID: F92742

Level (low/med): LOW

Date Received: 08/27/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

DAS No.	Analyte	Concentration	U	IM
7429-90-5	Aluminum	15.0	UI	IP
7440-36-0	Antimony	28.0	UI	IP
7440-38-2	Arsenic	1.0	UI	IP
7440-39-3	Barium	21.6	BI	IP
7440-41-7	Beryllium	1.0	UI	IP
7440-43-9	Cadmium	2.0	UI	IP
7440-70-2	Calcium	2400	BI	IP
7440-47-3	Chromium	4.0	UI	IP
7440-48-4	Cobalt	3.0	UI	IP
7440-50-8	Copper	18.4	XU	IP
7439-89-6	Iron	74.0	UI	IP
7439-92-1	Lead	1.0	UI	IP
7439-95-4	Magnesium	821	BI	IP
7439-96-5	Manganese	2.4	BI	IP
7439-97-6	Mercury	0.20	UI	ICV
7440-02-0	Nickel	8.0	UI	IP
7440-09-7	Potassium	2590	BI	IP
7782-49-2	Selenium	1.0	UI	IP
7440-22-4	Silver	3.0	UI	IP
7440-23-5	Sodium	22700		IP
7440-28-0	Thallium	1.0	UI	IP
7440-62-2	Vanadium	9.0	UI	IP
7440-66-6	Zinc	15.8	XU	IP
	Cyanide			NR

SUP 11/18/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE NO.

## ORGANIC ANALYSIS DATA SHEET

Lab Name: IEA

Contract:

GM-75

Lab Code: IEA

Case No.: C9077

SAS No.:

SDB No.: B09077

Media: (Soil/Water): WATER

Lab Sample ID: TR0740

Level (low/med): LOW

Date Received: 08/27/97

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

ICAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	21.3	B		IF
7440-36-0	Antimony	28.0	U		IF
7440-38-2	Arsenic	1.0	U		IF
7440-39-3	Barium	11.3	B		IF
7440-41-7	Beryllium	1.0	U		IF
7440-43-9	Cadmium	2.0	U		IF
7440-70-2	Calcium	2520	B		IF
7440-47-3	Chromium	4.0	U		IF
7440-48-4	Cobalt	3.0	U		IF
7440-50-8	Copper	20.0	B		IF
7439-89-6	Iron	74.0	U		IF
7439-92-1	Lead	1.0	B		IF
7439-95-4	Magnesium	812	B		IF
7439-96-5	Manganese	2.5	B		IF
7439-97-6	Mercury	0.20	U		ICV
7440-02-0	Nickel	8.0	U		IF
7440-09-7	Potassium	1250	B		IF
7782-49-2	Selenium	1.0	U		IF
7440-22-4	Silver	3.0	U		IF
7440-23-5	Sodium	20300			IF
7440-28-0	Thallium	1.3	B		IF
7440-62-2	Vanadium	9.0	U		IF
7440-66-8	Zinc	32.5			IF
	Cyanide	10.0	U		IAS

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

INORGANIC ANALYSIS DATA SHEET

GM-7C

Lab Code: 12A

Contract:

Lab Code: 12A

Case No.: 09275

SAS No.:

SDG No.: 509077

Matrix (soil/water): WATER

Lab Sample ID: F92743

Level (low/med): LOW

Date Received: 08/27/93

% Solids: 0.0

Concentration units (ug/L or mg/kg dry weight): UG/L

ICAS No.	Analyte	Concentration	D	Q	IM
7429-90-5	Aluminum	15.0	UI		IP
7440-36-0	Antimony	28.0	UI		IP
7440-38-2	Arsenic	1.0	UI		IP
7440-39-3	Barium	12.1	BI		IP
7440-41-7	Beryllium	1.0	UI		IP
7440-43-9	Cadmium	2.0	UI		IP
7440-70-2	Calcium	2546	BI		IP
7440-47-3	Chromium	4.0	UI		IP
7440-48-4	Cobalt	3.0	UI		IP
7440-50-8	Copper	6.1	X	U	IP
7439-89-6	Iron	74.0	UI		IP
7439-92-1	Lead	1.0	UI		IP
7439-95-4	Magnesium	636	BI		IP
7439-96-5	Manganese	2.0	BI		IP
7439-97-6	Mercury	0.20	UI		COV
7440-02-0	Nickel	8.0	UI		IP
7440-09-7	Potassium	1390	BI		IP
7782-49-2	Selenium	1.0	UI		IP
7440-22-4	Silver	3.0	UI		IP
7440-23-5	Sodium	20500			IP
7440-28-0	Thallium	1.0	UI	MD	IP
7440-62-2	Vanadium	9.0	UI		IP
7440-66-6	Zinc	10.9	X	U	IP
	Cyanide				INR

SLD 11/18/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:



1.5. 87-1-CLP

87-1-CLP

ORGANIC ANALYSIS DATA SHEET

Lab Name: IRA

Contract:

Lab Code: IRA

Case No.: 09077

SAS No.:

SIG No.: 87-1-CLP

Matrix (soil/water): WATER

Lab Sample ID: 781755

Level (low/med): LBW

Date Received: 05/19/87

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-9	Aluminum	16.1	B		P
7440-36-0	Antimony	28.0	U		P
7440-38-2	Arsenic	1.0	U		P
7440-39-2	Barium	22.0	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	7650			P
7440-47-3	Chromium	5.2	B		P
7440-48-4	Cobalt	3.0	U		P
7440-50-8	Copper	6.0	B		P
7439-89-6	Iron	74.0	U		P
7439-92-1	Lead	1.3	B		P
7437-95-4	Magnesium	2490	B		P
7439-96-5	Manganese	2.2	B		P
7439-97-5	Mercury	0.20	U		CV
7440-02-0	Nickel	3.0	U		P
7440-09-7	Potassium	1360	B		P
7782-49-2	Selenium	1.0	U		P
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	15300			P
7440-28-0	Thallium	1.0	U		P
7440-62-2	Vanadium	9.0	U		P
7440-66-6	Zinc	11.3	B		P
	Cyanide	10.0	U		AS

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

1  
 INORGANIC ANALYSIS DATA SHEET

Lab Name: IEA

Contract:

CM-81

Lab Code: IEA

Case No.: 0927B

SAS No.:

SDG No.: 60927B

Matrix (soil/water): WATER

Lab Sample ID: F9175E

Level (low/med): LOW

Date Received: 06-29/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	15.0	UI		P
7440-36-0	Antimony	28.0	UI		P
7440-38-2	Arsenic	1.0	UI		P
7440-39-3	Barium	23.7	BI		P
7440-41-7	Beryllium	1.0	UI		P
7440-43-9	Cadmium	2.0	UI		P
7440-70-2	Calcium	8100	I		P
7440-47-3	Chromium	4.0	UI		P
7440-48-4	Cobalt	3.0	UI		P
7440-50-8	Copper	5.0	UI		P
7439-89-6	Iron	74.0	UI		P
7439-92-1	Lead	1.0	UI		P
7439-95-4	Magnesium	2630	BI		P
7439-96-5	Manganese	2.0	UI		P
7439-97-6	Mercury	0.20	UI		CDV
7440-02-0	Nickel	8.0	UI		P
7440-09-7	Potassium	1100	BI		P
7782-49-2	Selenium	1.0	UI		P
7440-22-4	Silver	3.0	UI		P
7440-23-5	Sodium	16300	I		P
7440-28-0	Thallium	1.0	UI		P
7440-62-2	Vanadium	2.0	UI		P
7440-66-6	Zinc	18.0	XUI		P
	Cyanide				NR

SUP 11/18/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE NO.

1  
INORGANIC ANALYSIS DATA SHEET

GM-13S

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 0927

SAS No.:

SDG No.: T0927

Matrix (soil/water): WATER

Lab Sample ID: T92705

Level (low/med): LOW

Date Received: 08/24/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10500		X J	P
7440-36-0	Antimony	28.0	U		P
7440-38-2	Arsenic	10.3			F
7440-39-3	Barium	97.5	B	X J	P
7440-41-7	Beryllium	3.8	B		P
7440-43-9	Cadmium	4.3	B		P
7440-70-2	Calcium	9210			F
7440-47-3	Chromium	31.8			P
7440-48-4	Cobalt	14.8	B		P
7440-50-8	Copper	838			P
7439-89-6	Iron	103000			P
7439-92-1	Lead	128		J	F
7439-95-4	Magnesium	3030	B		P
7439-96-5	Manganese	1720		X J	P
7439-97-6	Mercury	0.24			CV
7440-02-0	Nickel	132			P
7440-09-7	Potassium	4410	B		P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	88400			P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	52.4			P
7440-66-6	Zinc	171			P
	Cyanide	35.8			AS

SLP  
11/16/93

Color Before: BROWN

Clarity Before: CLOUDY

Texture:

Color After: YELLOW

Clarity After: CLOUDY

Artifacts:

Comments:

1  
INORGANIC ANALYSIS DATA SHEET

GM-133

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 0927

SAS No.:

SDG No.: F0927

Matrix (soil/water): WATER

Lab Sample ID: F92705

Level (low/med): LDW

Date Received: 08/24/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	111	X	U	P
7440-36-0	Antimony	28.0	U		P
7440-38-2	Arsenic	1.0	U		P
7440-39-3	Barium	2.0	U		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	2090	BI		P
7440-47-3	Chromium	4.0	U		P
7440-48-4	Cobalt	3.0	U		P
7440-50-8	Copper	11.4	BI		P
7439-89-6	Iron	347		U	P
7439-92-1	Lead	1.7	BI		P
7439-95-4	Magnesium	597	BI		P
7439-96-5	Manganese	7.3	BI		P
7439-97-6	Mercury	0.20	U		ICV
7440-02-0	Nickel	8.0	U		P
7440-09-7	Potassium	2000	BI		P
7782-49-2	Selenium	1.0	U		P
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	90000			P
7440-28-0	Thallium	1.0	U		P
7440-62-2	Vanadium	9.0	U		P
7440-66-6	Zinc	31.5		U	P
	Cyanide				NR

SUP 11/18/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE NO.

1  
INORGANIC ANALYSIS DATA SHEET

GM-131

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 0927C

SAS No.:

SDG No.: 00927

Matrix (soil/water): WATER

Lab Sample ID: T92780

Level (low/med): LOW

Date Received: 09/01/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8030		XJ	P
7440-36-0	Antimony	28.0	U		P
7440-38-2	Arsenic	24.0			F
7440-39-3	Barium	43.5	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	1090	B		P
7440-47-3	Chromium	31.8			P
7440-48-4	Cobalt	5.1	B		P
7440-50-8	Copper	61.2			P
7439-89-6	Iron	35200		XJ	P
7439-92-1	Lead	40.5			F
7439-95-4	Magnesium	434	B		P
7439-96-5	Manganese	156		XJ	P
7439-97-6	Mercury	0.24			CV
7440-02-0	Nickel	22.4	B		P
7440-09-7	Potassium	2240	B		P
7782-49-2	Selenium	2.3	B		F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	47300			P
7440-28-0	Thallium	1.0	U	UJ	F
7440-62-2	Vanadium	84.6			P
7440-66-6	Zinc	60.8			P
	Cyanide	70.5			AS

SUP 11/18/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

INORGANIC ANALYSIS DATA SHEET

GM-131

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 0927C

SAS No.:

SDG No.: C0927

Matrix (soil/water): WATER

Lab Sample ID: F92780

Level (low/med): LOW

Date Received: 09/01/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	526		XJ	P
7440-36-0	Antimony	28.0	U		P
7440-38-2	Arsenic	38.2			F
7440-39-3	Barium	2.0	U		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	66.3	X	U	P
7440-47-3	Chromium	4.0	U		P
7440-48-4	Cobalt	3.0	U		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	105		XU	P
7439-92-1	Lead	1.1	X	U	F
7439-95-4	Magnesium	31.0	U		P
7439-96-5	Manganese	2.5	B	XJ	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	0.0	U		P
7440-09-7	Potassium	932	U		P
7782-49-2	Selenium	1.7	B		F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	42800			P
7440-28-0	Thallium	1.0	U	UJ	F
7440-62-2	Vanadium	22.1	B		P
7440-66-6	Zinc	16.6	X	U	P
	Cyanide				NR

3P 11/18/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

U.S. EPA - 816

EPA SAMPLE NO.

ANALYTICAL ANALYSIS DATA SHEET

Lab Name: IEA

Contract:

CM-100

Lab Code: TCA

Date Recd: 08/27/93

EPA No.:

EPA No.: 209277

Matrix (soil/water): WATER

Lab Sample ID: T72753

Level (low/med): LOW

Date Received: 08/28/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	24.5	B		P
7440-36-0	Antimony	28.0	U		P
7440-38-2	Arsenic	1.0	U		P
7440-39-3	Barium	22.0	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	5020			P
7440-47-3	Chromium	4.0	U		P
7440-48-4	Cobalt	10.9	B		P
7440-50-8	Copper	11.1	B		P
7439-89-6	Iron	74.0	U		P
7439-92-1	Lead	1.4	B		P
7439-95-4	Magnesium	1470	B		P
7439-96-5	Manganese	9.2	B		P
7439-97-6	Mercury	1.4			CV
7440-02-0	Nickel	3.0	U		P
7440-09-7	Potassium	1060	B		P
7782-49-2	Selenium	1.2	B		P
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	33500			P
7440-28-0	Thallium	1.0	U		P
7440-62-2	Vanadium	9.0	U		P
7440-66-6	Zinc	10.3	B		P
	Cyanide	11.0			AS

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

U.S. EPA - CLD

LPA SAMPLE NO.

1  
INORGANIC ANALYSIS DATA SHEET

Lab Name: IEA

Contract:

SM-100

Lab Code: IEA

Case No.: 09275

SAS No.:

SDS No.: 909275

Matrix (soil/water): WATER

Lab Sample ID: F92753

Level (low/med): LDW

Date Received: 08/28/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	15.0	UI		IP
7440-36-0	Antimony	28.0	UI		IP
7440-38-2	Arsenic	1.0	UI		IP
7440-39-3	Barium	23.7	BI		IP
7440-41-7	Beryllium	1.0	UI		IP
7440-43-9	Cadmium	2.0	UI		IP
7440-70-2	Calcium	5010			IP
7440-47-3	Chromium	4.0	UI		IP
7440-48-4	Cobalt	11.3	BI		IP
7440-50-8	Copper	5.0	UI		IP
7439-89-6	Iron	74.0	UI		IP
7439-92-1	Lead	1.0	UI		IP
7439-95-4	Magnesium	1470	BI		IP
7439-96-5	Manganese	6.7	BI		IP
7439-97-6	Mercury	1.2			LDV
7440-02-0	Nickel	6.0	UI		IP
7440-09-7	Potassium	932	UI		IP
7782-49-2	Selenium	1.0	UI		IP
7440-22-4	Silver	3.0	UI		IP
7440-23-5	Sodium	32700			IP
7440-28-0	Thallium	1.0	UI		IP
7440-62-2	Vanadium	9.0	UI		IP
7440-66-6	Zinc	9.8	XU		IP
	Cyanide				NR

SUP 11/18/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:



U.S. EPA - CLP

LAB SAMPLE NO.

LABORATORY ANALYSIS DATA SHEET

OH-143

Name: EPA

Contract:

Lab Ref: 104

Case No.: 10277

SAS No.:

EOA No.: 81077

Media (soil/water): WATER

Lab Sample ID: 732749

Level (low/med): LOW

Date Received: 09/27/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

ICAS No.	Analyte	Concentration	C	Q	IM
7429-90-5	Aluminum	6330			IF
7440-36-0	Antimony	28.0	UI		IF
7440-18-2	Arsenic	2.5	BI		IF
7440-37-3	Barium	286			IF
7440-41-7	Beryllium	2.0	BI		IF
7440-43-9	Cadmium	3.0	BI		IF
7440-70-2	Calcium	19400			IF
7440-47-3	Chromium	44.6			IF
7440-48-4	Cobalt	11.6	BI		IF
7440-50-8	Copper	34.1			IF
7439-89-6	Iron	153000			IF
7439-92-1	Lead	46.8			IF
7439-95-4	Magnesium	5270			IF
7439-96-5	Manganese	1110			IF
7439-97-6	Mercury	0.22	UI		ICV
7440-02-0	Nickel	51.3			IF
7440-09-7	Potassium	3840	BI		IF
7762-49-2	Selenium	1.0	UI		IF
7440-22-4	Silver	3.0	UI		IF
7440-23-5	Sodium	29700			IF
7440-28-0	Thallium	1.5	BI		IF
7440-62-2	Vanadium	27.4	BI		IF
7440-66-6	Zinc	137			IF
	Cyanide	10.0	UI		IAS

Color Before: BROWN

Clarity Before: OPAQUE

Texture:

Color After: YELLOW

Clarity After: CLOUDY

Artifacts:

Comments:

ANALYTIC ANALYSIS DATA SHEET

01-147

Lab Name: ICH

Contract:

Lab Code: IEA

Date No.: 0927B

SAS No.:

SUB No.: 30927B

Matrix (soil/water): WATER

Lab Sample ID: F92747

Level (low/med): LOW

Date Received: 08/27/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	U	R	M
7429-90-5	Aluminum	15.0	U		F
7440-36-0	Antimony	28.0	U		F
7440-39-2	Arsenic	1.0	U		F
7440-39-3	Barium	164	B		F
7440-41-7	Beryllium	1.0	U		F
7440-43-9	Cadmium	2.0	U		F
7440-70-2	Calcium	17500			F
7440-47-3	Chromium	4.0	U		F
7440-48-4	Cobalt	3.9	X	SET	F
7440-50-6	Copper	5.0	U		F
7439-89-6	Iron	1650			F
7439-92-1	Lead	1.0	U		F
7439-95-4	Magnesium	4770	B		F
7439-96-5	Manganese	567			F
7439-97-6	Mercury	0.20	U		ICV
7440-02-0	Nickel	8.0	U		F
7440-09-7	Potassium	3070	B		F
7782-49-2	Selenium	1.0	U		F
7440-22-4	Silver	3.0	U		F
7440-23-5	Sodium	31200			F
7440-28-0	Thallium	1.0	U	XUJ	F
7440-62-2	Vanadium	9.0	U		F
7440-66-6	Zinc	23.6	U		F
	Cyanide				NR

SUP 11/18/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

INORGANIC ANALYSIS DATA SHEET

GM-141

Lab Name: IEA Contract: \_\_\_\_\_  
 Lab Code: IEA Case No.: 09270 SAS No.: \_\_\_\_\_ SDG No.: C0927  
 Matrix (soil/water): WATER Lab Sample ID: T92770  
 Level (low/med): LOW Date Received: 08/31/93  
 % Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	22.8	B	XJ	P
7440-36-0	Antimony	28.0	U		P
7440-38-2	Arsenic	1.0	U		F
7440-39-3	Barium	2.0	U		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	773	B		P
7440-47-3	Chromium	4.0	U		P
7440-48-4	Cobalt	13.1	B		P
7440-50-8	Copper	6.0	B		P
7439-89-6	Iron	74.0	U	X	P
7439-92-1	Lead	1.0	U	XUJ	F
7439-95-4	Magnesium	352	B		P
7439-96-5	Manganese	5.0	B	XJ	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	8.0	U		P
7440-09-7	Potassium	932	U		P
7782-49-2	Selenium	1.0	U	XUJ	F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	53800			P
7440-28-0	Thallium	1.0	U	UJ	F
7440-62-2	Vanadium	9.0	U		P
7440-66-6	Zinc	23.0			P
	Cyanide	44.4			AS

SUP 11/18/93

Color Before: COLORLESS Clarity Before: CLEAR Texture:  
 Color After: COLORLESS Clarity After: CLEAR Artifacts:  
 Comments:

U.S. EPA - CLP

EPA SAMPLE NO.  
378

INORGANIC ANALYSIS DATA SHEET

Lab Name: IEA

Contract:

SM-141

Lab Code: IEA

Case No.: 0927C

SAS No.:

SDG No.: C0927

Matrix (soil/water): WATER

Lab Sample ID: F92770

Level (low/med): LOW

Date Received: 08/31/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	15.0	U	X	P
7440-36-0	Antimony	28.0	U		P
7440-38-2	Arsenic	1.0	U		F
7440-39-3	Barium	4.7	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	735	B		P
7440-47-3	Chromium	4.0	U		P
7440-48-4	Cobalt	13.9	B		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	74.0	U	X	P
7439-92-1	Lead	1.0	U		F
7439-95-4	Magnesium	316	B		P
7439-96-5	Manganese	5.0	B	XJ	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	8.0	U		P
7440-09-7	Potassium	1040	B		P
7782-49-2	Selenium	1.0	U	XU	F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	56400			P
7440-28-0	Thallium	1.0	U	XJ	F
7440-62-2	Vanadium	9.0	U		P
7440-66-6	Zinc	9.6	XU		P
	Cyanide				NR

SUD  
11/18/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

U.S. EPA - CLF

EPA SAMPLE NO.

## INORGANIC ANALYSIS DATA SHEET

GM-135

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 19077

SAS No.:

SDG No.: 809277

Matrix (soil/water): WATER

Lab Sample ID: T9274E

Level (low/med): LOW

Date Received: 08/27/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	IM
7429-90-5	Aluminum	24500			IF
7440-36-0	Antimony	28.0	U		IF
7440-38-2	Arsenic	5.2	B		IF
7440-39-3	Barium	282			IF
7440-41-7	Beryllium	1.0	U		IF
7440-43-9	Cadmium	4.5	B		IF
7440-70-2	Calcium	24100			IF
7440-47-3	Chromium	101			IF
7440-48-4	Cobalt	16.9	B		IF
7440-50-8	Copper	173			IF
7439-89-6	Iron	229000			IF
7439-92-1	Lead	169			IF
7439-95-4	Magnesium	7340			IF
7439-96-5	Manganese	1030			IF
7439-97-6	Mercury	0.20	U		ICV
7440-02-0	Nickel	94.2			IF
7440-09-7	Potassium	4930	B		IF
7782-49-2	Selenium	1.0	U		IF
7440-22-4	Silver	3.0	U		IF
7440-23-5	Sodium	16300			IF
7440-28-0	Thallium	1.0	U		IF
7440-62-2	Vanadium	105			IF
7440-66-6	Zinc	300			IF
	Cyanide	10.0	U		IAS

Color Before: ORANGE

Clarity Before: OPAGUE

Texture:

Color After: YELLOW

Clarity After: CLOUDY

Artifacts:

Comments:

U.S. EPA CLF

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

GM-153

Lab Name: IEA

Contract:

Lab Code: 174

Case No.: F927B

SAS No.:

SDS No.: S0927F

Matrix (soil/water): WATER

Lab Sample ID: F92748

Level (low/med): LOW

Date Received: 08/27/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

ICAS No.	Analyte	Concentration	C	G	M
7429-90-5	Aluminum	15.0	U		IP
7440-36-0	Antimony	28.0	U		IP
7440-38-2	Arsenic	1.0	U		IP
7440-37-3	Barium	58.3	B		IP
7440-41-7	Beryllium	1.0	U		IP
7440-43-9	Cadmium	2.0	U		IP
7440-70-2	Calcium	20400			IP
7440-47-3	Chromium	4.0	U		IP
7440-48-4	Cobalt	2.0	U		IP
7440-50-8	Copper	5.0	U		IP
7439-89-6	Iron	2140			IP
7439-92-1	Lead	1.0	U		IP
7439-95-4	Magnesium	4710	B		IP
7439-96-5	Manganese	273			IP
7439-97-6	Mercury	0.20	U		ICV
7440-02-0	Nickel	5.0	U		IP
7440-09-7	Potassium	3390	B		IP
7782-49-2	Selenium	1.0	U		IP
7440-22-4	Silver	3.0	U		IP
7440-23-5	Sodium	16100			IP
7440-28-0	Thallium	1.0	U	XUJ	IP
7440-62-2	Vanadium	9.0	U		IP
7440-66-6	Zinc	18.3	XU		IP
	Cyanide				INR

SLD 11/18/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE NO.

1  
INORGANIC ANALYSIS DATA SHEET

GM-151

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 0927

SAS No.:

SDG No.: D0927

Matrix (soil/water): WATER

Lab Sample ID: T92782

Level (low/med): LOW

Date Received: 09/01/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	27.2	B		P
7440-36-0	Antimony	28.0	U		P
7440-38-2	Arsenic	1.0	U	XUS	F
7440-39-3	Barium	78.4	B		F
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	17800			P
7440-47-3	Chromium	4.0	U		P
7440-48-4	Cobalt	3.0	U		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	74.0	U		P
7439-92-1	Lead	1.0	U		F
7439-95-4	Magnesium	5250			P
7439-96-5	Manganese	11.0	B		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	8.0	U		P
7440-09-7	Potassium	4430	B		P
7782-49-2	Selenium	2.0	B	XJ	F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	15600			P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	9.0	U		P
7440-66-6	Zinc	14.2	B		F
	Cyanide	10.0	U		AS

SEP 14/18/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: YELLOW

Clarity After: CLEAR

Artifacts:

Comments: Tot

1  
INORGANIC ANALYSIS DATA SHEET

GM-151

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 0927

SAS No.:

SDG No.: D0927

Matrix (soil/water): WATER

Lab Sample ID: F92782

Level (low/med): LOW

Date Received: 09/01/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	36.9	X	U	P
7440-36-0	Antimony	28.0	U		P
7440-38-2	Arsenic	1.0	U		F
7440-39-3	Barium	73.7	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	18400			P
7440-47-3	Chromium	4.0	U		P
7440-48-4	Cobalt	3.0	U		P
7440-50-8	Copper	22.9	X	U	P
7439-89-6	Iron	74.0	U		P
7439-92-1	Lead	1.2	B		F
7439-95-4	Magnesium	5230			P
7439-96-5	Manganese	9.4	B		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	9.5	X	U	P
7440-09-7	Potassium	4860	B		P
7782-49-2	Selenium	2.0	U	X	F
7440-22-4	Silver	3.0	B		P
7440-23-5	Sodium	15500			P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	9.0	U		P
7440-66-6	Zinc	24.6		U	P
	Cyanide				NR

SUP 11/18/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments: F:14



INORGANIC ANALYTIC DATA SHEET

EPA SAMPLE NO.

GM-151

Lab Name: IEA

Contract:

Lab Code: 103

Case No: 19277

Lab No.:

EIS No.: 50277

Matrix (soil/water): WATER

Lab Sample ID: T92747

Level (low/med): LOW

Date Received: 08/27/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8250			IF
7440-36-0	Antimony	28.0	UI		IF
7440-38-2	Arsenic	3.3	BI		IF
7440-39-3	Barium	76.4	BI		IF
7440-41-7	Beryllium	1.0	UI		IF
7440-43-9	Cadmium	2.0	UI		IF
7440-70-2	Calcium	27700			IF
7440-47-3	Chromium	14.1			IF
7440-48-4	Cobalt	3.1	BI		IF
7440-50-8	Copper	29.4			IF
7439-89-6	Iron	13800			IF
7439-92-1	Lead	10.9			IF
7439-95-4	Magnesium	2130	BI		IF
7439-96-5	Manganese	222			IF
7439-97-6	Mercury	0.20	UI		LOV
7440-02-0	Nickel	8.0	UI		IF
7440-09-7	Potassium	1810	BI		IF
7782-49-2	Selenium	1.0	UI	XUS	IF
7440-22-4	Silver	3.0	UI		IF
7440-23-5	Sodium	13500			IF
7440-28-0	Thallium	1.0	UI		IF
7440-62-2	Vanadium	9.0	UI		IF
7440-66-6	Zinc	56.4			IF
	Cyanide	10.0	UI		AS

SUP 11/18/93

Color Before: BROWN

Clarity Before: OPAGUE

Texture:

Color After: COLORLESS

Clarity After: CLOUDY

Artifacts:

Comments:

ORGANIC ANALYSIS DATA SHEET

-GP-100

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 0907P

SAS No.:

SDG No.: 80927P

Matrix (soil/water): WATER

Lab Sample ID: F92747

Level (low/med): LOW

Date Received: 08/27/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	15.0	UI		IP
7440-36-0	Antimony	26.0	UI		IP
7440-38-2	Arsenic	1.0	UI		IP
7440-39-3	Barium	71.5	BI		IP
7440-41-7	Beryllium	1.0	UI		IP
7440-43-9	Cadmium	2.9	UI		IP
7440-70-2	Calcium	20800			IP
7440-47-3	Chromium	4.0	UI		IP
7440-48-4	Cobalt	3.0	UI		IP
7440-50-8	Copper	3.3	X	U	IP
7439-89-6	Iron	74.0	UI		IP
7439-92-1	Lead	1.0	UI		IP
7439-95-4	Magnesium	1510	BI		IP
7439-96-5	Manganese	6.7	BI		IP
7439-97-6	Mercury	0.20	UI		LDV
7440-02-0	Nickel	5.0	UI		IP
7440-09-7	Potassium	1060	BI		IP
7782-49-2	Selenium	1.0	UI		IP
7440-22-4	Silver	3.0	UI		IP
7440-23-5	Sodium	15100			IP
7440-28-0	Thallium	1.0	UI		IP
7440-62-2	Vanadium	9.0	UI		IP
7440-66-6	Zinc	22.6	U		IP
	Cyanide				NR

SW  
11/18/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

1  
INORGANIC ANALYSIS DATA SHEET

GM-161

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 0927

SAS No.:

SDG No.: D0927

Matrix (soil/water): WATER

Lab Sample ID: T92787

Level (low/med): LOW

Date Received: 09/02/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9440			P
7440-36-0	Antimony	28.0	U		P
7440-38-2	Arsenic	2.0	B		F
7440-39-3	Barium	23.3	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	2720	B		P
7440-47-3	Chromium	4.0	U		P
7440-48-4	Cobalt	6.9	B		P
7440-50-8	Copper	92.6			P
7439-89-6	Iron	8670			P
7439-92-1	Lead	3.8			F
7439-95-4	Magnesium	637	B		P
7439-96-5	Manganese	91.0			F
7439-97-6	Mercury	1.0			CV
7440-02-0	Nickel	8.0	U		P
7440-09-7	Potassium	932	U		P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	97300			P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	17.0	B		P
7440-66-6	Zinc	14.4	B		P
	Cyanide	70.0			AS

Color Before: ORANGE

Clarity Before: CLOUDY

Texture:

Color After: ORANGE

Clarity After: CLOUDY

Artifacts:

Comments: Tot

INORGANIC ANALYSIS DATA SHEET

GM-161

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 0927

SAS No.:

SDG No.: D0927

Matrix (soil/water): WATER

Lab Sample ID: F92787

Level (low/med): LOW

Date Received: 09/02/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	561			P
7440-36-0	Antimony	28.0	U		P
7440-38-2	Arsenic	1.0	U	XUS	F
7440-39-3	Barium	4.7	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	1800	B		P
7440-47-3	Chromium	4.0	U		P
7440-48-4	Cobalt	3.0	B		P
7440-50-8	Copper	36.2		U	P
7439-89-6	Iron	404			P
7439-92-1	Lead	3.8			F
7439-95-4	Magnesium	296	B		P
7439-96-5	Manganese	37.9			P
7439-97-6	Mercury	0.31			CV
7440-02-0	Nickel	8.0	U		P
7440-09-7	Potassium	932	U		P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	96000			P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	9.0	U		P
7440-66-6	Zinc	21.6		U	P
	Cyanide				NR

SP 11/18/93

Color Before: ORANGE

Clarity Before: CLEAR

Texture:

Color After: ORANGE

Clarity After: CLEAR

Artifacts:

Comments: F:11

M.F. EPA 015

## INSTRUMENT ANALYSIS DATA SHEET

Lab Order: IEA

Contract:

Lab Code: IEA

Case No.: 09277

CAS No.:

ECS No.: 77277

Matrix (soil/water): WATER

Lab Sample ID: 770755

Level (low/med): LOW

Date Received: 06/26/97

% Solids: 0.0

Concentration units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	Q	IM
7429-90-5	Aluminum	8220	I		IP
7440-36-0	Antimony	28.0	UI		IP
7440-38-2	Arsenic	9.3	BI		IP
7440-39-3	Barium	32.2	BI		IP
7440-41-7	Beryllium	1.2	BI		IP
7440-43-9	Cadmium	2.0	UI		IP
7440-70-2	Calcium	8270	I		IP
7440-47-3	Chromium	36.1	I		IP
7440-48-4	Cobalt	8.2	BI		IP
7440-50-8	Copper	106	I		IP
7439-89-6	Iron	49900	I		IP
7439-92-1	Lead	11.8	I		IP
7439-95-4	Magnesium	1410	BI		IP
7439-96-5	Manganese	252	I		IP
7439-97-6	Mercury	0.20	UI		IGY
7440-62-0	Nickel	8.0	UI		IP
7440-09-7	Potassium	1620	BI		IP
7782-49-2	Selenium	1.0	UI		IP
7440-22-4	Silver	4.1	BI		IP
7440-23-5	Sodium	8380	I		IP
7440-28-0	Thallium	1.0	UI		IP
7440-62-2	Vanadium	26.4	BI		IP
7440-66-6	Zinc	53.6	I		IP
	Cyanide	13.8	I		IAS

Color Before: YELLOW

Clarity Before: OPAGUE

Texture:

Color After: COLORLESS

Clarity After: CLOUDY

Artifacts:

Comments:

LABORATORY ANALYSIS DATA SHEET

Lab Order No. 124

Contract No.

GM-175-1

Lab Order No. 124

Case No. 10777

SP# 12

SDS No. 20907

Matrix (soil/water): WATER

Lab Sample ID: T92754

Level (low/med): LOW

Date Received: 08/28/90

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

ICAS No.	Analyte	Concentration	C	Q	IM
7429-90-5	Aluminum	9070			IP
7440-36-0	Antimony	28.0	UI		IP
7440-38-2	Arsenic	8.2	BI		IP
7440-39-3	Barium	30.5	BI		IP
7440-41-7	Beryllium	1.2	BI		IP
7440-43-9	Cadmium	2.0	UI		IP
7440-70-2	Calcium	6380			IP
7440-47-3	Chromium	37.1			IP
7440-48-6	Cobalt	8.2	BI		IP
7440-50-8	Copper	114			IP
7437-87-6	Iron	52500			IP
7437-72-1	Lead	6.6			IP
7437-88-4	Magnesium	1410	BI		IP
7439-96-5	Manganese	271			IP
7439-97-0	Mercury	0.20	UI		LOV
7440-02-0	Nickel	5.0	UI		IP
7440-09-7	Potassium	1800	BI		IP
7782-49-2	Selenium	1.0	UI		IP
7440-22-4	Silver	4.1	BI		IP
7440-23-5	Sodium	6360			IP
7440-28-0	Thallium	1.0	UI		IP
7440-62-2	Vanadium	25.6	BI		IP
7440-66-6	Zinc	55.3			IP
	Cyanide	10.0	UI		IAS

Color Before: YELLOW

Clarity Before: OPAGUE

Texture:

Color After: COLORLESS

Clarity After: CLOUDY

Artifacts:

Comments:

U.S. EPA - 01

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

GM-175

Lab Name: IZC

Contract:

Lab Code: 121

Case No.: WPTZ

SAS No.:

SDS No.: 309075

Media: (Soil/Water): WATER

Lab Sample ID: P92755

Level: (Low/Med): LOW

Date Received: 08/28/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	R	M
7429-90-5	Aluminum	19.6	X	U	IF
7440-36-0	Antimony	28.0	U		IF
7440-38-2	Arsenic	1.0	U		IF
7440-39-3	Barium	7.9	B		IF
7440-41-7	Beryllium	1.0	U		IF
7440-43-9	Cadmium	2.0	U		IF
7440-70-2	Calcium	4660	B		IF
7440-47-3	Chromium	4.0	U		IF
7440-48-4	Cobalt	3.0	U		IF
7440-50-8	Copper	5.0	U		IF
7439-89-6	Iron	74.0	U		IF
7439-92-1	Lead	1.7	X	U	IF
7439-93-4	Magnesium	1170	B		IF
7439-96-5	Manganese	2.0	U		IF
7439-97-6	Mercury	0.20	U		ICV
7440-02-0	Nickel	8.0	U		IF
7440-09-7	Potassium	932	U		IF
7782-49-2	Selenium	1.0	U		IF
7440-22-4	Silver	3.0	U		IF
7440-23-5	Sodium	8400			IF
7440-28-0	Thallium	1.0	U		IF
7440-62-2	Vanadium	9.0	U		IF
7440-66-6	Zinc	11.8	X	U	IF
	Cyanide				INR

SLP 11/18/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

LAB SAMPLE NO.  
GM-175 TRB

INORGANIC ANALYSIS DATA SHEET

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 04273

SAS No.:

SOS No.: 30477

Matrix (Soil/Water): WATER

Lab Sample ID: 352024

Level (low/med): LOW

Date Received: 08/26/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	U	Q	IM
7429-90-5	Aluminum	15.0	U		IP
7440-36-0	Antimony	28.0	U		IP
7440-36-2	Arsenic	1.0	U		IF
7440-39-3	Barium	7.4	B		IF
7440-41-7	Beryllium	1.0	U		IF
7440-43-9	Cadmium	2.0	U		IP
7440-70-2	Calcium	4590	B		IP
7440-47-3	Chromium	4.0	U		IP
7440-48-4	Cobalt	3.0	U		IP
7440-50-8	Copper	5.0	U		IP
7439-89-6	Iron	74.0	U		IP
7439-92-1	Lead	1.0	XU		IF
7439-95-4	Magnesium	1170	B		IP
7439-96-5	Manganese	2.0	U		IP
7439-97-6	Mercury	0.20	U		ICV
7440-02-0	Nickel	8.0	U		IP
7440-09-7	Potassium	932	U		IP
7782-49-2	Selenium	1.0	U		IF
7440-22-4	Silver	3.0	U		IP
7440-23-5	Sodium	8340			IP
7440-28-0	Thallium	1.0	U		IF
7440-62-2	Vanadium	9.0	U		IP
7440-66-6	Zinc	8.7	XU		IP
	Cyanide				INR

SUP 11/18/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:



U.S. EPA - CLP

EPA SAMPLE NO.

1  
INORGANIC ANALYSIS DATA SHEET

GM-188

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 0927

SAS No.:

SDG No.: T0927

Matrix (soil/water): WATER

Lab Sample ID: T92706

Level (low/med): LOW

Date Received: 08/24/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2470		J	P
7440-36-0	Antimony	28.0	U		P
7440-38-2	Arsenic	2.1	X	U	P
7440-39-3	Barium	31.4	B	J	P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	7590			P
7440-47-3	Chromium	8.9	B		P
7440-48-4	Cobalt	3.9	B		P
7440-50-8	Copper	45.6			P
7439-89-6	Iron	38800			P
7439-92-1	Lead	113		J	P
7439-95-4	Magnesium	1950	B		P
7439-96-5	Manganese	433		J	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	56.5			P
7440-09-7	Potassium	1570	B		P
7782-49-2	Selenium	2.0	U		P
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	11100			P
7440-28-0	Thallium	1.0	U		P
7440-62-2	Vanadium	9.0	U		P
7440-66-6	Zinc	76.6			P
	Cyanide	10.0	U		AS

SLP  
11/10/93

Color Before: BROWN

Clarity Before: CLOUDY

Texture:

Color After: YELLOW

Clarity After: CLOUDY

Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE NO.

1  
INORGANIC ANALYSIS DATA SHEET

GM-185

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 0927

SAS No.:

SDG No.: FC927

Matrix (soil/water): WATER

Lab Sample ID: F92706

Level (low/med): LOW

Date Received: 08/24/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	15.0	U		F
7440-36-0	Antimony	28.0	U		F
7440-38-2	Arsenic	1.0	U		F
7440-39-3	Barium	25.6	B		F
7440-41-7	Beryllium	1.0	U		F
7440-43-9	Cadmium	2.0	U		F
7440-70-2	Calcium	7710			F
7440-47-3	Chromium	4.0	U		F
7440-48-4	Cobalt	3.0	U		F
7440-50-8	Copper	8.1	X	U	F
7439-89-6	Iron	267		U	F
7439-92-1	Lead	7.2			F
7439-95-4	Magnesium	1750	B		F
7439-96-5	Manganese	271			F
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	9.7	X	U	F
7440-09-7	Potassium	1280	B		F
7782-49-2	Selenium	1.0	U		F
7440-22-4	Silver	3.0	U		F
7440-23-5	Sodium	11900			F
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	9.0	U		F
7440-66-6	Zinc	77.3		U	F
	Cyanide				NR

SIP 11/18/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

## U.S. EPA - CLP

EPA SAMPLE NO.

1  
INORGANIC ANALYSIS DATA SHEET

GM-181

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 0927

SAS No.:

SDG No.: T0927

Matrix (soil/water): WATER

Lab Sample ID: T92711

Level (low/med): LOW

Date Received: 08/24/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	15.0	U	XUJ	IP
7440-36-0	Antimony	28.0	U		IP
7440-38-2	Arsenic	1.3	X	U	IF
7440-39-3	Barium	26.7	B	XJ	IP
7440-41-7	Beryllium	1.0	U		IP
7440-43-9	Cadmium	2.0	U		IP
7440-70-2	Calcium	5320			IP
7440-47-3	Chromium	4.0	U		IP
7440-48-4	Cobalt	3.0	U		IP
7440-50-8	Copper	7.3	B		IP
7439-89-6	Iron	74.0	U		IP
7439-92-1	Lead	1.4	B	XJ	IF
7439-95-4	Magnesium	1680	B		IP
7439-96-5	Manganese	8.0	B	XJ	IP
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	9.2	X	U	IP
7440-09-7	Potassium	1200	B		IP
7782-49-2	Selenium	2.0	U		IF
7440-22-4	Silver	3.0	U		IP
7440-23-5	Sodium	10800			IP
7440-28-0	Thallium	1.3	B	XU	IF
7440-62-2	Vanadium	9.0	U		IP
7440-66-6	Zinc	8.3	B		IP
	Cyanide	10.0	U		AS

SUP  
11/16/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

## U.S. EPA - CLP

EPA SAMPLE NO.

1  
INORGANIC ANALYSIS DATA SHEET

GM-181

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 0927

SAS No.:

SDG No.: F0927

Matrix (soil/water): WATER

Lab Sample ID: F92711

Level (low/med): LOW

Date Received: 08/24/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	26.3	X	U	IF
7440-36-0	Antimony	28.0	U		IF
7440-38-2	Arsenic	1.0	U		IF
7440-39-3	Barium	21.3	B		IF
7440-41-7	Beryllium	1.0	U		IF
7440-43-9	Cadmium	2.0	U		IF
7440-70-2	Calcium	5610			IF
7440-47-3	Chromium	4.0	U		IF
7440-48-4	Cobalt	3.0	U		IF
7440-50-8	Copper	9.2	X	U	IF
7439-89-6	Iron	74.0	U		IF
7439-92-1	Lead	2.9	B		IF
7439-95-4	Magnesium	1700	B		IF
7439-96-5	Manganese	8.1	B		IF
7439-97-6	Mercury	0.20	U		ICV
7440-02-0	Nickel	8.0	U		IF
7440-09-7	Potassium	1040	B		IF
7782-49-2	Selenium	1.0	U		IF
7440-22-4	Silver	3.0	U		IF
7440-23-5	Sodium	11300			IF
7440-28-0	Thallium	1.0	U		IF
7440-62-2	Vanadium	9.0	U		IF
7440-66-6	Zinc	24.0		U	IF
	Cyanide				INR

SUP 11/18/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE NO.

1  
INORGANIC ANALYSIS DATA SHEET

GM-199

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 0927C

SAS No.:

SDG No.: 00927

Matrix (soil/water): WATER

Lab Sample ID: T92772

Level (low/med): LOW

Date Received: 08/31/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	138	B	XJ	P
7440-36-0	Antimony	28.0	U		P
7440-38-2	Arsenic	1.0	U		F
7440-39-3	Barium	9.1	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	11700			P
7440-47-3	Chromium	4.0	U		P
7440-48-4	Cobalt	3.0	U		P
7440-50-8	Copper	9.4	B		P
7439-89-6	Iron	74.0	U	X	P
7439-92-1	Lead	2.1	B		F
7439-95-4	Magnesium	3020	B		P
7439-96-5	Manganese	27.8		XJ	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	8.0	U		P
7440-09-7	Potassium	1480	B		P
7782-49-2	Selenium	1.0	U	XU	F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	31600			P
7440-28-0	Thallium	1.0	U	UJ	F
7440-62-2	Vanadium	9.0	U		P
7440-66-6	Zinc	51.6			P
	Cyanide	10.0	U		AG

SUP 11/18/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

300

U.S. EPA - CLP

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

GN-198

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 09270

SAS No.:

SDG No.: 0092

Matrix (soil/water): WATER

Lab Sample ID: F92772

Level (low/med): LOW

Date Received: 08/31/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	79.2	X	X	U
7440-36-0	Antimony	28.0	U		P
7440-38-2	Arsenic	1.0	U		F
7440-39-3	Barium	10.5	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	12300			P
7440-47-3	Chromium	4.0	U		P
7440-48-4	Cobalt	3.0	U		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	74.0	U	B	P
7439-92-1	Lead	1.0	X	U	F
7439-95-4	Magnesium	3140	B		P
7439-96-5	Manganese	28.3		J	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	8.0	U		P
7440-09-7	Potassium	1760	B		P
7782-49-2	Selenium	1.0	U	X	U
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	32800			P
7440-28-0	Thallium	1.0	U	U	F
7440-62-2	Vanadium	7.0	U		P
7440-66-6	Zinc	53.5		U	P
	Cyanide				NR

SEP 11/18/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

## U.S. EPA - CLP

EPA SAMPLE NO.

## INORGANIC ANALYSIS DATA SHEET

GM-191

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 09270

SAS No.:

SDG No.: C0927

Matrix (soil/water): WATER

Lab Sample ID: T92771

Level (low/med): LOW

Date Received: 08/31/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	40.7	B	XJ	P
7440-36-0	Antimony	28.0	U		P
7440-38-2	Arsenic	1.0	U		F
7440-39-3	Barium	33.7	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	7250			P
7440-47-3	Chromium	4.0	U		P
7440-48-4	Cobalt	3.0	U		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	74.0	U	X	P
7439-92-1	Lead	1.5	B		F
7439-95-4	Magnesium	2740	B		P
7439-96-5	Manganese	3.8	B	XJ	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	8.0	U		P
7440-09-7	Potassium	732	U		P
7702-49-2	Selenium	1.0	U	XUS	F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	8040			P
7440-28-0	Thallium	1.0	U	US	F
7440-62-2	Vanadium	9.0	U		P
7440-66-6	Zinc	12.7	B		P
	Cyanide	10.0	U		AS

SLD  
11/18/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

INORGANIC ANALYSIS DATA SHEET

Lab Name: IEA

Contract:

GM-191

Lab Code: IEA

Case No.: 09270

SAS No.:

SDG No.: 0092

Matrix (soil/water): WATER

Lab Sample ID: F92771

Level (low/med): LOW

Date Received: 08/31/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7427-90-5	Aluminum	15.0	U	X	P
7440-36-0	Antimony	28.0	U		P
7440-38-2	Arsenic	1.0	U		F
7440-39-3	Barium	27.3	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	7800			P
7440-47-3	Chromium	4.0	U		P
7440-48-4	Cobalt	3.0	U		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	74.0	U	X	P
7439-92-1	Lead	1.4	X	U	F
7439-95-4	Magnesium	2940	B		P
7439-96-5	Manganese	3.3	B	X	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	8.0	U		P
7440-09-7	Potassium	1390	B		P
7782-49-2	Selenium	1.0	U	X	F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	9050			P
7440-28-0	Thallium	1.0	U	U	F
7440-62-2	Vanadium	7.0	U		P
7440-66-6	Zinc	14.7	X	U	P
	Cyanide				NR

JLP  
11/18/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:



U.S. EPA - CLP

EPA SAMPLE NO.

1  
INORGANIC ANALYSIS DATA SHEET

GM-20S

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 0927

SAS No.:

SDG No.: T0927

Matrix (soil/water): WATER

Lab Sample ID: T92708

Level (low/med): LOW

Date Received: 08/24/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2830		J	IF
7440-36-0	Antimony	28.0	U		IF
7440-38-2	Arsenic	1.0	U		IF
7440-39-3	Barium	41.0	B	J	IF
7440-41-7	Beryllium	1.0	U		IF
7440-43-9	Cadmium	56.9			IF
7440-70-2	Calcium	5780			IF
7440-47-3	Chromium	30.4			IF
7440-48-4	Cobalt	3.0	U		IF
7440-50-8	Copper	18.6	B		IF
7439-89-6	Iron	28500			IF
7439-92-1	Lead	46.8		J	IF
7439-95-4	Magnesium	2160	B		IF
7439-96-5	Manganese	270		J	IF
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	22.2		U	IF
7440-09-7	Potassium	1310	B		IF
7782-49-2	Selenium	2.0	U		IF
7440-22-4	Silver	9.9	B		IF
7440-23-5	Sodium	12000			IF
7440-28-0	Thallium	1.0	U		IF
7440-62-2	Vanadium	9.0	U		IF
7440-66-6	Zinc	107			IF
	Cyanide	10.0	U		AS

SUP 11/16/93

Color Before: BROWN

Clarity Before: CLOUDY

Texture:

Color After: YELLOW

Clarity After: CLOUDY

Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

GM-208

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 0927

SAS No.:

SDS No.: FC927

Matrix (soil/water): WATER

Lab Sample ID: F92708

Level (low/med): LOW

Date Received: 08/24/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	15.0	U		IF
7440-36-0	Antimony	28.0	U		IF
7440-38-2	Arsenic	1.0	U		IF
7440-39-3	Barium	10.7	B		IF
7440-41-7	Beryllium	1.0	U		IF
7440-43-9	Cadmium	12.3			IF
7440-70-2	Calcium	5640			IF
7440-47-3	Chromium	4.0	U		IF
7440-48-4	Cobalt	3.0	U		IF
7440-50-8	Copper	5.0	U		IF
7439-89-6	Iron	74.0	U		IF
7439-92-1	Lead	1.0	U	UJ	IF
7439-95-4	Magnesium	1880	B		IF
7439-96-5	Manganese	52.1			IF
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	8.0	U		IF
7440-09-7	Potassium	957	B		IF
7782-49-2	Selenium	1.0	U		IF
7440-22-4	Silver	3.0	U		IF
7440-23-5	Sodium	12300			IF
7440-28-0	Thallium	1.0	U		IF
7440-62-2	Vanadium	9.0	U		IF
7440-66-6	Zinc	40.3	U		IF
	Cyanide				INR

SLP 11/16/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE NO.

1  
INORGANIC ANALYSIS DATA SHEET

GM-201

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 0927

SAS No.:

SDG No.: T0927

Matrix (soil/water): WATER

Lab Sample ID: T92719

Level (low/med): LOW

Date Received: 08/25/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	19400		J	F
7440-36-0	Antimony	28.0	U		F
7440-38-2	Arsenic	1.0	U		F
7440-39-3	Barium	120	B	J	F
7440-41-7	Beryllium	1.2	B		F
7440-43-9	Cadmium	2.5	B		F
7440-70-2	Calcium	29800			F
7440-47-3	Chromium	49.6			F
7440-48-4	Cobalt	5.5	B		F
7440-50-8	Copper	33.2			F
7439-89-6	Iron	29200			F
7439-92-1	Lead	19.4		J	F
7439-95-4	Magnesium	838	B		F
7439-96-5	Manganese	111		J	F
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	14.4	X	U	F
7440-09-7	Potassium	41800			F
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	3.0	U		F
7440-23-5	Sodium	28000			F
7440-28-0	Thallium	1.0	U	W	F
7440-62-2	Vanadium	107			F
7440-66-6	Zinc	47.2			F
	Cyanide	10.0	U		AS

SUP 11/16/93

Color Before: ORANGE

Clarity Before: OPAGUE

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE NO.

1  
INORGANIC ANALYSIS DATA SHEET

GN-201

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 0927

SAS No.:

SDG No.: F0927

Matrix (soil/water): WATER

Lab Sample ID: F92719

Level (low/med): LOW

Date Received: 08/25/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	892			IP
7440-36-0	Antimony	28.0	U		IP
7440-38-2	Arsenic	8.3	B		IF
7440-39-3	Barium	32.0	B		IP
7440-41-7	Beryllium	1.0	U		IP
7440-43-9	Cadmium	2.0	U		IP
7440-70-2	Calcium	27000			IP
7440-47-3	Chromium	15.5		U	IP
7440-48-4	Cobalt	3.0	U		IP
7440-50-8	Copper	5.0	U		IP
7439-89-6	Iron	74.0	U		IP
7439-92-1	Lead	1.0	U		IF
7439-95-4	Magnesium	31.0	U		IP
7439-96-5	Manganese	2.0	U		IP
7439-97-6	Mercury	0.20	U		ICV
7440-02-0	Nickel	8.0	U		IP
7440-09-7	Potassium	40800			IP
7782-49-2	Selenium	1.0	U		IF
7440-22-4	Silver	3.0	U		IP
7440-23-5	Sodium	32100			IP
7440-28-0	Thallium	1.0	U	UJ	IF
7440-62-2	Vanadium	26.6	B		IP
7440-66-6	Zinc	17.3	<del>B</del> U		IP
	Cyanide				INR

SUP 11/10/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

U.S. EPA - CLF

EPA SAMPLE NO.

## INORGANIC ANALYSIS DATA SHEET

GM-200

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 0927

SAS No.:

SDG No.: D0927

Matrix (soil/water): WATER

Lab Sample ID: T92781

Level (low/med): LOW

Date Received: 09/01/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	39.5	B		P
7440-36-0	Antimony	28.0	U		F
7440-38-2	Arsenic	1.0	U		F
7440-39-3	Barium	13.1	B		P
7440-41-7	Beryllium	1.0	U		F
7440-43-9	Cadmium	2.0	U		F
7440-70-2	Calcium	4800	B		P
7440-47-3	Chromium	34.3			F
7440-48-4	Cobalt	3.0	U		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	74.0	U		P
7439-92-1	Lead	1.0	U		F
7439-95-4	Magnesium	1230	B		P
7439-96-5	Manganese	10.3	B		F
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	8.0	U		P
7440-09-7	Potassium	932	U		F
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	10900			F
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	9.0	U		F
7440-66-6	Zinc	11.7	B		F
	Cyanide	10.0	U		AS

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: YELLOW

Clarity After: CLEAR

Artifacts:

Comments: Total

U.S. EPA - CLE

EPA SAMPLE NO.

1  
INORGANIC ANALYSIS DATA SHEET

GM-000

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 0927

SAS No.:

BDG No.: D0927

Matrix (soil/water): WATER

Lab Sample ID: F92781

Level (low/med): LOW

Date Received: 09/01/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	33.6	X	U	P
7440-36-0	Antimony	28.0	U		F
7440-38-2	Arsenic	1.0	U	X	F
7440-39-3	Barium	15.3	B		F
7440-41-7	Beryllium	1.0	U		F
7440-43-9	Cadmium	2.0	U		F
7440-70-2	Calcium	5220			F
7440-47-3	Chromium	33.9			F
7440-48-4	Cobalt	3.0	U		F
7440-50-8	Copper	22.9	X	U	F
7439-89-6	Iron	74.0	U		F
7439-92-1	Lead	1.0	U		F
7439-95-4	Magnesium	1280	B		F
7439-96-5	Manganese	9.4	B		F
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	8.0	U		F
7440-09-7	Potassium	932	U		F
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	3.0	U		F
7440-23-5	Sodium	11700			F
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	9.0	U		F
7440-66-6	Zinc	42.1		U	F
	Cyanide				NR

SUP 11/18/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments: Filtered



Lab Name: ICA

Lab Code: ICA

Matrix: (soil/water): WATER

Level (low/med): LOW

% Solids: 0.0

Case No.: 113 7440 1982

Case No.: 113 7440 1982

Lab Sample ID: 113 7440

Date Received: 08/27/87

Concentration Units (ug/L or mg/kg dry weight): UG/L

DAS No.	Analyte	Concentration	U	S	IM
7440-90-5	Aluminum	15.0	U		IF
7440-36-0	Antimony	25.0	U		IF
7440-38-2	Arsenic	1.0	U		IF
7440-59-3	Barium	25.9	BI		IF
7440-41-7	Beryllium	1.0	U		IF
7440-45-9	Cadmium	4.1	X U		IF
7440-70-2	Calcium	7340			IF
7440-47-3	Chromium	11.3			IF
7440-46-4	Cobalt	3.3	U		IF
7440-50-8	Copper	5.2	X U		IF
7439-89-6	Iron	74.0	U		IF
7439-72-1	Lead	1.0	U		IF
7439-75-4	Magnesium	1730	BI		IF
7439-96-5	Manganese	4.2	BI		IF
7439-97-6	Mercury	0.20	U		ICV
7440-02-0	Nickel	5.0	U		IF
7440-09-7	Potassium	1780	BI		IF
7782-49-2	Selenium	1.0	U		IF
7440-22-4	Silver	3.0	U		IF
7440-23-5	Sodium	3360	BI		IF
7440-28-0	Thallium	1.0	U		IF
7440-52-2	Vanadium	5.0	U		IF
7440-66-6	Zinc	1.3	U		IF
	Cyanide				INR

SUP 11/18/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:





GM-22I TRB

Sample No.:

Sample Date:

Date Recd.: 12/27/77

Sub. No.:

Media: Soil Water: WATER

Lab Sample ID: 7727

Level (low/high): LOW

Date Received: 05/25/87

T. Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): ug/L

ICAS No.	Analyte	Concentration	C	Q	IM
7440-30-5	Aluminum	68.3	SI		IF
7440-36-0	Antimony	28.0	UI		IF
7440-38-2	Arsenic	1.0	UI		IF
7440-39-3	Barium	19.4	SI		IF
7440-41-7	Beryllium	1.0	UI		IF
7440-43-9	Cadmium	3.0	UI		IF
7440-70-2	Calcium	5020			IF
7440-47-3	Chromium	3.7	SI		IF
7440-48-4	Cobalt	3.0	UI		IF
7440-50-8	Copper	5.0	UI		IF
7437-89-6	Iron	123			IF
7437-92-1	Lead	1.2	SI		IF
7437-95-4	Magnesium	1470	SI		IF
7437-96-5	Manganese	9.3	SI		IF
7437-97-6	Mercury	0.23	UI		LOV
7440-02-0	Nickel	3.1	UI		IF
7440-09-7	Potassium	1533	SI		IF
7792-49-2	Selenium	1.0	UI		IF
7440-22-4	Silver	3.0	UI		IF
7440-23-5	Sodium	10600			IF
7440-28-0	Thallium	1.0	UI		IF
7440-62-2	Vanadium	3.0	UI		IF
7440-66-6	Zinc	80.7			IF
	Cyanide	10.0	UI		LAG

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

Lab Name: IEP

Lab Code: IEP

Matrix (soil/water): WATER

Level (low/med): LOW

% Solids: 0.0

DATA SHEET

Case No.: 09271

Job No.:

DOB No.: 509074

Lab Sample ID: P72757

Date Received: 08/28/93

Concentration Units (ug/L or mg/kg dry weight): ug/L

CAS No.	Analyte	Concentration	C	G	M
7429-90-5	Aluminum	15.0	U		P
7440-36-0	Antimony	25.0	U		P
7440-38-2	Arsenic	1.0	U		P
7440-39-3	Barium	19.4	U		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	5070			P
7440-47-3	Chromium	2.9	B		P
7440-48-4	Cobalt	3.0	U		P
7440-50-6	Copper	5.0	U		P
7439-89-6	Iron	74.0	U		P
7439-92-1	Lead	1.0	U		P
7439-95-4	Magnesium	1500	B		P
7439-96-5	Manganese	2.1	B		P
7439-97-6	Mercury	0.20	U		LDV
7440-02-0	Nickel	3.0	X	U	P
7440-09-7	Potassium	932	U		P
7782-49-2	Selenium	1.0	U		P
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	10700			P
7440-28-0	Thallium	1.0	U		P
7440-62-2	Vanadium	9.0	U		P
7440-66-6	Zinc	55.8		U	P
	Cyanide				NR

SUP 11/18/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

EPA Case No. GM-221 TRB

ANALYST: [blank] DATE: [blank]

Lab Name: IEL

Control: [blank]

Lab Code: 104

Case No.: 09275

Lab No.: [blank]

SDS No.: 09275

Matrix (soil/water): WATER

Lab Sample ID: 09275

Level (low/med): LOW

Date Received: 08/23/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	D	E	IM
7429-90-5	Aluminum	15.0	U		IF
7440-36-0	Antimony	28.0	U		IF
7440-36-2	Arsenic	1.0	U		IF
7440-39-3	Barium	20.0	B		IF
7440-41-7	Beryllium	1.0	U		IF
7440-43-9	Cadmium	2.0	U		IF
7440-70-2	Calcium	5050			IF
7440-47-3	Chromium	5.6	B		IF
7440-48-4	Cobalt	3.0	U		IF
7440-50-8	Copper	5.0	U		IF
7439-87-6	Iron	74.0	U		IF
7439-92-1	Lead	1.0	U		IF
7439-95-4	Magnesium	1480	B		IF
7439-96-5	Manganese	5.2	B		IF
7439-97-6	Mercury	0.20	U		ICV
7440-02-0	Nickel	13.2	X 4		IF
7440-09-7	Potassium	930	U		IF
7782-49-2	Selenium	1.0	U		IF
7440-22-4	Silver	3.0	U		IF
7440-23-5	Sodium	10700			IF
7440-28-0	Thallium	1.0	U		IF
7440-62-2	Vanadium	9.0	U		IF
7440-66-6	Zinc	83.2	U		IF
	Cyanide				NR

SUP 11/18/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

1  
INORGANIC ANALYSIS DATA SHEET

GM-230

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 0927

SAS No.:

SDG No.: T0927

Matrix (soil/water): WATER

Lab Sample ID: T92720

Level (low/med): LOW

Date Received: 08/25/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	28.2	B	J	IF
7440-36-0	Antimony	28.0	U		IF
7440-38-2	Arsenic	1.0	U		IF
7440-39-3	Barium	13.6	B	J	IF
7440-41-7	Beryllium	1.0	U		IF
7440-43-7	Cadmium	2.0	U		IF
7440-70-2	Calcium	3360	B		IF
7440-47-3	Chromium	4.0	U		IF
7440-48-4	Cobalt	3.0	U		IF
7440-50-8	Copper	5.0	U		IF
7439-89-6	Iron	74.0	U		IF
7439-92-1	Lead	1.3	B	J	IF
7439-95-4	Magnesium	1200	B		IF
7439-96-5	Manganese	2.3	B	J	IF
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	8.6	X	U	IF
7440-09-7	Potassium	2940	B		IF
7782-49-2	Selenium	2.0	U		IF
7440-22-4	Silver	3.0	U		IF
7440-23-5	Sodium	10000			IF
7440-28-0	Thallium	1.0	U	X	IF
7440-62-2	Vanadium	9.0	U		IF
7440-66-6	Zinc	19.0	B		IF
	Cyanide	10.0	U		AS

SUP 11/16/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE NO.

1  
INORGANIC ANALYSIS DATA SHEET

GM-227

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 0927

SAS No.:

SDS No.: FC927

Matrix (soil/water): WATER

Lab Sample ID: CT17A

Level (low/med): LOW

Date Received: 08/25/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	21.6	X	U	IF
7440-36-0	Antimony	28.0	U		IF
7440-38-2	Arsenic	1.2	X	U	IF
7440-39-3	Barium	7.5	B		IF
7440-41-7	Beryllium	1.0	U		IF
7440-43-9	Cadmium	2.0	U		IF
7440-70-2	Calcium	3680	B		IF
7440-47-3	Chromium	4.0	U		IF
7440-48-4	Cobalt	3.0	U		IF
7440-50-8	Copper	5.0	U		IF
7439-89-6	Iron	74.0	U		IF
7439-92-1	Lead	3.5	I		IF
7439-95-4	Magnesium	1210	B		IF
7439-96-5	Manganese	2.5	B		IF
7439-97-6	Mercury	0.20	U		ICV
7440-02-0	Nickel	8.0	U		IF
7440-09-7	Potassium	3270	B		IF
7782-49-2	Selenium	1.0	U		IF
7440-22-4	Silver	3.0	U		IF
7440-23-5	Sodium	10800	I		IF
7440-28-0	Thallium	1.0	U	U	IF
7440-62-2	Vanadium	9.0	U		IF
7440-66-6	Zinc	25.9	U		IF
	Cyanide		I		INR

SP  
11/16/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

1  
INORGANIC ANALYSIS DATA SHEET

GM-235

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 0927

SAS No.:

SDG No.: T0927

Matrix (soil/water): WATER

Lab Sample ID: T92707

Level (low/med): LOW

Date Received: 08/24/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	640		J	F
7440-36-0	Antimony	28.0	U		F
7440-38-2	Arsenic	1.0		U	F
7440-39-3	Barium	40.8	B	J	F
7440-41-7	Beryllium	1.0	U		F
7440-43-9	Cadmium	2.0	U		F
7440-70-2	Calcium	7840			F
7440-47-3	Chromium	8.0	B		F
7440-48-4	Cobalt	3.0	U		F
7440-50-8	Copper	7.5	B		F
7439-89-6	Iron	1520			F
7439-92-1	Lead	2.9	B		F
7439-95-4	Magnesium	2170	B		F
7439-96-5	Manganese	44.1		J	F
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	8.0	U		F
7440-09-7	Potassium	11400			F
7782-49-2	Selenium	2.0	U	U	F
7440-22-4	Silver	3.0	U		F
7440-23-5	Sodium	69100			F
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	9.0	U		F
7440-66-6	Zinc	10.8	B		F
	Cyanide	10.0	U		AS

*SDP 11/16/93*

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE NO.

1  
INORGANIC ANALYSIS DATA SHEET

GM-236

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 0927

SAS No.:

SDG No.: F0927

Matrix (soil/water): WATER

Lab Sample ID: F92707

Level (low/med): LOW

Date Received: 08/24/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	65.6	X	U	IP
7440-36-0	Antimony	28.0	U		IP
7440-38-2	Arsenic	1.0	U		IF
7440-39-3	Barium	19.2	B		IP
7440-41-7	Beryllium	1.0	U		IP
7440-43-9	Cadmium	2.0	U		IP
7440-70-2	Calcium	8410			IP
7440-47-3	Chromium	4.0	U		IP
7440-48-4	Cobalt	3.0	U		IP
7440-50-8	Copper	7.0	X	U	IP
7439-89-6	Iron	74.0	U		IP
7439-92-1	Lead	1.0	U		IF
7439-95-4	Magnesium	2280	B		IP
7439-96-5	Manganese	21.7			IP
7439-97-6	Mercury	0.20	U		ICV
7440-02-0	Nickel	8.0	U		IP
7440-09-7	Potassium	12000			IP
7782-49-2	Selenium	1.0	U		IF
7440-22-4	Silver	3.0	U		IP
7440-23-5	Sodium	74200			IP
7440-28-0	Thallium	1.0	U		IF
7440-62-2	Vanadium	9.0	U		IP
7440-66-6	Zinc	46.1	U		IP
	Cyanide				INR

SEP 11/18/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:



U.S. EPA - CLF

EPA SAMPLE NO.

## INORGANIC ANALYSIS DATA SHEET

GM-313

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 0927

SAS No.:

SDG No.: D0927

Matrix (soil/water): WATER

Lab Sample ID: T92785

Level (low/med): LOW

Date Received: 09/02/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No..	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	18.8	B		P
7440-36-0	Antimony	28.0	U		P
7440-38-2	Arsenic	1.0	U		F
7440-39-3	Barium	45.2	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	22200			P
7440-47-3	Chromium	10.2			P
7440-48-4	Cobalt	3.0	U		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	74.0	U		P
7439-92-1	Lead	1.0	U		F
7439-95-4	Magnesium	4830	B		P
7439-96-5	Manganese	2.0	U		F
7439-97-6	Mercury	0.20	U		CY
7440-02-0	Nickel	8.0	U		P
7440-09-7	Potassium	2670	B		P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	29000			P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	9.0	U		P
7440-66-8	Zinc	10.6	B		P
	Cyanide	10.0	U		AS

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: YELLOW

Clarity After: CLEAR

Artifacts:

Comments: Tot

INORGANIC ANALYSIS DATA SHEET

GM-313

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 0927

SAS No.:

SDG No.: D0927

Matrix (soil/water): WATER

Lab Sample ID: F92785

Level (low/med): LOW

Date Received: 09/02/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	30.7	X	U	P
7440-36-0	Antimony	28.0	U		F
7440-38-2	Arsenic	1.0	U	X	F
7440-39-3	Barium	51.0	B		F
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	24700			P
7440-47-3	Chromium	4.0	U		P
7440-48-4	Cobalt	3.0	U		P
7440-50-8	Copper	18.5	X	U	P
7439-89-6	Iron	83.0	X	U	P
7439-92-1	Lead	1.0	U		F
7439-95-4	Magnesium	5260			F
7439-96-5	Manganese	3.8	B		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	8.0	U		P
7440-09-7	Potassium	3460	B		F
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	31000			P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	9.0	U		P
7440-66-6	Zinc	15.0	X	U	P
	Cyanide				NR

SUP 11/18/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments: F:14

EPA SAMPLE NO.

1  
INORGANIC ANALYSIS DATA SHEET

GM-32S

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 0927

SAS No.:

SDG No.: D0927

Matrix (soil/water): WATER

Lab Sample ID: T92786

Level (low/med): LOW

Date Received: 09/02/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	18.0	B		P
7440-36-0	Antimony	28.0	U		P
7440-38-2	Arsenic	1.0	U		F
7440-39-3	Barium	50.5	B		F
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	18400			P
7440-47-3	Chromium	129			P
7440-48-4	Cobalt	3.0	U		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	74.0	U		P
7439-92-1	Lead	1.0	U		F
7439-95-4	Magnesium	1890	B		P
7439-96-5	Manganese	2.0	U		F
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	8.0	U		P
7440-09-7	Potassium	4050	B		F
7782-49-2	Selenium	2.7	B		F
7440-22-4	Silver	3.0	U		F
7440-23-5	Sodium	13300			F
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	9.0	U		F
7440-66-6	Zinc	19.4	B		P
	Cyanide	10.0	U		AS

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: YELLOW

Clarity After: CLEAR

Artifacts:

Comments: Tot

1  
INORGANIC ANALYSIS DATA SHEET

GM-323

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 0927

SAS No.:

SDG No.: D0927

Matrix (soil/water): WATER

Lab Sample ID: F92786

Level (low/med): LOW

Date Received: 09/02/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	15.9	<del>X</del> U		P
7440-36-0	Antimony	28.0	U		P
7440-38-2	Arsenic	1.0	U		F
7440-39-3	Barium	50.0	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	17900			P
7440-47-3	Chromium	131			P
7440-48-4	Cobalt	3.0	U		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	74.0	U		P
7439-92-1	Lead	1.0	U		F
7439-95-4	Magnesium	1840	B		F
7439-96-5	Manganese	2.0	U		F
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	8.0	U		P
7440-09-7	Potassium	4040	B		F
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	3.0	U		F
7440-23-5	Sodium	13500			P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	9.0	U		F
7440-66-6	Zinc	15.1	<del>X</del> U		P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

3/11/93  
Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments: 15:11

INORGANIC ANALYSIS DATA SHEET

FB-8-30-2

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 0927C

SAS No.:

SDG No.: C0927

Matrix (soil/water): WATER

Lab Sample ID: F92773

Level (low/med): LOW

Date Received: 08/31/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	19.4	B	J	P
7440-36-0	Antimony	28.0	U		P
7440-38-2	Arsenic	1.0	U		F
7440-39-3	Barium	2.0	U		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	61.5	B		P
7440-47-3	Chromium	4.0	U		P
7440-48-4	Cobalt	3.0	U		P
7440-50-8	Copper	5.0	U		P
7439-89-6	Iron	74.0	U	X	P
7439-92-1	Lead	1.0	U		F
7439-95-4	Magnesium	31.0	U		P
7439-96-5	Manganese	2.0	U	X	P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	8.0	U		P
7440-09-7	Potassium	932	U		P
7782-49-2	Selenium	1.0	U		F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	65.0	U		P
7440-28-0	Thallium	1.0	U	UJ	F
7440-62-2	Vanadium	7.0	U		P
7440-66-6	Zinc	10.1	B		P
	Cyanide				NR

3UP 11/18/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

U.S. EPA - CLP

EPA SAMPLE NO

1  
INORGANIC ANALYSIS DATA SHEET

FB 881-2

Lab Name: IEA

Contract:

Lab Code: IEA

Case No.: 0927

SAS No.:

SDG No.: D0927

Matrix (soil/water): WATER

Lab Sample ID: F92784

Level (low/med): LOW

Date Received: 09/01/93

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	24.6	B		P
7440-36-0	Antimony	28.0	U		P
7440-38-2	Arsenic	1.0	U		F
7440-39-3	Barium	2.0	U		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	2.0	U		P
7440-70-2	Calcium	72.0	B		P
7440-47-3	Chromium	4.0	U		P
7440-48-4	Cobalt	3.0	U		P
7440-50-8	Copper	19.8	B		P
7439-89-6	Iron	103		U	P
7439-92-1	Lead	1.0	U		F
7439-95-4	Magnesium	31.0	U		P
7439-96-5	Manganese	2.0	U		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	9.5	B		P
7440-09-7	Potassium	932	U		P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	3.0	U		P
7440-23-5	Sodium	103	B		P
7440-28-0	Thallium	1.0	U		F
7440-62-2	Vanadium	9.0	U		P
7440-66-6	Zinc	20.3			P
	Cyanide				NR

SUP 11/18/93

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments: Filt