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March 2, 1994

89-119-15

Ms. Vivian Chin
Remedial Action Section
U.S. Environmental Protection Agency
Region II
Jacob K. Javitz Federal Building
26 Federal Plaza, Room 437
New York, NY 10278

Transmittal
Revision No. 1, Amendment to the Closure Plan
Caribe GE Distribution Transformers, Inc.
Vieques Manufacturing Plant
Vieques, Puerto Rico

Dear Ms. Chin:

On behalf of Caribe GE Distribution Transformers, Inc. (Caribe), Canonie Environmental Services Corp. is transmitting two copies of the Amendment to the Closure Plan, Revision No. 1, (Plan) for the Caribe manufacturing plant, Vieques, Puerto Rico. This Plan incorporates the revisions based on the verbal responses to the regulatory agencies' comments provided during a meeting held December 7, 1993, at the Environmental Quality Board (EQB) offices in Puerto Rico, and written responses provided in a transmittal dated December 23, 1993.

As we discussed in our telephone conversation on February 22, 1994, Caribe has elected to install additional soil gas collectors proximate to the existing buildings located upgradient of the Caribe plant site. The locations of these additional soil gas survey collectors are illustrated on Figure 10 of the Plan.

Caribe will await receipt of written approval from the U.S. Environmental Protection Agency and EQB before proceeding with steps to implement this Amendment to the Closure Plan.

Please call Ms. Sherry Allan at (603) 749-8550, Mr. Lawrence Diamond at (201) 535-5357, or me at (303) 790-1747 if you have questions.

Very truly yours,

John W. Billiard /MMH

John W. Billiard, P.E.
Project Manager

JWB/alg

Enclosure

cc: Mr. Ernesto Balay, Environmental Quality Board
Mr. Santos Cabrera, Environmental Quality Board

RPTS. 104-8

Project 89-119-15
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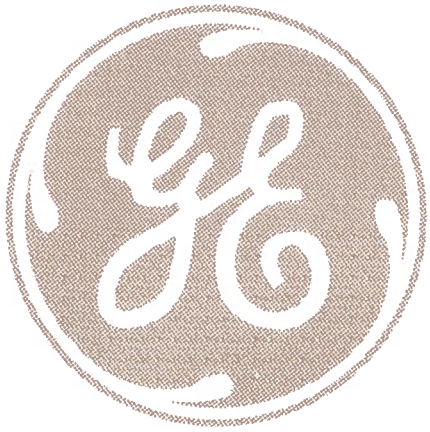
Canonie Environmental

Amendment - Revision No. 1

Closure Plan



Vieques Plant
Vieques, Puerto Rico

Prepared for:

Caribe General Electric Distribution Transformers, Inc.
Vieques, Puerto Rico

Amendment - Revision No. 1

Closure Plan

Canonie Environmental

TABLE OF CONTENTS

TABLE OF CONTENTS
(Continued)

LIST OF TABLES

LIST OF FIGURES

LIST OF FIGURES
(Continued)

LIST OF APPENDICES

AMENDMENT TO THE CLOSURE PLAN
CARIBE GENERAL ELECTRIC
DISTRIBUTION TRANSFORMERS, INC.
VIEQUES, PUERTO RICO

1.0 INTRODUCTION

This document is the revised Amendment to the Closure Plan [Canonie Environmental Services Corp. (Canonie), October 1989] which was approved by the U.S. Environmental Protection Agency (EPA) Region II and the Environmental Quality Board of Puerto Rico (EQB) on December 31, 1990.

An Amendment to the Closure Plan (Amendment) was submitted to EPA and EQB in August 1993 in response to comments by the regulatory agencies (letters dated March 29, 1993, and July 7, 1993) which suggested additional investigation activities at this site. Both agencies commented on the Amendment by letter dated October 18, 1993. Verbal responses to the regulatory agencies' comments were provided during a meeting held December 7, 1993, at the EQB offices in Puerto Rico, and written responses were provided in a transmittal dated December 23, 1993. The EPA and EQB approved these responses in a telephone conversation with Canonie held January 23, 1994. Accordingly, this document incorporates revisions based on these responses to regulatory agency comments.

The following text provides a brief history of the site, the processes previously or currently used within the facility, the investigative and remedial actions conducted to date by Caribe General Electric Distribution Transformers, Inc. (Caribe) (formerly Caribe General Electric Products, Inc.), a summary of ground water data collected to date, and a summary of additional investigations to be conducted.

1.1 Site Description

The 33,000-square-foot plant operated by Caribe is situated on an approximately two-acre parcel of property owned by the Puerto Rico Industrial Development Corp. (PRIDCO). The plant, which began operations in 1969, has manufactured or currently manufactures electrical power fuses and other low-voltage equipment such as auxiliary relays and switch gear accessories. As illustrated on Figure 1, the plant is located on the north side of the island at the intersection of Insular Routes 200 and 201. The topography of the north side of the island is characterized by a fairly steep hill dipping toward the Atlantic Ocean; the site is located near the bottom of the hill. Figure 2 illustrates the general site layout, the previous locations of the leach field and sediment tank, and the existing monitoring wells.

1.2 Water Resources

Water resources on the island of Vieques are limited because of its small basins, relatively dry climate for a tropical area (about 45 inches of precipitation per year), and the high rate of evapotranspiration. Many of the water well fields developed in the early 1960s ceased operation in 1978 because of increased salinity from salt water intrusion and maintenance problems (Torres-Gonzalez, 1989). A pipeline was constructed in 1977 between eastern Puerto Rico and the Esperanza Valley area of the Vieques island. Currently, about 500,000 gallons per day of drinking water are pumped through the pipeline from the Rio Blanco filtration plant to Vieques (Torres-Gonzalez, 1989).

Historic well records indicate wells on the island are typically screened between 40 and 60 ft below the ground surface. Ground water (if detected) is located between 10 and 30 ft below the ground surface. No water wells have been recorded within 4,000 ft of Caribe's Vieques plant by the United States Geological Survey [Law Environmental, Inc. (Law), 1984].

1.3 Regional and Local Hydrogeology

The regional hydrogeology of the island consists of a highly impermeable granodiorite (U.S. Department of Defense, 1980). The porosity of the bedrock is low and the capacity for ground water development is limited as a result. Toward the coast, a variable thickness of clayey alluvium overlies the granodiorite. Ground water throughout Vieques contains high concentrations of sodium and chlorine ions. As a result of the sodium adsorption ratio, this water is characterized as hazardous for agricultural use (Torres-Gonzalez, 1989).

Locally, ground water at the Caribe plant site was not observed in any of the three monitoring wells installed prior to closure activities (discussed below). Four additional monitoring wells, installed during closure activities to a depth of 40 ft into a moderate to highly fractured granodiorite, did intercept ground water in sufficient quantities for sample collection. Analyses of this ground water confirmed the anticipated presence of high concentrations of sodium and chlorine ions. Descriptions of these four wells, water level measurements conducted to date, and a discussion of ground water quality are provided in the following sections.

1.4 Surface Water Hydrology

The streams located on Vieques are small and ephemeral. After a storm event, the streams flow for only a few days. A shallow stream channel is located approximately 1,000 ft east of the Caribe plant and discharges into Vieques Sound about 2,000 ft north of the Caribe plant. This stream was observed to discharge about 1 to 2 gallons per minute (gpm) during a site tour on August 20, 1989.

2.0 CARIBE PLANT SITE

2.1 Plant Operations

Four primary manufacturing operations occur or have occurred in the past at this facility. A complete description of these operations can be found in the Closure Plan (Canonie, 1989). The operations include vapor degreasing, bright dipping/descaling (acid cleansing), silver electroplating, and miscellaneous metal machining operations. All operations listed here, except vapor degreasing, generated liquid waste which was disposed via the sediment tank and leach field (discussed in detail in Section 2.2).

The vapor degreaser previously used was an enclosed unit that never discharged solvents. The vapor degreaser, in use in the Vieques plant from 1969 to early February 1994, was a Baron-Blakeslee Model DP4-2436 machine which operated as a closed loop system. Parts were lowered into the unit and a solvent [previously 1,1,1-trichloroethane (1,1,1-TCA)] was used to remove oils from metal prior to other manufacturing operations. Manufacturer's information on the vapor degreaser is included in Appendix A. In the past, sludge and effluent were drummed, manifested and sent off-site for disposal. To date, there is no documentation of a spill or other release of solvent from this machine to the ground or ground water. See Section 3.3 for complete discussion of the ground water data collected to date.

On February 14, 1994, use of the Baron-Blakeslee vapor degreaser was discontinued. Parts are now cleaned using a non-hazardous water-base solvent in a Poly Chem Model A-2000 Evaporator. As of February 14, 1994, no hazardous materials are generated as a result of the cleaning process.

Caribe has reviewed manufacturer's material safety data sheets (MSDSs) and purchasing records; these do not document past use of trichloroethylene (TCE) in the Baron-Blakeslee vapor degreaser machine. TCE is a volatile organic compound (VOC) detected in the ground water sampled from Well C-4. See Section 3.3 for a complete discussion of the ground water quality data collected to date.

Metal machining at this site occurs at small work stations and generates only minor amounts of waste oil. This process does not require the use of solvents. These waste oils were originally discharged to the leach field until the field was deactivated in 1983. Since then, waste oils have been placed directly into drums for off-site disposal.

The bright dipping/descaling and acid cleansing operations were used to descale and control tarnishing of electrical parts. Originally, Caribe conducted the bright dipping operations on-site in a location just west of the plant building. In the process, metal parts were annealed in an oven, dipped in acid, and rinsed with water. Rinseate from these operations was discharged to the leach field from 1972 until the leach field was decommissioned in 1983. From 1983 until 1986, rinseate from the bright dipping/descaling operation was discharged into drums for off-site disposal. In 1986, the bright dipping/descaling cleansing operations were terminated and are now provided by an outside vendor.

Acid cleansing operations are still conducted at the site in two small plastic tubs (2 ft x 3 ft x 1.5 ft) at a single work station. Effluent from these operations is estimated to be about 100 gallons per year. The effluent is drummed as a hazardous waste and sent off-site for regeneration and disposal as appropriate.

Silver plating is conducted at this site to plate silver onto the copper ends of the fuse caps. A few square inches of silver plate are required on the copper fuse ends to allow for a good electrical connection. Once silver is plated on the copper fuse end, the fuse end is rinsed with water from a small hand-held tube. Rinseate from this operation originally drained to the sediment tank and leach field until the leach field was deactivated in 1983. Between 1983 and 1986, the rinseate was drained to the sediment tank upgradient of the leach field, then pumped into drums for off-site disposal. Since 1986, the rinseate discharges directly to drums for subsequent off-site disposal.

2.2 On-Site Waste Disposal

Two on-site waste disposal systems have been used at this site, the septic system and leach field system. Figure 2 illustrates the approximate locations of the two systems. The septic system was used for a two-year period (1969 to 1971) for all wastewater disposal from the facility. In 1971, a leach field was constructed. Since then only sanitary wastewater discharges to the septic system. As shown on Figure 2, the septic system consisted of one septic and three other tanks. In 1971, the third septic system tank was decommissioned and filled with sand and a new tank was constructed off-site. During closure construction in 1991, the line to the off-site tank was severed and plugged to prevent further use. The on-site septic system was modified in 1992 consistent with an Underground Injection Control Closure Plan submitted to the EQB May 26, 1993. The system consisted of three holding tanks which were pumped out on a weekly basis. The septic system was recently decommissioned when the plant was connected to the new Vieques municipal wastewater treatment plant in September 1993.

The leach field was constructed in 1971 and handled the discharge of process waters from the bright dipping/descaling, acid cleansing, and silver plating rinseate operations. The leach field was plugged by non-toxic solids and, in 1979, a concrete sediment tank was installed to separate the solids from the liquids. The leach field operated from 1971 to 1983 and the sediment tank operated from 1979 to 1985. Since then, no wastewater of any kind has been discharged to either the leach field or sediment tank. Both the leach field and sediment tank were removed and disposed off-site during closure activities in March 1991.

3.0 CLOSURE ACTIVITIES

Caribe filed a Resource Conservation and Recovery Act (RCRA) Closure Plan for this site (Canonie, 1989). This Closure Plan summarized investigations conducted up to 1989, the local land use, local and regional geology, and ground water hydrogeology. The Closure Plan also identified activities required for closure of the plant facilities including the septic system, sediment tank, and leach field.

3.1 Sediment Tank, Leach Field and Septic System

In 1990, Caribe conducted closure of the sediment tank and leach field, which included the installation of four ground water monitoring wells installed into the bedrock, excavation and removal of the sediment tank, leach field, and associated piping, concrete plugging of the pipe from the plant leading to the sediment tank, concrete plugging of plant drains, and disconnecting the off-site septic tank. The Closure Report (Canonie, 1991) describes closure activities conducted to date. A summary of previous investigations and closure activities is presented below.

Investigations of Leach Field Area

As part of a previous investigation of the leach field area and prior to closure of the leach field, 24 soil borings (Borings SB-1 through SB-24) were advanced by Law in February 1989. All soil samples collected from soil borings at intervals of 1.5 ft from the ground surface to the top of the bedrock were "sniffed" using an organic vapor analyzer (OVA). With the exception of soil samples from Borings SB-5, SB-12, and SB-23, the OVA readings indicated background levels. Appendix B contains a figure illustrating the location of the borings, the boring logs and the results of the OVA survey.

Additional soil samples from intervals showing slightly anomalous OVA readings in Soil Borings SB-5, SB-12, and SB-23 were collected by Law for quantitative VOC analyses. Soil samples were analyzed using EPA Method 8010 for VOCs by Law Environmental National Laboratories. With the exception of toluene and xylene, VOCs

were reported as non-detect at a detection limit of 1.8 parts per billion (ppb) or less. Laboratory analyses of the soil samples are presented in Appendix C. Note that in subsequent ground water analyses neither toluene nor xylene were detected.

As part of the leach field closure activities conducted by Canonie in 1990, three soil borings (C-1, C-2, and C-3) were installed in the area proximate to and downgradient of the leach field. Soil samples were collected from each of these borings and quantitatively analyzed for VOCs using EPA Method 8010/8020 and for inorganic constituents using EPA standard operating procedures (SOPs) based on SW-846, Third Edition. No VOCs/semivolatile organic compounds (SVOCs) or inorganic compounds were detected at that time in the soil samples collected at depths up to 14 ft from these borings. Hence, VOC contamination is not considered present in the leach field area of the site. These results are again supported by the results of ground water analyses from these wells during the last two years (see Section 3.3). Figure 2 illustrates the location of borings installed in 1990. Table 1 presents a summary of the soil sample VOC analyses conducted by Canonie.

Investigations of Septic System Area

In addition to the borings within the leach field area, Law advanced six soil borings proximate to the septic system. Soil samples were collected from each 1.5-ft interval from ground surface to the top of bedrock and were "sniffed" using the OVA. With the exception of two soil samples from Soil Boring SB-14, the OVA readings indicated background levels. Appendix B contains a figure illustrating the location of the borings, the boring logs and the results of the OVA survey.

The two soil samples, one from 4.0- to 5.5-ft and one from 14.0- to 15.5-ft interval depths, were taken from Soil Boring SB-14 for quantitative VOC analyses. These soil samples were analyzed using EPA Method 8010 for VOCs by Law Environmental National Laboratories. All VOCs were reported as non-detect at the detection limit of 1.8 ppb or less. The laboratory analyses of the soil samples collected by Law from the septic system area are presented in Appendix D.

During leach field closure activities, Canonie also installed soil borings and monitoring wells proximate to the septic system. Soil samples were collected from Soil Borings C-2, C-3, C-5, and C-6 at depths ranging from ground surface to 24 ft. With the exception of a very low concentration of toluene in Boring C-3 at 15- to 24-ft depth, VOCs were reported as non-detect at a detection limit of 0.1 milligrams per kilogram (mg/kg) or less. Figure 2 illustrates the location of these borings and wells and Table 1 presents a summary of the soil sample VOC analytical results.

Investigations West of the Plant Building

Law investigated the area west of the plant building including the area of the bright dip operation. Soil Boring SB-24 was advanced and soil samples from this boring were "sniffed" using an OVA. VOCs were not detected. Appendix B contains a figure illustrating the location of the boring, the boring log and the results of the OVA survey.

Canonie also advanced two soil borings (BD-1 and BD-2) within this area. Soil samples from these two borings were analyzed in the laboratory for VOCs using EPA Method 8240. Laboratory results, shown in Table 1, indicated that VOCs were not detected in the soil from this area.

3.2 Ground Water Monitoring Wells

Prior to the installation of the four ground water monitoring wells into bedrock, the presence of ground water below this site had not been confirmed. Caribe had previously installed three monitoring wells at the site down to the top of bedrock. Ground water has not been detected below this site in any of these three wells. Figure 2 illustrates the locations of each of the monitoring wells installed at this site.

Ground water below this site was first confirmed in quantities sufficient for sampling when the four monitoring wells were installed 40 ft below the top of bedrock. Consistent with the Closure Plan and RCRA regulations, Caribe began water quality monitoring of the detected ground water on a quarterly basis for the first year and is now monitoring the ground water quality on a semiannual basis.

3.3 Ground Water Data

Sampling Frequency and Analytical Protocol

Quarterly ground water sampling was conducted for one year, from November 1991 through November 1992, following monitoring well installation. Upon completion of one year of quarterly sampling, semiannual sampling was initiated. The first semiannual ground water sampling event occurred in May 1993, and the second was conducted during the week of December 5, 1993. The regulations specified in 40 Code of Federal Regulations (CFR) 265.92(d)(1) and 265.92(d)(2) indicate that ground water constituents be measured quarterly for a period of one year for the specified constituents; semiannually for ground water contamination assessment parameters [40 CFR 265.92 (d)(2)]; and annually for ground water quality assessment parameters [40 CFR 265.92 (d)(1)]. Since concentrations of TCE in the ground water were in an upgradient well (C-4) and appeared to be consistent with time, the ground water monitoring program specified in the federal regulations was deemed appropriate.

In a written comment, the EPA indicated that an alternative ground water monitoring program, separate from the EPA's stated guidance requiring quarterly monitoring for three years, could be proposed. Canonie proposed the ground water sampling frequency used to date (which is consistent with current regulations) as part of the Closure Report (Canonie, 1991).

Consistent with current regulations, ground water monitoring for the four existing bedrock monitoring wells will continue on a semiannual basis. Sampling and analysis of ground water has been and will continue to be conducted in accordance with methods specified in SW-846.

Ground Water Quality

To date, Caribe has sampled ground water at this site seven times to characterize ground water quality. The ground water was first sampled after installation of the monitoring wells, four times the following year, and two times during semiannual sampling events. A summary of these results can be found in Table 2 of this

Amendment to the Closure Plan. Results of the first sampling event can also be found in the Closure Report (Canonie, 1991). Results of the four quarterly sampling events were summarized in letters dated January 14, April 20, July 30, and November 13, 1992. Results of the first semiannual sampling event were summarized in a letter dated September 21, 1993. The results of the second semiannual sampling event are summarized in Table 2 of this Amendment to the Closure Plan and will be provided to the EPA in a letter report at the end of February 1994.

Ground water quality data collected to date and summarized in Table 2 indicate that two VOCs have been detected at levels above federal Maximum Contaminant Levels (MCLs). These two VOCs were 1,1-dichloroethylene (1,1-DCE) and TCE. These two compounds are elements of common solvents and 1,1-DCE is a breakdown by-product of TCE. Accordingly, discovery of these two compounds together in ground water is consistent.

Well C-4 has been the only monitoring well impacted with VOCs above MCLs. The compound TCE was detected in one ground water sample collected from Well C-3 on August 18, 1992. However, TCE was also detected at the exact same concentration in the trip blank for that sample shipment. The presence of TCE in the trip blank indicates external contamination. In addition, TCE has not been detected in this well in any other sampling event. Therefore, it is concluded that TCE was not present in the ground water sample collected from Well C-3 in August 1992.

Note that the concentrations of 1,1-DCE and TCE detected in Well C-4 appear fairly constant with time. Over the past two years (the length of time that water quality measurements have been made), the concentration of 1,1-DCE ranges from 36 to 140 ppb and the concentration of TCE ranges from 420 to 990 ppb. These results suggest that the source for these compounds is still active and fairly steady. To date, neither an on-site nor an off-site source for these compounds has been identified.

Water Level Data

In addition to ground water quality, Caribe has also measured the water levels in each of the monitoring wells. Consistent with RCRA regulations, Caribe measured the water levels during each sampling event. However, the water levels in Monitoring Wells C-1 and C-4 appeared to rise and fall anomalously. Accordingly, Caribe initiated daily water level and precipitation measurements to evaluate the correlation between precipitation events and the ground water levels in Wells C-1 and C-4. See Section 4.2 for a discussion of the correlation of water levels within the wells.

Quality assurance/quality control (QA/QC) measures for the water levels include checking the measuring tape length periodically to ensure the tape is accurate and taking multiple measurements each time the water levels are recorded. The water level measurements are obtained from each well using an electronic water level measurement tape and measuring the water level two times for each measurement recorded. This measuring tape is marked in increments of 0.01 ft and sounds an alarm when ground water is encountered. Each monitoring well has a mark on the casing and the depth to ground water measurement is consistently recorded from this mark.

The measuring tape is calibrated monthly to determine if use of the instrument has caused the tape to stretch and thereby induce errors in measurement. The graduated tape is compared against a steel tape and discrepancies, if any, noted in the log book. To date, no discrepancies have been noted.

Each of the four ground water monitoring wells was originally surveyed for vertical elevation and another vertical survey was conducted to confirm the elevation of each well. Vertical elevation data from these two surveys were in agreement. Therefore, the depth to ground water and the calculated ground water elevation are considered accurate.

Rainfall is measured in a plastic rain gauge mounted on a post near the parking lot located on the northwest side of the site. The gauge is in an open area away from structures and trees which might influence recorded levels. This gauge is read and

recorded on a daily basis. No extraordinary QA/QC measures are conducted for this measurement and there are no other nearby rain recording stations to provide independent confirmation. The data are used to correlate the water level fluctuations in each of the ground water monitoring wells. These data are plotted together to indicate how precipitation at the plant site affects fluctuations in the ground water level.

Table 3 summarizes and statistically compares the water levels measured during the quarterly and semiannual ground water sampling events. Table 4 summarizes the daily precipitation and water level measurements taken beginning May 28, 1993 through January 1994. Figures 3 through 9 illustrate the water levels and precipitation quantities observed between May 28, 1993 and January 31, 1994 and are plotted on the same time scale for comparison purposes.

The data indicate that the water level in Well C-1 rises quickly in response to a major precipitation event and then declines to a level below that of the upgradient Well C-4. The water level in Well C-4 also rises in response to the same precipitation event, but not as radically as in Well C-1. These data suggest that the water level in Well C-1 rises due to significant precipitation but declines to a steady state level below that in Well C-4.

Though the water level in Well C-1 rises temporarily above the water level in Well C-4, the direction of ground water flow still appears to be from south to north toward the ocean. Considering that the site is located on the side of a hill, the Atlantic Ocean is immediately north of the site at the bottom of the same hill, and the water level in Well C-4 is higher than the water level in Well C-1 under steady state conditions, Well C-4 is considered an upgradient well at this site. Caribe recorded these measurements and reported these data to the EPA on a monthly basis through the end of January 1994. At present, there are eight months of recorded data that support the findings that Well C-4 is upgradient of and hydraulically connected with Well C-1.

4.0 COLLECTION OF ADDITIONAL GROUND WATER DATA

Given that the detected concentrations of 1,1-DCE and TCE in Well C-4 have remained fairly constant since being detected 24 months ago and that the source of these VOCs has not been identified, Caribe will attempt to locate the source of these VOCs. Considering the calculated direction of ground water flow and information which indicates that the leach field and sediment tank at the site were not used for the disposal of VOCs, the source may not be on the Caribe property, but may be upgradient of the site.

Caribe is in receipt of the letter sent to Mr. Thomas Armstrong by the EPA, dated March 29, 1993. In its letter, the EPA states that Caribe "needs to conduct further groundwater investigation and characterization to demonstrate that no contamination has occurred from the leach field and sediment tank. This needs to be done through the installation of an appropriate groundwater monitoring system." Further, the EPA states that "GE needs to fully characterize the aquifer and the groundwater movement therein, so that an adequate groundwater monitoring system can be established."

In its July 7, 1993 letter, the EPA stipulated a two-component investigation for the Caribe site. First, the EPA requested additional drilling (and the installation of monitoring wells) to confirm the direction of ground water flow. Second, the EPA requested additional data to confirm that the existing monitoring wells are connected and that Well C-4 is upgradient of Well C-1. In its letter, the EPA suggested a pump test to confirm the hydraulic connection between the ground water wells. In addition, the EPA suggested frequent water level measurements to evaluate the fluctuation of water level in the monitoring wells in comparison to external influences such as precipitation infiltration.

As agreed upon in the December 7, 1993, meeting with EPA and EQB, the pump test will not be conducted because of the likelihood of pulling potentially contaminated water from the vicinity of Well C-4 into the otherwise clean aquifer downgradient of Well C-4. In addition, daily water level and precipitation readings correlated over an

eight month period indicate that the monitoring wells are hydraulically connected. Therefore, a pump test is neither advisable nor necessary at this site.

In addition, Section 3 of this Amendment to the Closure Plan summarizes definitive quantitative data that already exist for soil and ground water in the areas proximate to and downgradient of the leach field and in the area north of the plant building (i.e., septic system area). Data collected to date do not indicate that there have been any impacts to the ground water originating from the leach field or sediment tank.

Therefore, based on the results of the previous investigation activities and the requests by the EPA and EQB, Caribe will conduct a soil gas survey and will install additional monitoring wells to characterize the water quality and direction of ground water flow at this site. This additional work is described in detail below.

4.1 Soil Gas Survey and Additional Monitoring Wells

Based on data collected previously, the ground water at the Caribe site is flowing only in the fractured granodiorite bedrock which is overlain by clayey sand and gravel. In addition, a portion of the ground water within the fractures is impacted with VOCs. Therefore, to assist in identifying the VOC source or plume location and to assist in locating the additional monitoring wells to characterize the ground water at this site, a soil gas survey will be conducted both on-site and off-site. The soil gas survey will be used to identify probable areas where VOCs have entered the ground and/or where the VOCs may be detected in the soil and/or ground water. A soil gas survey is a relatively non-intrusive means of collecting data; however, the data are only qualitative and not quantitative. Accordingly, the results of the soil gas survey would be confirmed with samples of ground water from monitoring wells installed in locations where the soil gas survey indicated a relatively high "hit" of VOCs.

The soil gas survey will be conducted using the Petrex soil gas survey method. The Petrex method uses activated carbon attached to wires in glass collector tubes to sorb VOCs and SVOCs from the gas contained in the pores of the soil. Petrex soil gas collectors will be buried in the ground at a depth of 12 to 18 inches for a period of time necessary for the VOCs/SVOCs to sorb onto the activated carbon. Generally,

the time of exposure for Petrex samplers will vary from site to site and will also vary with geology and climate. The field exposure period depends on the rate at which samplers become "loaded" (ideally, a level less than saturated). To assess the loading rate, several sets of additional Petrex sample collectors (i.e., "time test" collectors) will be installed at given survey grid points concurrent with the other survey samplers but will be used strictly for burial time determination.

For the soil gas survey at the Caribe site, time test soil gas sample collectors will be retrieved and analyzed at periodic intervals to determine the most appropriate duration of sample collector burial. The first set of time test sample collectors will be retrieved a day of two after installation and returned to the laboratory for analyses.

Standard analysis of each sample will be performed via thermal desorption-mass spectrometry (TD-MS), which categorizes by atomic weight the presence of chemical compounds. Results will indicate whether the sample collectors in the same area have sorbed or will soon sorb adequate labels of VOCs/SVOCs. If the analyses indicate additional time is required, another set of "time test" collectors will be retrieved after several more days and the process will be repeated to determine the date for sample retrieval. Once the date of retrieval is determined, the exposure time for the Petrex survey samplers is consistent for all of the sample collectors in the contiguous study area.

As the soil gas collector remains in the ground, the collector will be allowed to equilibrate with the surrounding soil media. The Petrex time-integrated passive soil gas collection method allows adequate time to sorb VOCs (if present) and minimizes the effects of variable soil porosity and permeability. After the exposure time, the soil gas sample collectors will be retrieved and analyzed for the VOCs of interest, such as TCE, 1,1-DCE, and TCA. The VOC constituents in the soil gas will be measured in relative ion counts. These ion counts will then be used to map detected VOCs and to assist in determining the location of proposed ground water monitoring wells.

Figure 10 illustrates the proposed locations of the soil gas sample collectors. Figure 11 illustrates a schematic of a typical soil gas sample collector installed in the ground.

QA/QC measures and SOPs for the Petrex method soil gas survey are included in Appendix E.

To confirm the direction of ground water flow at this site and to assess the water quality upgradient of this site, Caribe will install up to three new ground water monitoring wells into the fractured bedrock. Because of the close proximity of the existing monitoring wells and the calculated direction of ground water flow (from south to north), the new wells need to be installed upgradient of the Caribe site, preferably in the undeveloped field directly to the south of the Caribe plant.

As shown on Figure 10, up to three new monitoring wells will be field located such that there will be sufficient distance between wells to confirm the direction of ground water flow (a stated EPA objective). Monitoring Well C-5 will be located southeast of the plant building and Wells C-6 and C-7 will be located southwest of the plant building. Installation of the monitoring wells on the western side of the facility, as suggested by the EPA, is not feasible because this area is currently developed and occupied by plant buildings. However, Wells C-6 and C-7 will be located such that the resulting data will characterize the ground water on the west side of the Caribe plant site. The location of Wells C-6 and C-7 depends on the results of the soil gas survey. Therefore, Caribe will confirm the final location of these wells with the EPA prior to installation. Water level data from the new and existing monitoring wells will be used to confirm the direction of ground water flow and the upgradient status of Well C-4. Figure 12 illustrates a typical monitoring well design for the proposed monitoring wells.

The addition of three new wells to the seven existing monitoring wells will fully characterize the ground water quality and flow direction at the site. Consistent with current regulations, the three new bedrock monitoring wells will be sampled on a semiannual basis and will be analyzed for the same parameters as the four existing on-site bedrock monitoring wells.

4.2 Additional Water Level Data

The EPA also suggested collecting additional water level data from the existing wells to confirm a correlation between external factors (such as precipitation events) with fluctuations in the water levels. Caribe collected and recorded water level data and precipitation data on a daily basis for a period of eight months (see Section 3.3). As described above, these data confirmed a correlation between monitoring well water levels and precipitation events. When a significant precipitation event was recorded, there was a resulting rapid rise in the water level in Well C-1. The water level in Well C-4 also rose but not as quickly as the water level in Well C-1. Shortly after the precipitation event, the water level within Well C-1 declined to a steady state level below the level measured in Well C-4. Figures 3 through 9 illustrate a correlation in the rise and fall of water levels with the occurrence of a significant precipitation event.

5.0 PROACTIVE INTERIM REMEDIATION

Based on results of data obtained from the conduct of the additional work outlined in this Amendment to the Closure Plan, Caribe will pursue proactive interim remediation, if appropriate. Should VOCs be detected upgradient of the Caribe site, Caribe will request that the EPA notify the appropriate parties for subsequent action.

To date, impacts to the ground water beneath the Caribe site above regulatory limits have been detected only in Well C-4. Accordingly, proactive interim remedial action would likely consist of extracting ground water from Well C-4, treating the water by air stripping, and discharging the treated and clean water as appropriate and consistent with current regulations. Should extraction, treatment, and discharge be necessary, Caribe will evaluate the most effective means of treatment and discharge consistent with current regulations and will provide the EPA and EQB with appropriate details of the design.

Preliminary research into a low-profile air stripper treatment unit which could be used to treat the impacted ground water indicates that a removal efficiency greater than 99 percent can be expected for the TCE and 1,1-DCE compounds. Therefore, this type of treatment should be more than adequate to remediate the ground water to levels below their respective MCLs. Information on the low-profile air stripper unit considered for this work has been included in Appendix F.

6.0 COST OF CLOSURE

40 CFR 265 Subpart H describes the requirements for estimating the cost of closure and providing proof of financial assurance. Table 5 lists the estimated costs for the work proposed in this Amendment to the Closure Plan using past experience and estimates from local contractors. The total cost for the amended closure will depend on the results of the soil gas survey and the ground water sampling rounds. Costs for work described in this Amendment to the Closure Plan will be updated as required depending on results of the soil gas survey and ground water sample results. The RCRA regulations require that the closure cost estimate be updated due to changes in the closure plan. In addition, the amended cost estimate will be updated to reflect changes due to inflation on an annual basis, 60 days prior to the anniversary of the establishment of financial assurance per 40 CFR 265.142 and 265.143.

7.0 SCHEDULE

Figure 13 presents the schedule for the tasks outlined in this Amendment. As shown, field work will begin upon approval of this Amendment by the EPA and when access is provided by PRIDCO.

8.0 SUMMARY

The leach field and sediment tank at this site were constructed to dispose of process wastewater consisting of metal, acid, and cyanide rinseate. The leach field operated from 1971 to 1983 and the sediment tank operated from 1979 to 1985. As part of closure of these two facilities, Caribe removed the leach field, sediment tank, and associated piping and installed four ground water monitoring wells into the fractured bedrock. Prior to the installation of the four bedrock ground water monitoring wells, the presence of ground water below the site was not confirmed.

Water quality data collected to date indicate that two VOCs (1,1-DCE and TCE) are detected at levels above their respective MCLs in one monitoring well located upgradient of the site. The detected concentrations have remained fairly constant since being discovered, indicating that the source is constant. Data collected from the soil and ground water in the vicinity of the leach field and sediment tank do not indicate that the impacts to the ground water originated from the leach field or sediment tank. The current water quality and level data suggest that the VOCs may originate from an upgradient source, but the source of the VOCs detected in the ground water has not yet been identified. Accordingly, Caribe will attempt to identify this source.

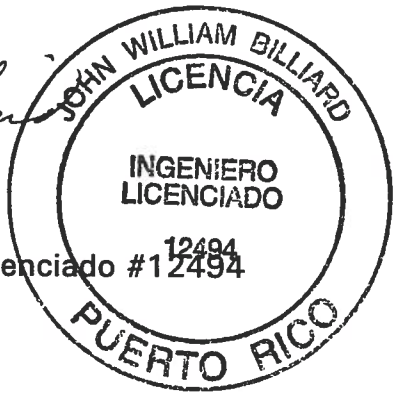
To support this work, a soil gas survey will be conducted both on-site and off-site to assist in identifying areas where impacts to the ground water from VOCs can potentially be confirmed. The soil gas survey will not provide quantitative data but will provide qualitative data. These data would be used to determine the most appropriate field locations for additional monitoring wells. Caribe will install up to three additional wells upgradient of the Caribe site such that the new wells are spaced appropriately to characterize the ground water quality and confirm the direction of ground water flow at this site (EPA's stated objectives).

Water levels collected to date indicate that the ground water flows generally from the south to the north (i.e., down the hill and toward the ocean). Based on

frequently collected water level data since May 28, 1993, the water level in Well C-1 appears to fluctuate in response to significant precipitation events. As a result of these fluctuations, the water level in Well C-1 temporarily rises above the water level in Well C-4. However, the calculated direction of ground water flow is still from the south to the north. Caribe recorded these measurements and submitted these measurements to the EPA on a monthly basis until the end of January 1994. Currently, eight months of recorded data support the findings that Well C-4 is upgradient of and hydraulically connected with Well C-1.

If appropriate, Caribe will pursue proactive interim remedial action for the ground water below this site. Caribe will evaluate the data derived from the upcoming investigation to determine the most appropriate course of action.

Respectfully submitted,



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Project Manager
Puerto Rico Ingeniero Licenciado #12494

JWB/alg

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REFERENCES

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TABLES

TABLE 1

SUMMARY OF VOC ANALYSES IN SOIL
CARIBE GENERAL ELECTRIC DISTRIBUTION TRANSFORMERS, INC.
VIEQUES, PUERTO RICO
[milligrams/kilogram (mg/kg)]

Location:	C-1		C-1		C-1		C-2		C-2		C-2		C-3		C-3		C-3		C-4		C-4	
Sample Date:	10/26/90		10/26/90		10/26/90		10/22/90		10/22/90		10/22/90		10/24/90		10/24/90		10/24/90		11/01/90		11/01/90	
Sample I.D. (feet):	0-1.5		5-6.5		10-11.5		4-6		10-12		14-15		5-6.5		15-16.5		22.5-24		0-1.5		3.5-5	
Analyte Compound																						
Acrolein	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.050	ND	0.050
Acrylonitrile	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.050	ND	0.050
Benzene	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.005	ND	0.005
Bromodichloromethane	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.005	ND	0.005
Bromoform	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.005	ND	0.005
Bromomethane	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.050	ND	0.050
Carbon tetrachloride	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.005	ND	0.005
Chlorobenzene	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.005	ND	0.005
Chloroethane	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.005	ND	0.005
2-chloroethyvinyl ether	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.005	ND	0.005
Chloroform	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.005	ND	0.005
Chloromethane	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.050	ND	0.050
Dibromochloromethane	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.005	ND	0.005
1,2-dichlorobenzene	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.005	ND	0.005
1,3-dichlorobenzene	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.005	ND	0.005
1,4-dichlorobenzene	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.005	ND	0.005
1,1-dichloroethane	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.005	ND	0.005
1,2-dichloroethane	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.005	ND	0.005
1,1-dichloroethene	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.005	ND	0.005
cis-1,2-dichloroethene	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.005	ND	0.005
trans-1,2-dicloroethene	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.005	ND	0.005
1,2-dichloropropane	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.005	ND	0.005
cis-1,3-dichloropropene	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.005	ND	0.005
trans-1,3-dichloropropene	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.005	ND	0.005
Ethylbenzene	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.005	ND	0.005
Methylene chloride	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.025	ND	0.025
1,1,2,2-tetrachloroethane	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.005	ND	0.005
Tetrachloroethene	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.005	ND	0.005
Toluene		0.2	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1		1.4		0.5	ND	0.005		0.008
1,1,1-trichloroethane	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.005	ND	0.005
1,1,2-trichloroethane	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.005	ND	0.005
Trichloroethene	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.005	ND	0.005
Trichlorofluoromethane	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.005	ND	0.005
Vinyl chloride	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.050	ND	0.050
Xylene (total)	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.1	ND	0.005	ND	0.005

TABLE 1

SUMMARY OF VOC ANALYSES IN SOIL

CARIBE GENERAL ELECTRIC DISTRIBUTION TRANSFORMERS, INC.

VIEQUES, PUERTO RICO

[milligrams/kilogram (mg/kg)]

Location:	C-5	C-5	C-5	C-6	C-6	C-6	BD-1	BD-1	BD-1	BD-2	BD-2
Sample Date:	10/23/90	10/23/90	10/23/90	10/23/90	10/23/90	10/23/90	10/31/90	10/31/90	10/31/90	10/31/90	10/31/90
Sample I.D. (feet):	2.5-4	7-8.5	12.5-14	0-1.5	5-6.5	10-11.5	0-1.5	1.5-3	3-4.5	0-1.5	1.5-3
Analyte Compound											
Acrolein	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.050	ND 0.050	ND 0.050	ND 0.050	ND 0.050
Acrylonitrile	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.050	ND 0.050	ND 0.050	ND 0.050	ND 0.050
Benzene	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.005	ND 0.005	ND 0.005	ND 0.005	ND 0.005
Bromodichloromethane	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.005	ND 0.005	ND 0.005	ND 0.005	ND 0.005
Bromoform	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.005	ND 0.005	ND 0.005	ND 0.005	ND 0.005
Bromomethane	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.050	ND 0.050	ND 0.050	ND 0.050	ND 0.050
Carbon tetrachloride	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.005	ND 0.005	ND 0.005	ND 0.005	ND 0.005
Chlorobenzene	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.005	ND 0.005	ND 0.005	ND 0.005	ND 0.005
Chloroethane	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.005	ND 0.005	ND 0.005	ND 0.005	ND 0.005
2-chloroethyvinyl ether	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.005	ND 0.005	ND 0.005	ND 0.005	ND 0.005
Chloroform	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.005	ND 0.005	ND 0.005	ND 0.005	ND 0.005
Chloromethane	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.050	ND 0.050	ND 0.050	ND 0.050	ND 0.050
Dibromochloromethane	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.005	ND 0.005	ND 0.005	ND 0.005	ND 0.005
1,2-dichlorobenzene	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.005	ND 0.005	ND 0.005	ND 0.005	ND 0.005
1,3-dichlorobenzene	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.005	ND 0.005	ND 0.005	ND 0.005	ND 0.005
1,4-dichlorobenzene	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.005	ND 0.005	ND 0.005	ND 0.005	ND 0.005
1,1-dichloroethane	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.005	ND 0.005	ND 0.005	ND 0.005	ND 0.005
1,2-dichloroethane	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.005	ND 0.005	ND 0.005	ND 0.005	ND 0.005
1,1-dichloroethane	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.005	ND 0.005	ND 0.005	ND 0.005	ND 0.005
cis-1,2-dichloroethene	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.005	ND 0.005	ND 0.005	ND 0.005	ND 0.005
trans-1,2-dicloroethene	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.005	ND 0.005	ND 0.005	ND 0.005	ND 0.005
1,2-dichloropropane	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.005	ND 0.005	ND 0.005	ND 0.005	ND 0.005
cis-1,3-dichloropropene	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.005	ND 0.005	ND 0.005	ND 0.005	ND 0.005
trans-1,3-dichloropropene	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.005	ND 0.005	ND 0.005	ND 0.005	ND 0.005
Ethylbenzene	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.005	ND 0.005	0.007	ND 0.005	ND 0.005
Methylene chloride	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.025	ND 0.025	ND 0.025	ND 0.025	ND 0.025
1,1,2,2-tetrachloroethane	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.005	ND 0.005	ND 0.005	ND 0.005	ND 0.005
Tetrachloroethene	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.005	ND 0.005	ND 0.005	ND 0.005	ND 0.005
Toluene	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.005	ND 0.005	ND 0.005	ND 0.005	ND 0.005
1,1,1-trichloroethane	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.005	ND 0.005	ND 0.005	ND 0.005	ND 0.005
1,1,2-trichloroethane	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.005	ND 0.005	ND 0.005	ND 0.005	ND 0.005
Trichloroethene	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.005	ND 0.005	ND 0.005	ND 0.005	ND 0.005
Trichlorofluoromethane	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.005	ND 0.005	ND 0.005	ND 0.005	ND 0.005
Vinyl chloride	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.050	ND 0.050	ND 0.050	ND 0.050	ND 0.050
Xylene (total)	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.1	ND 0.005	ND 0.005	ND 0.005	ND 0.005	ND 0.005

Note:
ND = Not detected at specific limit.

TABLE 2

SUMMARY OF GROUND WATER VOC ANALYSES
SEVEN GROUND WATER SAMPLE EVENTS
CARIBE GENERAL ELECTRIC DISTRIBUTION TRANSFORMERS, INC.
VIEQUES, PUERTO RICO
(micrograms/liter (µg/l)

Location:	Monitoring Well C-1	Monitoring Well C-1	Monitoring Well C-1	Monitoring Well C-1	Monitoring Well C-1	Monitoring Well C-1	Monitoring Well C-1	Federal Maximum Contaminant Level(a)
Sample Date:	Nov 7, 1990	Oct 16, 1991	Jan 15, 1992	May 6, 1992	Aug 18, 1992	May 25, 1993	Dec 8, 1993	
Sample I.D.:	855362-SA-A	91108181-001	92018786-001	92058774-001	92088615-006	93058887-002	93128642-001	
Analyte Compound								
Chloromethane	ND 10	ND 10	ND 10	ND 10	3 J	ND 10	ND 10	
Bromomethane	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	
Vinyl chloride	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	2
Chloroethane	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	
Methylene chloride	ND 5	3 JB	11 B	ND 5	13	ND 5	ND 5	
Acetone	ND 10	ND 10	ND 10	ND 10	8 J	ND 10	ND 10	
Carbon disulfide	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	
1,1-dichloroethene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	7
1,1-dichloroethane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	
1,2-dichloroethane (total)	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	70 (b)/100 (c)
Chloroform	57	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	100
1,2-dichloroethylene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	5
2-butanone (methyl ethyl ketone)	81	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	
1,1,1-trichloroethane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	200
Carbon tetrachloride	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	5
Vinyl acetate	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	
Bromodichloromethane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	
1,2-dichloropropane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	5
cis-1,3-dichloropropene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	
Trichloroethylene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	5
Dibromochloromethane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	
1,1,2-trichloroethane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	5
Benzene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	5
trans-1,3-dichloropropene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	
Bromoform	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	
4-methyl-2-pentanone	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	
2-hexanone	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	
Tetrachloroethylene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	5
1,1,2,2-tetrachloroethane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	
Toluene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	1,000
Chlorobenzene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	100
Ethyl benzene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	700
Styrene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	100
Xylene (total)	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	10,000

TABLE 2

SUMMARY OF GROUND WATER VOC ANALYSES
SEVEN GROUND WATER SAMPLE EVENTS
CARIBE GENERAL ELECTRIC DISTRIBUTION TRANSFORMERS, INC.
VIEQUES, PUERTO RICO
(micrograms/liter (µg/l)

Location:	Monitoring Well C-2	Monitoring Well C-2	Monitoring Well C-2	Monitoring Well C-2	Monitoring Well C-2	Monitoring Well C-2	Monitoring Well C-2	Federal Maximum Contaminant Level(a)
Sample Date:	Nov 7, 1990	Oct 16, 1991	Jan 15, 1992	May 6, 1992	Aug 18, 1992	May 25, 1993	Dec 8, 1993	
Sample I.D.:	855361-SA-A	9110S181-002	9201S786-002	9205S774-006	9208S615-005	9305S887-003	9312S642-002	
Analyte Compound								
Chloromethane	ND 50	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	
Bromomethane	ND 50	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	
Vinyl chloride	ND 50	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	2
Chloroethane	ND 50	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	
Methylene chloride	ND 25	3 JB	11 B	ND 5	ND 5	ND 5	ND 5	
Acetone	ND 50	19	ND 10	ND 10	ND 10	ND 10	ND 10	
Carbon disulfide	ND 25	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	
1,1-dichloroethene	ND 25	2 J	3 J	ND 5	ND 5	ND 5	2J	7
1,1-dichloroethane	ND 25	6	6	ND 5	ND 5	ND 5	4J	
1,2-dichloroethane (total)	ND 25	4 J	2 J	ND 5	ND 5	ND 5	2J	70 (b)/100 (c)
Chloroform	ND 25	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	100
1,2-dichloroethylene	ND 25	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	5
2-butanone (methyl ethyl ketone)	250	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	
1,1,1-trichloroethane	ND 25	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	200
Carbon tetrachloride	ND 25	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	5
Vinyl acetate	ND 50	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	
Bromodichloromethane	ND 25	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	
1,2-dichloropropane	ND 25	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	5
cis-1,3-dichloropropene	ND 25	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	
Trichloroethylene	ND 25	3 J	3 J	ND 5	ND 5	ND 5	ND 3	5
Dibromochloromethane	ND 25	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	
1,1,2-trichloroethane	ND 25	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	5
Benzene	ND 25	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	5
trans-1,3-dichloropropene	ND 25	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	
Bromoform	ND 25	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	
4-methyl-2-pentanone	ND 50	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	
2-hexanone	ND 50	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	
Tetrachloroethylene	ND 25	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	5
1,1,2,2-tetrachloroethane	ND 25	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	
Toluene	ND 25	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	1,000
Chlorobenzene	ND 25	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	100
Ethyl benzene	ND 25	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	700
Styrene	ND 25	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	100
Xylene (total)	ND 25	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	10,000

TABLE 2

SUMMARY OF GROUND WATER VOC ANALYSES
SEVEN GROUND WATER SAMPLE EVENTS
CARIBE GENERAL ELECTRIC DISTRIBUTION TRANSFORMERS, INC.
VIEQUES, PUERTO RICO
(micrograms/liter (µg/l)

Location:	Monitoring Well C-3	Monitoring Well C-3	Monitoring Well C-3	Monitoring Well C-3	Monitoring Well C-3	Trip Blank	Monitoring Well C-3	Monitoring Well C-3	Federal Maximum Contaminant Level(a)
Sample Date:	Nov 7, 1990	Oct 16, 1991	Jan 15, 1992	May 6, 1992	Aug 18, 1992	Aug 18, 1992	May 25, 1993	Dec 8, 1993	
Sample I.D.:	855363-SA-A	9110S181-003	9201S786-003	9205S774-011	9208S615-013	9208S615-008	9305S887-005	9312S842-003	
Analyte Compound									
Chloromethane	ND 10	ND 10	ND 10	ND 10	11	ND 10	ND 10	ND 10	
Bromomethane	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	
Vinyl chloride	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	2
Chloroethane	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	
Methylene chloride	ND 5	2 JB	10 B	ND 5	8	J3	ND 5	ND 5	
Acetone	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	
Carbon disulfide	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	
1,1-dichloroethene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	7
1,1-dichloroethane	24	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	10	
1,2-dichloroethane (total)	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	0 (b)/100 (c
Chloroform	ND 5	ND 5	ND 5	ND 5	6	J3	ND 5	ND 5	100
1,2-dichloroethylene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	5
2-butanone (methyl ethyl ketone)	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	
1,1,1-trichloroethane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	200
Carbon tetrachloride	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	5
Vinyl acetate	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	
Bromodichloromethane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	
1,2-dichloropropane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	5
cis-1,3-dichloropropene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	
Trichloroethylene	ND 5	ND 5	ND 5	ND 5	12	12	ND 5	ND 5	5
Dibromochloromethane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	
1,1,2-trichloroethane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	5
Benzene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	5
trans-1,3-dichloropropene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	
Bromoform	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	
4-methyl-2-pentanone	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	
2-hexanone	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	
Tetrachloroethylene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	5
1,1,2,2-tetrachloroethane	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	
Toluene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	1,000
Chlorobenzene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	100
Ethyl benzene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	700
Styrene	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	100
Xylene (total)	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	10,000

TABLE 2

SUMMARY OF GROUND WATER VOC ANALYSES
SEVEN GROUND WATER SAMPLE EVENTS
CARIBE GENERAL ELECTRIC DISTRIBUTION TRANSFORMERS, INC.
VIEQUES, PUERTO RICO
(micrograms/liter (µg/l)

Location:	Monitoring Well C-4	Monitoring Well C-4	Monitoring Well C-4	Monitoring Well C-4	Monitoring Well C-4	Monitoring Well C-4	Monitoring Well C-4	Federal Maximum Contaminant Level(a)
Sample Date:	Nov 7, 1990	Oct 16, 1991	Jan 15, 1992	May 6, 1992	Aug 18, 1992	May 25, 1993	Dec 8, 1993	
Sample I.D.:	855364-SA-A	9110S181-004	9201S786-004	9205S774-016	9208S615-014	9305S887-004	9312S642-004-DL	
Analyte Compound								
Chloromethane	ND 100	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	
Bromomethane	ND 100	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	
Vinyl chloride	ND 100	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	2
Chloroethane	ND 100	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	
Methylene chloride	ND 50	17 JB	10 B	ND 5	7	1 JB	9J	
Acetone	ND 100	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	
Carbon disulfide	ND 50	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	
1,1-dichloroethene	230	36	78	83	69	140	71	7
1,1-dichloroethane	ND 190	61	99	120	110	140	98	
1,2-dichloroethane (total)	ND 50	25	300 E	ND 5	260	2 J	280	70 (b)/100 (c)
Chloroform	ND 50	1 J	ND 5	ND 5	ND 5	3 J	5J	100
1,2-dichloroethylene	ND 50	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	5
2-butanone (methyl ethyl ketone)	ND 100	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	
1,1,1-trichloroethane	68	ND 5	1 J	ND 5	ND 5	3 J	1J	200
Carbon tetrachloride	ND 50	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	5
Vinyl acetate	ND 100	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	
Bromodichloromethane	ND 50	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	
1,2-dichloropropane	ND 50	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	5
cis-1,3-dichloropropene	ND 50	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	
Trichloroethylene	99	610	710 E	780	420	990	630	5
Dibromochloromethane	ND 50	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	
1,1,2-trichloroethane	ND 50	ND 5	2 J	3 J	ND 5	ND 5	2J	5
Benzene	ND 50	ND 5	ND 5	ND 5	ND 5	3 J	ND 5	5
trans-1,3-dichloropropene	ND 50	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	
Bromoform	ND 50	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	
4-methyl-2-pentanone	ND 100	ND 10	ND 10	ND 10	ND 10	ND 10	ND 10	
2-hexanone	ND 100	ND 10	ND 10	ND 10	ND 10	29	ND 10	
Tetrachloroethylene	ND 50	ND 5	2 J	ND 5	ND 5	5	2J	5
1,1,2,2-tetrachloroethane	ND 50	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	
Toluene	ND 50	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	1,000
Chlorobenzene	ND 50	1 J	ND 5	ND 5	ND 5	ND 5	ND 5	100
Ethyl benzene	ND 50	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	700
Styrene	ND 50	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	100
Xylene (total)	ND 50	ND 5	ND 5	ND 5	ND 5	ND 5	ND 5	10,000

Notes:
(a) 40 CFR Part 141: National Primary Drinking Water Regulations. (Revised May 1993)
(b) Concentration shown for cis-1,2-dichloroethylene.
(c) Concentration shown for trans-1,2-dichloroethylene.
1. ND = Not detected.
2. NT = Not tested.
3. Boxed values = Detected above federal maximum contaminant level.
4. J = Detected at a concentration below required reporting limit.
5. B = Detected in a laboratory prepared blank (indicator of laboratory contamination).

TABLE 3

WATER LEVEL SUMMARY
CARIBE GENERAL ELECTRIC DISTRIBUTION TRANSFORMERS, INC.
VIEQUES, PUERTO RICO

Date of Measurement	Water Level Elevation (feet above mean sea level)			
	C-1	C-2	C-3	C-4
Well Installed Nov-91 (a)	58.6	55.2	55.2	59.0
1st Qtr. Oct-91	50.7	49.2	49.6	51.1
2nd Qtr. Jan-92	54.2	51.9	52.2	53.0
3rd Qtr. May-92	49.3	48.1	48.2	49.8
4th Qtr. Aug-92	51.2	50.7	50.6	50.6
1st Semiannual May - 93	49.9	47.4	43.5 (b)	50.6
2nd Semiannual Dec - 93	52.8	50.1	51.0	52.9
Statistical Summary	**C-1**	**C-2**	**C-3**	**C-4**
Mean	51.4	49.6	50.3	51.3
Median	51.0	49.7	50.6	50.9
Standard Deviation	1.84	1.67	1.51	1.32
Range	4.9	4.5	4.0	3.2
Minimum	49.3	47.4	48.2	49.8
Maximum	54.2	51.9	52.2	53.0

Notes:
(a) Water level elevations measured during well installation, November 1991, were not considered in the statistical summary due to the absence of aquifer equilibrium.
(b) Water level elevation in Well C-3 from the May 1993 sampling event is considered anomalous and was not calculated in the statistical summary.
1. See Figure 2 for the location of the four bedrock monitoring wells.

TABLE 4

DAILY WATER LEVEL AND PRECIPITATION MEASUREMENTS
CARIBE GENERAL ELECTRIC DISTRIBUTION TRANSFORMERS, INC.
VIEQUES, PUERTO RICO

Date	Monitoring Well C-1		Monitoring Well C-2		Monitoring Well C-3		Monitoring Well C-4		Precipitation (inches)
	Ground Water Level	Ground Water Elevation	Ground Water Level	Ground Water Elevation	Ground Water Level	Ground Water Elevation	Ground Water Level	Ground Water Elevation	
5/25/93 (a)	22.93	49.88	23.74	47.35	29.90	43.53	28.87	50.56	NR
5/28/93 (b)	22.12	50.69	23.23	47.86	25.24	48.19	28.62	50.81	NR
5/31/93	22.63	50.18	23.63	47.46	25.41	48.02	28.7	50.73	NR
6/1/93	22.78	50.03	23.77	47.32	25.53	47.90	28.74	50.69	0.00
6/2/93	22.95	49.86	23.91	47.18	25.65	47.78	28.76	50.67	0.00
6/3/93	23.08	49.73	24.00	47.09	25.78	47.65	28.80	50.63	0.00
6/4/93	23.19	49.62	24.19	46.90	25.89	47.54	28.83	50.60	0.00
6/5/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
6/6/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
6/7/93	23.54	49.27	24.58	46.51	26.37	47.06	29.00	50.43	0.00
6/8/93	23.64	49.17	24.75	46.34	26.60	46.83	29.08	50.35	0.00
6/9/93	23.75	49.06	24.92	46.17	26.77	46.66	29.13	50.30	0.00
6/10/93	23.85	48.96	25.03	46.06	26.94	46.49	29.20	50.23	0.30
6/11/93	23.92	48.89	25.10	45.99	27.03	46.40	29.26	50.17	0.00
6/12/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
6/13/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
6/14/93	24.16	48.65	25.42	45.67	27.38	46.05	29.48	49.95	0.10
6/15/93	24.23	48.58	25.50	45.59	27.50	45.93	29.49	49.94	0.10
6/16/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
6/17/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
6/18/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
6/19/93	NR	NR	NR	NR	NR	NR	NR	NR	0.20
6/20/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
6/21/63	20.40	52.41	23.53	47.56	25.78	47.65	29.24	50.19	1.10
6/22/93	20.93	51.88	23.08	48.01	25.32	48.11	29.09	50.34	0.40
6/23/93	20.93	51.88	22.75	48.34	24.97	48.46	28.90	50.53	0.00

TABLE 4

DAILY WATER LEVEL AND PRECIPITATION MEASUREMENTS
CARIBE GENERAL ELECTRIC DISTRIBUTION TRANSFORMERS, INC.
VIEQUES, PUERTO RICO

Date	Monitoring Well C-1		Monitoring Well C-2		Monitoring Well C-3		Monitoring Well C-4		Precipitation (inches)
	Ground Water Level	Ground Water Elevation	Ground Water Level	Ground Water Elevation	Ground Water Level	Ground Water Elevation	Ground Water Level	Ground Water Elevation	
6/24/93	21.85	50.96	22.74	48.35	24.90	48.53	28.79	50.64	0.00
6/25/93	21.73	51.08	22.95	48.14	24.99	48.44	28.72	50.71	0.00
6/26/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
6/27/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
6/28/93	22.46	50.35	23.55	47.54	25.38	48.05	28.71	50.72	0.00
6/29/93	22.65	50.16	23.75	47.34	25.50	47.93	28.74	50.69	0.00
6/30/93	22.83	49.98	23.91	47.18	25.61	47.82	28.77	50.66	0.20
7/1/03	22.93	49.88	24.01	47.08	25.63	47.80	28.80	50.63	0.00
7/2/93	23.04	49.77	24.10	46.99	25.74	47.69	28.82	50.61	0.25
7/3/93	23.05	49.76	24.00	47.09	25.66	47.77	28.84	50.59	0.35
7/4/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
7/5/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
7/6/93	23.00	49.81	24.40	46.69	25.62	47.81	28.82	50.61	0.10
7/7/93	23.08	49.73	24.22	46.87	25.70	47.73	28.85	50.58	0.00
7/8/93	23.17	49.64	24.36	46.73	26.24	47.19	28.90	50.53	0.15
7/9/93	23.23	49.58	24.43	46.66	26.30	47.13	28.95	50.48	0.00
7/10/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
7/11/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
7/12/93	20.98	51.83	23.56	47.53	25.80	47.63	28.40	51.03	2.10
7/13/93	20.15	52.66	22.95	48.14	25.25	48.18	28.35	51.08	0.00
7/14/93	19.75	53.06	22.88	48.21	25.03	48.40	28.33	51.10	0.00
7/15/93	21.28	51.53	22.98	48.11	24.99	48.44	28.31	51.12	0.00
7/16/93	21.65	51.16	23.01	48.08	24.96	48.47	28.32	51.11	0.30
7/17/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
7/18/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
7/19/93	22.23	50.58	23.46	47.63	25.18	48.25	28.43	51.00	0.00

TABLE 4

DAILY WATER LEVEL AND PRECIPITATION MEASUREMENTS
CARIBE GENERAL ELECTRIC DISTRIBUTION TRANSFORMERS, INC.
VIEQUES, PUERTO RICO

Date	Monitoring Well C-1		Monitoring Well C-2		Monitoring Well C-3		Monitoring Well C-4		Precipitation (inches)
	Ground Water Level	Ground Water Elevation	Ground Water Level	Ground Water Elevation	Ground Water Level	Ground Water Elevation	Ground Water Level	Ground Water Elevation	
7/20/93	22.43	50.38	23.65	47.44	25.30	48.13	28.43	51.00	0.00
7/21/93	22.62	50.19	23.83	47.26	25.59	47.84	28.55	50.88	0.00
7/22/93	22.79	50.02	24.00	47.09	25.80	47.63	28.62	50.81	0.70
7/23/93	NR	NR	NR	NR	NR	NR	NR	NR	4.90
7/24/93	16.49	56.32	21.15	49.94	23.98	49.45	27.85	51.58	2.20
7/25/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
7/26/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
7/27/93	17.45	55.36	20.20	50.89	22.25	51.18	26.59	52.84	0.30
7/28/93	18.47	54.34	20.28	50.81	22.24	51.19	26.43	53.00	0.00
7/29/93	18.45	54.36	20.47	50.62	22.29	51.14	26.36	53.07	0.00
7/30/93	19.22	53.59	20.68	50.41	22.36	51.07	26.30	53.13	0.00
7/31/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
8/1/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
8/2/93	19.95	52.86	21.30	49.79	22.93	50.50	26.41	53.02	0.00
8/3/93	20.21	52.60	21.54	49.55	23.23	50.20	26.49	52.94	0.00
8/4/93	20.41	52.40	21.75	49.34	23.51	49.92	26.54	52.89	0.00
8/5/93	20.58	52.23	21.97	49.12	23.76	49.67	26.61	52.82	0.00
8/6/93	20.77	52.04	22.19	48.90	24.00	49.43	26.67	52.76	0.00
8/7/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
8/8/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
8/9/93	21.31	51.50	23.83	47.26	24.20	49.23	26.95	52.48	0.00
8/10/93	21.50	51.31	23.04	48.05	24.94	48.49	27.04	52.39	0.00
8/11/93	24.67	48.14	23.27	47.82	25.19	48.24	27.17	52.26	0.00
8/12/93	21.78	51.03	23.40	47.69	25.31	48.12	27.24	52.19	0.00
8/13/93	21.94	50.87	23.57	47.52	25.50	47.93	27.34	52.09	0.00
8/14/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00

TABLE 4

DAILY WATER LEVEL AND PRECIPITATION MEASUREMENTS
CARIBE GENERAL ELECTRIC DISTRIBUTION TRANSFORMERS, INC.
VIEQUES, PUERTO RICO

Date	Monitoring Well C-1		Monitoring Well C-2		Monitoring Well C-3		Monitoring Well C-4		Precipitation (inches)
	Ground Water Level	Ground Water Elevation	Ground Water Level	Ground Water Elevation	Ground Water Level	Ground Water Elevation	Ground Water Level	Ground Water Elevation	
8/15/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
8/16/93	22.26	50.55	23.87	47.22	25.63	47.80	27.56	51.87	0.20
8/17/93	22.28	50.53	23.87	47.22	25.62	47.81	27.62	51.81	0.00
8/18/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
8/19/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
8/20/93	22.58	50.23	24.11	46.98	25.86	47.57	27.83	51.60	0.00
8/21/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
8/22/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
8/23/93	22.85	49.96	24.45	46.64	26.35	47.08	28.06	51.37	0.00
8/24/93	22.90	49.91	24.38	46.71	26.35	47.08	28.15	51.28	0.40
8/25/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
8/26/93	22.85	49.96	24.28	46.81	26.26	47.17	28.22	51.21	0.00
8/27/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
8/28/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
8/29/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
8/30/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
8/31/93	NR	NR	NR	NR	NR	NR	NR	NR	0.20
9/1/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
9/2/93	23.35	49.46	25.15	45.94	27.00	46.43	28.67	50.76	0.00
9/3/93	23.55	49.26	25.23	45.86	27.02	46.41	28.73	50.70	0.30
9/4/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
9/5/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
9/6/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
9/7/93	NR	NR	NR	NR	NR	NR	NR	NR	2.10
9/8/93	22.15	50.66	23.52	47.57	25.60	47.83	28.56	50.87	0.00
9/9/93	22.35	50.46	23.64	47.45	25.70	47.73	28.58	50.85	0.10

TABLE 4

DAILY WATER LEVEL AND PRECIPITATION MEASUREMENTS
CARIBE GENERAL ELECTRIC DISTRIBUTION TRANSFORMERS, INC.
VIEQUES, PUERTO RICO

Date	Monitoring Well C-1		Monitoring Well C-2		Monitoring Well C-3		Monitoring Well C-4		Precipitation (inches)
	Ground Water Level	Ground Water Elevation	Ground Water Level	Ground Water Elevation	Ground Water Level	Ground Water Elevation	Ground Water Level	Ground Water Elevation	
9/10/93	22.56	50.25	23.80	47.29	25.83	47.60	28.61	50.82	0.20
9/11/93	NR	NR	NR	NR	NR	NR	NR	NR	0.20
9/12/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
9/13/93	22.93	49.88	24.19	46.90	26.19	47.24	28.74	50.69	0.00
9/14/93	23.05	49.76	24.33	46.76	26.31	47.12	28.76	50.67	0.00
9/15/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
9/16/93	22.65	50.16	24.44	46.65	26.55	46.88	28.85	50.58	3.80
9/17/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
9/18/93	NR	NR	NR	NR	NR	NR	NR	NR	0.50
9/19/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
9/20/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
9/21/93	18.50	54.31	21.23	49.86	23.80	49.63	27.36	52.07	1.20
9/22/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
9/23/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
9/24/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
9/25/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
9/26/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
9/27/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
9/28/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
9/29/93	20.75	52.06	22.17	48.92	24.25	49.18	26.96	52.47	0.50
9/30/93	20.86	51.95	22.14	48.95	24.22	49.21	26.96	52.47	0.10
10/1/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
10/2/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
10/3/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
10/4/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
10/5/93	21.17	51.64	22.90	48.19	24.59	48.84	27.07	52.36	0.40

TABLE 4

DAILY WATER LEVEL AND PRECIPITATION MEASUREMENTS
CARIBE GENERAL ELECTRIC DISTRIBUTION TRANSFORMERS, INC.
VIEQUES, PUERTO RICO

Date	Monitoring Well C-1		Monitoring Well C-2		Monitoring Well C-3		Monitoring Well C-4		Precipitation (inches)
	Ground Water Level	Ground Water Elevation	Ground Water Level	Ground Water Elevation	Ground Water Level	Ground Water Elevation	Ground Water Level	Ground Water Elevation	
10/6/93	21.32	51.49	22.62	48.47	24.69	48.74	27.13	52.30	0.40
10/7/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
10/8/93	21.32	51.49	22.59	48.50	24.66	48.77	27.19	52.24	0.00
10/9/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
10/10/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
10/11/93	21.61	51.20	23.07	48.02	25.10	48.33	27.29	52.14	0.40
10/12/93	21.74	51.07	23.18	47.91	25.21	48.22	27.37	52.06	0.00
10/13/93	21.85	50.96	23.33	47.76	25.34	48.09	27.44	51.99	0.10
10/14/93	21.96	50.85	23.48	47.61	25.47	47.96	27.50	51.93	0.00
10/15/93	22.06	50.75	23.60	47.49	25.58	47.85	27.55	51.88	0.00
10/16/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
10/17/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
10/18/93	22.41	50.40	24.05	47.04	26.02	47.41	27.77	51.66	0.00
10/19/93	22.55	50.26	24.23	46.86	26.20	47.23	27.84	51.59	0.00
10/20/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
10/21/93	22.76	50.05	24.49	46.60	26.46	46.97	28.00	51.43	0.00
10/22/93	22.87	49.94	24.62	46.47	26.59	46.84	28.07	51.36	0.30
10/23/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
10/24/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
10/25/93	22.75	50.06	23.90	47.19	26.07	47.36	28.12	51.31	1.60
10/26/93	22.55	50.26	23.78	47.31	25.93	47.50	28.13	51.30	2.00
10/27/93	22.46	50.35	23.85	47.24	25.95	47.48	28.10	51.33	0.00
10/28/93	22.52	50.29	23.98	47.11	26.04	47.39	28.19	51.24	0.00
10/29/93	22.63	50.18	24.16	46.93	26.17	47.26	28.23	51.20	0.00
10/30/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
10/31/93	NR	NR	NR	NR	NR	NR	NR	NR	NR

TABLE 4

DAILY WATER LEVEL AND PRECIPITATION MEASUREMENTS
CARIBE GENERAL ELECTRIC DISTRIBUTION TRANSFORMERS, INC.
VIEQUES, PUERTO RICO

Date	Monitoring Well C-1		Monitoring Well C-2		Monitoring Well C-3		Monitoring Well C-4		Precipitation (inches)
	Ground Water Level	Ground Water Elevation	Ground Water Level	Ground Water Elevation	Ground Water Level	Ground Water Elevation	Ground Water Level	Ground Water Elevation	
11/1/93	22.97	49.84	24.60	46.49	26.59	46.84	28.35	51.08	0.10
11/2/93	23.08	49.73	24.76	46.33	26.72	46.71	28.41	51.02	0.00
11/3/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
11/4/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
11/5/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
11/6/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
11/7/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
11/8/93	23.68	49.13	25.46	45.63	27.42	46.01	28.80	50.63	0.00
11/9/93	23.75	49.06	25.57	45.52	27.52	45.91	28.84	50.59	0.00
11/10/93	23.84	48.97	25.65	45.44	27.61	45.82	28.88	50.55	0.00
11/11/93	23.91	48.90	25.73	45.36	27.58	45.85	28.95	50.48	0.00
11/12/93	23.98	48.83	25.82	45.27	27.75	45.68	28.99	50.44	0.20
11/13/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
11/14/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
11/15/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
11/16/93	24.22	48.59	25.99	45.10	27.95	45.48	29.19	50.24	0.80
11/17/93	NR	NR	NR	NR	NR	NR	NR	NR	0.30
11/18/93	24.17	48.64	25.54	45.55	27.56	45.87	29.22	50.21	0.80
11/19/93	23.98	48.83	25.25	45.84	27.25	46.18	29.12	50.31	0.00
11/20/93	NR	NR	NR	NR	NR	NR	NR	NR	0.10
11/21/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
11/22/93	23.78	49.03	25.25	45.84	27.12	46.31	29.20	50.23	0.30
11/23/93	23.90	48.91	25.28	45.81	27.05	46.38	29.21	50.22	0.00
11/24/93	NR	NR	NR	NR	NR	NR	NR	NR	0.80
11/25/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
11/26/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
11/27/93	NR	NR	NR	NR	NR	NR	NR	NR	NR

TABLE 4

DAILY WATER LEVEL AND PRECIPITATION MEASUREMENTS
CARIBE GENERAL ELECTRIC DISTRIBUTION TRANSFORMERS, INC.
VIEQUES, PUERTO RICO

Date	Monitoring Well C-1		Monitoring Well C-2		Monitoring Well C-3		Monitoring Well C-4		Precipitation (inches)
	Ground Water Level	Ground Water Elevation	Ground Water Level	Ground Water Elevation	Ground Water Level	Ground Water Elevation	Ground Water Level	Ground Water Elevation	
11/28/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
11/29/93	18.20	54.61	20.19	50.90	21.38	52.05	27.20	52.23	6.00
11/30/93	NR	NR	NR	NR	NR	NR	NR	NR	0.60
12/1/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
12/2/93	18.94	53.87	20.02	51.07	21.16	52.27	26.63	52.80	0.00
12/3/93	19.22	53.59	20.19	50.90	21.20	52.23	26.56	52.87	0.00
12/4/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
12/5/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
12/6/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
12/7/93	19.88	52.93	20.87	50.22	22.17	51.26	26.52	52.91	0.30
12/8/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
12/9/93	20.24	52.57	21.25	49.84	22.67	50.76	26.56	52.87	0.00
12/10/93	20.41	52.40	21.46	49.63	22.92	50.51	26.60	52.83	0.00
12/11/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
12/12/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
12/13/93	20.93	51.88	22.10	48.99	23.70	49.73	26.77	52.66	0.00
12/14/93	21.10	51.71	22.36	48.73	24.00	49.43	26.84	52.59	0.00
12/15/93	21.28	51.53	22.58	48.51	24.26	49.17	26.92	52.51	0.00
12/16/93	21.43	51.38	22.76	48.33	24.50	48.93	27.00	52.43	0.00
12/17/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
12/18/93	NR	NR	NR	NR	NR	NR	NR	NR	0.80
12/19/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
12/20/93	NR	NR	NR	NR	NR	NR	NR	NR	0.00
12/21/93	21.73	51.08	23.04	48.05	24.99	48.44	27.25	52.18	0.40
12/22/93	NR	NR	NR	NR	NR	NR	NR	NR	0.60
12/23/93	NR	NR	NR	NR	NR	NR	NR	NR	NR

TABLE 4

DAILY WATER LEVEL AND PRECIPITATION MEASUREMENTS
CARIBE GENERAL ELECTRIC DISTRIBUTION TRANSFORMERS, INC.
VIEQUES, PUERTO RICO

Date	Monitoring Well C-1		Monitoring Well C-2		Monitoring Well C-3		Monitoring Well C-4		Precipitation (inches)
	Ground Water Level	Ground Water Elevation	Ground Water Level	Ground Water Elevation	Ground Water Level	Ground Water Elevation	Ground Water Level	Ground Water Elevation	
12/24/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
12/25/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
12/26/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
12/27/93	NR	NR	NR	NR	NR	NR	NR	NR	0.50
12/28/93	NR	NR	NR	NR	NR	NR	NR	NR	0.40
12/29/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
12/30/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
12/31/93	NR	NR	NR	NR	NR	NR	NR	NR	NR
1/1/94	NR	NR	NR	NR	NR	NR	NR	NR	NR
1/2/94	NR	NR	NR	NR	NR	NR	NR	NR	NR
1/3/94	NR	NR	NR	NR	NR	NR	NR	NR	NR
1/4/94	NR	NR	NR	NR	NR	NR	NR	NR	NR
1/5/94	NR	NR	NR	NR	NR	NR	NR	NR	NR
1/6/94	NR	NR	NR	NR	NR	NR	NR	NR	NR
1/7/94	NR	NR	NR	NR	NR	NR	NR	NR	NR
1/8/94	NR	NR	NR	NR	NR	NR	NR	NR	NR
1/9/94	NR	NR	NR	NR	NR	NR	NR	NR	NR
1/10/94	NR	NR	NR	NR	NR	NR	NR	NR	NR
1/11/94	NR	NR	NR	NR	NR	NR	NR	NR	NR
1/12/94	NR	NR	NR	NR	NR	NR	NR	NR	NR
1/13/94	NR	NR	NR	NR	NR	NR	NR	NR	NR
1/14/94	21.88	50.93	23.35	47.74	25.47	47.96	27.43	52.00	0.90
1/15/94	NR	NR	NR	NR	NR	NR	NR	NR	NR
1/16/94	NR	NR	NR	NR	NR	NR	NR	NR	NR
1/17/94	21.37	51.44	22.83	48.26	25.05	48.38	27.33	52.10	0.80
1/18/94	NR	NR	NR	NR	NR	NR	NR	NR	NR

TABLE 4

DAILY WATER LEVEL AND PRECIPITATION MEASUREMENTS
CARIBE GENERAL ELECTRIC DISTRIBUTION TRANSFORMERS, INC.
VIEQUES, PUERTO RICO

Date	Monitoring Well C-1		Monitoring Well C-2		Monitoring Well C-3		Monitoring Well C-4		Precipitation (inches)
	Ground Water Level	Ground Water Elevation	Ground Water Level	Ground Water Elevation	Ground Water Level	Ground Water Elevation	Ground Water Level	Ground Water Elevation	
1/19/94	21.53	51.28	23.09	48.00	25.23	48.20	27.37	52.06	0.00
1/20/94	21.70	51.11	23.27	47.82	25.37	48.06	27.42	52.01	0.00
1/21/94	21.84	50.97	23.47	47.62	25.53	47.90	27.54	51.89	0.20
1/22/94	NR	NR	NR	NR	NR	NR	NR	NR	NR
1/23/94	NR	NR	NR	NR	NR	NR	NR	NR	NR
1/24/94	NR	NR	NR	NR	NR	NR	NR	NR	NR
1/25/94	22.30	50.51	23.94	47.15	26.00	47.43	27.73	51.70	0.30
1/26/94	22.36	50.45	24.00	47.09	26.08	47.35	27.76	51.67	0.00
1/27/94	22.43	50.38	24.10	46.99	26.15	47.28	27.81	51.62	0.00
1/28/94	22.50	50.31	24.10	46.99	26.17	47.26	27.85	51.58	0.50
1/29/94	NR	NR	NR	NR	NR	NR	NR	NR	NR
1/30/94	NR	NR	NR	NR	NR	NR	NR	NR	NR
1/31/94	22.42	50.39	23.85	47.24	25.87	47.56	27.90	51.53	0.40

Notes:
(a) Semiannual ground water sample event.
(b) Frequent water level and precipitation measurements begin.
NR = No Reading
Precipitation measurement after day(s) of no reading is cumulative.

TABLE 5

COST OF CLOSURE ESTIMATE
CARIBE GENERAL ELECTRIC DISTRIBUTION TRANSFORMERS, INC.
VIEQUES, PUERTO RICO

Task	Estimated Cost
Soil gas survey	$45,000
Install three upgradient monitoring wells	$54,000
Sample 7 bedrock monitoring wells (two semiannual sampling events)	$42,000
Subtotal	$141,000
Contingency	$28,200
Total estimated cost for amended closure activities during 1994	$169,200

FIGURES

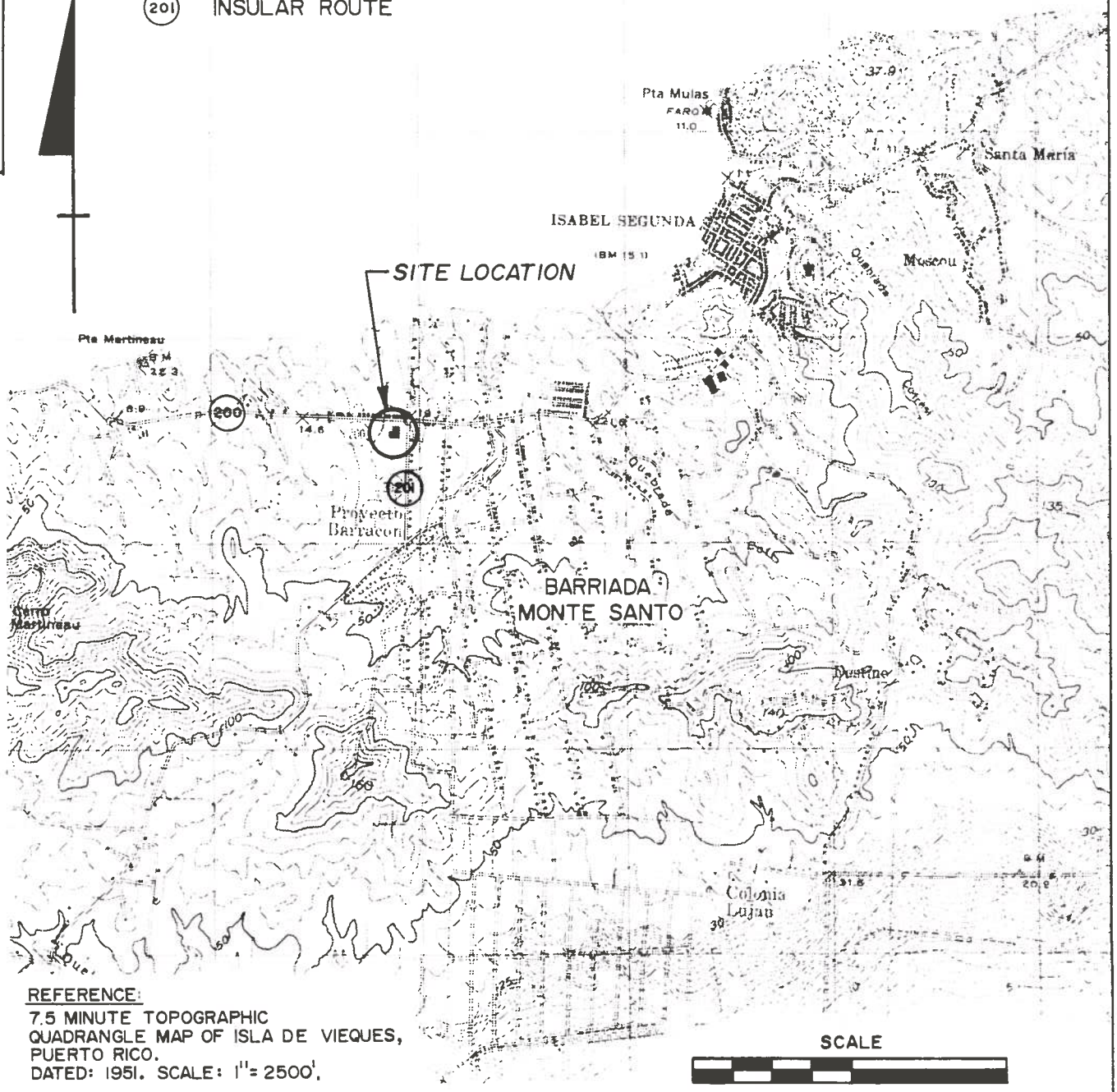
102340

DRAWING NUMBER 89-119-A58

LEGEND:

(201) INSULAR ROUTE

N

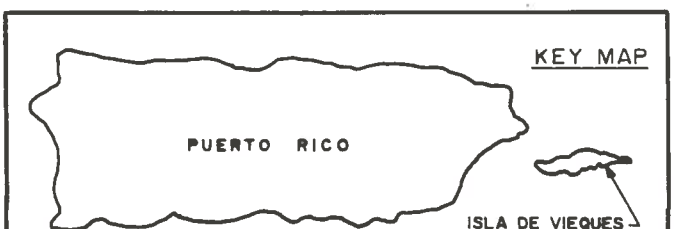


REFERENCE:
7.5 MINUTE TOPOGRAPHIC QUADRANGLE MAP OF ISLA DE VIEQUES, PUERTO RICO.
DATED: 1951. SCALE: 1"= 2500'.

SCALE
2500 0 2500 FEET

ISLA DE VIEQUES
PUERTO RICO

KEY MAP



LOCATION MAP

PREPARED FOR

GENERAL ELECTRIC
VIEQUES, PUERTO RICO

CanonieEnvironmental

No.	DATE	ISSUE / REVISION	DRN. BY	CK'D BY	AP'D BY
1	8-2-93	ISSUED FOR CLOSURE PLAN AMENDMENT	S.C.G.	PEC	

DATE: 7-26-93
SCALE: AS SHOWN

FIGURE 1

DRAWING NUMBER 89-119-A58

DRAWING NUMBER 89-119-E87

89-119-E33

E33

N

TO AIRPORT

INSULAR ROUTE 200

TO ISABEL SEGUNDA

TANK No. 2

TANK No. 1

SEPTIC TANK

DISCHARGE LINE TO OFF-SITE SEPTIC TANK (SEE NOTE 1)

TANK No. 3 (DECOMMISSIONED 1971)

DISTRIBUTION BOX

C-3

MW-3

SEE NOTE 1

C-2

C-6

C-5

CHAINLINK FENCE

WATER LINE (SEE NOTE 1)

SEDIMENT TANK (DECOMMISSIONED, 1985)

VALVE (TYP.)

OVERFLOW PIPE (DECOMMISSIONED, 1985)

MW-2

SEE NOTE 1

LEACH FIELD (DECOMMISSIONED 1983)

HEADER TRENCH NO. 2

C-1

SHOP

WATER STORAGE TANK

LIQUID PROPANE TANKS

HEADER TRENCH NO. 1

MW-1

SEE NOTE 1

LEACH FIELD TRENCH AND NUMBER (TYP.)

WATER STORAGE TANK

TRANSFORMER PAD

MAIN PLANT BUILDING

FORMER LOCATION OF BRIGHT DIP OPERATION

BD-2

BD-1

PAD AND BUILDING

INSULAR ROUTE 201

ACCESS CORRIDOR

C-4

CONTAINER STORAGE AREA

HAZARDOUS WASTE STORAGE AREA (CLOSED)

LEGEND:

- C-1 — MONITORING WELL LOCATION AND DESIGNATION (INSTALLED IN 1990)
- C-5 — TEST BORING LOCATION AND DESIGNATION (DRILLED IN 1990)
- MW-3 — TEST BORINGS DRILLED AND MONITORING WELLS INSTALLED IN OCTOBER, 1981 BY BORINGQUEN SOIL TESTING CORP. (WELL INSTALLATION DETAILS UNKNOWN)

NOTES:

1. ACTUAL LOCATION IS APPROXIMATE, FIELD VERIFY.
2. MONITORING WELL INSTALLATION DETAILS ARE SHOWN IN APPENDIX A OF THE CLOSURE REPORT.

SCALE

20 0 20 40 FEET

GENERAL SITE LAYOUT
MONITORING WELL AND
TEST BORING LOCATIONS
PREPARED FOR

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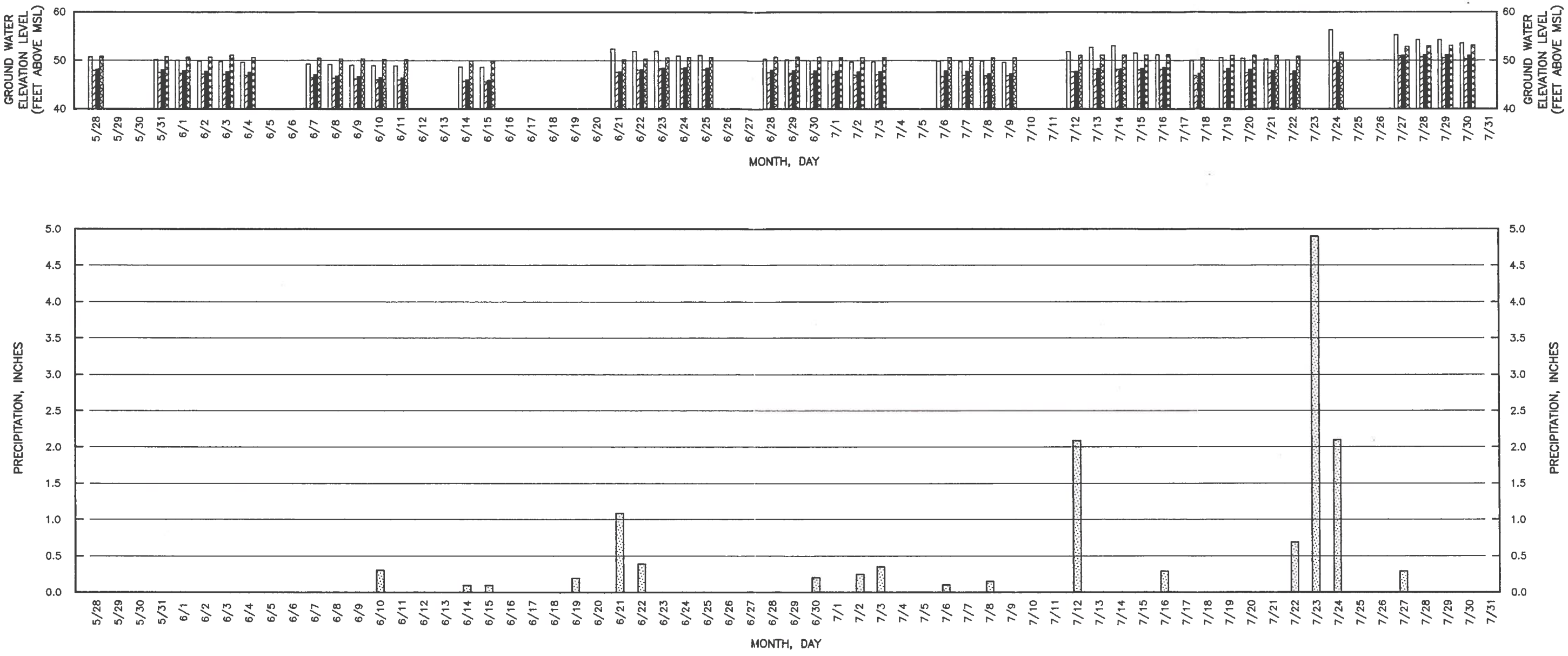
No.	DATE	ISSUE / REVISION	DWN. BY	CK'D BY	AP'D BY
1	3/24/94	ISSUED FOR CLOSURE PLAN AMENDMENT	P.M.W.	CAK	MAW

89-119-E33

DATE: 12-23-93	FIGURE 2	DRAWING NUMBER 89-119-E87	1
SCALE: AS SHOWN			

DRAWING NUMBER 89-119-B90



LEGEND:

WELL C-1
WELL C-2
WELL C-3
WELL C-4

NOTES:

1. GROUND WATER ELEVATION MEASURED ONLY ON DATES SHOWN.
2. MEASURED PRECIPITATION AFTER DAY(S) OF NO READING IS CUMULATIVE.

COMPARISON OF DAILY PRECIPITATION QUANTITIES TO MONITORING WELL WATER LEVELS JUNE AND JULY 1993

PREPARED FOR

GENERAL ELECTRIC
VIEQUES, PUERTO RICO

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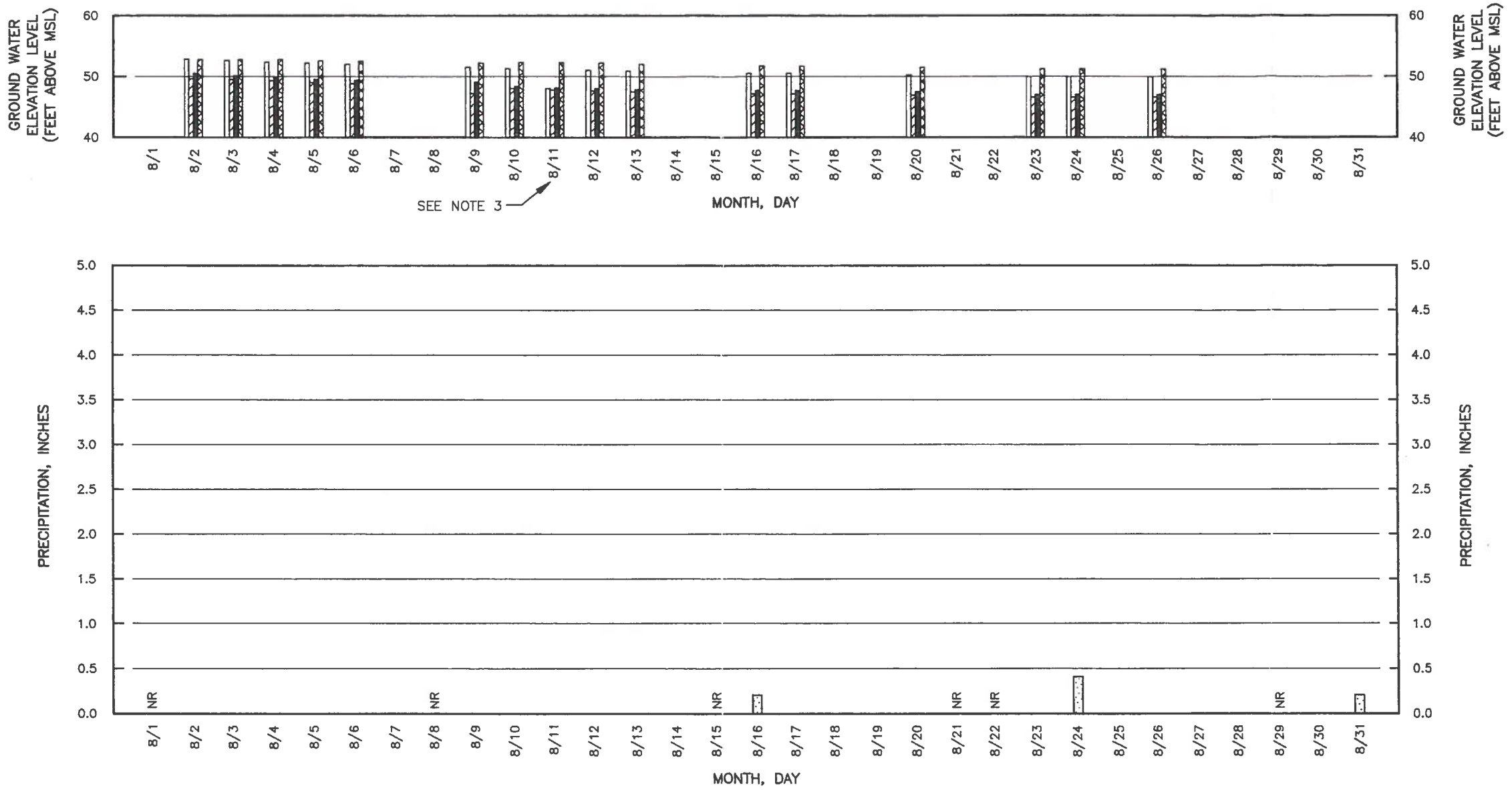
No.	DATE	ISSUE / REVISION	DWN. BY	CK'D BY	AP'D BY
1	3/2/94	ISSUED FOR CLOSURE PLAN AMENDMENT	S.C.G.	CAL	mmw

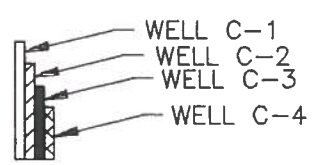
DATE: 1-27-94	FIGURE 3	DRAWING NUMBER 89-119-B90
SCALE: AS SHOWN		

1

DRAWING NUMBER 89-119-B91



LEGEND:



NR NO READING

NOTES:

1. GROUND WATER ELEVATION MEASURED ONLY ON DATES SHOWN.
2. MEASURED PRECIPITATION AFTER DAY(S) OF NO READING IS CUMULATIVE.
3. AUGUST 11, 1993, READING FOR WELL C-1 APPEARS TO BE AN ANOMOLY.

COMPARISON OF DAILY PRECIPITATION QUANTITIES TO MONITORING WELL WATER LEVELS
AUGUST 1993

PREPARED FOR
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VIEQUES, PUERTO RICO

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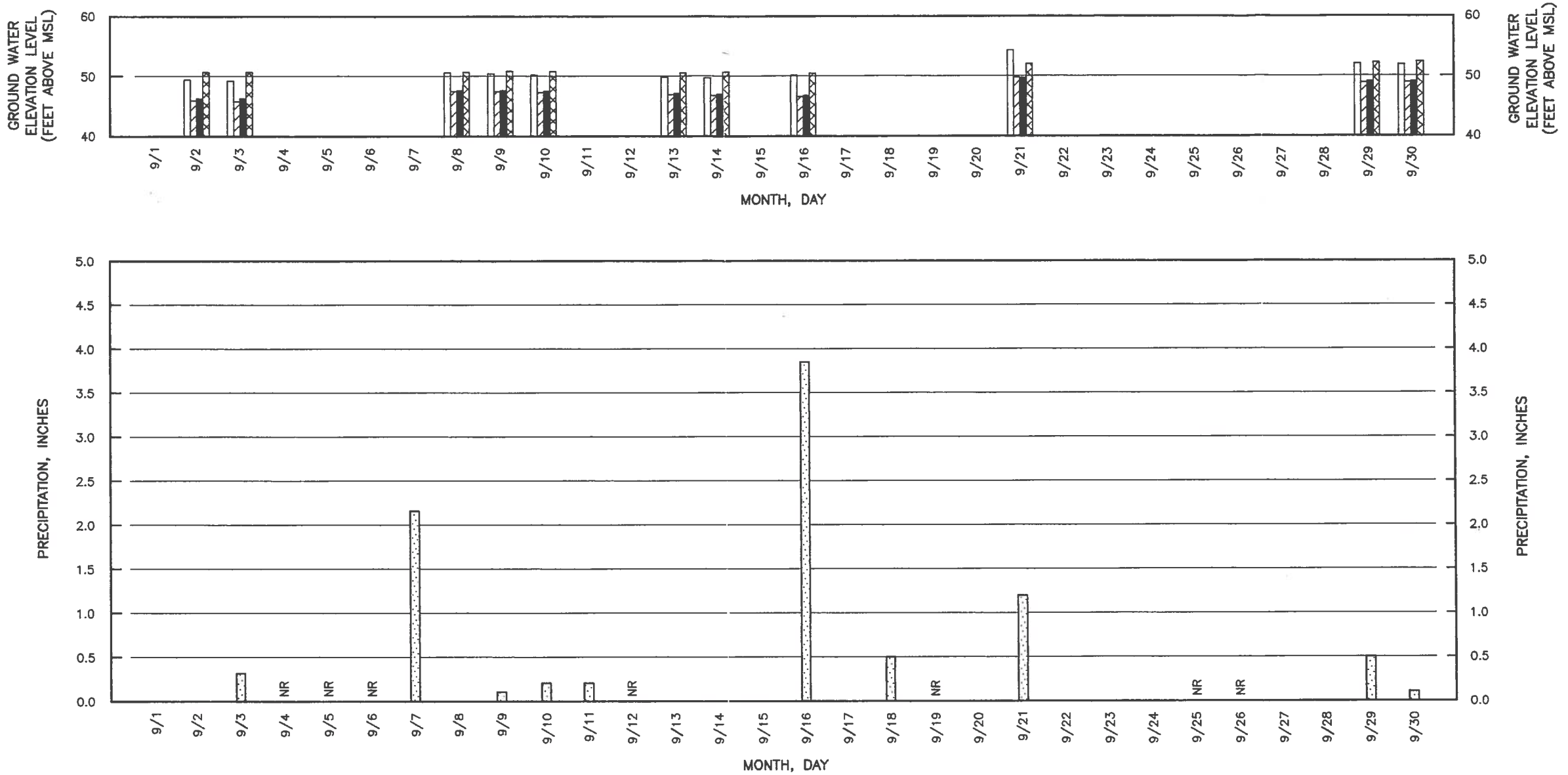
No.	DATE	ISSUE / REVISION	DWN. BY	CK'D BY	AP'D BY
1	3/2/94	ISSUED FOR CLOSURE PLAN AMENDMENT	S.C.G.	CAH	JMW

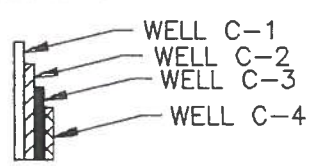
DATE: 1-27-94 SCALE: AS SHOWN	FIGURE 4	DRAWING NUMBER 89-119-B91

1

DRAWING NUMBER 89-119-B92



LEGEND:



NR NO READING

NOTES:

1. GROUND WATER ELEVATION MEASURED ONLY ON DATES SHOWN.
2. MEASURED PRECIPITATION AFTER DAY(S) OF NO READING IS CUMULATIVE.

COMPARISON OF DAILY PRECIPITATION QUANTITIES TO MONITORING WELL WATER LEVELS
SEPTEMBER 1993

PREPARED FOR

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VIEQUES, PUERTO RICO

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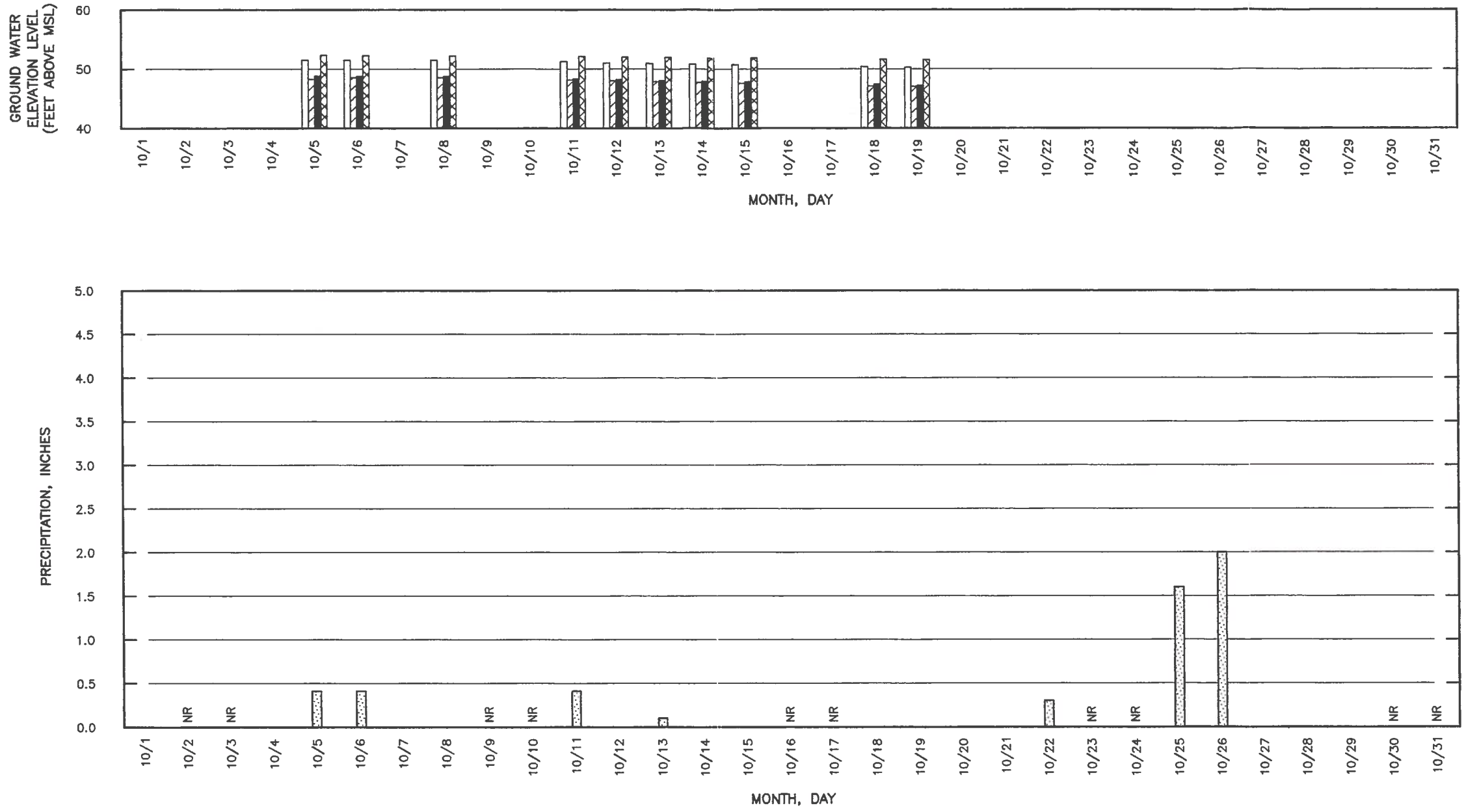
No.	DATE	ISSUE / REVISION	DWN. BY	CK'D BY	AP'D BY
1	3/7/94	ISSUED FOR CLOSURE PLAN AMENDMENT	S.C.G.	CAH	MMW

DATE: 1-27-94 SCALE: AS SHOWN	FIGURE 5	DRAWING NUMBER 89-119-B92

DRAWING NUMBER 89-119-B93



LEGEND:

WELL C-1
WELL C-2
WELL C-3
WELL C-4

NR NO READING

NOTES:

1. GROUND WATER ELEVATION MEASURED ONLY ON DATES SHOWN.
2. MEASURED PRECIPITATION AFTER DAY(S) OF NO READING IS CUMULATIVE.

COMPARISON OF DAILY PRECIPITATION QUANTITIES TO MONITORING WELL WATER LEVELS
OCTOBER 1993

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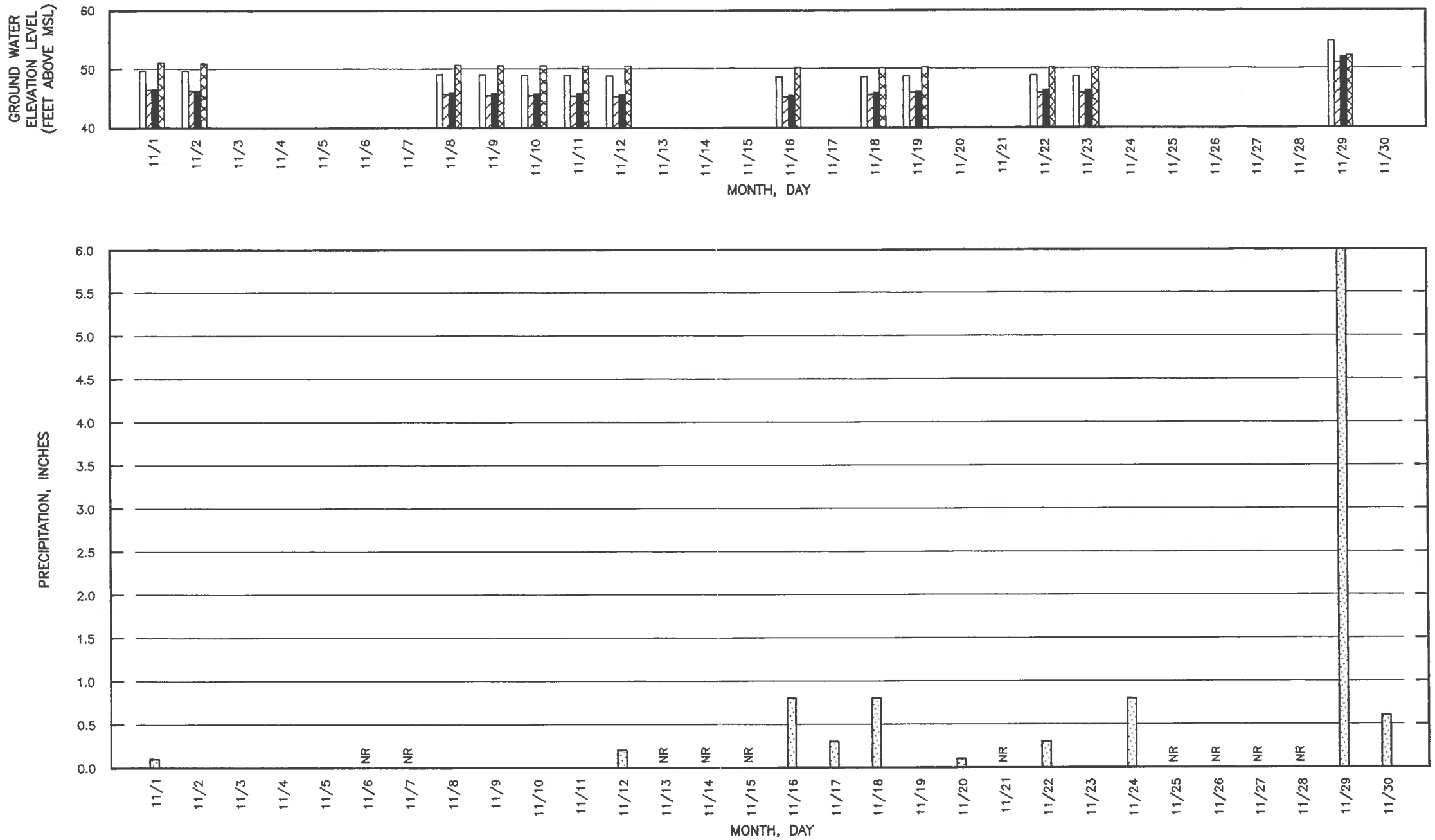
No.	DATE	ISSUE / REVISION	DWN. BY	CK'D BY	AP'D BY
1	3/2/94	ISSUED FOR CLOSURE PLAN AMENDMENT	S.C.G.	CAH	MMW

DATE: 1-27-94	FIGURE 6	DRAWING NUMBER 89-119-B93
SCALE: AS SHOWN		

1

DRAWING NUMBER 89-119-B94



LEGEND:

WELL C-1
WELL C-2
WELL C-3
WELL C-4

NR NO READING

NOTES:

1. GROUND WATER ELEVATION MEASURED ONLY ON DATES SHOWN.
2. MEASURED PRECIPITATION AFTER DAY(S) OF NO READING IS CUMULATIVE.

No.	DATE	ISSUE / REVISION	DWN. BY	CK'D BY	AP'D BY
1	3/2/94	ISSUED FOR CLOSURE PLAN AMENDMENT	S.C.G.	CAF	MMW

COMPARISON OF DAILY PRECIPITATION QUANTITIES TO MONITORING WELL WATER LEVELS
NOVEMBER 1993

PREPARED FOR

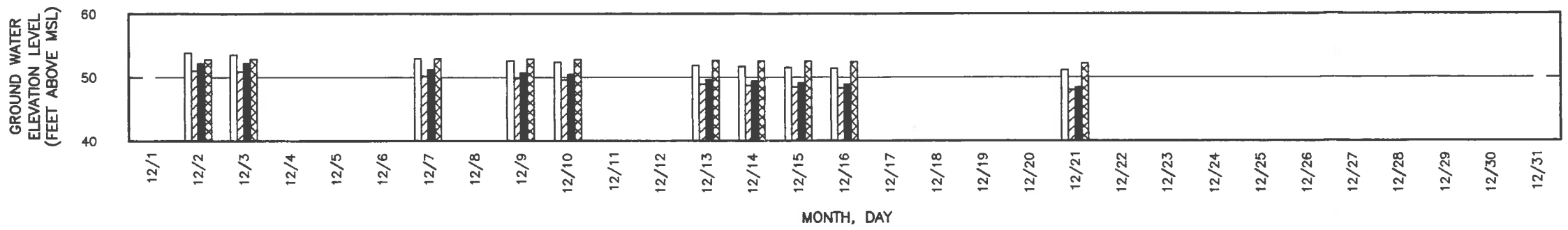
GENERAL ELECTRIC
VIEQUES, PUERTO RICO

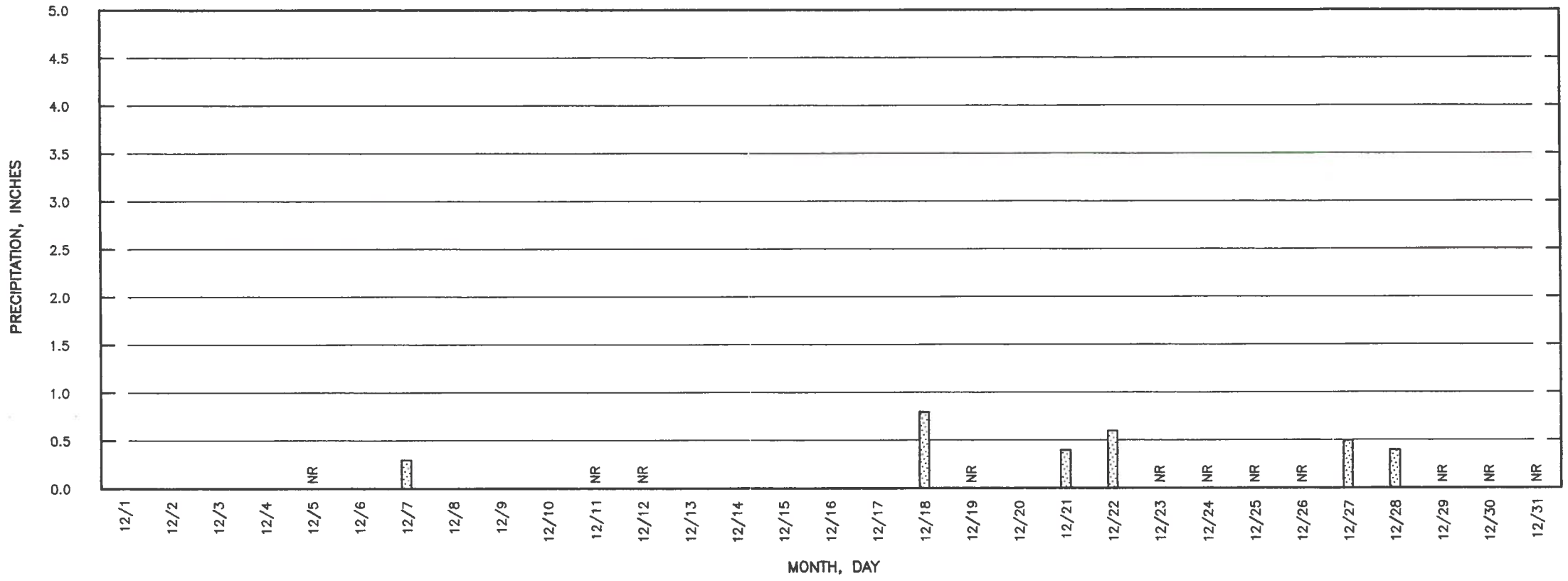
Canonie Environmental

DATE: 1-27-94	FIGURE 7	DRAWING NUMBER 89-119-B94
SCALE: AS SHOWN		

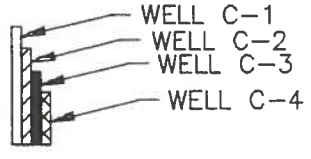
1

DRAWING NUMBER 89-119-B98





LEGEND:



NR NO READING

NOTES:

1. GROUND WATER ELEVATION MEASURED ONLY ON DATES SHOWN.
2. MEASURED PRECIPITATION AFTER DAY(S) OF NO READING IS CUMULATIVE.

No.	DATE	ISSUE / REVISION	DWN. BY	CK'D BY	AP'D BY
1	3/2/94	ISSUED FOR CLOSURE PLAN AMENDMENT	S.C.G.	GAK	MMW

COMPARISON OF DAILY PRECIPITATION QUANTITIES TO MONITORING WELL WATER LEVELS
DECEMBER 1993

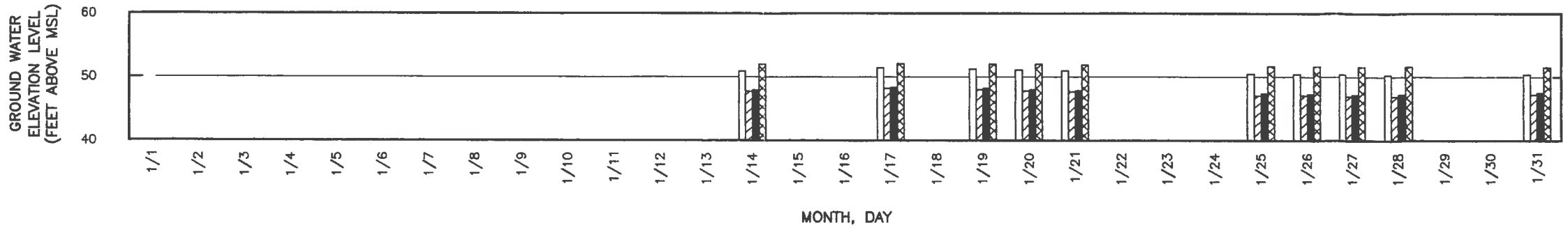
PREPARED FOR

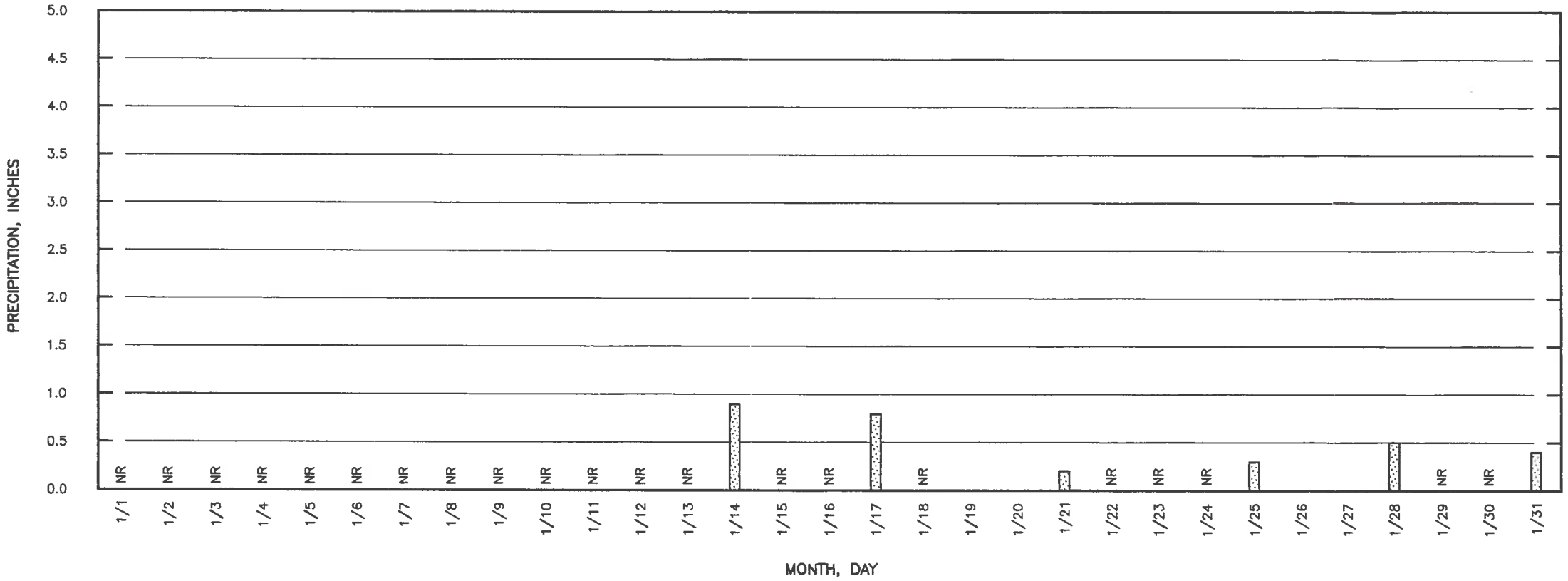
GENERAL ELECTRIC
VIEQUES, PUERTO RICO

CanonieEnvironmental

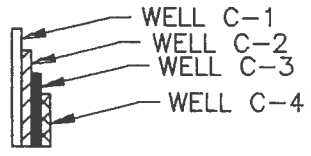
DATE: 2-16-94	FIGURE 8	DRAWING NUMBER 89-119-B98
SCALE: AS SHOWN		

DRAWING NUMBER 89-119-B99





LEGEND:



NR NO READING

NOTES:

1. GROUND WATER ELEVATION MEASURED ONLY ON DATES SHOWN.
2. MEASURED PRECIPITATION AFTER DAY(S) OF NO READING IS CUMULATIVE.

No.	DATE	ISSUE / REVISION	DWN. BY	CK'D BY	AP'D BY
1	3/2/94	ISSUED FOR CLOSURE PLAN AMENDMENT	S.C.G.	CHH	MMW

COMPARISON OF DAILY PRECIPITATION QUANTITIES TO MONITORING WELL WATER LEVELS
JANUARY 1994

PREPARED FOR

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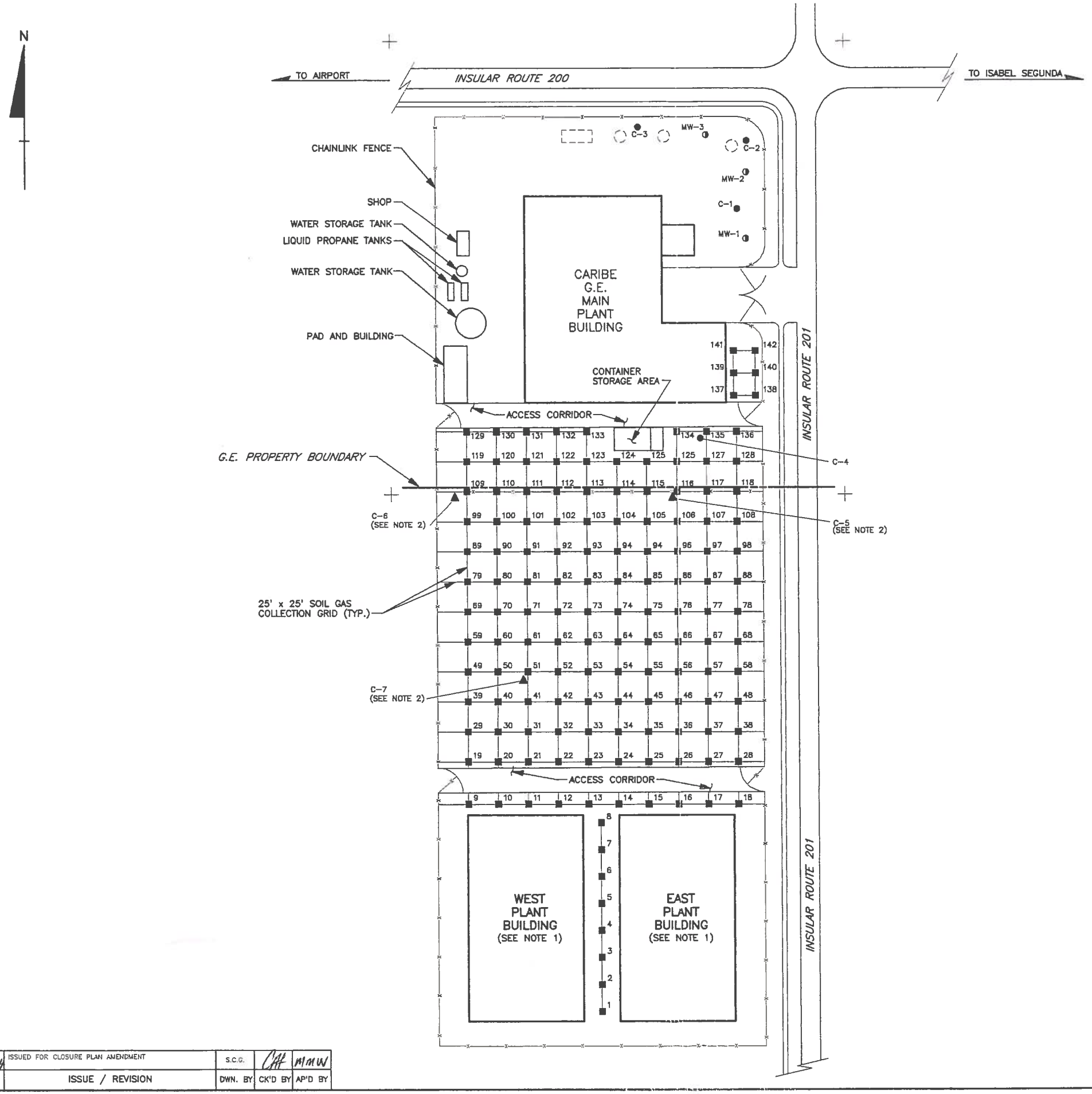
DATE: 2-16-94	FIGURE 9	DRAWING NUMBER 89-119-B99
SCALE: AS SHOWN		

1

DRAWING NUMBER 89-119-E95



LEGEND:

- C-1 ● EXISTING BEDROCK MONITORING WELL LOCATION AND DESIGNATION
- MW-2 ◍ EXISTING MONITORING WELL LOCATION AND DESIGNATION
- C-5 ▲ PROPOSED NEW BEDROCK MONITORING WELL LOCATION AND DESIGNATION
- 1 ■ PROPOSED SOIL GAS COLLECTOR LOCATION AND DESIGNATION

NOTES:

1. LOCATIONS OF EAST AND WEST BUILDINGS ARE APPROXIMATE, ACTUAL LOCATIONS SHALL BE DETERMINED IN FIELD.
2. MONITORING WELL LOCATIONS ARE APPROXIMATE. ACTUAL LOCATIONS SHALL BE DETERMINED IN FIELD.
3. THIS DRAWING IS NOT TO SCALE.

No.	DATE	ISSUE / REVISION	DWN. BY	CK'D BY	AP'D BY
1	3/7/94	ISSUED FOR CLOSURE PLAN AMENDMENT	S.C.G.	CAH	MMW

PROPOSED LOCATIONS OF SOIL GAS COLLECTORS AND MONITORING WELLS

PREPARED FOR

GENERAL ELECTRIC

VIEQUES, PUERTO RICO

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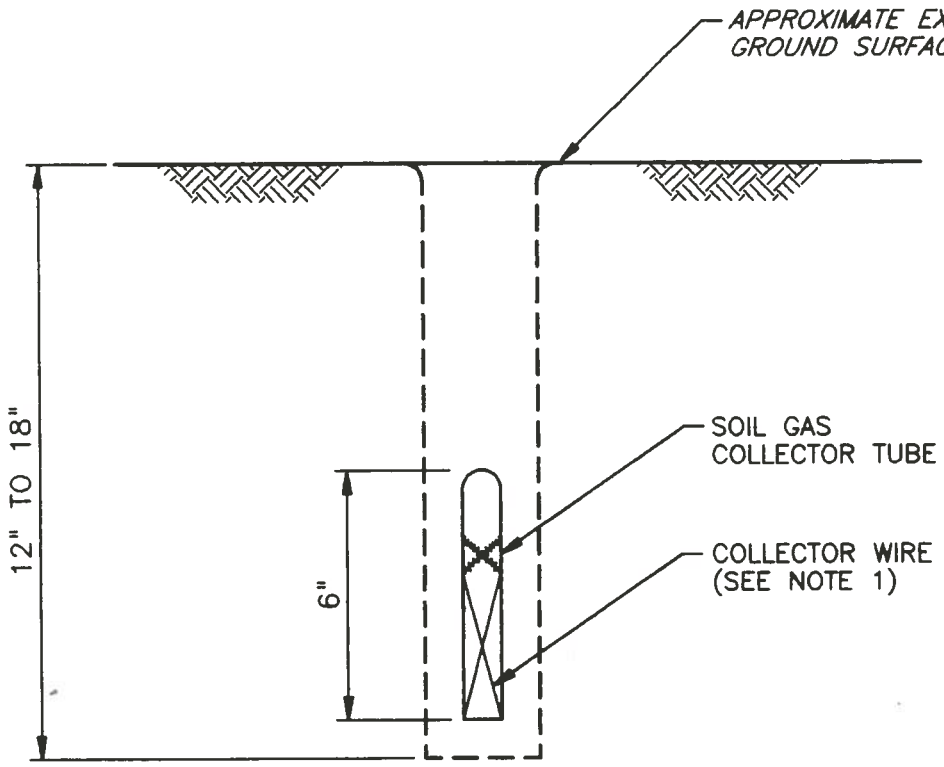
DATE: 1-27-94	FIGURE 10	DRAWING NUMBER 89-119-E95	1
SCALE: N.T.S.			

DRAWING NUMBER 89-119-A96



NOTES:

1. COLLECTOR WIRES ARE THERMALLY DESORBED OF VOCs AND INSTALLED IN THE COLLECTOR TUBE. THE COLLECTOR TUBE IS FILLED WITH INERT GAS TO PREVENT ADSORPTION OF VOCs UNTIL THE COLLECTOR IS INSTALLED IN THE GROUND.

2. THIS DRAWING IS NOT TO SCALE.

SCHEMATIC OF
SOIL GAS COLLECTOR

PREPARED FOR

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CanonieEnvironmental

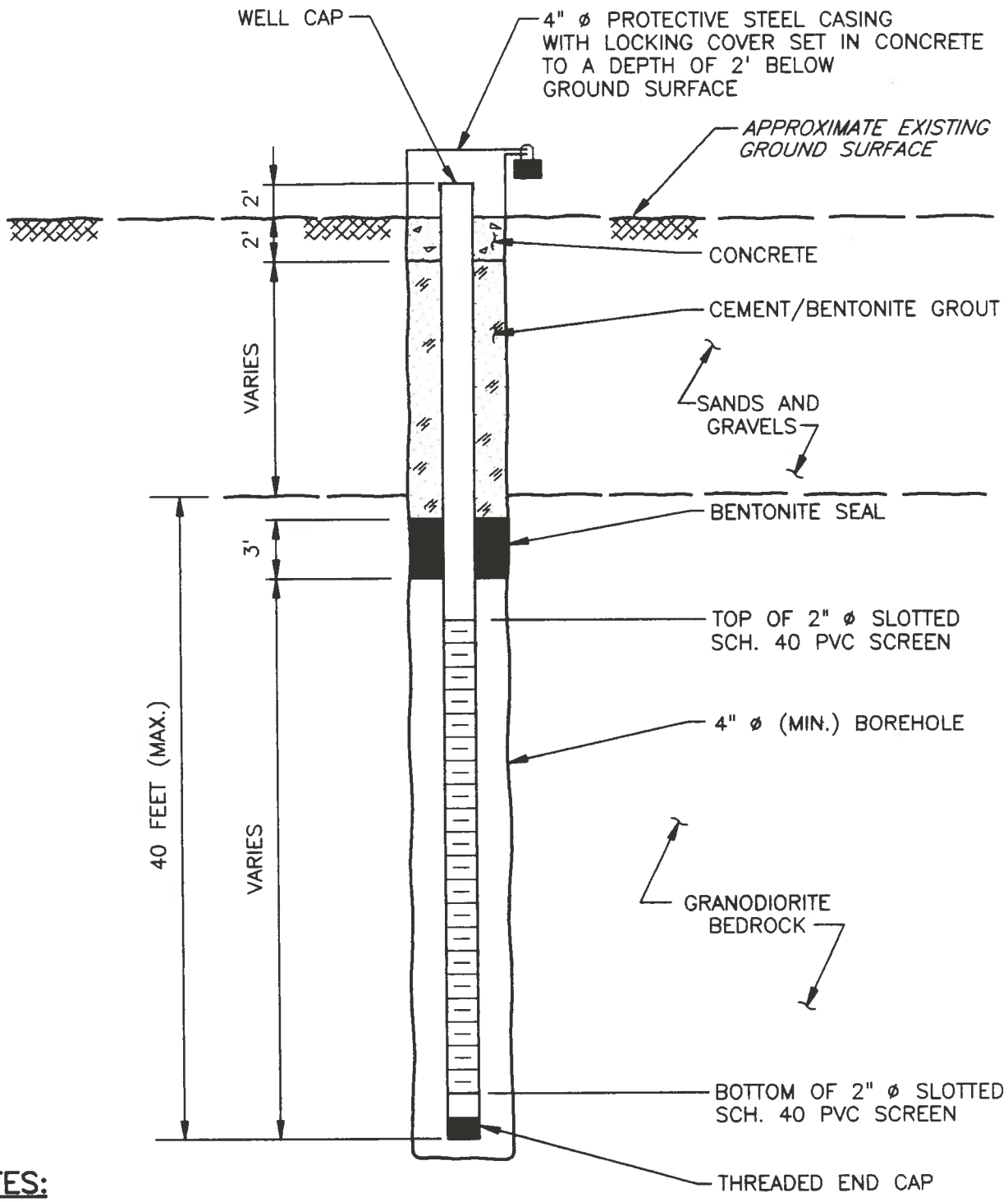
No.	DATE	ISSUE / REVISION	DWN. BY	CK'D BY	AP'D BY
1	3/2/94	ISSUED FOR CLOSURE PLAN AMENDMENT	S.C.G.		

DATE: 1-27-94
SCALE: AS SHOWN

FIGURE 11

DRAWING NUMBER 89-119-A96

DRAWING NUMBER 89-119-A97



NOTES:

1. DRAWING IS NOT TO SCALE AND IS NOT A CONSTRUCTION DRAWING.
2. TOTAL BORING DEPTH TO BE FIELD DETERMINED.
3. BOTTOM OF BORING AT A MAXIMUM DEPTH OF 60 FEET BELOW GROUND SURFACE.

WELL CONSTRUCTION DIAGRAM
OBSERVATION WELL IN BEDROCK

PREPARED FOR

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No.	DATE	ISSUE / REVISION	DWN. BY	CK'D BY	AP'D BY
1	3/2/94	ISSUED FOR CLOSURE PLAN AMENDMENT	S.C.G.	CAT	MMM

DATE: 1-27-94
SCALE: AS SHOWN

FIGURE 12

DRAWING NUMBER 89-119-A97

DRAWING NUMBER 89-119-A103

No.	TASK	WEEKS
1	SUBMIT AMENDMENT TO THE CLOSURE PLAN	▲ at 1
2	EPA APPROVAL TO PROCEED (1)	▲ at 3
3	PRIDCO ACCESS APPROVAL (1)	▲ at 5
4	SOIL GAS SURVEY AND DATA EVALUATION	━ 6–12
5	LETTER REPORT TO EPA	▲ at 13
6	EPA APPROVAL TO PROCEED (1)	▲ at 15
7	INSTALL MONITORING WELLS	━ 16–18
8	SAMPLE AND ANALYZE NEW MONITORING WELLS	━ 21–25
9	SUBMIT AMENDED CLOSURE REPORT	▲ at 28

LEGEND:

▲ DELIVERABLE/APPROVAL

━━ TASK DURATION

NOTE:

1. DELAYS IN PROJECT SCHEDULE MAY BE INCURRED IF APPROVAL PERIODS ARE EXTENDED.

PROPOSED WORK ACTIVITIES SCHEDULE

PREPARED FOR

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No.	DATE	ISSUE / REVISION	DWN. BY	CK'D BY	AP'D BY
1	3/2/94	ISSUED FOR CLOSURE PLAN AMENDMENT	S.C.G.	CAH	[illegible]

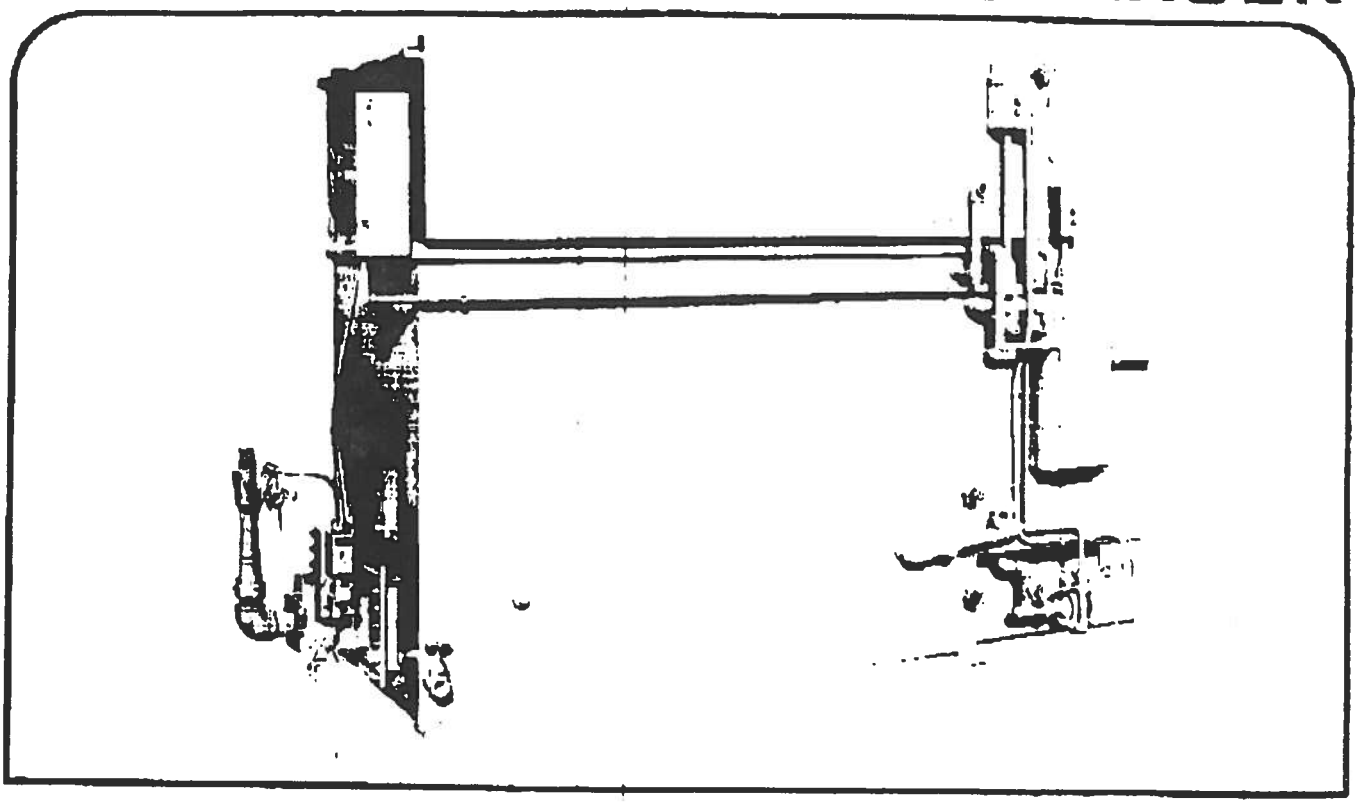
DATE: 3-2-94 SCALE: N.T.S.	FIGURE 13	DRAWING NUMBER 89-119-A103

1

APPENDIX A

BARON-BLAKESLEE VAPOR DEGREASER

Heavy-Duty
VAPOR SPRAY DEGREASER



Dual Vapor Control reduces solvent consumption 28% to 35%

DESIGN AND OPERATION: These degreasers are designed to clean parts contaminated by solid materials, oil or grease. DP models are also ideal for cleaning parts too bulky or buoyant for liquid immersion models. They are especially effective for degreasing formed sheet metal parts, spot welded assemblies, and for removing polishing compounds. Parts are first immersed in concentrated vapor, which condenses on work and dissolves oil and grease. Seams and blind holes are cleaned, solids removed by flushing parts with pure distilled solvent from reserve maintained in storage tank.

CONSTRUCTION: Welded solid stainless steel construction, heavily reinforced. Solid stainless steel fittings and solvent collecting trough. Large, mild steel cleanout door facilitates periodic cleaning of solvent sump. Drain valve, expanded metal work rest, and dial type solvent thermometer are provided. Galvanized solvent piping and stainless steel cooling coils, brass valves are standard.

HEATING: Available with steam coils, gas coils or electric immersion heaters mounted on removable cleanout door cover plate. Gas heated models have atmospheric gas burner with adjustable orifice, immersion burner tube assembly, gas cock, safety pilotstat, pilot burner, pilot cock, and gas solenoid valve.

DUAL VAPOR CONTROL: DP models are equipped with Baron Blakeslee standard dual vapor control, a continuous water-cooled stainless steel condensing coil around entire inside of machine plus stainless steel water jacket encircling outside tank at vapor level. This combination provides uniform condensation around entire perimeter, insures 28% to 35% saving in solvent consumption.

SAFETY CONTROLS: All models are equipped with manual reset high temperature and safety vapor controls. Manual reset controls force operator to investigate and correct cause of shutdown before restarting degreaser.

WATER SEPARATOR: Trough welded around tank's inside walls collects all condensed solvent, which is then run through the Baron Blakeslee stainless steel water cooled water separator in solvent distillate line.

PUMP AND SPRAY: Special stainless steel BBI Tuseal pump and motor assembly (for handling hot degreasing solvent) comes complete with dual leak-proof mechanical seals, and manual motor control, mounted and wired. Flexible hose with hand spray lance and nozzle is included.

ECON-O-LID: Mylar roll-type cover minimizes solvent losses during operation and during periods of shutdown.

STORAGE TANK: All storage tanks feature welded stainless steel construction. Tanks will hold contents of degreasing machine and adequate reserve for spraying purposes. Attached storage tank is separate from degreaser so solvent can be distilled and stored outside degreaser tank; thus, no liquid solvent is present during cleaning or servicing of degreaser tank.

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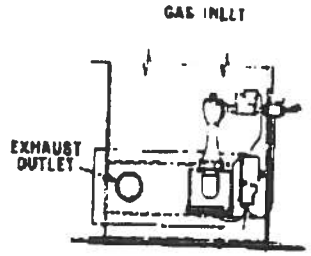
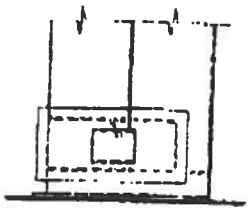
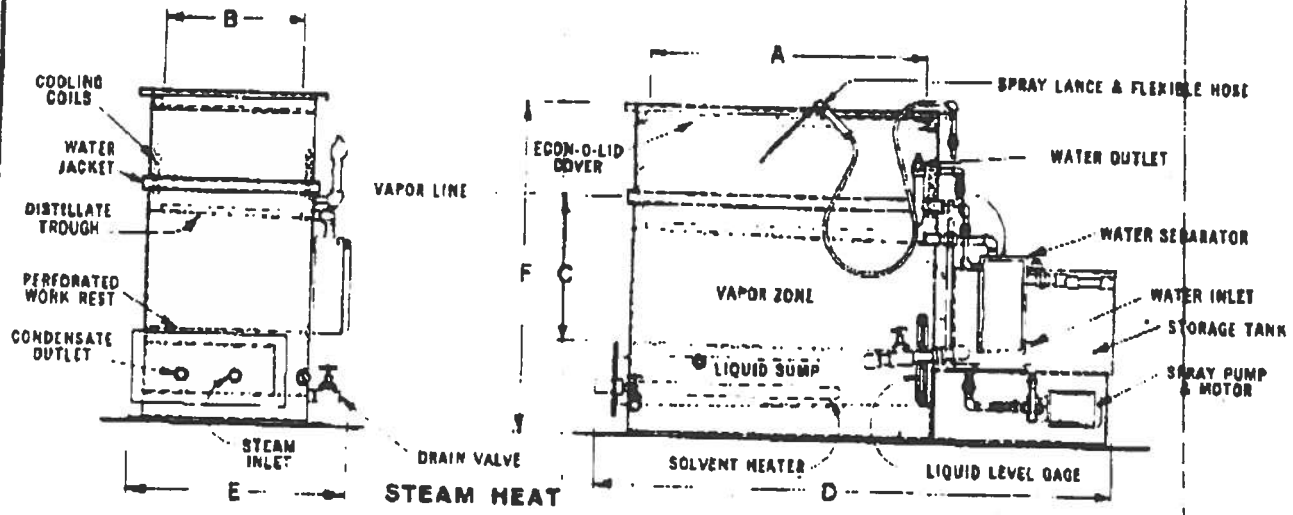
Heavy-Duty
VAPOR SPRAY DEGREASER



GAS HEAT



ELECTRIC HEAT



STEAM HEAT

SPECIFICATIONS

Specifications subject to change without notice.

Model No.	Dimensions Inside A	B	C	Overall D (Gas)	D (Steam & Elec.)	E	F	Heat Input Steam LB/HR 10 PSI	Electric KW/HR	Gas CFH 1000BTU	Thermal Work Load* LB Steel/HR Steam	Electric	Gas	Cooling Water GPH @ 50°F. Rise Steam	Electric	Gas	Solvent Capacity (Gallons) Sump Charge	Spray Pump Reserve	Storage Tank	Crated Weight (Lbs.)
DP 4-2424	48"	24"	24"	99"	90"	39"	55"	120	18	110	4500	3500	4500	120	100	120	40	10	50	1400
DP 4-2430	48"	24"	30"	99"	90"	39"	61"	120	18	130	4500	3400	4400	120	100	120	40	10	50	1450
DP 4-2436	48"	24"	36"	99"	90"	39"	67"	120	18	130	4300	3300	4300	120	100	120	40	10	50	1500
DP 5-3030	60"	30"	30"	111"	99"	45"	64"	160	24	180	6000	5000	6000	200	150	200	60	10	75	1800
DP 5-3042	60"	30"	42"	111"	99"	45"	76"	160	24	180	5700	4700	5700	200	150	200	60	10	75	2000
DP 6-3030	72"	30"	30"	141"	129"	63"	58"	200	24	225	7000	4700	7000	250	150	250	85	15	105	2250
DP 6-3042	72"	30"	42"	141"	129"	63"	70"	200	24	225	6700	4400	6300	250	150	250	85	15	105	2300
DP 6-3636	72"	36"	36"	129"	117"	54"	76"	220	30	240	7500	6000	7500	300	190	300	95	15	105	2500
DP 6-3648	72"	36"	48"	129	117"	54"	87"	220	30	240	7100	5600	7100	300	190	300	95	15	115	2650
DP 8-3636	96"	36"	36"	Special	150"	57"	80"	325	36	—	11,000	7900	—	400	200	—	110	20	140	3000
DP 8-3648	96"	36"	48"	Special	150"	57"	92"	325	36		10,400	6600		400	200		110	20	140	3050
DP10-3648	120"	36"	48"	Special	168"	57"	90"	450	48		14,000	9000		600	300		130	20	155	3800
DP10-3660	120"	36"	60	Special	168"	57"	102"	450	48		13,500	8500		600	400		140	20	155	3850
DP12-4848	144"	48"	48"	Special	192"	69"	99"	575	60		18,000	11,500		650	400		170	25	205	4500
DP12-4860	144"	48"	60	Special	192"	69"	111"	575	60		17,400	10,600		650	400		170	25	205	4550

Bold Face indicates stock model.

All models wired for 230/460 VAC 3 Ø 60Hz

Maximum heating capacity - Recommended work load to be determined by factory representative based on actual requirements

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Section 1, A Vapor Degreaser (Equipment using Solvent for Cleaning)

(1) What is it?

A solvent vapor degreaser is a tank with some means of boiling the solvent and some means of controlling the vapors in the upper section.

(2) What does it do?

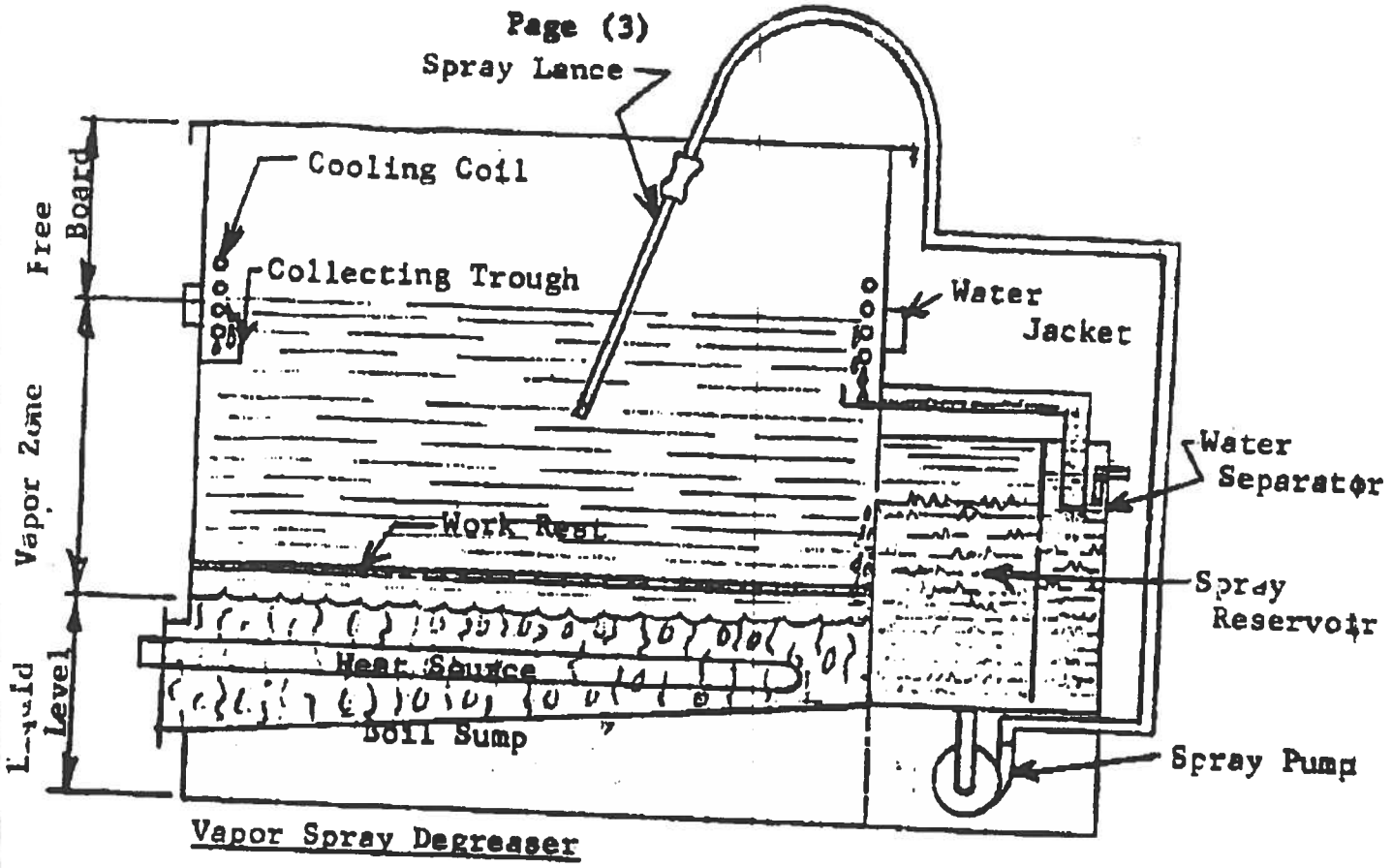
If the solvent is properly selected, contamination will be removed from the part being cleaned by solvent action.

(3) How does it work?

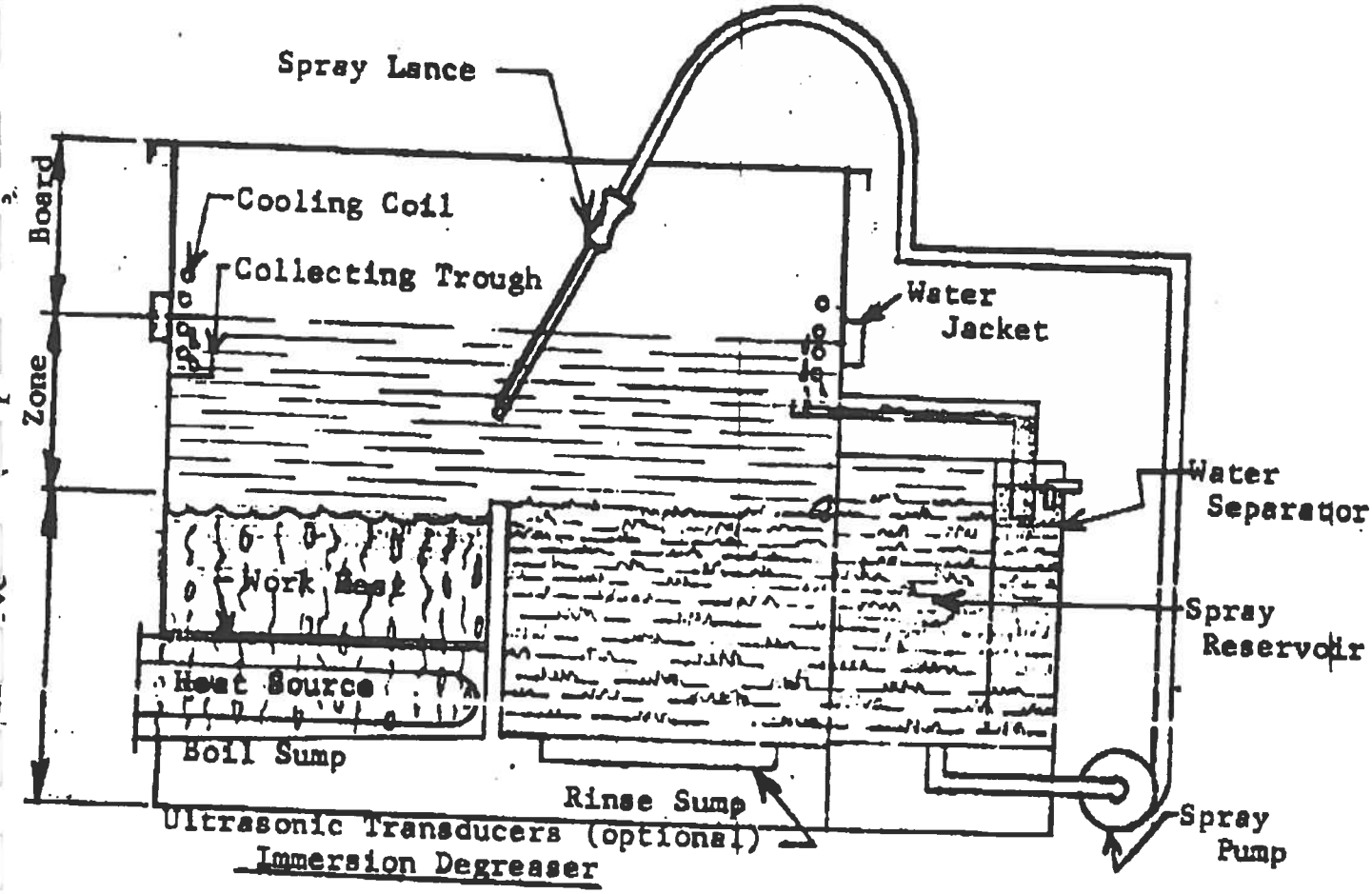
The selected solvent is heated within the tank, which will generate a vapor. The vaporized solvent is maintained in the tank by means of a cold area which condenses the vapor back to a liquid. The liquid solvent is collected in a trough and directed to a water separator (to remove free water) and returned to the tank.

(4) How does it clean?

The articles to be cleaned are suspended in the air-free zone of solvent vapors, which condense on the cool parts to dissolve the contaminate and give a continuous rinse in clean solvent. As the condensed solvent drains from the part, it carries off the contaminate and returns to the boiling liquid. The vapor treatment is often augmented by mechanical action such as liquid immersion or spraying the work with liquid (distillate) solvent in the vapor zone. The work is held in the vapor zone for final rinsing and drying until the parts reach vapor temperature, at which time condensation stops. The articles should then be slowly withdrawn from the machine. The process is a safe, rapid, economical procedure for preparing dry, clean articles for subsequent finishing or fabricating steps, usually without further treatment. Ultrasonics may be applied to further enhance the cleaning capability of the degreaser. By adding ultrasonics to a liquid immersion sump, holes & crevices on a part that cannot normally be cleaned by solvent action alone, should be penitrated to make the part thoroughly clean.



Vapor Spray Degreaser



Immersion Degreaser

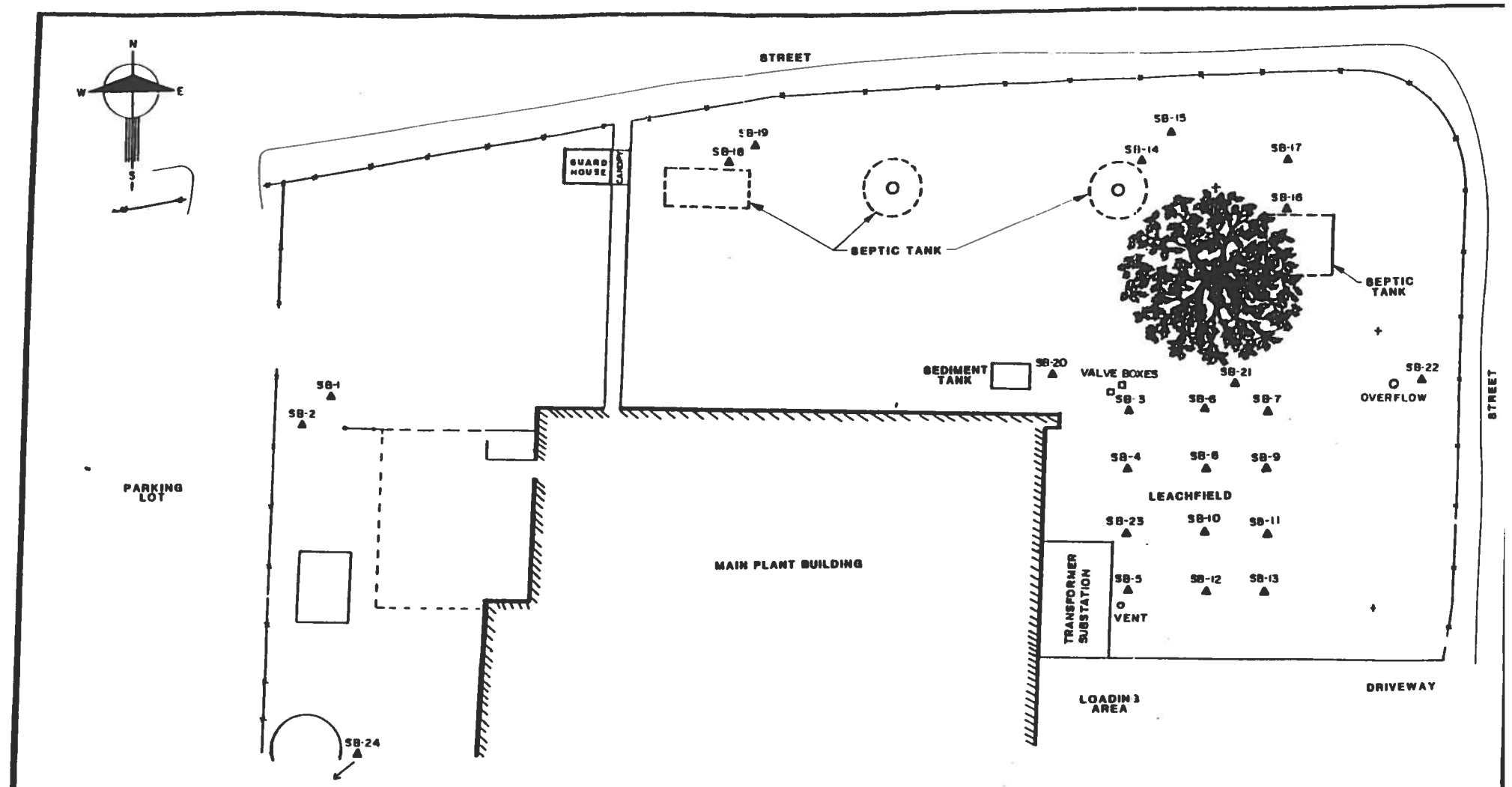
APPENDIX B

1989 SOIL INVESTIGATION FIELD RESULTS BY LAW ENVIRONMENTAL FOR CARIBE GENERAL ELECTRIC PRODUCTS, INC. MANUFACTURING PLANT VIEQUES, PUERTO RICO

TABLE OF CONTENTS

BORING LOCATION PLAN

Canonie Environmental



LEGEND

- ▲ TEST BORING LOCATION (1989)
- \+ USELESS MONITORING WELL INSTALLED BY OTHERS (1981)

NOT TO SCALE

CARIBE GENERAL ELECTRIC PRODUCTS, INC.
VIEQUES, PUERTO RICO

LAW ENVIRONMENTAL - CARIBE
54-56 BOLIVIA ST.
HATO REY, PUERTO RICO 00917
809 - 758-2909

BORING LOCATION PLAN

JOB NO. 54-8512

FIGURE 3

FEBRUARY 1989

SOIL SAMPLES FIELD OVA READINGS

SAMPLES FIELD OVA READING
CARIBE G.E., VIEQUES, PUERTO RICO

BORING NO.	TOTAL DEPTH (FT.)	SAMPLE INTERVAL (FT.)	FIELD OVA READING
		BACKGROUND	
SB-1	10.5	1.5 - 3.0	11.0 ppm
		4.0 - 5.5	10.5 ppm
		6.0 - 7.5	12.0 ppm
		9.0 - 10.5	NR
		BACKGROUND READING	11.0 ppm
SB-2	21.3	1.5 - 3.0	19.0 ppm
		4.0 - 5.5	18.2 ppm
		6.0 - 7.5	18.0 ppm
		9.0 - 10.5	18.0 ppm
		14.0 - 15.5	18.0 ppm
		19.0 - 20.5	18.0 ppm
		BACKGROUND READING	19.0 ppm
		LEACHFIELD	
SB-3	19.5	1.5 - 3.0	12.0 ppm
		4.0 - 5.5	13.0 ppm
		6.0 - 7.5	13.0 ppm
		9.0 - 10.5	12.0 ppm
		14.0 - 15.5	13.0 ppm
		19.0 - 20.5	13.0 ppm
		BACKGROUND READING	14.0 ppm
SB-4	19.0	1.5 - 3.0	12.0 ppm
		4.0 - 5.5	12.0 ppm
		6.0 - 7.5	11.0 ppm
		9.0 - 10.5	12.0 ppm
		14.0 - 15.5	12.0 ppm
		BACKGROUND READING	12.0 ppm
SB-5	8.0	1.5 - 3.0	12.0 ppm
		4.0 - 5.5	0.01 %
		6.0 - 7.5	18.0 ppm
		BACKGROUND READING	12.0 ppm
SB-6	7.5	4.0 - 5.5	11.0 ppm
		6.0 - 7.5	10.0 ppm
		BACKGROUND READING	12.0 ppm
SB-7	7.5	4.0 - 5.5	8.5 ppm
		6.0 - 7.5	8.5 ppm
		BACKGROUND READING	8.0 ppm

SB-8	6.8	4.0 - 5.5	12.0 ppm
		6.0 - 7.5	11.0 ppm
		BACKGROUND READING	12.0 ppm
SB-9	6.5	4.0 - 5.5	10.0 ppm
		6.0 - 7.5	10.0 ppm
		BACKGROUND READING	12.0 ppm
SB-10	7.5	4.0 - 5.5	13.0 ppm
		6.0 - 7.5	13.0 ppm
		BACKGROUND READING	13.0 ppm
SB-11	7.0	4.0 - 5.5	11.0 ppm
		6.0 - 7.5	10.0 ppm
		BACKGROUND READING	11.0 ppm
SB-12	6.5	4.0 - 5.5	33.0 ppm
		6.0 - 7.5	25.0 ppm
		BACKGROUND READING	13.0 ppm
SB-13	6.3	4.0 - 5.5	12.0 ppm
		6.0 - 7.5	10.0 ppm
		BACKGROUND READING	12.0 ppm
SB-23	19.1	1.5 - 3.0	8.0 ppm
		4.0 - 5.5	8.0 ppm
		6.0 - 7.5	0.2 %
		9.0 - 10.5	NR
		14.0 - 15.5	NR
		19.0 - 20.5	NR
		BACKGROUND READING	9.0 ppm
SEPTIC TANK SYSTEM			
SB-14	19.4	1.5 - 3.0	14.0 ppm
		4.0 - 5.5	0.1 %
		6.0 - 7.5	80.0 ppm
		9.0 - 10.5	70.0 ppm
		14.0 - 15.5	90.0 ppm
		19.0 - 20.5	12.0 ppm
		BACKGROUND READING	12.0 ppm
SB-15	19.3	1.5 - 3.0	14.0 ppm
		4.0 - 5.5	12.0 ppm
		6.0 - 7.5	13.0 ppm
		9.0 - 10.5	13.0 ppm
		14.0 - 15.5	15.0 ppm
		19.0 - 20.5	13.0 ppm
		BACKGROUND READING	12.0 ppm
SB-16	16	1.5 - 3.0	12.0 ppm
		4.0 - 5.5	13.0 ppm
		6.0 - 7.5	13.0 ppm
		9.0 - 10.5	NR
		14.0 - 15.5	NR
		BACKGROUND READING	13.0 ppm

SB-17	19.1	1.5 - 3.0	10.0 ppm
		4.0 - 5.5	10.0 ppm
		6.0 - 7.5	11.0 ppm
		9.0 - 10.5	NR
		14.0 - 15.5	NR
		19.0 - 20.5	NR
		BACKGROUND READING	10.0 ppm
SB-18	18	1.5 - 3.0	11.0 ppm
		4.0 - 5.5	11.5 ppm
		6.0 - 7.5	11.0 ppm
		9.0 - 10.5	12.0 ppm
		14.0 - 15.5	11.0 ppm
		BACKGROUND READING	11.0 ppm
SB-19	19.2	1.5 - 3.0	12.0 ppm
		4.0 - 5.5	12.0 ppm
		6.0 - 7.5	12.0 ppm
		9.0 - 10.5	12.0 ppm
		14.0 - 15.5	11.5 ppm
		19.0 - 20.5	NR
		BACKGROUND READING	12.0 ppm
SB-20	19.3	1.5 - 3.0	13.0 ppm
		4.0 - 5.5	13.0 ppm
		6.0 - 7.5	13.0 ppm
		9.0 - 10.5	13.0 ppm
		14.0 - 15.5	13.0 ppm
		19.0 - 20.5	13.0 ppm
		BACKGROUND READING	13.0 ppm
SB-21	6.4	4.0 - 5.5	10.5 ppm
		6.0 - 7.5	10.0 ppm
		BACKGROUND READING	10.0 ppm
SB-22	6.4	4.0 - 5.5	11.0 ppm
		6.0 - 7.5	11.0 ppm
		BACKGROUND READING	11.0 ppm
		BREAKER DIP AREA	
SB-24	3.0	1.5 - 3.0	11.5 ppm
		BACKGROUND READING	10.5 ppm

REMARKS:

NR NO RECOVERY

TEST BORING LOGS

KEY TO CLASSIFICATIONS AND SYMBOLS

CORRELATION OF PENETRATION RESISTANCE WITH RELATIVE DENSITY AND CONSISTENCY

	NO. OF BLOWS, N	RELATIVE DENSITY
SANDS	0-4	VERY LOOSE
	4-10	LOOSE
	10-20	FIRM
	20-30	VERY FIRM
	30-50	DENSE
	OVER 50	VERY DENSE
		CONSISTENCY
SILTS AND CLAYS	0-2	VERY SOFT
	2-4	SOFT
	4-8	FIRM
	8-15	STIFF
	15-30	VERY STIFF
	30-50	HARD
	OVER 50	VERY HARD

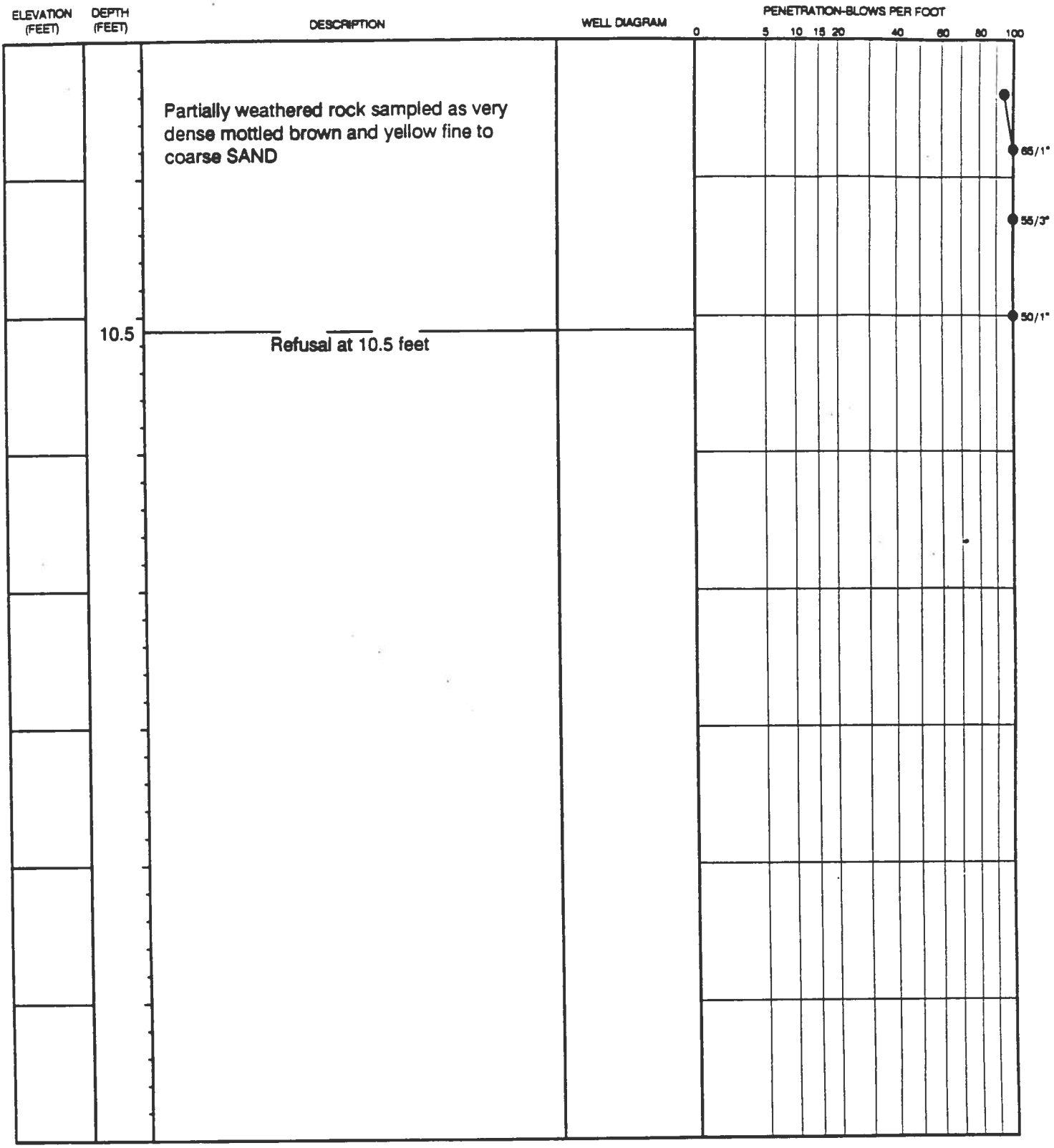
SYMBOLS

	- GROUT SEAL
	- BENTONITE SEAL
	- WELL SCREEN
	- SAND FILTER PACK
	- UNDISTURBED SAMPLE (UD) RECOVERED
	- UNDISTURBED SAMPLE (UD) NOT RECOVERED
100/2"	- NUMBER OF BLOWS (100) TO DRIVE THE SPOON A NUMBER OF INCHES (2)
AX BX NX	- CORE BARREL SIZED WHICH OBTAIN CORES 1-1/8', 1-5/8 AND 2-1/8 INCHES IN DIAMETER RESPECTIVELY
T/S	- TOP OF SANDPACK
RQD	- ROCK QUALITY DESIGNATION - % OF ROCK CORE 4 OR MORE INCHES LONG
	- WATER TABLE AT LEAST 24 HOURS AFTER DRILLING
	- WATER TABLE ONE HOUR OR LESS AFTER DRILLING
	- LOSS OF DRILLING WATER
U	- UNIT WEIGHT TEST PERFORMED

DRILLING PROCEDURES

SOIL SAMPLING AND PENETRATION TESTING PERFORMED IN ACCORDANCE WITH ASTM D1586-67. THE STANDARD PENETRATION RESISTANCE IS THE NUMBER OF BLOWS OF A 140 POUND HAMMER FALLING 30 INCHES TO DRIVE A 2 INCH O.D. 1.4 INCH I.D. SPLIT SPOON SAMPLER ONE FOOT. CORE DRILLING IN ACCORDANCE WITH ASTM DESIGNATION D 2113-70. THE UNDISTURBED SAMPLING PROCEDURE IS DESCRIBED BY ASTM SPECIFICATION D 1587-67.

TEST BORING RECORD

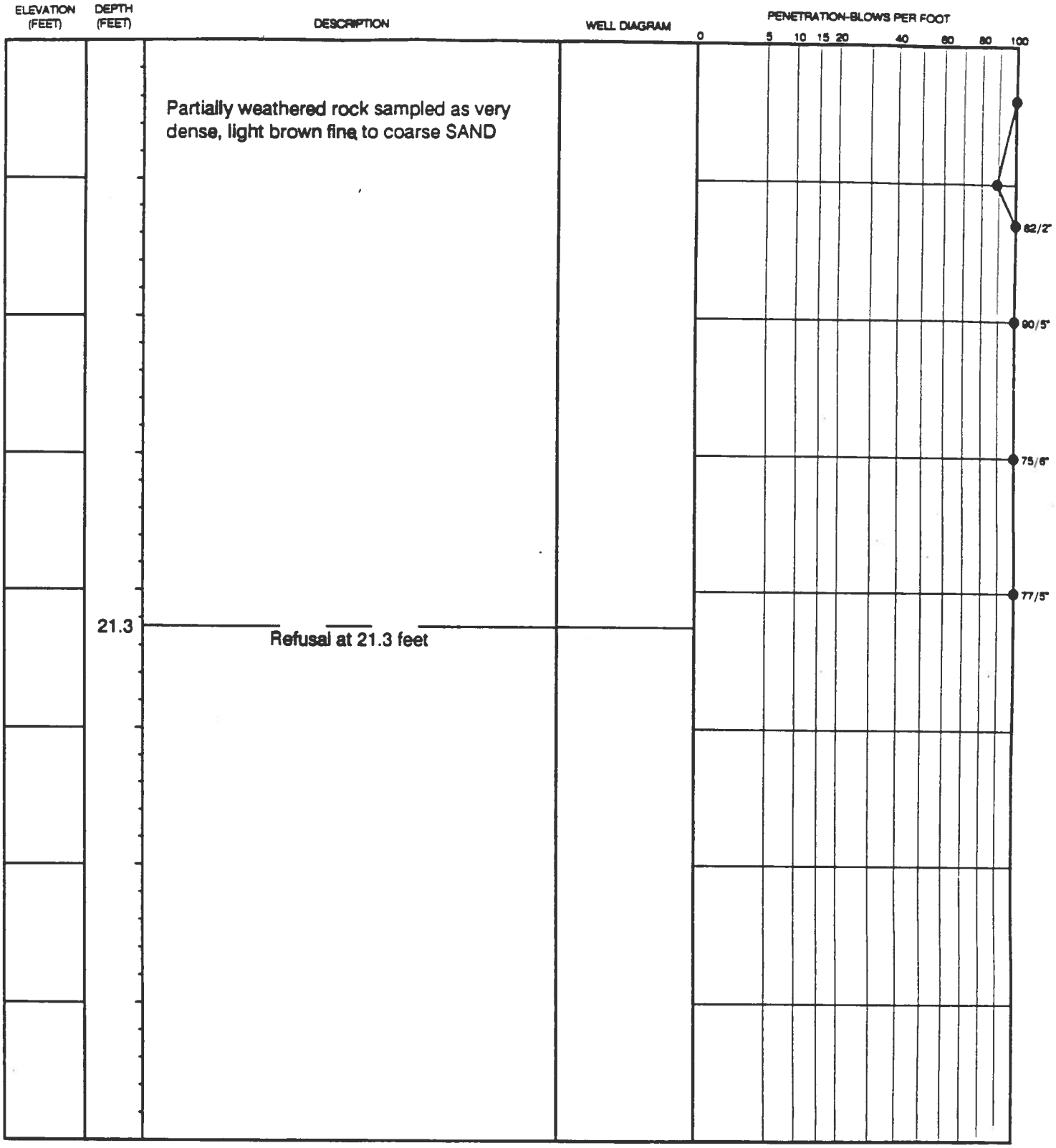


REMARKS:
No ground water encountered.

DRILLED BY	GEOCIM	BORING NUMBER	SB-1
LOGGED BY	MAV	DATE STARTED	2/6/89
CHECKED BY	WKR	DATE COMPLETED	2/6/89
		JOB NUMBER	54-8512

Law Environmental

TEST BORING RECORD

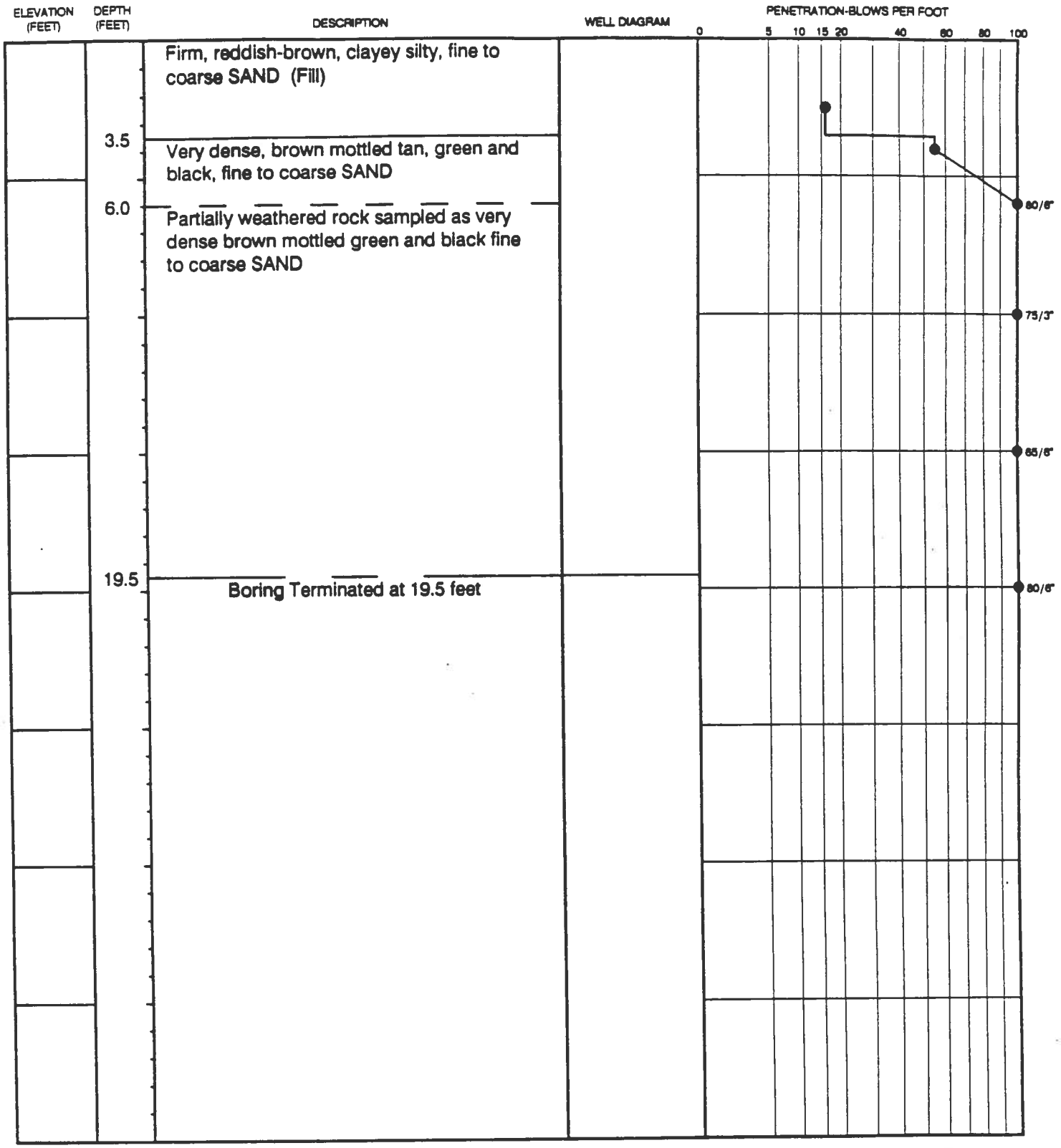


REMARKS:
No ground water encountered.

DRILLED BY	GEOCIM	BORING NUMBER	SB-2
LOGGED BY	MAV	DATE STARTED	2/6/89
CHECKED BY	WKR	DATE COMPLETED	2/6/89
		JOB NUMBER	54-8512

Law Environmental

TEST BORING RECORD

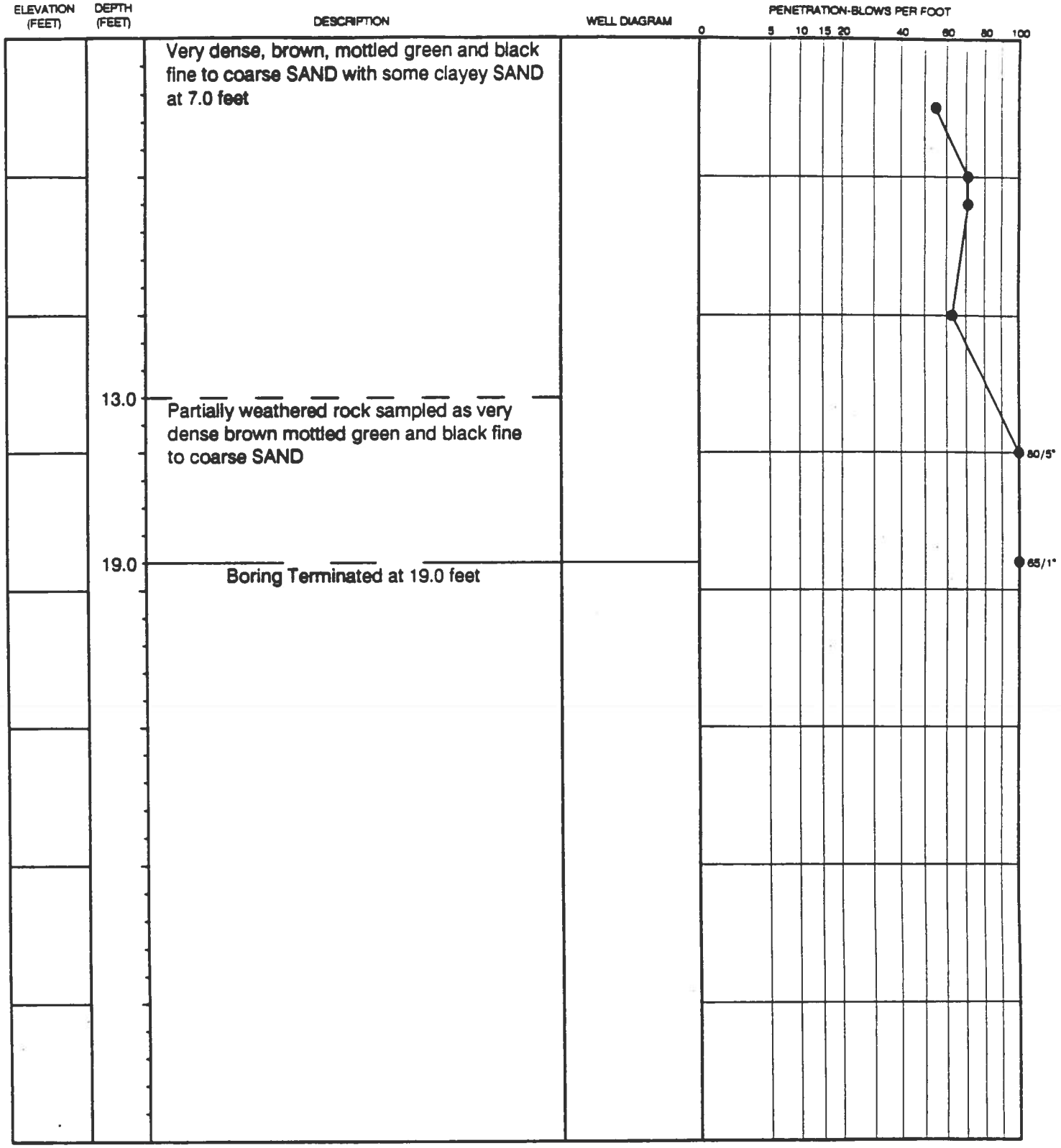


REMARKS:
No ground water encountered.

DRILLED BY	GEOCIM	BORING NUMBER	SB-3
LOGGED BY	MAV	DATE STARTED	2/8/89
CHECKED BY	WKR	DATE COMPLETED	2/8/89
		JOB NUMBER	54-8512

Law Environmental

TEST BORING RECORD

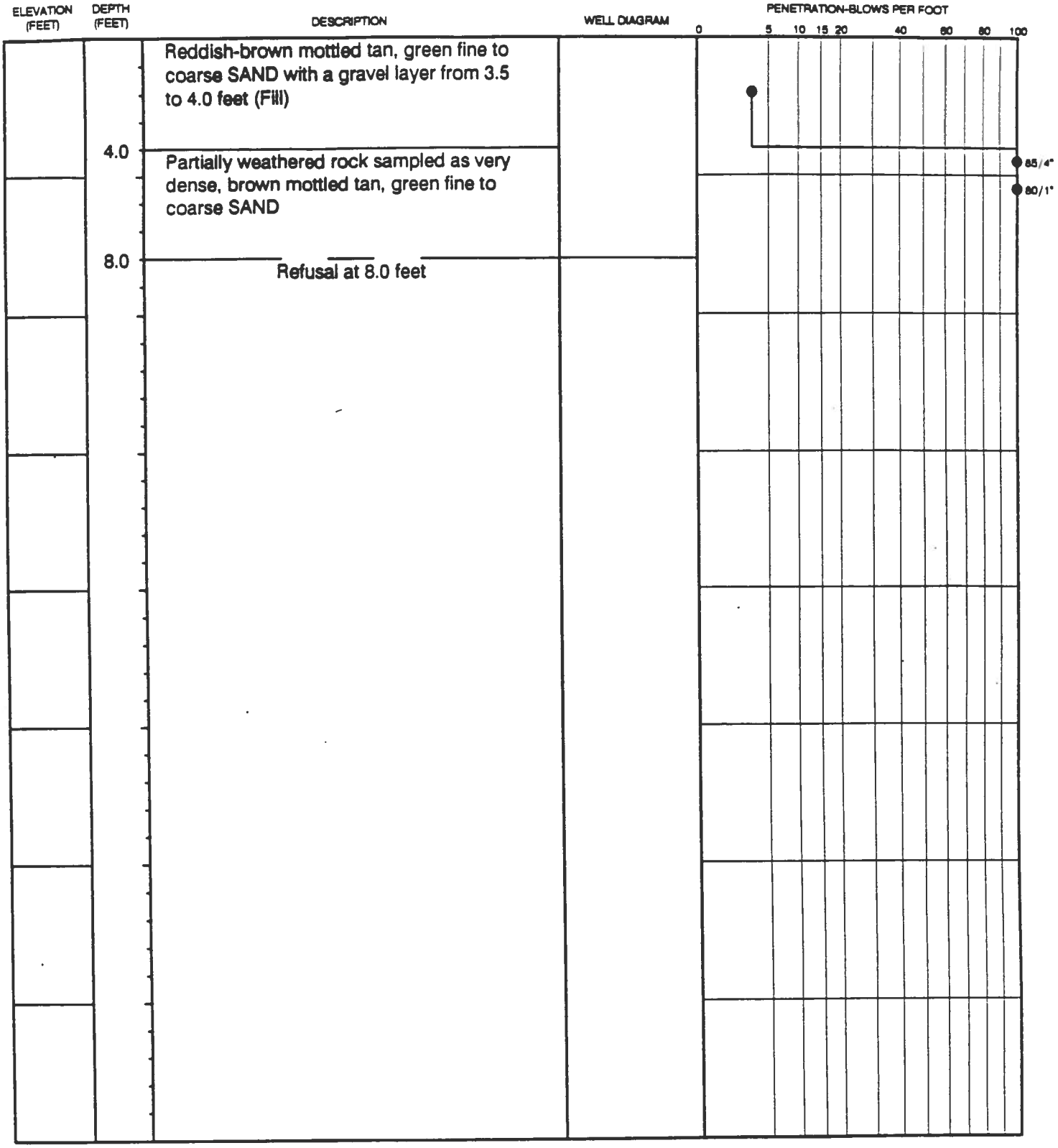


REMARKS:
No ground water encountered.

DRILLED BY	GEOCIM	BORING NUMBER	SB-4
LOGGED BY	MAV	DATE STARTED	2/8/89
CHECKED BY	WKR	DATE COMPLETED	2/8/89
		JOB NUMBER	54-8512

Law Environmental

TEST BORING RECORD



REMARKS:
No ground water encountered.

DRILLED BY	GEOCIM	BORING NUMBER	SB-5
LOGGED BY	MAV	DATE STARTED	2/9/89
CHECKED BY	WKR	DATE COMPLETED	2/9/89
		JOB NUMBER	54-8512

Law Environmental

TEST BORING RECORD

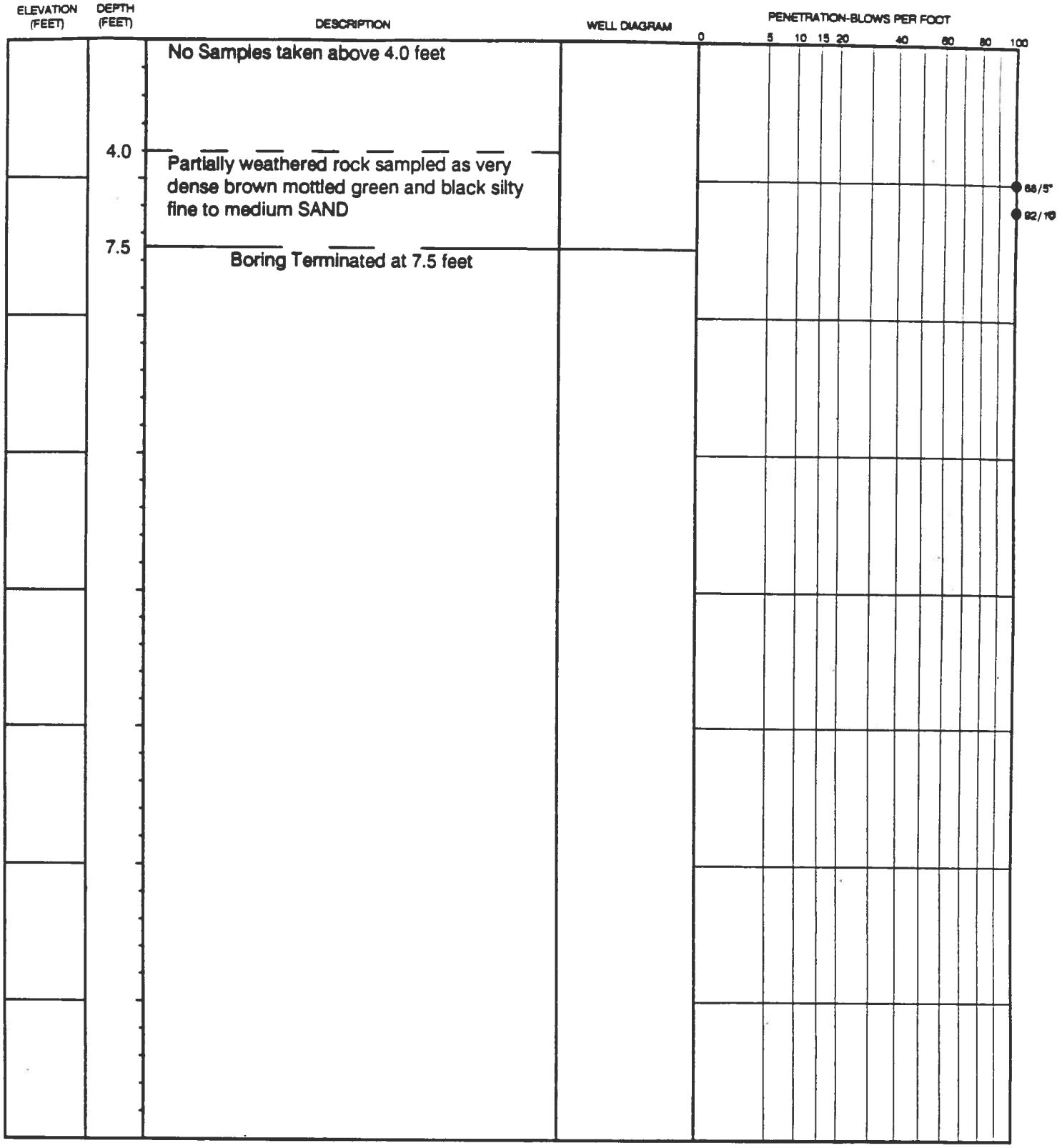
ELEVATION (FEET)	DEPTH (FEET)	DESCRIPTION	WELL DIAGRAM	PENETRATION-BLOWS PER FOOT (0, 5, 10, 15, 20, 40, 60, 80, 100)
		No Samples taken above 4.0 feet		
	4.0	Partially weathered rock sampled as very dense brown mottled green and black fine to coarse SAND		55/5"
	7.5	Boring Terminated at 7.5 feet		

REMARKS:
No ground water encountered.

DRILLED BY	GEOCIM	BORING NUMBER	SB-6
LOGGED BY	MAV	DATE STARTED	2/9/89
CHECKED BY	WKR	DATE COMPLETED	2/9/89
		JOB NUMBER	54-8512

Law Environmental

TEST BORING RECORD



REMARKS:
No ground water encountered.

DRILLED BY	GEOCIM	BORING NUMBER	SB-7
LOGGED BY	MAV	DATE STARTED	2/9/89
CHECKED BY	WKR	DATE COMPLETED	2/9/89
		JOB NUMBER	54-8512

Law Environmental

TEST BORING RECORD

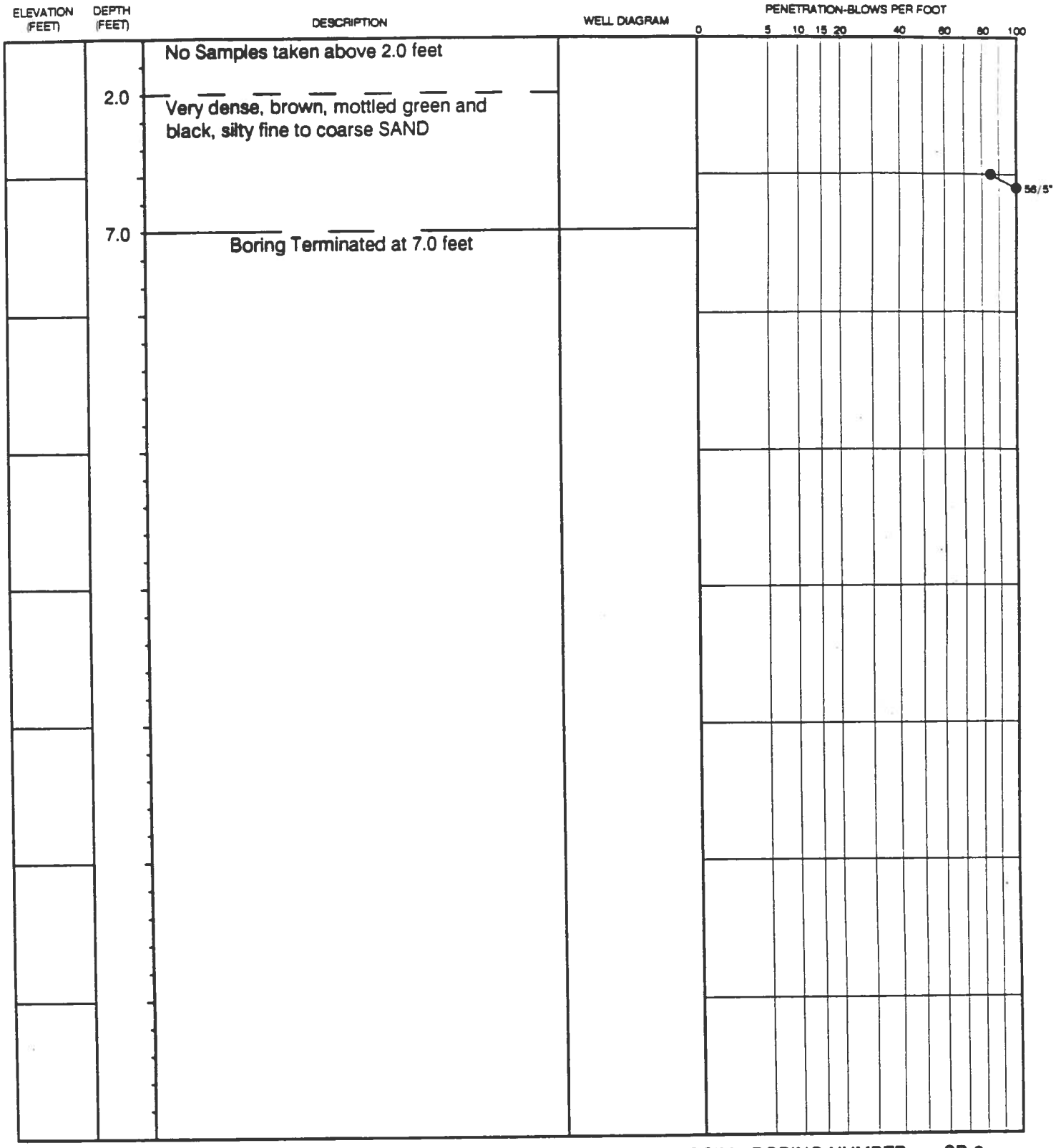
ELEVATION (FEET)	DEPTH (FEET)	DESCRIPTION	WELL DIAGRAM	PENETRATION-BLOWS PER FOOT
		Dense, brown mottled green and black silty fine to medium SAND with gravel and clay		
	5.5	Sand and rock fragments		50/2"
	6.5	Boring Terminated at 6.5 feet		

REMARKS:
No ground water encountered.

DRILLED BY	GEOCIM	BORING NUMBER	SB-8
LOGGED BY	MAV	DATE STARTED	2/9/89
CHECKED BY	WKR	DATE COMPLETED	2/9/89
		JOB NUMBER	54-8512

Law Environmental

TEST BORING RECORD



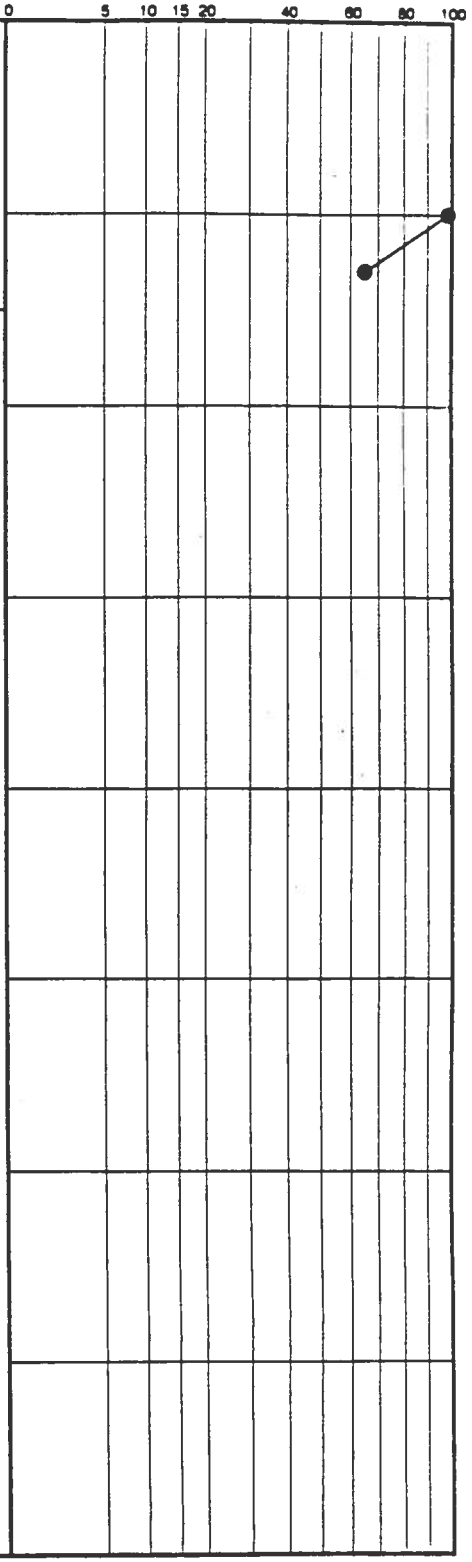
REMARKS:
No ground water encountered.

DRILLED BY	GEOCIM	BORING NUMBER	SB-9
LOGGED BY	MAV	DATE STARTED	2/9/89
CHECKED BY	WKR	DATE COMPLETED	2/9/89
		JOB NUMBER	54-8512

Law Environmental

TEST BORING RECORD

ELEVATION (FEET)	DEPTH (FEET)	DESCRIPTION	WELL DIAGRAM	PENETRATION-BLOWS PER FOOT
		No Samples taken above 4.0 feet		
	4.0	Partially weathered rock sampled as very dense brown mottled green and black silty fine to coarse SAND		
	7.5	Boring Terminated at 7.5 feet		



REMARKS:
No ground water encountered.

DRILLED BY	GEOCIM	BORING NUMBER	SB-10
LOGGED BY	MAV	DATE STARTED	2/9/89
CHECKED BY	WKR	DATE COMPLETED	2/9/89
		JOB NUMBER	54-8512

Law Environmental

TEST BORING RECORD

ELEVATION (FEET)	DEPTH (FEET)	DESCRIPTION	WELL DIAGRAM	PENETRATION-BLOWS PER FOOT (0, 5, 10, 15, 20, 40, 60, 80, 100)
		No Samples taken above 4.0 feet		
	3.0	Partially weathered rock sampled as very dense, brown mottled green and black, fine to coarse SAND		105/1 67/5"
	7.0	Boring Terminated at 7.0 feet		

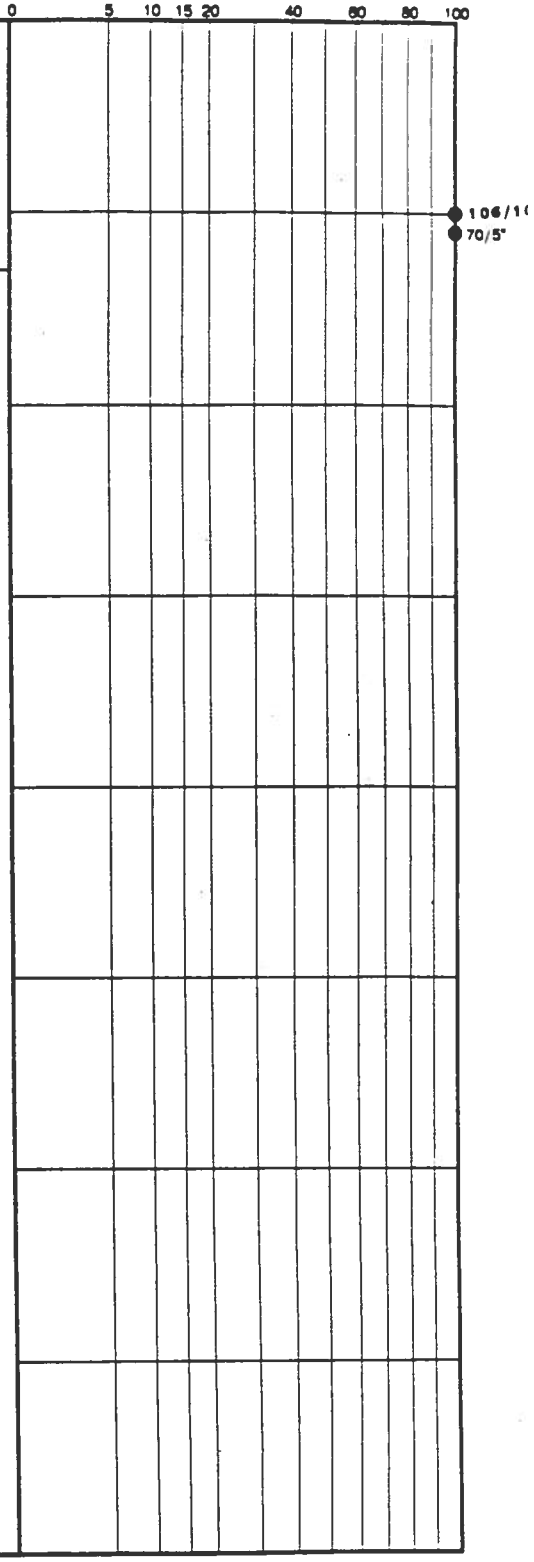
REMARKS:
No ground water encountered.

DRILLED BY	GEOCIM	BORING NUMBER	SB-11
LOGGED BY	MAV	DATE STARTED	2/9/89
CHECKED BY	WKR	DATE COMPLETED	2/9/89
		JOB NUMBER	54-8512

Law Environmental

TEST BORING RECORD

ELEVATION (FEET)	DEPTH (FEET)	DESCRIPTION	WELL DIAGRAM	PENETRATION-BLOWS PER FOOT
		No Samples taken above 4.0 feet		
	2.5	Partially weathered rock sampled as very dense, brown, mottled black and green, silty fine to coarse SAND		
	6.5	Boring Terminated at 6.5 feet		



REMARKS:
No ground water encountered.

DRILLED BY	GEOCIM	BORING NUMBER	SB-12
LOGGED BY	MAV	DATE STARTED	2/9/89
CHECKED BY	WKR	DATE COMPLETED	2/9/89
		JOB NUMBER	54-8512

Law Environmental

TEST BORING RECORD

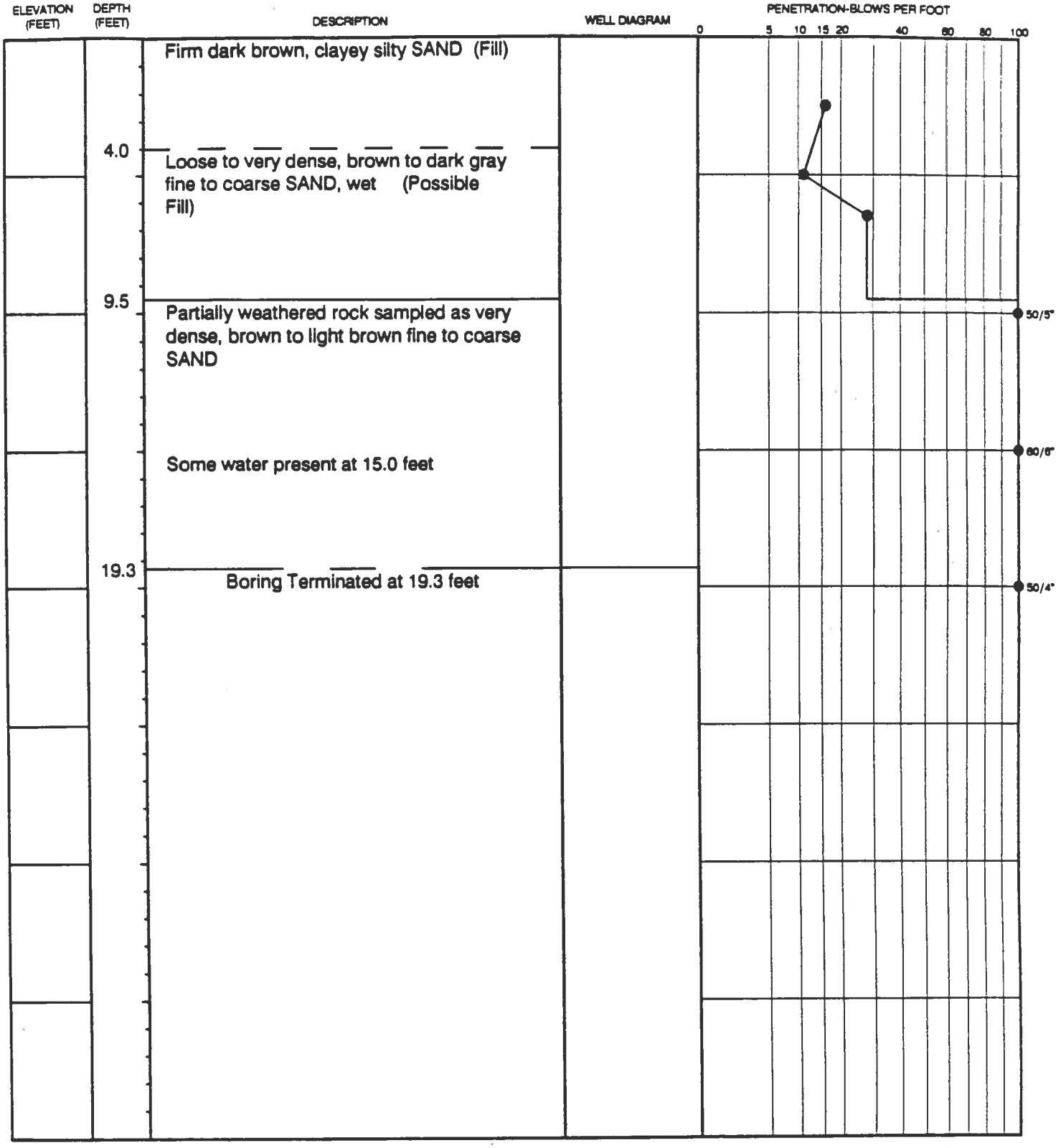
ELEVATION (FEET)	DEPTH (FEET)	DESCRIPTION	WELL DIAGRAM	PENETRATION-BLOWS PER FOOT (0 5 10 15 20 40 60 80 100)
		Partially weathered rock sampled as very dense, brown mottled tan, green, black fine to coarse SAND with some gravel		77/5"
	6.3	Boring Terminated at 6.3 feet		80/3"

REMARKS:
No ground water encountered.

DRILLED BY	GEOCIM	BORING NUMBER	SB-13
LOGGED BY	MAV	DATE STARTED	2/9/89
CHECKED BY	WKR	DATE COMPLETED	2/9/89
		JOB NUMBER	54-8512

Law Environmental

TEST BORING RECORD



REMARKS:
No ground water encountered.

DRILLED BY	GEOCIM	BORING NUMBER	SB-14
LOGGED BY	MAV	DATE STARTED	2/7/89
CHECKED BY	WKR	DATE COMPLETED	2/7/89
		JOB NUMBER	54-8512

Law Environmental

TEST BORING RECORD

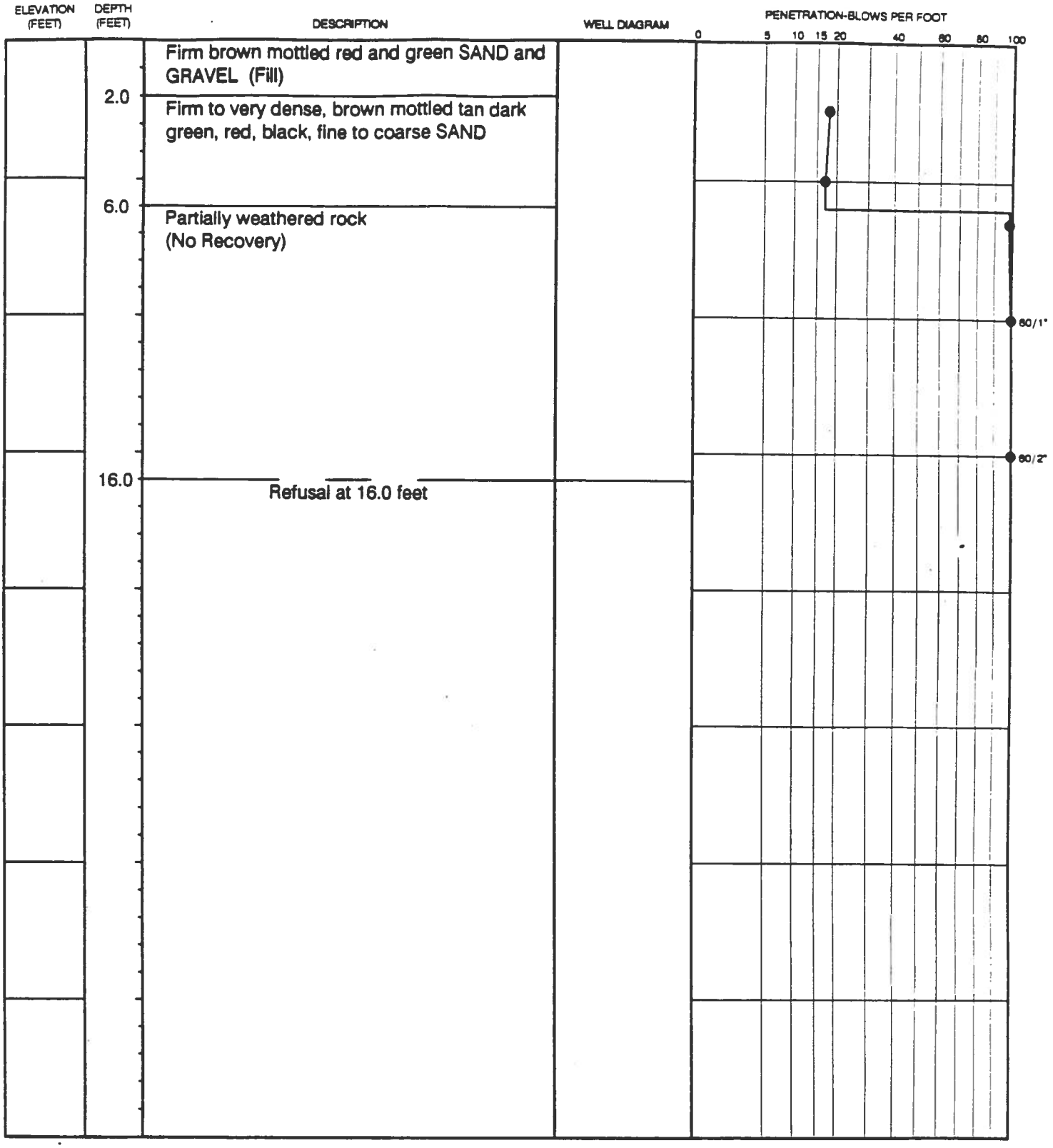
ELEVATION (FEET)	DEPTH (FEET)	DESCRIPTION	WELL DIAGRAM	PENETRATION-BLOWS PER FOOT
		Firm to very dense, reddish brown to brown mottled yellow fine to coarse SAND with some clay at 2.0 feet		
	4.0	Partially weathered rock sampled as very dense brown silty fine to coarse SAND		50/6" 2/9" 75/6" 80/4" 50/3"
	19.3	Boring Terminated at 19.3 feet		

REMARKS:
No ground water encountered.

DRILLED BY	GEOCIM	BORING NUMBER	SB-15
LOGGED BY	MAV	DATE STARTED	2/7/89
CHECKED BY	WKR	DATE COMPLETED	2/7/89
		JOB NUMBER	54-8512

Law Environmental

TEST BORING RECORD

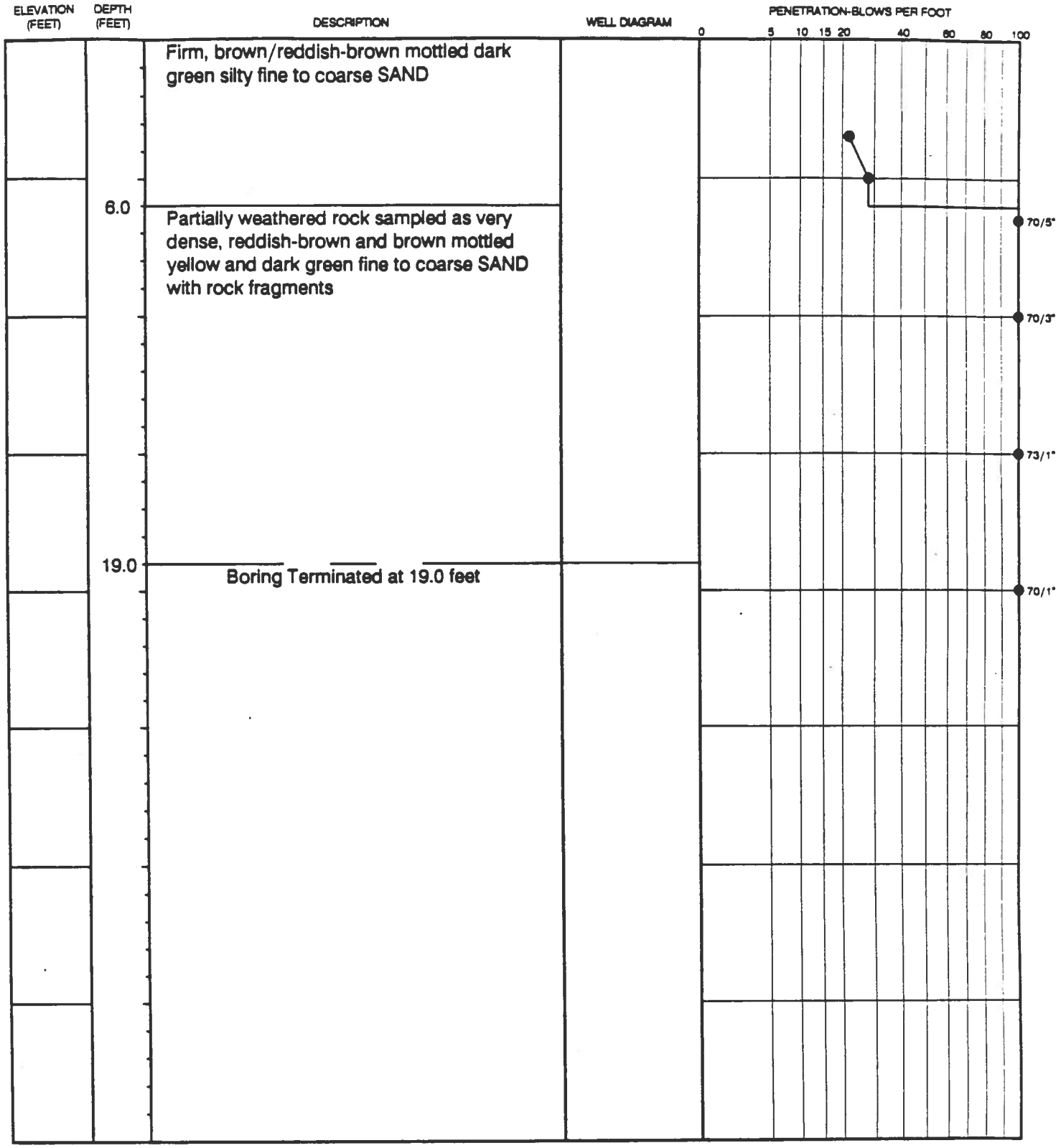


REMARKS:
No ground water encountered.

DRILLED BY	GEOCIM	BORING NUMBER	SB-16
LOGGED BY	MAV	DATE STARTED	2/8/89
CHECKED BY	WKR	DATE COMPLETED	2/8/89
		JOB NUMBER	54-8512

Law Environmental

TEST BORING RECORD

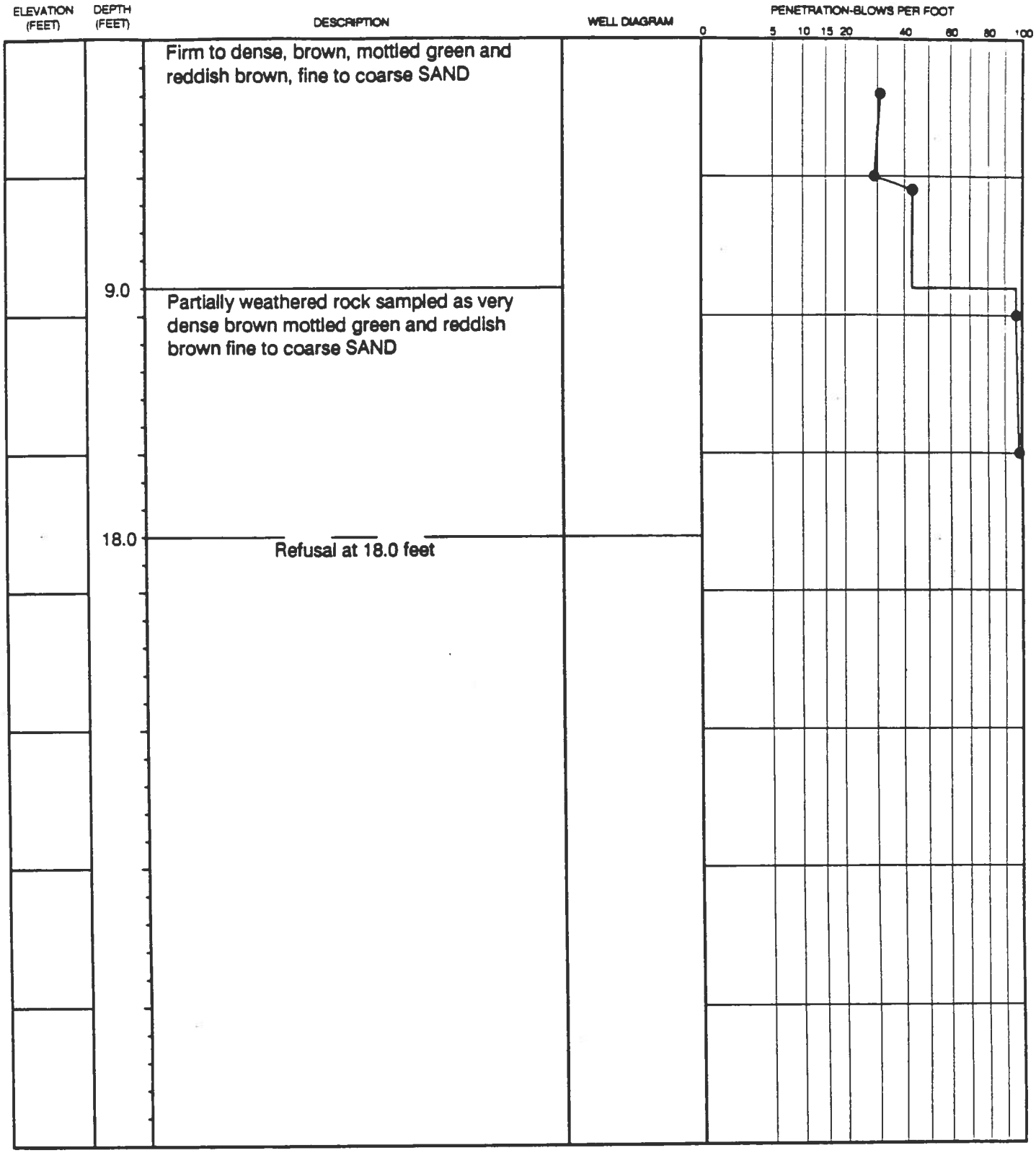


REMARKS:
No ground water encountered.

DRILLED BY	GEOCIM	BORING NUMBER	SB-17
LOGGED BY	MAV	DATE STARTED	2/8/89
CHECKED BY	WKR	DATE COMPLETED	2/8/89
		JOB NUMBER	54-8512

Law Environmental

TEST BORING RECORD



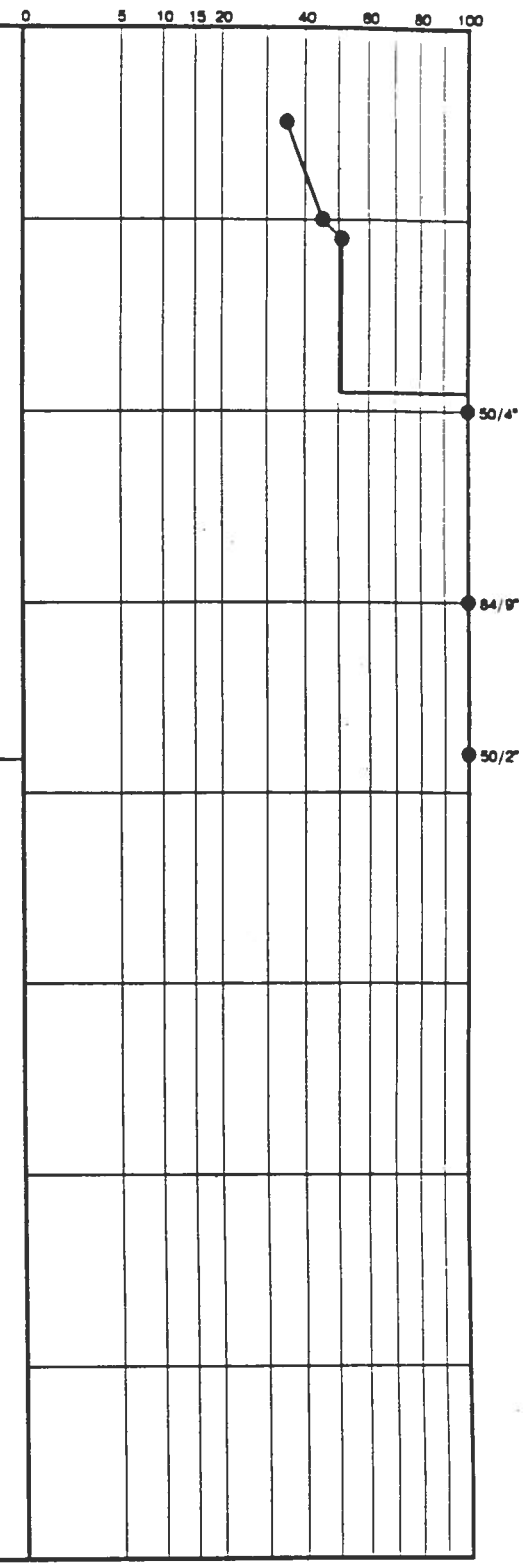
REMARKS:
No ground water encountered.

DRILLED BY	GEOCIM	BORING NUMBER	SB-18
LOGGED BY	MAV	DATE STARTED	2/6/89
CHECKED BY	WKR	DATE COMPLETED	2/6/89
		JOB NUMBER	54-8512

Law Environmental

TEST BORING RECORD

ELEVATION (FEET)	DEPTH (FEET)	DESCRIPTION	WELL DIAGRAM	PENETRATION-BLOWS PER FOOT
		Dense to very dense brown mottled green silty fine to coarse SAND		
	9.5	Partially weathered rock sampled as very dense brown mottled green silty fine to coarse SAND		
	19.1	Boring Terminated at 19.1 feet		



REMARKS:
No ground water encountered.

DRILLED BY	GEOCIM	BORING NUMBER	SB-19
LOGGED BY	MAV	DATE STARTED	2/7/89
CHECKED BY	WKR	DATE COMPLETED	2/7/89
		JOB NUMBER	54-8512

Law Environmental

TEST BORING RECORD

ELEVATION (FEET)	DEPTH (FEET)	DESCRIPTION	WELL DIAGRAM	PENETRATION-BLOWS PER FOOT (0 5 10 15 20 40 60 80 100)
		Firm, reddish brown mottled tan sandy silty CLAY (Fill)		
	4.0	Dense to very dense, brown motled green, reddish brown silty fine to coarse SAND		
	9.0	Partially weathered rock sampled as very dense brown mottled green silty fine to coarse SAND		56/4"
				60/4"
	19.3	Boring Terminated at 19.3 feet		60/4"

REMARKS:
No ground water encountered.

DRILLED BY	GEOCIM	BORING NUMBER	SB-20
LOGGED BY	MAV	DATE STARTED	2/8/89
CHECKED BY	WKR	DATE COMPLETED	2/8/89
		JOB NUMBER	54-8512

Law Environmental

TEST BORING RECORD

ELEVATION (FEET)	DEPTH (FEET)	DESCRIPTION	WELL DIAGRAM	PENETRATION-BLOWS PER FOOT 0 5 10 15 20 40 60 80 100
		Very dense, brown mottled, green and black, silty fine to coarse SAND		65/4"
	6.8	Boring Terminated at 6.8 feet		

REMARKS:
No ground water encountered.

DRILLED BY	GEOCIM	BORING NUMBER	SB-21
LOGGED BY	MAV	DATE STARTED	2/10/89
CHECKED BY	WKR	DATE COMPLETED	2/10/89
		JOB NUMBER	54-8512

Law Environmental

TEST BORING RECORD

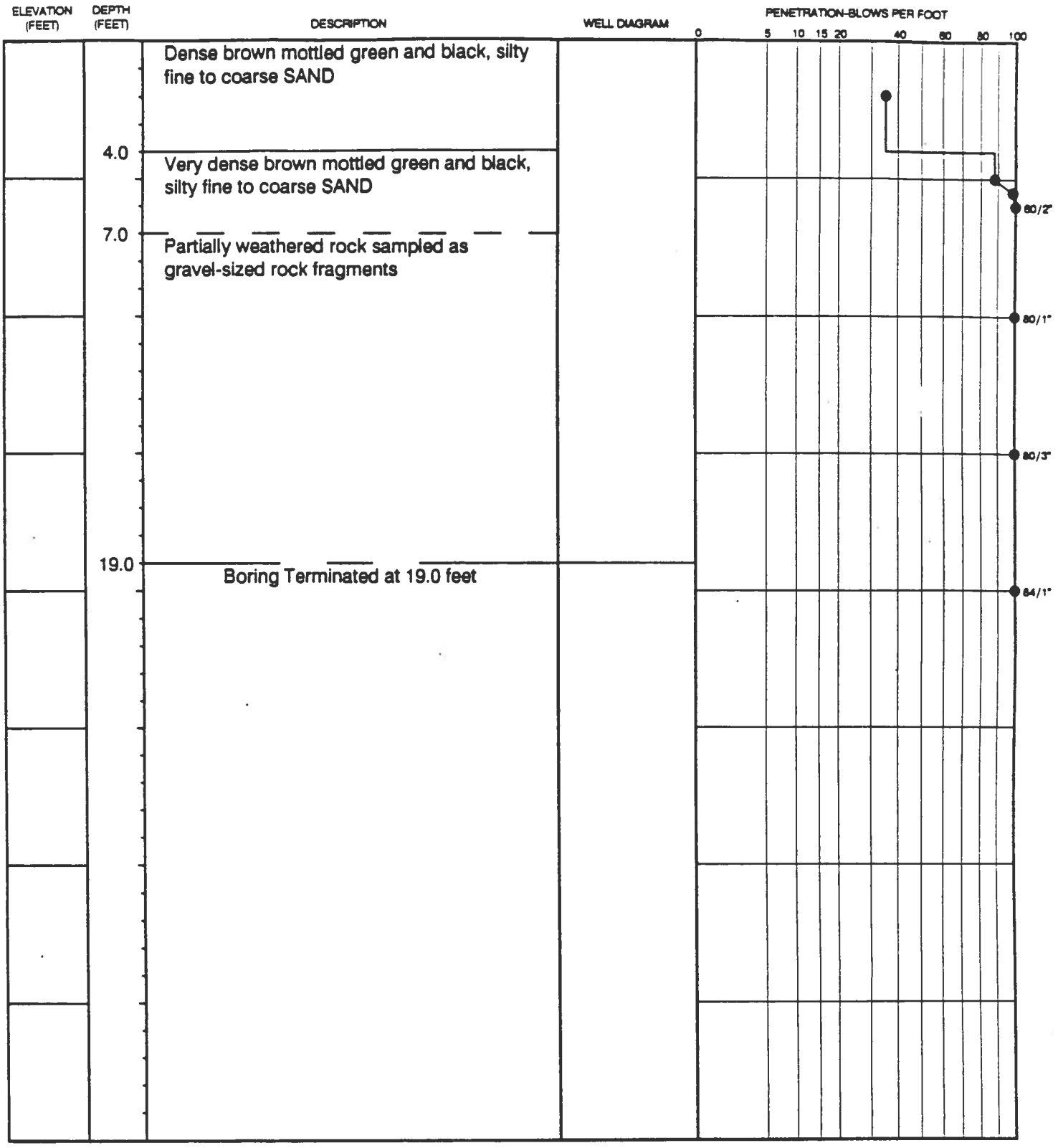
ELEVATION (FEET)	DEPTH (FEET)	DESCRIPTION	WELL DIAGRAM	PENETRATION-BLOWS PER FOOT
		Partially weathered rock sampled as very dense, brown mottled tan, green and black fine to coarse SAND		0 5 10 15 20 40 60 80 100
	6.4	Boring Terminated at 6.4 feet		50/4" 85/5"

REMARKS:
No ground water encountered.

DRILLED BY	GEOCIM	BORING NUMBER	SB-22
LOGGED BY	MAV	DATE STARTED	2/9/89
CHECKED BY	WKR	DATE COMPLETED	2/9/89
		JOB NUMBER	54-8512

Law Environmental

TEST BORING RECORD

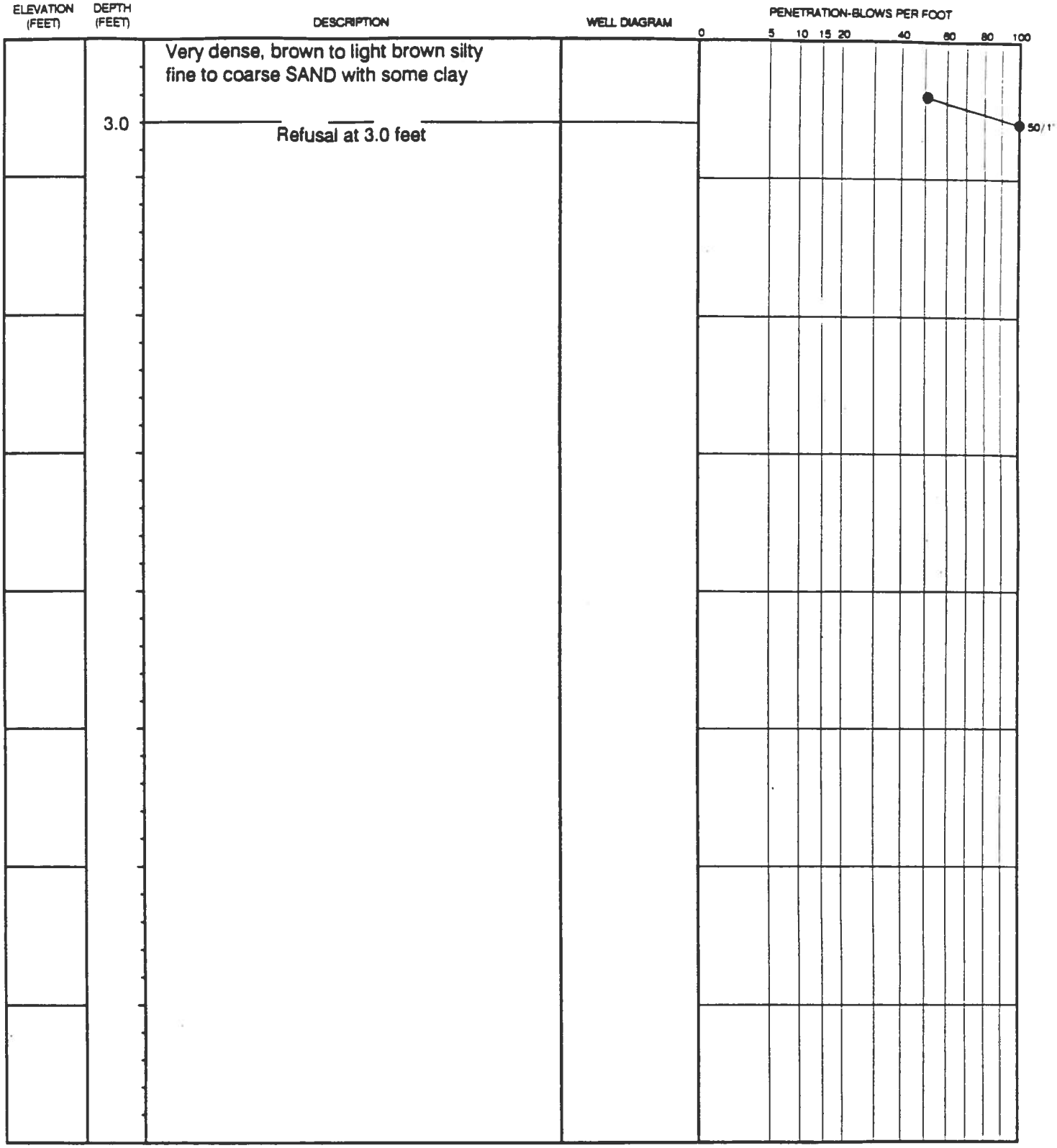


REMARKS:
No gorund water encountered.

DRILLED BY	GEOCIM	BORING NUMBER	SB-23
LOGGED BY	MAV	DATE STARTED	2/9/89
CHECKED BY	WKR	DATE COMPLETED	2/9/89
		JOB NUMBER	54-8512

Law Environmental

TEST BORING RECORD



REMARKS:
No ground water encountered.

DRILLED BY	GEOCIM	BORING NUMBER	SB-24
LOGGED BY	MAV	DATE STARTED	2/7/89
CHECKED BY	WKR	DATE COMPLETED	2/7/89
		JOB NUMBER	54-8512

Law Environmental

LAW ENVIRONMENTAL, INC.
112 TOWNPARK DRIVE
KENNESAW, GEORGIA 30144-5599
404-421-3400

February 28, 1989

Law Environmental - Caribe
54-56 Bolivia Street
Hato Rey, Puerto Rico 00917

Attention: Pedro Velez

LE Job Number: 54-8512
LENL Job Number: 5400

Subject: Chemical Analysis of Samples Received on 2/13/89

Dear Mr. Velez:

Law Environmental National Laboratories has completed its analysis of your samples and reports the results on the following pages. These results relate only to the contents of the samples as submitted. This report shall not be reproduced except in full without the approval of Law Environmental National Laboratories.

If there are any questions, please do not hesitate to contact us.

Sincerely,

LAW ENVIRONMENTAL NATIONAL LABS

Douglas K. Johnson
GC Laboratory Supervisor

Clifford H. McBride
QA/QC Coordinator

Attachment: Data Report
Invoice

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/01/89
Page 1

--- Project Information ---

Lab Number : 89-3130-24
Project No. : 54-8512
Project Name : GE VIEQUES

Cust. No. :

Manager: PEDRO VALEZ

--- Sample Information ---

Station ID : SB-23 6.0' TO 7.5'
Matrix : SO
Type : GRAB
Collector : MAV

Sampled Date/Time : 02/09/89 08:20
Received Date/Time : 02/13/89 10:25
Received From/By : KD/DP
Chain of Custody : 5228
Number of Containers : 2

Remarks : *COMPOUNDS CO-ELUTE.

--- Test Data ---

Parameter	Method	Units	Det. Limit	Results	Test Date	Analy
-- ORGANIC ANALYSIS RESULTS --						
P nodichloromethane	EPA 8010	ug/kg	0.10	ND	02/21/89	JAH
oform	EPA 8010	ug/kg	0.20	ND	02/21/89	JAH
Bromomethane	EPA 8010	ug/kg	1.2	ND	02/21/89	JAH
Carbon Tetrachloride	EPA 8010	ug/kg	0.12	ND	02/21/89	JAH
Chlorobenzene	EPA 8010	ug/kg	0.25	ND	02/21/89	JAH
Chloroethane	EPA 8010	ug/kg	0.52	ND	02/21/89	JAH
2-Chloroethylvinyl Ether	EPA 8010	ug/kg	0.13	ND	02/21/89	JAH
Chloroform	EPA 8010	ug/kg	0.05	0.37	02/21/89	JAH
Chloromethane	EPA 8010	ug/kg	0.08	ND	02/21/89	JAH
Dibromochloromethane	EPA 8010	ug/kg	0.28	0.28*	02/21/89	JAH
1,2-Dichlorobenzene	EPA 8010	ug/kg	0.15	ND	02/21/89	JAH
1,3-Dichlorobenzene	EPA 8010	ug/kg	0.32	ND	02/21/89	JAH
1,4-Dichlorobenzene	EPA 8010	ug/kg	0.24	ND	02/21/89	JAH
Dichlorodifluoromethane	EPA 8010	ug/kg	1.8	ND	02/21/89	JAH
1,1-Dichloroethane	EPA 8010	ug/kg	0.07	ND	02/21/89	JAH
1,2-Dichloroethane	EPA 8010	ug/kg	0.03	0.45	02/21/89	JAH
1,1-Dichloroethene	EPA 8010	ug/kg	0.13	ND	02/21/89	JAH
Trans-1,2-Dichloroethene	EPA 8010	ug/kg	0.10	ND	02/21/89	JAH
1,2-Dichloropropane	EPA 8010	ug/kg	0.04	0.18	02/21/89	JAH
cis-1,3-Dichloropropene	EPA 8010	ug/kg	0.34	ND	02/21/89	JAH
Trans-1,3-Dichloropropene	EPA 8010	ug/kg	0.34	ND*	02/21/89	JAH
Methylene Chloride	EPA 8010	ug/kg	0.25	ND	02/21/89	JAH
,1,2,2-Tetrachloroethane	EPA 8010	ug/kg	0.03	ND	02/21/89	JAH
Tetrachloroethene	EPA 8010	ug/kg	0.03	ND	02/21/89	JAH
1,1,1-Trichloroethane	EPA 8010	ug/kg	0.03	0.21	02/21/89	JAH
,1,2-Trichloroethane	EPA 8010	ug/kg	0.02	0.28*	02/21/89	JAH
hloroethene	EPA 8010	ug/kg	0.12	ND	02/21/89	JAH
ichlorofluoromethane	EPA 8010	ug/kg	ND	ND	02/21/89	JAH

Signed D. M

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/01/89
Page 2

Lab Number : 89-3130-24
Project No. : 54-8512

--- Test Data ---

Parameter	Method	Units	Det. Limit	Results	Test Date	Anal
-- ORGANIC ANALYSIS RESULTS --						
Vinyl Chloride	EPA 8010	ug/kg	0.18	ND	02/21/89	JAH
Benzene	EPA 8020	ug/kg	1	ND	02/21/89	JAH
Chlorobenzene	EPA 8020	ug/kg	1	ND	02/21/89	JAH
Ethylbenzene	EPA 8020	ug/kg	1	ND	02/21/89	JAH
Toluene	EPA 8020	ug/kg	1	3.2	02/21/89	JAH
Xylenes	EPA 8020	ug/kg	1	40	02/21/89	JAH

Signed _____

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/01/89
Page 1

--- Project Information ---

Lab Number : 89-3130-27
Project No. : 54-8512
Project Name : GE VIEQUES

Cust. No. :

Manager: PEDRO VALEZ

--- Sample Information ---

Station ID : SB-5 4.0' TO 5.5'
Matrix : SO
Type : GRAB
Collector : MAV

Sampled Date/Time : 02/09/89 10:20
Received Date/Time : 02/13/89 10:25
Received From/By : KD/DP
Chain of Custody : 5228
Number of Containers : 2

Remarks : *COMPOUNDS CO-ELUTE.

--- Test Data ---

Parameter	Method	Units	Det. Limit	Results	Test Date	Analy
-- ORGANIC ANALYSIS RESULTS --						
[illegible]nodichloromethane	EPA 8010	ug/kg	0.10	ND	02/22/89	MAC
[illegible]oform	EPA 8010	ug/kg	0.20	ND	02/22/89	MAC
Bromomethane	EPA 8010	ug/kg	1.2	ND	02/22/89	MAC
Carbon Tetrachloride	EPA 8010	ug/kg	0.12	ND	02/22/89	MAC
Chlorobenzene	EPA 8010	ug/kg	0.25	ND	02/22/89	MAC
Chloroethane	EPA 8010	ug/kg	0.52	ND	02/22/89	MAC
2-Chloroethylvinyl Ether	EPA 8010	ug/kg	0.13	ND	02/22/89	MAC
Chloroform	EPA 8010	ug/kg	0.05	ND	02/22/89	MAC
Chloromethane	EPA 8010	ug/kg	0.08	ND	02/22/89	MAC
Dibromochloromethane	EPA 8010	ug/kg	0.09	ND	02/22/89	MAC
1,2-Dichlorobenzene	EPA 8010	ug/kg	0.15	ND	02/22/89	MAC
1,3-Dichlorobenzene	EPA 8010	ug/kg	0.32	ND	02/22/89	MAC
1,4-Dichlorobenzene	EPA 8010	ug/kg	0.24	ND	02/22/89	MAC
Dichlorodifluoromethane	EPA 8010	ug/kg	1.8	2.5*	02/22/89	MAC
1,1-Dichloroethane	EPA 8010	ug/kg	0.07	ND	02/22/89	MAC
1,2-Dichloroethane	EPA 8010	ug/kg	0.03	ND	02/22/89	MAC
1,1-Dichloroethene	EPA 8010	ug/kg	0.13	ND	02/22/89	MAC
Trans-1,2-Dichloroethene	EPA 8010	ug/kg	0.10	ND	02/22/89	MAC
1,2-Dichloropropane	EPA 8010	ug/kg	0.04	ND	02/22/89	MAC
cis-1,3-Dichloropropene	EPA 8010	ug/kg	0.34	ND	02/22/89	MAC
Trans-1,3-Dichloropropene	EPA 8010	ug/kg	0.34	ND	02/22/89	MAC
Methylene Chloride	EPA 8010	ug/kg	0.25	ND	02/22/89	MAC
1,1,2,2-Tetrachloroethane	EPA 8010	ug/kg	0.03	ND	02/22/89	MAC
Tetrachloroethene	EPA 8010	ug/kg	0.03	ND	02/22/89	MAC
1,1,1-Trichloroethane	EPA 8010	ug/kg	0.03	ND	02/22/89	MAC
1,1,2-Trichloroethane	EPA 8010	ug/kg	0.02	ND	02/22/89	MAC
[illegible]hloroethene	EPA 8010	ug/kg	0.12	ND	02/22/89	MAC
[illegible]chlorofluoromethane	EPA 8010	ug/kg	ND	ND	02/22/89	MAC

Signed [signature]

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/01/89
Page 2

Lab Number : 89-3130-27
Project No. : 54-8512

--- Test Data ---

Parameter	Method	Units	Det. Limit	Results	Test Date	Analy
-- ORGANIC ANALYSIS RESULTS --						
Vinyl Chloride	EPA 8010	ug/kg	0.18	2.5*	02/22/89	MAC
Benzene	EPA 8020	ug/kg	1	ND	02/22/89	MAC
Chlorobenzene	EPA 8020	ug/kg	1	ND	02/22/89	MAC
Ethylbenzene	EPA 8020	ug/kg	1	ND	02/22/89	MAC
Toluene	EPA 8020	ug/kg	1	1.2	02/22/89	MAC
Xylenes	EPA 8020	ug/kg	1	10	02/22/89	MAC

Signed

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 02/27/89
Page 1

--- Project Information ---

Lab Number : 89-3130-28
Project No. : 54-8512
Project Name : GE VIEQUES

Cust. No. :

Manager: PEDRO VALEZ

--- Sample Information ---

Station ID : SB-12 4.0' TO 5.5'
Matrix : SO
Type : GRAB
Collector : MAV

Sampled Date/Time : 02/09/89 12:30
Received Date/Time : 02/13/89 10:25
Received From/By : KD/DP
Chain of Custody : 5228
Number of Containers : 2

Remarks :

--- Test Data ---

Parameter	Method	Units	Det. Limit	Results	Test Date	Anal
-- ORGANIC ANALYSIS RESULTS --						
Bromodichloromethane	EPA 8010	ug/kg	0.10	ND	02/22/89	MAC
Bromoform	EPA 8010	ug/kg	0.20	ND	02/22/89	MAC
Bromomethane	EPA 8010	ug/kg	1.2	ND	02/22/89	MAC
Carbon Tetrachloride	EPA 8010	ug/kg	0.12	ND	02/22/89	MAC
Chlorobenzene	EPA 8010	ug/kg	0.25	ND	02/22/89	MAC
Chloroethane	EPA 8010	ug/kg	0.52	ND	02/22/89	MAC
2-Chloroethylvinyl Ether	EPA 8010	ug/kg	0.13	ND	02/22/89	MAC
Chloroform	EPA 8010	ug/kg	0.05	ND	02/22/89	MAC
Chloromethane	EPA 8010	ug/kg	0.08	ND	02/22/89	MAC
Dibromochloromethane	EPA 8010	ug/kg	0.09	ND	02/22/89	MAC
1,2-Dichlorobenzene	EPA 8010	ug/kg	0.15	ND	02/22/89	MAC
1,3-Dichlorobenzene	EPA 8010	ug/kg	0.32	ND	02/22/89	MAC
1,4-Dichlorobenzene	EPA 8010	ug/kg	0.24	ND	02/22/89	MAC
Dichlorodifluoromethane	EPA 8010	ug/kg	1.8	ND	02/22/89	MAC
1,1-Dichloroethane	EPA 8010	ug/kg	0.07	ND	02/22/89	MAC
1,2-Dichloroethane	EPA 8010	ug/kg	0.03	ND	02/22/89	MAC
1,1-Dichloroethene	EPA 8010	ug/kg	0.13	ND	02/22/89	MAC
Trans-1,2-Dichloroethene	EPA 8010	ug/kg	0.10	ND	02/22/89	MAC
1,2-Dichloropropane	EPA 8010	ug/kg	0.04	ND	02/22/89	MAC
cis-1,3-Dichloropropene	EPA 8010	ug/kg	0.34	ND	02/22/89	MAC
Trans-1,3-Dichloropropene	EPA 8010	ug/kg	0.34	ND	02/22/89	MAC
Methylene Chloride	EPA 8010	ug/kg	0.25	ND	02/22/89	MAC
1,1,2,2-Tetrachloroethane	EPA 8010	ug/kg	0.03	ND	02/22/89	MAC
Tetrachloroethene	EPA 8010	ug/kg	0.03	ND	02/22/89	MAC
1,1,1-Trichloroethane	EPA 8010	ug/kg	0.03	ND	02/22/89	MAC
1,1,2-Trichloroethane	EPA 8010	ug/kg	0.02	ND	02/22/89	MAC
Trichloroethene	EPA 8010	ug/kg	0.12	ND	02/22/89	MAC
Trichlorofluoromethane	EPA 8010	ug/kg	ND	ND	02/22/89	MAC

Signed

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 02/27/89
Page 2

Lab Number : 89-3130-28
Project No. : 54-8512

--- Test Data ---

Parameter	Method	Units	Det. Limit	Results	Test Date	Analy
-- ORGANIC ANALYSIS RESULTS --						
Vinyl Chloride	EPA 8010	ug/kg	0.18	ND	02/22/89	MAC
Benzene	EPA 8020	ug/kg	1	ND	02/22/89	MAC
Chlorobenzene	EPA 8020	ug/kg	1	ND	02/22/89	MAC
Ethylbenzene	EPA 8020	ug/kg	1	ND	02/22/89	MAC
Toluene	EPA 8020	ug/kg	1	ND	02/22/89	MAC
Xylenes	EPA 8020	ug/kg	1	ND	02/22/89	MAC

Signed P. M

.W ENVIRONMENTAL, INC.
NATIONAL LABORATORY
112 TOWNPARK DRIVE
KENNESAW, GEORGIA 30144
(404) 421-3400

CHAIN OF CUSTODY :CORD

5: 1

79-3130

SAMPLING INFORMATION

NAME OF FACILITY: G.E Vieques
STREET ADDRESS: Km 2.3 P.O Box 187
CITY/STATE: Isla Vieques ZIP: 00765

PROJECT NAME: G.E. Vieques
JOB NO.: 54-8512
SAMPLERS (SIGNATURE): Miguel A Vargas
SAMPLING DATE: 2-8-89

	TIME	GRAB	COMP.	SOURCE CODE *	SAMPLE STATION DESCRIPTION			TOTAL NO. OF CONTAINERS	CONTAINER TYPE: 40 ml/G ~~HNO3 Cool 4°C H2O~~	1 L G. P (HNO_3)	1 L G. P (NaOH)	1 L G. P (H_2SO_4)	1 L G. P	1 L P. (NaOH + Ascorbic Acid)	1 L. Teflon	1 L G. P (Zn Acetate + NaOH)	8 oz. G. P	1 L G. Amber	1 L P. Opaque	250 ml/G. Amber
1	1:40pm	X		So	SB3	1.5' to 3.0'	✓	2	2											
2	1:45pm	X		SO	SB-3	4.0' to 5.5'	✓	2	2											
3	1:55pm	X		So	SB-3	6.0' to 7.5'	X	2	2											
4	2:00pm	X		So	SB-3	9.0' to 10.5'	✓	2	2											
5	2:10pm	X		SO	SB-3	14.0' to 15.5'	✓	2	2											
6	2:30pm	X		So	SB-3	19.0' to 20.5	✓	2	2											
7	3:35pm	X		So	SB-4	1.5' to 3.0'	✓	2	2											
8	3:45pm	X		SO	SB-4	4.0' to 5.5'	✓	2	2											
9	3:55pm	X		So	SB-4	6.0' to 7.5'	✓	2	2											
10	4:05pm	X		So	SB-4	9.0' to 10.5'	✓	2	2											
11	4:30pm	X		So	SB-4	14.0' to 15.5'	✓	2	2											

RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)
Kenth Jones					
RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED AT LABORATORY: (SIGNATURE)
					2-13-89 1025

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REMARKS: _____

* SOURCE CODES:
RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL/SEDIMENT - SO
SLUDGE - SL
NPDES DISCHARGE - ND

V ENVIRONMENTAL, INC.
...IONAL LABORATORY
112 TOWNPARK DRIVE
KENNESAW, GEORGIA 30144
(404) 421-3400

CHAIN OF CUSTODY ...CORD

SAMPLING INFORMATION

NAME OF FACILITY: Caribe GE Products Inc.
STREET ADDRESS: P.O. Box 187 Km 2.3
CITY/STATE: Isla Vieques P.R. ZIP: 00765

PROJECT NAME: G.E Vieques
JOB NO.: 54-8512
SAMPLERS (SIGNATURE): Miguel A Vázquez
SAMPLING DATE: 2-9-89

	TIME	GRAB	COMP.	SOURCE CODE*	SAMPLE STATION DESCRIPTION		TOTAL NO. OF CONTAINERS	CONTAINER TYPE: 40 ml/G ($Na_2S_2O_3$) + $5H_2O$	1 L G, P (HNO_3)	1 L G, P (NaOH)	1 L G, P (H_2SO_4)	1 L G, P	1 L P, (NaOH + Ascorbic Acid)	1 L, Teflon	1 L G, P (Zn Acetate + NaOH)	8 oz. G, P	1 L G · Amber	1 L P · Opaque	250 ml/G · Amber
12	1:50pm	X		So	SB-13	4.0'-5.5'	✓	2	2										
13	2:00pm	X		So	SB-13	6.0'-7.5'	✓	2	2										
14	2:20pm	X		So	SB-11	4.0'-5.5'	✓	2	2										
15	2:30pm	X		So	SB-11	6.0'-7.5'	✓	2	2										
16	3:00pm	X		So	SB-8	4.0'-5.5'	✓	2	2										
17	3:15pm	X		So	SB-8	6.0'-7.5'	✓	2	2										
18	3:35pm	X		So	SB-22	4.0'-5.5'	✓	2	2										
19	3:45pm	X		So	SB-22	6.0-7.5'	✓	2	2										
20	4:05pm	X		So	SB-6	4.0-5.5	✓	2	2										
21	4:15pm	X		So	SB-6	6.0-7.5	✓	2	2										

RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)
Kenton Davis					
RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED AT LABORATORY: (SIGNATURE)
					2/3/89 10:25

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REMARKS:

* SOURCE CODES:
RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL/SEDIMENT - SO
SLUDGE - SL
NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE ...

ENVIRONMENTAL, INC.
NATIONAL LABORATORY
112 TOWNPARK DRIVE
KENNESAW, GEORGIA 30144
(404) 421-3400

CHAIN OF CUSTODY . CORD

SAMPLING INFORMATION

NAME OF FACILITY: G.E Vieques
STREET ADDRESS: Km 2.3 P.O Box 187
CITY/STATE: Isla Vieques P.R. ZIP: 00765

PROJECT NAME: G.F Vieques
JOB NO.: 54-8512
SAMPLERS (SIGNATURE): Miguel A Vazquez
SAMPLING DATE: 2-9-89

	TIME	GRAB	COMP.	SOURCE CODE*	SAMPLE STATION DESCRIPTION		TOTAL NO. OF CONTAINERS		CONTAINER TYPE: 40 ml/G (~~$Na_2S_2O_3$ + $5H_2O$~~)	1 L G. P (HNO_3)	1 L G. P (NaOH)	1 L G. P (H_2SO_4)	1 L G. P	1 L P. (NaOH + Ascorbic Acid)	1 L. Teflon	1 L G. P (Zn Acetate + NaOH)	8 oz. G. P	1 L G. Amber	1 L P. Opaque	250 ml/G. Amber
2	8:00am	X		So	SB-23	1.5' to 3.0' ✓	2	2												
3	8:10am	X		So	SB-23	4.0' to 5.5' ✓	2	2												
1	8:20am	X		So	SB-23	6.0' to 7.5' ✓	2	2												
5	8:45am	X		So	SB-23	9.0' to 10.5 ✓	2	2												
6	10:10 am	X		So	SB-5	1.5' to 3.0' ✓	2	2												
7	10:20 am	X		So	SB-5	4.0' to 5.5' ✓	2	2												
8	12:30pm	X		So	SB-12	4.0' to 5.5' ✓	2	2												
9	12:45pm	X		So	SB-12	6.0' to 7.5' ✓	2	2												
0	1:15pm	X		So	SB-10	4.0' to 6.5' ✓	2	2												
1	1:25pm	X		So	SB-10	6.0' to 7.5' ✓	2	2												

RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)
Kent McCann					
RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED AT LABORATORY: (SIGNATURE)
					2-13-89 10:25

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REMARKS:

* SOURCE CODES:
RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL/SEDIMENT - SO
SLUDGE - SL
NPDES DISCHARGE - ND
DRINKING WATER - DW

ENVIRONMENTAL, INC.
NATIONAL LABORATORY
112 TOWNPARK DRIVE
KENNESAW, GEORGIA 30144
(404) 421-3400

CHAIN OF CUSTODY CORD

52 6

SAMPLING INFORMATION

NAME OF FACILITY: G.E Vieques
STREET ADDRESS: Km 2.3 P.O. Box 187
CITY/STATE: Isla Vieques P.R. ZIP: 00765

PROJECT NAME: G.F Vieques
JOB NO.: 54-8512
SAMPLERS (SIGNATURE): Miguel A Vázquez
SAMPLING DATE: 2-8-89

	TIME	GRAB	COMP.	SOURCE CODE*	SAMPLE STATION DESCRIPTION	TOTAL NO. OF CONTAINERS	40 ml/G ~~($Na_2S_2O_3$)~~	I L G, P (HNO_3)	I L G, P (NaOH)	I L G, P (H_2SO_4)	I L G, P	I L P, (NaOH + Ascorbic Acid)	I L, Teflon	I L G, P (Zn Acetate + NaOH)	8 oz. G, P	I L G - Amber	I L P - Opaque	250 ml/G - Amber
32	8:05 Am	X		So	SB-17 14.0' to 15.5 ✓	2	2											
3	8:15 Am	X		So	SB-17 19.0 to 20.5 ✓	2	2											
34	9:20 am	X		So	SB-16 1.5' to 3.0' ✓	2	2											
5	9:30 am	X		So	SB-16 4.0' to 5.5' ✓	2	2											
6	9:35 Am	X		So	SB-16 6.0' to 7.5' ✓	2	2											
7	11:10 am	X		So	SB-20 1.5' to 3.0' ✓	2	2											
38	11:15 am	X		So	SB-20 4.0 to 5.5 ✓	2	2											
9	12:05 pm	X		So	SB-20 6.0' to 7.5' ✓	2	2											
10	12:15 pm	X		So	SB-20 9.0' to 10.5' ✓	2	2											
11	12:30 pm	X		So	SB-20 14.0' to 15.5' ✓	2	2											
12	12:45 pm	X		So	SB-20 19.0' to 20.5 ✓	2	2											

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:	DATE/TIME	RECEIVED BY:
Kent M Dam (SIGNATURE)		(SIGNATURE)	(SIGNATURE)		(SIGNATURE)
RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECIEVED AT LABORATORY: D Perez 2-13-89 10:35 (SIGNATURE)

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* SOURCE CODES:
RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL/SEDIMENT - SO
SLUDGE - SL
NPDES DISCHARGE - ND
DRINKING WATER - DW

REMARKS:

/ ENVIRONMENTAL, INC.
NATIONAL LABORATORY
112 TOWNPARK DRIVE
KENNESAW, GEORGIA 30144
(404) 421-3400

CHAIN OF CUSTODY RECORD

SAMPLING INFORMATION

NAME OF FACILITY: Caribe G.E. Products Inc.
STREET ADDRESS: P.O. Box 187 Km. 2.3
CITY/STATE: Isla Vieques P.R. ZIP: 00765

PROJECT NAME: G.E Vieques
JOB NO.: 54-8512
SAMPLERS (SIGNATURE): Miguel A Vázquez
SAMPLING DATE: 2-9-89

	TIME	GRAB	COMP.	SOURCE CODE*	SAMPLE STATION DESCRIPTION		TOTAL NO. OF CONTAINERS	CONTAINER TYPE: 40 ml/G (HNO3)	1 L G, P (HNO3)	1 L G, P (NaOH)	1 L G, P (H2SO4)	1 L G, P	1 L P, (NaOH + Ascorbic Acid)	1 L Teflon	1 L G, P (Zn Acetate + NaOH)	8 oz. G, P	1 L G - Amber	1 L P - Opaque	250 ml/G - Amber
52	4:40pm	X		So	SB-9 4.0' - 5.5'	✓	2	2											
53	4:45pm	X		So	SB-9 6.0' - 7.5'	✓	2	2											
	7				* 2-10-89 *														
9	7:15am	X		So	SB-7 4.0-5.5'	✓	2	2											
8	7:30am	X		So	SB-7 6.0' - 7.5'	✓	2	2											
5	8:00am	X		So	SB-21 4.0' - 5.5'	✓	2	2											
10	8:05am	X		So	SB-21 6.0' - 7.5'	✓	2	2											

RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)
Kenth Quiñones					
RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECIEVED AT LABORATORY: (SIGNATURE)
					2-13-89 10:12

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REMARKS:

* SOURCE CODES:
RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL/SEDIMENT - SO
SLUDGE - SL
NPDES DISCHARGE - ND
DRINKING WATER - DW
HAZARDOUS WASTE - HW

52 5

ENVIRONMENTAL, INC.
NATIONAL LABORATORY
112 TOWNPARK DRIVE
KENNESAW, GEORGIA 30144
(404) 421-3400

CHAIN OF CUSTODY .CORD

SAMPLING INFORMATION

NAME OF FACILITY: G.E. Vieques
STREET ADDRESS: Km 2.3 P.O Box 187
CITY/STATE: Isla Vieques P.R. ZIP: 00765

PROJECT NAME: G.E. Vieques
JOB NO.: 54-8512
SAMPLERS (SIGNATURE): Miguel A Vázquez
SAMPLING DATE: 2-7-89

	TIME	GRAB	COMP.	SOURCE CODE *	SAMPLE STATION DESCRIPTION	TOTAL NO. OF CONTAINERS	40 ml/G ~~Na2S2O3 + ...~~	1 L G, P (HNO3)	1 L G, P (NaOH)	1 L G, P (H_2SO_4)	1 L G, P	1 L P, (NaOH + Ascorbic Acid)	1 L, Teflon	1 L G, P (Zn Acetate + NaOH)	8 oz. G, P	1 L G - Amber	1 L P - Opaque	250 ml/G - Amber
13	2:35 pm	X		So	SB-15 1.5' - 3.0' ✓	2	2											
14	2:45 pm	X		So	SB-15 4.0' - 5.5' ✓	2	2											
15	3:00 pm	X		So	SB-15 6.0' - 7.5' ✓	2	2											
16	3:20 pm	X		So	SB-15 9.0' - 10.5' ✓	2	2											
17	3:30 pm	X		So	SB-15 14.0' to 15.5' ✓	2	2											
18	3:40 pm	X		So	SB-15 19.0' to 20.5' ✓	2	2											
					2-8-89													
19	7:25 am	X		So	SB-17 1.5' to 3.0' ✓	2	2											
20	7:35 am	X		So	SB-17 4.0' to 5.5' ✓	2	2											
21	7:50 am	X		So	SB-17 6.0' to 7.5' ✓	2	2											

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:	DATE/TIME	RECEIVED BY:
Kent M. Davis (SIGNATURE)		(SIGNATURE)	(SIGNATURE)		(SIGNATURE)
RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED AT LABORATORY: [signature] 2-13-89 10:25 (SIGNATURE)

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* SOURCE CODES:
RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL/SEDIMENT - SO
SLUDGE - SL
NPDES DISCHARGE - ND
DRINKING WATER - DW

REMARKS: ______________________

APPENDIX D

1989 SOIL INVESTIGATION ANALYTICAL RESULTS FOR SEPTIC SYSTEM AREA BY LAW ENVIRONMENTAL FOR CARIBE GENERAL ELECTRIC PRODUCTS, INC. MANUFACTURING PLANT VIEQUES, PUERTO RICO

LAW ENVIRONMENTAL, INC.
112 TOWNPARK DRIVE
KENNESAW, GEORGIA 30144-5599
404-421-3400

March 2, 1989

Law Environmental - Caribe
54-56 Bolivia Street
Hato Rey, Puerto Rico 00917

Attention: Wendell Rodgers

LE Job Number: 54-8512
LENL Job Number: 5400

Subject: Chemical Analysis of Samples Received on 2/9/89

Dear Mr. Rodgers:

Law Environmental National Laboratories has completed its analysis of your samples and reports the results on the following pages. These results relate only to the contents of the samples as submitted. This report shall not be reproduced except in full without the approval of Law Environmental National Laboratories.

If there are any questions, please do not hesitate to contact us.

Sincerely,

LAW ENVIRONMENTAL NATIONAL LABS

Linda Harris
Linda Harris
Inorganics Laboratory Supervisor

C. H. McBride
Clifford H. McBride
QA/QC Coordinator

Attachment: Data Report
Invoice

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/01/89
Page 1

--- Project Information ---

Lab Number : 89-3124-01
Project No. : 54-8512
Project Name : GE VIEQUES

Cust. No. :

Manager: WENDALL ROGERS

--- Sample Information ---

Station ID : SB-1 15-3.0
Matrix : SO
Type : GRAB
Collector : MV

Sampled Date/Time : 02/06/89 12:45
Received Date/Time : 02/09/89 11:05
Received From/By : KD/DP
Chain of Custody : 5217
Number of Containers : 4

Remarks :

--- Test Data ---

Parameter	Method	Units	Det. Limit	Results	Test Date	Analy
- INORGANIC RESULTS --						
Cyanide, Total	EPA 9010	mg/kg	0.5	ND	02/22/89	JL
METALS RESULTS --						
Silver, Total	EPA 7760	mg/kg	3	ND	02/13/89	MC
Total Metals Prep: Solids	EPA 3050			N/A	02/10/89	HH

Signed Linda Harris

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/01/89
Page 1

--- Project Information ---

Lab Number : 89-3124-02
Project No. : 54-8512
Project Name : GE VIEQUES

Cust. No. :

Manager: WENDALL ROGERS

--- Sample Information ---

Station ID : SB-1 4-5.5
Matrix : SO
Type : GRAB
Collector : MV

Sampled Date/Time : 02/06/89 12:50
Received Date/Time : 02/09/89 11:05
Received From/By : KD/DP
Chain of Custody : 5217
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	Det. Limit	Results	Test Date	Analy
-- INORGANIC RESULTS --						
Cyanide, Total	EPA 9010	mg/kg	0.5	ND	02/22/89	JL
-- METALS RESULTS --						
Silver, Total	EPA 7760	mg/kg	3	ND	02/13/89	MC
Total Metals Prep: Solids	EPA 3050			N/A	02/10/89	HH

Signed Linda Harris

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/01/89
Page 1

--- Project Information ---

Lab Number : 89-3124-03
Project No. : 54-8512
Project Name : GE VIEQUES

Cust. No. :

Manager: WENDALL ROGERS

--- Sample Information ---

Station ID : SB-1 6-7.5
Matrix : SO
Type : GRAB
Collector : MV

Sampled Date/Time : 02/06/89 13:40
Received Date/Time : 02/09/89 11:05
Received From/By : KD/DP
Chain of Custody : 5217
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	Det. Limit	Results	Test Date	Analy
-- INORGANIC RESULTS --						
Cyanide, Total	EPA 9010	mg/kg	0.5	ND	02/22/89	JL
METALS RESULTS --						
Silver, Total	EPA 7760	mg/kg	3	ND	02/13/89	MC
Total Metals Prep: Solids	EPA 3050			N/A	02/10/89	HH

Signed Linda Harris

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/01/89
Page 1

--- Project Information ---

Lab Number : 89-3124-04
Project No. : 54-8512
Project Name : GE VIEQUES

Cust. No. :

Manager: WENDALL ROGERS

--- Sample Information ---

Station ID : SB-2 1.5-2.5
Matrix : SO
Type : GRAB
Collector : MV

Sampled Date/Time : 02/06/89 09:45
Received Date/Time : 02/09/89 11:05
Received From/By : KD/DP
Chain of Custody : 5217
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	Det. Limit	Results	Test Date	Analy
-- INORGANIC RESULTS --						
Cyanide, Total	EPA 9010	mg/kg	0.5	ND	02/22/89	JL
-- METALS RESULTS --						
Silver, Total	EPA 7760	mg/kg	3	ND	02/13/89	MC
Total Metals Prep: Solids	EPA 3050			N/A	02/10/89	HH

Signed Linda Harris

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/01/89
P a 1

--- Project Information ---

Lab Number : 89-3124-05
Project No. : 54-8512
Project Name : GE VIEQUES

Cust. No. :

Manager: WENDALL ROGERS

--- Sample Information ---

Station ID : SB-2 4-5.5
Matrix : SO
Type : GRAB
Collector : MV

Sampled Date/Time : 02/06/89 10:00
Received Date/Time : 02/09/89 11:05
Received From/By : KD/DP
Chain of Custody : 5217
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	Det. Limit	Results	Test Date	Analy
-- INORGANIC RESULTS --						
C ide, Total	EPA 9010	mg/kg	0.5	ND	02/22/89	JL
-- METALS RESULTS --						
Silver, Total	EPA 7760	mg/kg	3	ND	02/13/89	MC
Total Metals Prep: Solids	EPA 3050			N/A	02/10/89	HH

Signed Linda Harris

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/01/89
Page 1

--- Project Information ---

Lab Number : 89-3124-06
Project No. : 54-8512
Project Name : GE VIEQUES

Cust. No. :

Manager: WENDALL ROGERS

--- Sample Information ---

Station ID : SB-2 6-7.5
Matrix : SO
Type : GRAB
Collector : MV

Sampled Date/Time : 02/06/89 10:10
Received Date/Time : 02/09/89 11:05
Received From/By : KD/DP
Chain of Custody : 5217
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	Det. Limit	Results	Test Date	Analy
-- INORGANIC RESULTS --						
Cyanide, Total	EPA 9010	mg/kg	0.5	ND	02/22/89	JL
-- METALS RESULTS --						
Silver, Total	EPA 7760	mg/kg	3	ND	02/13/89	MC
Total Metals Prep: Solids	EPA 3050			N/A	02/10/89	HH

Signed Linda Harris

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/01/89
Page 1

--- Project Information ---

Lab Number : 89-3124-07
Project No. : 54-8512
Project Name : GE VIEQUES

Cust. No. :

Manager: WENDALL ROGERS

--- Sample Information ---

Station ID : SB-2 9-10.5
Matrix : SO
Type : GRAB
Collector : MV

Sampled Date/Time : 02/06/89 10:20
Received Date/Time : 02/09/89 11:05
Received From/By : KD/DP
Chain of Custody : 5217
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	Det. Limit	Results	Test Date	Analy
-- INORGANIC RESULTS --						
Cyanide, Total	EPA 9010	mg/kg	0.5	ND	02/22/89	JL
-- METALS RESULTS --						
Silver, Total	EPA 7760	mg/kg	3	ND	02/13/89	MC
Total Metals Prep: Solids	EPA 3050			N/A	02/10/89	HH

Signed Linda Hoerr

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/01/89
P a 1

--- Project Information ---

Lab Number : 89-3124-08
Project No. : 54-8512
Project Name : GE VIEQUES

Cust. No. :

Manager: WENDALL ROGERS

--- Sample Information ---

Station ID : SB-2 14-15.5
Matrix : SO
Type : GRAB
Collector : MV

Sampled Date/Time : 02/06/89 10:30
Received Date/Time : 02/09/89 11:05
Received From/By : KD/DP
Chain of Custody : 5217
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	Det. Limit	Results	Test Date	Analy
-- INORGANIC RESULTS --						
ide, Total	EPA 9010	mg/kg	0.5	ND	02/22/89	JL
-- METALS RESULTS --						
Silver, Total	EPA 7760	mg/kg	3	ND	02/13/89	MC
Total Metals Prep: Solids	EPA 3050			N/A	02/10/89	HH

Signed Linda Hamer

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/01/89
Page 1

--- Project Information ---

Lab Number : 89-3124-09
Project No. : 54-8512
Project Name : GE VIEQUES

Cust. No. :

Manager: WENDALL ROGERS

--- Sample Information ---

Station ID : SB-2 19-20.5
Matrix : SO
Type : GRAB
Collector : MV

Sampled Date/Time : 02/06/89 10:40
Received Date/Time : 02/09/89 11:05
Received From/By : KD/DP
Chain of Custody : 5217
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	Det. Limit	Results	Test Date	Analy
-- INORGANIC RESULTS --						
Cyanide, Total	EPA 9010	mg/kg	0.5	ND	02/22/89	JL
-- METALS RESULTS --						
Silver, Total	EPA 7760	mg/kg	3	ND	02/13/89	MC
Total Metals Prep: Solids	EPA 3050			N/A	02/10/89	HH

Signed Linda Hein

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/01/89
Page 1

--- Project Information ---

Lab Number : 89-3124-10
Project No. : 54-8512
Project Name : GE VIEQUES

Cust. No. :

Manager: WENDALL ROGERS

--- Sample Information ---

Station ID : SB-14 1.5'-3.0'
Matrix : SO
Type : GRAB
Collector : MV

Sampled Date/Time : 02/06/89 11:10
Received Date/Time : 02/09/89 11:05
Received From/By : KD/DP
Chain of Custody : 5221
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	Det. Limit	Results	Test Date	Analy
-- INORGANIC RESULTS --						
Cyanide, Total	EPA 9010	mg/kg	0.5	ND	02/22/89	JL
-- METALS RESULTS --						
Silver, Total	EPA 7760	mg/kg	3	ND	02/13/89	MC
Total Metals Prep: Solids	EPA 3050			N/A	02/10/89	HH

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/01/89
Page 1

--- Project Information ---

Lab Number : 89-3124-11
Project No. : 54-8512
Project Name : GE VIEQUES

Cust. No. :

Manager: WENDALL ROGERS

--- Sample Information ---

Station ID : SB-14 4.0'-5.5'
Matrix : SO
Type : GRAB
Collector : MV

Sampled Date/Time : 02/06/89 11:15
Received Date/Time : 02/09/89 11:05
Received From/By : KD/DP
Chain of Custody : 5221
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	Det. Limit	Results	Test Date	Analy
-- INORGANIC RESULTS --						
Cyanide, Total	EPA 9010	mg/kg	0.5	ND	02/22/89	JL
-- METALS RESULTS --						
Silver, Total	EPA 7760	mg/kg	3	ND	02/13/89	MC
Total Metals Prep: Solids	EPA 3050			N/A	02/10/89	HH
-- ORGANIC ANALYSIS RESULTS --						
Bromodichloromethane	EPA 8010	ug/kg	0.10	ND	02/15/89	MAC
Bromoform	EPA 8010	ug/kg	0.20	ND	02/15/89	MAC
Bromomethane	EPA 8010	ug/kg	1.2	ND	02/15/89	MAC
Carbon Tetrachloride	EPA 8010	ug/kg	0.12	ND	02/15/89	MAC
Chlorobenzene	EPA 8010	ug/kg	0.25	ND	02/15/89	MAC
Chloroethane	EPA 8010	ug/kg	0.52	ND	02/15/89	MAC
2-Chloroethylvinyl Ether	EPA 8010	ug/kg	0.13	ND	02/15/89	MAC
Chloroform	EPA 8010	ug/kg	0.05	ND	02/15/89	MAC
Chloromethane	EPA 8010	ug/kg	0.08	ND	02/15/89	MAC
Dibromochloromethane	EPA 8010	ug/kg	0.09	ND	02/15/89	MAC
1,2-Dichlorobenzene	EPA 8010	ug/kg	0.15	ND	02/15/89	MAC
1,3-Dichlorobenzene	EPA 8010	ug/kg	0.32	ND	02/15/89	MAC
1,4-Dichlorobenzene	EPA 8010	ug/kg	0.24	ND	02/15/89	MAC
Dichlorodifluoromethane	EPA 8010	ug/kg	1.8	ND	02/15/89	MAC
1,1-Dichloroethane	EPA 8010	ug/kg	0.07	ND	02/15/89	MAC
1,2-Dichloroethane	EPA 8010	ug/kg	0.03	ND	02/15/89	MAC
1,1-Dichloroethene	EPA 8010	ug/kg	0.13	ND	02/15/89	MAC
Trans-1,2-Dichloroethene	EPA 8010	ug/kg	0.10	ND	02/15/89	MAC
1,2-Dichloropropane	EPA 8010	ug/kg	0.04	ND	02/15/89	MAC
cis-1,3-Dichloropropene	EPA 8010	ug/kg	0.34	ND	02/15/89	MAC
Trans-1,3-Dichloropropene	EPA 8010	ug/kg	0.34	ND	02/15/89	MAC

Signed Linda Harris

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/01/89
Page 2

Lab Number : 89-3124-11
Project No. : 54-8512

--- Test Data ---

Parameter	Method	Units	Det. Limit	Results	Test Date	Analy
-- ORGANIC ANALYSIS RESULTS --						
Methylene Chloride	EPA 8010	ug/kg	0.25	ND	02/15/89	MAC
1,1,2,2-Tetrachloroethane	EPA 8010	ug/kg	0.03	ND	02/15/89	MAC
Tetrachloroethene	EPA 8010	ug/kg	0.03	ND	02/15/89	MAC
1,1,1-Trichloroethane	EPA 8010	ug/kg	0.03	ND	02/15/89	MAC
1,1,2-Trichloroethane	EPA 8010	ug/kg	0.02	ND	02/15/89	MAC
Trichloroethene	EPA 8010	ug/kg	0.12	ND	02/15/89	MAC
Trichlorofluoromethane	EPA 8010	ug/kg	ND	ND	02/15/89	MAC
Vinyl Chloride	EPA 8010	ug/kg	0.18	ND	02/15/89	MAC
Benzene	EPA 8020	ug/kg	1	ND	02/15/89	MAC
Chlorobenzene	EPA 8020	ug/kg	1	ND	02/15/89	MAC
Ethylbenzene	EPA 8020	ug/kg	1	ND	02/15/89	MAC
Toluene	EPA 8020	ug/kg	1	ND	02/15/89	MAC
Xylenes	EPA 8020	ug/kg	1	ND	02/15/89	MAC

Signed _____

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/01/89
Page 1

--- Project Information ---

Lab Number : 89-3124-12
Project No. : 54-8512
Project Name : GE VIEQUES

Cust. No. :

Manager: WENDALL ROGERS

--- Sample Information ---

Station ID : SB-14 6.0'-7.5'
Matrix : SO
Type : GRAB
Collector : MV

Sampled Date/Time : 02/06/89 11:20
Received Date/Time : 02/09/89 11:05
Received From/By : KD/DP
Chain of Custody : 5221
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	Det. Limit	Results	Test Date	Analy
-- INORGANIC RESULTS --						
Cyanide, Total	EPA 9010	mg/kg	0.5	ND	02/22/89	JL
-- METALS RESULTS --						
Silver, Total	EPA 7760	mg/kg	3	ND	02/13/89	MC
Total Metals Prep: Solids	EPA 3050			N/A	02/10/89	HH

Signed Linda Hein

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/01/89
Page 1

--- Project Information ---

Lab Number : 89-3124-13
Project No. : 54-8512
Project Name : GE VIEQUES

Cust. No. :

Manager: WENDALL ROGERS

--- Sample Information ---

Station ID : SB-14 9.0'-10.5'
Matrix : SO
Type : GRAB
Collector : MV

Sampled Date/Time : 02/06/89 11:30
Received Date/Time : 02/09/89 11:05
Received From/By : KD/DP
Chain of Custody : 5221
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	Det. Limit	Results	Test Date	Analy
-- INORGANIC RESULTS --						
Cyanide, Total	EPA 9010	mg/kg	0.5	ND	02/22/89	JL
-- METALS RESULTS --						
Silver, Total	EPA 7760	mg/kg	3	ND	02/13/89	MC
Total Metals Prep: Solids	EPA 3050			N/A	02/10/89	HH

Signed Linda Harris

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/01/89
P ~ 1

--- Project Information ---

Lab Number : 89-3124-14
Project No. : 54-8512
Project Name : GE VIEQUES

Cust. No. :

Manager: WENDALL ROGERS

--- Sample Information ---

Station ID : SB-14 14.0'-15.5'
Matrix : SO
Type : GRAB
Collector : MV

Sampled Date/Time : 02/06/89 13:10
Received Date/Time : 02/09/89 11:05
Received From/By : KD/DP
Chain of Custody : 5221
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	Det. Limit	Results	Test Date	Analy
-- INORGANIC RESULTS --						
C ide, Total	EPA 9010	mg/kg	0.5	ND	02/22/89	JL
-- METALS RESULTS --						
Silver, Total	EPA 7760	mg/kg	3	ND	02/13/89	MC
Total Metals Prep: Solids	EPA 3050			N/A	02/10/89	HH
-- ORGANIC ANALYSIS RESULTS --						
Bromodichloromethane	EPA 8010	ug/kg	0.10	ND	02/15/89	MAC
Bromoform	EPA 8010	ug/kg	0.20	ND	02/15/89	MAC
Bromomethane	EPA 8010	ug/kg	1.2	ND	02/15/89	MAC
Carbon Tetrachloride	EPA 8010	ug/kg	0.12	ND	02/15/89	MAC
Chlorobenzene	EPA 8010	ug/kg	0.25	ND	02/15/89	MAC
Chloroethane	EPA 8010	ug/kg	0.52	ND	02/15/89	MAC
2-Chloroethylvinyl Ether	EPA 8010	ug/kg	0.13	ND	02/15/89	MAC
Chloroform	EPA 8010	ug/kg	0.05	ND	02/15/89	MAC
Chloromethane	EPA 8010	ug/kg	0.08	ND	02/15/89	MAC
Dibromochloromethane	EPA 8010	ug/kg	0.09	ND	02/15/89	MAC
1,2-Dichlorobenzene	EPA 8010	ug/kg	0.15	ND	02/15/89	MAC
1,3-Dichlorobenzene	EPA 8010	ug/kg	0.32	ND	02/15/89	MAC
1,4-Dichlorobenzene	EPA 8010	ug/kg	0.24	ND	02/15/89	MAC
Dichlorodifluoromethane	EPA 8010	ug/kg	1.8	ND	02/15/89	MAC
1,1-Dichloroethane	EPA 8010	ug/kg	0.07	ND	02/15/89	MAC
1,2-Dichloroethane	EPA 8010	ug/kg	0.03	ND	02/15/89	MAC
1,1-Dichloroethene	EPA 8010	ug/kg	0.13	ND	02/15/89	MAC
Trans-1,2-Dichloroethene	EPA 8010	ug/kg	0.10	ND	02/15/89	MAC
1,2-Dichloropropane	EPA 8010	ug/kg	0.04	ND	02/15/89	MAC
c ,3-Dichloropropene	EPA 8010	ug/kg	0.34	ND	02/15/89	MAC
Trans-1,3-Dichloropropene	EPA 8010	ug/kg	0.34	ND	02/15/89	MAC

Signed Linda Davis

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/01/89
Page 2

Lab Number : 89-3124-14
Project No. : 54-8512

--- Test Data ---

Parameter	Method	Units	Det. Limit	Results	Test Date	Anal
-- ORGANIC ANALYSIS RESULTS --						
Methylene Chloride	EPA 8010	ug/kg	0.25	ND	02/15/89	MAC
1,1,2,2-Tetrachloroethane	EPA 8010	ug/kg	0.03	ND	02/15/89	MAC
Tetrachloroethene	EPA 8010	ug/kg	0.03	ND	02/15/89	MAC
1,1,1-Trichloroethane	EPA 8010	ug/kg	0.03	ND	02/15/89	MAC
1,1,2-Trichloroethane	EPA 8010	ug/kg	0.02	ND	02/15/89	MAC
Trichloroethene	EPA 8010	ug/kg	0.12	ND	02/15/89	MAC
Trichlorofluoromethane	EPA 8010	ug/kg	ND	ND	02/15/89	MAC
Vinyl Chloride	EPA 8010	ug/kg	0.18	ND	02/15/89	MAC
Benzene	EPA 8020	ug/kg	1	ND	02/15/89	MAC
Chlorobenzene	EPA 8020	ug/kg	1	ND	02/15/89	MAC
Ethylbenzene	EPA 8020	ug/kg	1	ND	02/15/89	MAC
Toluene	EPA 8020	ug/kg	1	ND	02/15/89	MAC
Xylenes	EPA 8020	ug/kg	1	ND	02/15/89	MAC

Signed Linda Harris

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/01/89
Page 1

--- Project Information ---

Lab Number : 89-3124-15
Project No. : 54-8512
Project Name : GE VIEQUES

Cust. No. :

Manager: WENDALL ROGERS

--- Sample Information ---

Station ID : SB-14 19.0'-20.5'
Matrix : SO
Type : GRAB
Collector : MV

Sampled Date/Time : 02/07/89 13:30
Received Date/Time : 02/09/89 11:05
Received From/By : KD/DP
Chain of Custody : 5220
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	Det. Limit	Results	Test Date	Analy
-- INORGANIC RESULTS --						
Cyanide, Total	EPA 9010	mg/kg	0.5	ND	02/22/89	JL
-- METALS RESULTS --						
Silver, Total	EPA 7760	mg/kg	3	ND	02/13/89	MC
Total Metals Prep: Solids	EPA 3050			N/A	02/10/89	HH

Signed Linda Hoium

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/01/89
Page 1

--- Project Information ---

Lab Number : 89-3124-16
Project No. : 54-8512
Project Name : GE VIEQUES

Cust. No. :

Manager: WENDALL ROGERS

--- Sample Information ---

Station ID : SB-18 1.5-3
Matrix : SO
Type : GRAB
Collector : MV

Sampled Date/Time : 02/06/89 14:10
Received Date/Time : 02/09/89 11:05
Received From/By : KD/DP
Chain of Custody : 5220
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	Det. Limit	Results	Test Date	Analy
-- INORGANIC RESULTS --						
Cyanide, Total	EPA 9010	mg/kg	0.5	ND	02/22/89	JL
-- METALS RESULTS --						
Silver, Total	EPA 7760	mg/kg	3	ND	02/13/89	MC
Total Metals Prep: Solids	EPA 3050			N/A	02/10/89	HH

Signed Linda Hamin

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/01/89
Page 1

--- Project Information ---

Lab Number : 89-3124-17
Project No. : 54-8512
Project Name : GE VIEQUES

Cust. No. :

Manager: WENDALL ROGERS

--- Sample Information ---

Station ID : SB-18 4-5.5
Matrix : SO
Type : GRAB
Collector : MV

Sampled Date/Time : 02/06/89 15:15
Received Date/Time : 02/09/89 11:05
Received From/By : KD/DP
Chain of Custody : 5220
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	Det. Limit	Results	Test Date	Analy
-- INORGANIC RESULTS --						
Cyanide, Total	EPA 9010	mg/kg	0.5	ND	02/22/89	JL
-- METALS RESULTS --						
Silver, Total	EPA 7760	mg/kg	3	ND	02/13/89	MC
Total Metals Prep: Solids	EPA 3050			N/A	02/10/89	HH

Signed Linda Hamir

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/01/89
Page 1

--- Project Information ---

Lab Number : 89-3124-18
Project No. : 54-8512
Project Name : GE VIEQUES

Cust. No. :

Manager: WENDALL ROGERS

--- Sample Information ---

Station ID : SB-18 6-7.5
Matrix : SO
Type : GRAB
Collector : MV

Sampled Date/Time : 02/06/89 15:20
Received Date/Time : 02/09/89 11:05
Received From/By : KD/DP
Chain of Custody : 5220
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	Det. Limit	Results	Test Date	Analy
-- INORGANIC RESULTS --						
Cyanide, Total	EPA 9010	mg/kg	0.5	ND	02/22/89	JL
-- METALS RESULTS --						
Silver, Total	EPA 7760	mg/kg	3	ND	02/13/89	MC
Total Metals Prep: Solids	EPA 3050			N/A	02/10/89	HH

Signed Linda Hamin

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/01/89
Page 1

--- Project Information ---

Lab Number : 89-3124-19
Project No. : 54-8512
Project Name : GE VIEQUES

Cust. No. :

Manager: WENDALL ROGERS

--- Sample Information ---

Station ID : SB-18 9-10.5
Matrix : SO
Type : GRAB
Collector : MV

Sampled Date/Time : 02/06/89 15:30
Received Date/Time : 02/09/89 11:05
Received From/By : KD/DP
Chain of Custody : 5220
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	Det. Limit	Results	Test Date	Analy
-- INORGANIC RESULTS --						
Cyanide, Total	EPA 9010	mg/kg	0.5	ND	02/22/89	JL
- METALS RESULTS --						
Silver, Total	EPA 7760	mg/kg	3	ND	02/13/89	MC
Total Metals Prep: Solids	EPA 3050			N/A	02/10/89	HH

Signed Linda Harris

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/01/89
Page 1

--- Project Information ---

Lab Number : 89-3124-20
Project No. : 54-8512
Project Name : GE VIEQUES

Cust. No. :

Manager: WENDALL ROGERS

--- Sample Information ---

Station ID : SB-18 14-15.5
Matrix : SO
Type : GRAB
Collector : MV

Sampled Date/Time : 02/06/89 15:40
Received Date/Time : 02/09/89 11:05
Received From/By : KD/DP
Chain of Custody : 5220
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	Det. Limit	Results	Test Date	Analy
-- INORGANIC RESULTS --						
Cyanide, Total	EPA 9010	mg/kg	0.5	ND	02/22/89	JL
-- METALS RESULTS --						
Silver, Total	EPA 7760	mg/kg	3	ND	02/13/89	MC
Total Metals Prep: Solids	EPA 3050			N/A	02/10/89	HH

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/01/89
Page 1

--- Project Information ---

Lab Number : 89-3124-21
Project No. : 54-8512
Project Name : GE VIEQUES

Cust. No. :

Manager: WENDALL ROGERS

--- Sample Information ---

Station ID : SB-19 1.5'-3.0'
Matrix : SO
Type : GRAB
Collector : MV

Sampled Date/Time : 02/07/89 09:20
Received Date/Time : 02/09/89 11:05
Received From/By : KD/DP
Chain of Custody : 5221
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	Det. Limit	Results	Test Date	Analy
-- INORGANIC RESULTS --						
Cyanide, Total	EPA 9010	mg/kg	0.5	ND	02/22/89	JL
- METALS RESULTS --						
Silver, Total	EPA 7760	mg/kg	3	ND	02/13/89	MC
Total Metals Prep: Solids	EPA 3050			N/A	02/10/89	HH

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/01/89
Page 1

--- Project Information ---

Lab Number : 89-3124-22
Project No. : 54-8512
Project Name : GE VIEQUES

Cust. No. :

Manager: WENDALL ROGERS

--- Sample Information ---

Station ID : SB-19 4.0'-5.5'
Matrix : SO
Type : GRAB
Collector : MV

Sampled Date/Time : 02/07/89 09:30
Received Date/Time : 02/09/89 11:05
Received From/By : KD/DP
Chain of Custody : 5221
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	Det. Limit	Results	Test Date	Analy
-- INORGANIC RESULTS --						
Cyanide, Total	EPA 9010	mg/kg	0.5	ND	02/22/89	JL
-- METALS RESULTS --						
Silver, Total	EPA 7760	mg/kg	3	ND	02/13/89	MC
Total Metals Prep: Solids	EPA 3050			N/A	02/10/89	HH

Signed Linda Haun

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/01/89
Page 1

--- Project Information ---

Lab Number : 89-3124-23
Project No. : 54-8512
Project Name : GE VIEQUES

Cust. No. :

Manager: WENDALL ROGERS

--- Sample Information ---

Station ID : SB-19 6.0'7.5'
Matrix : SO
Type : GRAB
Collector : MV

Sampled Date/Time : 02/07/89 09:40
Received Date/Time : 02/09/89 11:05
Received From/By : KD/DP
Chain of Custody : 5221
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	Det. Limit	Results	Test Date	Analy
-- INORGANIC RESULTS --						
Cyanide, Total	EPA 9010	mg/kg	0.5	ND	02/22/89	JL
-- METALS RESULTS --						
Silver, Total	EPA 7760	mg/kg	3	ND	02/13/89	MC
Total Metals Prep: Solids	EPA 3050			N/A	02/10/89	HH

Signed Linda Harris

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/01/89
Page 1

--- Project Information ---

Lab Number : 89-3124-24
Project No. : 54-8512
Project Name : GE VIEQUES

Cust. No. :

Manager: WENDALL ROGERS

--- Sample Information ---

Station ID : SB-19 9.0'-10.5'
Matrix : SO
Type : GRAB
Collector : MV

Sampled Date/Time : 02/07/89 09:50
Received Date/Time : 02/09/89 11:05
Received From/By : KD/DP
Chain of Custody : 5221
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	Det. Limit	Results	Test Date	Analy
-- INORGANIC RESULTS --						
Cyanide, Total	EPA 9010	mg/kg	0.5	ND	02/22/89	JL
-- METALS RESULTS --						
Silver, Total	EPA 7760	mg/kg	3	ND	02/13/89	MC
Total Metals Prep: Solids	EPA 3050			N/A	02/10/89	HH

Signed Linda Hain

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/01/89
Page 1

--- Project Information ---

Lab Number : 89-3124-25
Project No. : 54-8512
Project Name : GE VIEQUES

Cust. No. :

Manager: WENDALL ROGERS

--- Sample Information ---

Station ID : SB-19 14.0'-15.5'
Matrix : SO
Type : GRAB
Collector : MV

Sampled Date/Time : 02/07/89 10:00
Received Date/Time : 02/09/89 11:05
Received From/By : KD/DP
Chain of Custody : 5221
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	Det. Limit	Results	Test Date	Analy
-- INORGANIC RESULTS --						
Cyanide, Total	EPA 9010	mg/kg	0.5	ND	02/22/89	JL
-- METALS RESULTS --						
Silver, Total	EPA 7760	mg/kg	3	ND	02/13/89	MC
Total Metals Prep: Solids	EPA 3050			N/A	02/10/89	HH

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/02/89
Page 1

--- Project Information ---

Lab Number : 89-3124-26
Project No. : 54-8512
Project Name : GE VIEQUES

Cust. No. :

Manager: WENDALL ROGERS

--- Sample Information ---

Station ID : SB-19 19.0'-20.5'
Matrix : SO
Type : GRAB
Collector : MV

Sampled Date/Time : 02/07/89 10:05
Received Date/Time : 02/09/89 11:05
Received From/By : KD/DP
Chain of Custody : 5220
Number of Containers : 2

Remarks :

--- Test Data ---

Parameter	Method	Units	Det. Limit	Results	Test Date	Analy

Signed _____

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/01/89
Page 1

--- Project Information ---

Lab Number : 89-3124-27
Project No. : 54-8512
Project Name : GE VIEQUES

Cust. No. :

Manager: WENDALL ROGERS

--- Sample Information ---

Station ID : SB-24 1.5'-3.0'
Matrix : SO
Type : GRAB
Collector : MV

Sampled Date/Time : 02/07/89 08:00
Received Date/Time : 02/09/89 11:05
Received From/By : KD/DP
Chain of Custody : 5221
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	Det. Limit	Results	Test Date	Analy
-- INORGANIC RESULTS --						
Cyanide, Total	EPA 9010	mg/kg	0.5	ND	02/20/89	JL
-- METALS RESULTS --						
Silver, Total	EPA 7760	mg/kg	3	ND	02/13/89	MC
Total Metals Prep: Solids	EPA 3050			N/A	02/10/89	HH

Signed Linda Hamm

.W ENVIRONMENTAL, INC.
NATIONAL LABORATORY
112 TOWNPARK DRIVE
KENNESAW, GEORGIA 30144
(404) 421-3400

CHAIN OF CUSTODY RECORD

893124

5: 7

SAMPLING INFORMATION

NAME OF FACILITY: G.E. VIEQUES
STREET ADDRESS: P.O. Box 187 Km 2.3
CITY/STATE: ISLA VIEQUES, P.R. ZIP: 00765

PROJECT NAME: G.E. VIEQUES
JOB NO.: 54-8512
SAMPLERS (SIGNATURE):
SAMPLING DATE: 2/6/89

	TIME	GRAB	COMP.	SOURCE CODE*	SAMPLE STATION DESCRIPTION		TOTAL NO. OF CONTAINERS	CONTAINER TYPE: 40 ml/G ~~Na2S2O3~~ + 5 H2O	1 L G, P (HNO3)	1 L G, P (NaOH)	1 L G, P (H2SO4)	1 L G, P	1 L P, (NaOH + Ascorbic Acid)	1 L, Teflon	1 L G, P (Zn Acetate + NaOH)	8 oz. G, P	1 L G · Amber	1 L P · Opaque	250 ml/G · Amber
04	9:45	/		SO	SB-2 1.5-2.5	'	✓ 3	2						1					
06	10:10	/		SO	SB-2 6-7.5	'	✓ 3	2						1					
07	10:20	/		SO	SB-2 9-10.5	'	✓ 3	2						1					
08	10:30	/		SO	SB-2 14-15.5	'	✓ 3	2						1					
09	10:40	/		SO	SB-2 19-20.5	'	✓ 3	2						1					
01	12:45	/		SO	SB-1 1.5-3.0	"	✓ 4	2						2					
02	12:00	/		SO	SB-1 4-5.5	'	✓ 3	2						1					
03	1:40	/		SO	SB-1 6-7.5	'	✓ 3	2						1					
05	10:00	/		SO	SB-2 4-5.5	"	✓ 4	2						2					

RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)
Kenton Cross					
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					2-9-89 11:05

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REMARKS: Notify Tom Cross on Arrival

* SOURCE CODES:
RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL/SEDIMENT - SO
SLUDGE - SL
NPDES DISCHARGE - ND
DRINKING WATER - DW

N ENVIRONMENTAL, INC.
NATIONAL LABORATORY
112 TOWNPARK DRIVE
KENNESAW, GEORGIA 30144
(404) 421-3400

CHAIN OF CUSTODY .CORD

SAMPLING INFORMATION

NAME OF FACILITY: G.E Vieques
STREET ADDRESS: P.O Box 187 Km 2 H 3
CITY/STATE: Isla Vieques P.R ZIP: 00765

PROJECT NAME: G.E Vieques
JOB NO.: 54-8512
SAMPLERS (SIGNATURE): Miguel A Vázquez
SAMPLING DATE: 2-7-89

	TIME	GRAB	COMP.	SOURCE CODE*	SAMPLE STATION DESCRIPTION		TOTAL NO. OF CONTAINERS	40 ml/G ($Na_2S_2O_3 + 5H_2O$)	1 L G, P (HNO_3)	1 L G, P (NaOH)	1 L G, P (H_2SO_4)	1 L G, P	1 L P, (NaOH + Ascorbic Acid)	1 L, Teflon	1 L G, P (Zn Acetate + NaOH)	8 oz. G, P	1 L G · Amber	1 L P · Opaque	250 ml/G · Amber
20	(21) 8:00 AM	X		So	SB-24	1.5'-3.0' ✓	3	2						1					
9	(21) 9:20 am	X		So	SB-19	1.5'-3.0' ✓	3	2						1					
10	(22) 9:30 am	X		So	SB-19	4.0'-5.5' ✓	3	2						1					
11	(23) 9:40 am	X		So	SB-19	6.0'-7.5' ✓	3	2						1					
12	(24) 9:50 am	X		So	SB-19	9.0'-10.5' ✓	3	2						1					
13	(25) 10:00 am	X		So	SB-19	14.0'-15.5' ✓	3	2						1					
10	11:10 am	X		So	SB-14	1.5'-3.0' ✓	3	2						1					
11	11:15 am	X		So	SB-14	4.0'-5.5' ✓	3	2						1					
12	11:20 am	X		So	SB-14	6.0'-7.5' ✓	3	2						1					
13	11:30 am	X		So	SB-14	9.0'-10.5' ✓	3	2						1					
14	1:10 pm	X		So	SB-14	14.0'-15.5' ✓	3	2						1					

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REMARKS: Notify Tom Cross on Analysis

* SOURCE CODES:
RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL/SEDIMENT - SO
SLUDGE - SL
NPDES DISCHARGE - ND
DRINKING WATER - DW

.N ENVIRONMENTAL, INC.
NATIONAL LABORATORY
112 TOWNPARK DRIVE
KENNESAW, GEORGIA 30144
(404) 421-3400

CHAIN OF CUSTODY .CORD

52)

SAMPLING INFORMATION

NAME OF FACILITY: G.E. VIEQUES
STREET ADDRESS: P.O. Box 187 Km 2.3
CITY/STATE: ISLA VIEQUES, P.R. ZIP: 00765

PROJECT NAME: G.E. VIEQUES
JOB NO.: 54-8512
SAMPLERS (SIGNATURE): Miguel A Vázquez
SAMPLING DATE: 2/6/89

	TIME	GRAB	COMP.	SOURCE CODE*	SAMPLE STATION DESCRIPTION	TOTAL NO. OF CONTAINERS	CONTAINER TYPE: 40 ml/G (HCl, ~~H2SO3~~ + ~~5%H2O~~)	1 L G, P (HNO3)	1 L G, P (NaOH)	1 L G, P (H2SO4)	1 L G, P	1 L P, (NaOH + Ascorbic Acid)	1 L, Teflon	1 L G, P (Zn Acetate + NaOH)	8 oz. G, P	1 L G - Amber	1 L P - Opaque	250 ml/G - Amber
D	2:10	/		SO	SB-18 1.5'-3' ✓	3	2						1					
7	3:15	/		SO	SB-18 4-5.5' ✓	3	2						1					
18	3:20	/		SO	SB-18 6-7.5' ✓	3	2						1					
		~~/~~		~~SO~~	~~SB-18 9-10.5~~													
9	3:30	/		SO	SB-18 9-10.5' ✓	3	2						1					
10	3:40	/		SO	SB-18 14-15.5' ✓	3	2						1					
					* 2-7-89 *													
5	1:30pm	X		SO	SB-14 19.0'-20.5' ✓	3	2						1					
15	10:05am	X		SO	SB-19 19.0'-20.5' ?	2	2											

RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)
Kenth Cruz					
RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)	DATE/TIME	RECIEVED AT LABORATORY: (SIGNATURE)
					A Pena 2-9-89 11:10

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REMARKS: Notify Tom Cross on Arrival

* SOURCE CODES:
RECOVERY WELL - RW
RCRA MONITORING WELL - MW
SOIL/SEDIMENT - SO
SLUDGE - SL
NPDES DISCHARGE - ND
DRINKING WATER - DW

APPENDIX E

PETREX SOIL GAS SURVEY
STANDARD OPERATING PROCEDURES
(QA/QC)

GUIDE

To

PETREX ENVIRONMENTAL SURVEY
FIELD PROCEDURES

PREPARED FOR

Environmental Consultants Contracting
NERI Services

Prepared By

PETREX DIVISION of NERI

TABLE OF CONTENTS

I. OVERVIEW OF THE PETREX TECHNIQUE

Each Petrex passive soil gas sampler consists of twin collection elements rigidly housed in a resealable glass container under an inert atmosphere. The soil gas collection element is a metallic wire, having specific ferromagnetic characteristics, to the end of which is bonded a discrete amount of activated charcoal.

Soil gas sampling is performed by unsealing the sampler and exposing the collection elements to the atmosphere of the subsurface environment at the base of a shallow borehole. Sample collection proceeds via free vapor diffusion through the opening of the uncapped sampler container. VOC vapor is adsorbed directly to the exposed carbon. Following a controlled period of time, the sampler is retrieved from the borehole, resealed, and submitted for analysis.

Typically one collection element is subject to standard analysis and the twin collection element is archived in case additional analyses are requested. Standard analysis of each soil gas sample is performed via Thermal Desorption-Mass Spectrometry (TD-MS) which yields data in the form of numerical file categorizing by atomic weight the abundance of chemical compounds collected by each sampler. This information can be graphically represented as a mass spectrum. The relative abundance of a particular compound or compound group per sampling location can be presented on a scaled site sampling plan.

II. SURVEY INSTALLATION

A. Preparation

Start with the list "Field Materials Necessary for Installation." (See Appendix), it lists almost everything; more than you will probably need for any one particular job, but the utility of each item is worth considering.

B. Field Procedures

Each field geologist has his/her own way of doing things and the conditions of the field often demand additional modifications to one's routine. Thus, the following is only a description of procedures that have a direct effect on the integrity of the data and the overall quality of the survey.

On arriving for the first time on site, take the time to give the greater part of the study area a look-over. This will help plan out what special activities or materials survey installation may require (i.e., whether you will need access to an area presently locked-up, inventory moved, an extra extension cord, utilities plan, etc.)

Orientation: Often the north arrow on site plans is only approximate, or describes true north. To accurately determine the orientation of the survey grid in the field take some time to get a bearing on one or two "cultural" features of the site (i.e.: the wall of a building, the curb of a roadway) that is also present on your sample locations map, and determine its orientation with respect to magnetic north. (If you know the declination of the site and wish to base everything on true north, go ahead and convert, otherwise just use magnetic and make a note of it.) Caution: A Brunton pocket transit, or similar expensive compass, is a very sensitive instrument and is easily perturbed by local magnetic fields from power lines, machinery, and industrial activities. Next, on your sample location map, determine the proposed orientation of the sampler grid with respect to one of these cultural features. Use a protractor. From these two bearings combined, find the magnetic heading of the grid.

Then choose a reference point, one sample location that can be easily and accurately determined both on the map and on the ground. Establish the grid on this point and work off from it running +/-90° and backsighting 180° (see Appendix, Figure 1).

In an environment where you cannot use your compass or it is unnecessary, as inside a factory or industrial complex, it is usually a simple task to determine collector placement on the basis of permanent interior features such as aisles, columns, wall openings, etc.

Measuring distance: In many situations it is impractical if not impossible to use a tape measure, wheel or hip chain, especially over rugged terrain or obstructed floor space. Pacing is a remarkably accurate alternative. If you have not already done so, establish for yourself a comfortable, reproducible pace. Practice it a few times over a measured distance so that you become confident at measuring off distances by pace alone.

Take extensive field notes. This cannot be stressed enough. There is always the chance that you will not be available for survey retrieval and another geologist will have to rely heavily on written instructions to pinpoint less obvious sample locations. Some information is also useful for QA/QC. So make a note of everything. Always record date and approximate time of sampler installation, the number on the bag from which samplers were taken, groundcover at the sampling points (grass, bare soil, gravel, asphalt), distance and direction from previous sampling points, and relation to obvious site features or objects. Note secondary details too: physical conditions of the sampling area (sloping steeply to northwest, swampy,) soil character (compacted moist red clay, sandy loam) and any peculiarities such as discoloration of the ground, stressed vegetation, evidence of subsurface structures (tanks, pipes), and unusual odors. (See Exemplary Field Notes in the Appendix).

For purposes of documentation, it is useful at some point, usually at the beginning and end of each day, to record the date and time of entrance and exit into the field, project name, site location, prevailing weather conditions, and the names of people on-site: consultants, authorities, and field crew (including yourself).

Sinking bore holes: When sampling through soft, exposed ground, a NERI modified coring shovel can be used to create a shallow borehole suitable for sampler installation. When sampling throughout an area overlain by pavement or through dense, gravelly soil, NERI suggests using a heavy duty electric rotary hammer drill equipped with a 1 1/2 inch diameter, 18 inch long, tungsten carbide tipped (masonry) drill bit. In drilling through pavement, particularly asphalt, frequently brush away all dust, sand, and dirt from the mouth of the borehole. Try to drill downward in a steady uniform manner, disturbing the mouth and walls of the bore hole as little as possible. Upon reaching your finished depth and before removing the drill, completely brush all soil and debris away from the mouth of the hole. Pull the bit out of the hole carefully in an effort to keep dirt from shallower levels from falling to the bottom of the borehole.

Also, do not allow visible accumulations of soil from one sample location to be transferred on the drill bit or coring tool to the next location. In general, when installing samplers in any groundcover avoid allowing things from the surface and near surface from falling into the hole including leaves, roots, chips of asphalt, concrete, etc.

When installing collectors in a tended lawn, first use the chisel end of your hammer to chop out a round plug of sod. Lay the sod aside, sink your borehole, install the collector, backfill, and finally replace the sod plug, pressing it lightly into place. (See Appendix, Figures 3 and 4.)

Do not leave open any sampler boreholes. After digging or drilling any borehole even if the sampler is to be installed at a later time seal it over immediately with aluminum foil to reduce the possibility of contaminating materials or vapors entering the hole.

Handle samplers with clean hands/gloves. Be wary of gasoline or oil from the generator and hammer drill, spray paint, volatile substances from the environment, oily floors, tools, etc.

If samplers are to be installed below any type of pavement or in hard digging material, like gravel, you will need to attach a length of wire (approximately 24 inches) to each Petrex tube so that it can be pulled from its hole on retrieval without having to dig for it. The best material for this purpose is 16 or 18 gauge galvanized steel "guy" wire that has been heated in an oven for at least 2 hours at 150°C. To attach the wire wrap a turn of wire (near its end) around the mouth of the Petrex tube (cap in place) just above the threads where the bottle begins to widen. Twist the ends snugly. Bring the wire against the side of the tube and about halfway up make a 90° bend and wrap a full loop around the tube. Thread the free end beneath the origin of the loop and pull up and tight. (See Appendix, Figure 2.)

When actually installing the samplers the cap should be unscrewed and removed from the tube very near the mouth of the borehole. Be sure the black cap liner which actually creates the seal is also removed with the cap. The sampler (open end down) should then be lowered immediately into the hole.

With a wooden dowel or the handle of your hammer gently push the sampler down into the soil at the bottom of the hole.

Do not open a Petrex sampler directly in the wake of a passing vehicle. Allow exhausts and strong odors to first dissipate if possible.

Immediately after the sampler is in place, cap off the borehole at least with a tight aluminum foil plug. An aluminum foil plug is not an impenetrable cap. If there is a significant risk of contamination of a collector by atmospherics or tampering, consider capping it over with quick-plug cement (or soil, etc.) as soon as possible.

Be clean. Even if others that were there before have trashed the place, leave no mess. Use a broom and dust pan for cement dust and dirt, wire snippings, bits of flagging, aluminum foil, etc.

Flagging: A sample location is flagged solely to help direct returning field crew to its precise position. Often this object must be weighed against the risk of encouraging curiosity and, thus, tampering (especially in areas of public access), and generally creating an unsightly environment of orange and pink markings. Suggestions: use flagging materials sparingly, and in low profile (close to the ground), consider: lawn mower blades, adolescents, etc. Again, take accurate notes: X and Y distances from permanent objects.

To aid whoever performs sampler retrieval, try to be consistent in your placement of flagging. In particular, make a habit throughout sampler installation to always place stakes or pin flags the same distance and direction from the sampling point (e.g., 1 foot to the north).

In soft, diggable soil and at standard sampler placement depths a borehole containing a Petrex sampler may simply be backfilled with the material excavated in creating the hole. Sampler retrieval will then entail re-excavation in order to expose and firmly grasp the sampler tube.

In hard to dig materials such as gravel and frozen soil or sand or sediments that cave in easily and risk packing tightly, it is a good idea to place some sort of plug or cap of aluminum foil above the collector to keep backfilled and wall materials from completely repacking the hole.

A single square foot of foil is sufficient material for any one cap or plug. In shallow, large diameter boreholes, such as those made with a core shovel or core tube/hammer, a sheet of foil can be folded in a 6 inch square and pressed into the mouth of the hole to about 1/4 the way down to form a concave cap (see Figure 4).

Where a sampler has been rigged with retrieval wire and installed in a narrow borehole, such as that made with a hammer drill, it is often best to stuff the hole above the sampler with several loose foil plugs. Crumple a sheet of aluminum foil into a loosely made ball 2 to 3 inches in diameter. Then roll the ball between both hands, like modelling clay, to form a cylinder the diameter of the hole. This plug and one or two others, nearly filling the hole, will prevent the walls from caving in for most of its length. A cap of a few inches of soil will finish it off well.

A borehole through paving is always capped with hydraulic cement. Commonly called "anchor cement" or "fast-plug" this material expands in the process of setting, sets firmly in 5 to 15 minutes, and cures within 1 to 2 hours. This material forms a tight seal in contact with pavement and keeps surface run-off or ponded water from leaking into the borehole and possibly influencing the sampling process. To prevent the cement slurry from flowing downward and cementing the sampler in place, the hole should first be plugged tightly with a ball of aluminum foil. Tap a ball of foil into the hole with your hammer, 1/2 to 1 inch down is sufficient. Simply be sure the foil ball contacts the wall of the bore hole around its full perimeter, otherwise fresh cement will seep past. (See Appendix, Figure 5).

On completing the installation of a survey and before leaving the site, go over your notes and field map(s). Correlate the information present in both. Check-off each sampling location and see that any notes about sampling locations or modifications to the grid are complete.

Now is also the best time to take grab samples, if needed.

C. Decontamination

Where there is a risk of contacting contaminants during sampler installation either in a free phase or borne by soil or water, all tools which contact soil media (such as a core shovel or drill bit) should be decontaminated between use at each sampling location.

Decontamination should be performed following these three basic steps:

1. Scrub the tool with a bristle brush in a laboratory grade detergent solution;

2. Rinse the tool thoroughly with potable water; and

3. Allow the tool to dry completely in open air.

Rinsing the tool a second time with analytical grade methyl alcohol is an optional step and is useful in cleansing the tool of traces of petroleum hydrocarbons and in speeding air drying, particularly in humid environments.

Always dispose of detergent solutions and rinse water with consideration as to the contaminants they may have accumulated.

D. Time Tests

A Petrex passive soil gas survey is typically in the field anywhere from one to four weeks before retrieval. The length of the field exposure period depends on the rate at which a significant portion of survey samplers become "loaded". Ideally, "loaded" implies a high level of adsorbed VOC vapor yet less than a level which would saturate the sampler by filling-up all available adsorption sites. For instance, should conditions at a site combine to produce a high VOC soil gas flux rate, survey samplers, in principle, would load rapidly and a total exposure time of two weeks or less would most likely be in order. Conversely, the VOC flux in the soil gas across a study area may be low overall in which case three to four weeks would be necessary for the majority of samplers to collect an adequate level of contaminant vapor.

To assess the loading rate of a particular study area a number of Petrex samplers are installed on site strictly for time calibration. These "time tests" are installed at given survey grid points (usually 5 per survey) where contaminant flux is expected to be highest. A time test location consists of one survey sampler dedicated to providing data by which the site will be evaluated and two time calibration samplers, installed concurrently, each in its own borehole, separated 1 to 2 feet from its neighbors. A rough triangular array is usually best for ease of future identification. It is a good idea to install all time tests at the start of the survey so that they can get working right away and all at the same time. Then approximately one and two weeks after installation the first and second weeks' (respectively) time calibration samplers are retrieved and shipped overnight to NERI for analysis.

Usually, NERI will be able to report the state of sampler loading within 24 hours of receiving the time calibration samplers in the laboratory.

E. Triplicate Samplers

Each bag of 25 Petrex samplers typically contains 2 to 4 samplers which possess three soil gas collection elements (or "wires") instead of the usual two. One of the three wires in each of these triplicate wire samplers is sacrificed-by the mass spectrometer operator to determine the optimal level of signal amplifier gain at which to analyze the entire lot of samplers.

So that these triplicate samplers are representative of the full range of VOC flux intensity encountered on-site, make a conscious effort to install them at sampling points in the field where you expect to encounter both high level and low level contaminant flux (such as in suspected source areas and at points distant and downgradient of source areas).

F. Travel Blanks

Beside laboratory blanks and internal QC checks, Petrex standard operating procedures require the use of Petrex sampler travel blanks. Petrex sampler travel blanks should be procured in the field by withholding from use one sampler selected at random from each bag of samplers (i.e., for a survey requiring a total of 65 samplers, 3 blank samplers would be chosen: one from each of the two bags of 25 samplers and one from the bag containing the 15 remaining samplers).

Blank samplers should be kept undisturbed in the Zip-loc bags and packing materials in which they were originally shipped. The cap and liner sealing the blank samplers should not be removed or loosened at any time. Blank samplers should be stored in a secure place during Petrex survey field exposure and shipped back to the analytical laboratory accompanying the samplers exposed in the field.

G. On Returning

Upon completion of sampler installation, it is important for the consultant to provide NERI with an accurate site map displaying the location of all sampling points and with each sampling point correctly numbered (as illustrated in Figure 8). This map should also contain all features (clearly labeled) to which results may conveniently be referenced.

All maps must display a north arrow and bar scale. NERI will use this map for data presentation in both draft and final forms. Note: the more accurate and detailed the map, the more thorough an evaluation of the data that can be provided.

III. SURVEY RETRIEVAL

A. Preparation

Prepare by consulting "Materials Used in Retrieval" (see Appendix) to help in bringing together and packaging all the things you will need. Remember that while everything else can be purchased on-site or improvised, sampler caps, field map(s), field notes, and extra, clean, empty Petrex tubes to replace those broken in the field are indispensable. Also, count the number of sampler caps yielded by sampler installation (you should have one for each sampler in the field). Make sure each cap contains a black viton liner. Any shortages should be remedied before sampler retrieval. Organize and bundle together all caps and travel blanks in clean Zip-loc bags in preparation for returning to the field.

B. Field Procedures

Survey retrieval is less equipment intensive and can typically be accomplished in half the time it takes to perform an installation. However, proper procedures and attention to detail are no less critical.

Particular attention must be given to: Avoiding contamination in excavating, sealing, and packaging the samplers; maintaining clear, unambiguous and orderly sample numbering and record keeping, and accurately recording significant observations.

Try to retrieve samplers in the order in which they were installed. The larger the survey the more significant this becomes in assuring uniform field exposure.

Even before entering the field you can at least fill out a sheet of labels with sample numbers 1 through __, and if it is going to rain while in the field you can also affix a label to each cap to avoid having to handle each label with cold, wet fingers. Tip: standard ball point pen is very water resistant compared to most other markers and is thus ideal for labeling.

On arriving at each sampling location and before beginning to excavate the sampler, procure one sampler cap (with clean black viton liner in place) and a handi-wipe and place them within quick, easy reach so that there is no searching or fumbling for them when needed.

Ideally, the aim of one's actions in the retrieval process is to cause the least disturbance to, and contamination of, the atmosphere within the sampler tube while removing the sampler from the environment of the borehole. The key to this is swift, fluid action. Always maintain the sampler in an open-end-down position and handle it with hands clean of potential accumulations of volatile materials (oils, pine tar, etc.). If the sampler has been wrapped with retrieval wire, snip it off completely. Then, thoroughly clean soil away from the threads and lip of the bottle with a clean cloth used solely for this purpose (and changed, as conditions demand). Screw the cap on firmly until you feel and hear the lip of the tube seal against the gasket at the base of the cap. No need to strain or twist very hard or you risk breaking the tube and injuring yourself. Visually inspect the contact between the tube and gasket to ensure that the seal is uniform and unobstructed.

If the mouth of the sampler is clogged with soil when it is first removed from the borehole, tap the sampler gently against the side of your boot. If this does not shake it loose, gently dig out the greater part of the plug with a clean knife blade, or whatever is available, without disturbing the adsorption elements. Then quickly wipe off the threads and lip and screw on the cap.

If the sampler should break during retrieval, transfer the wires from the broken tube, with forceps, to a clean empty Petrex tube. Make note of this in field notes, and later, on the sample submittal form.

Next step: Label. If the cap does not already carry the numbered label, press it on firmly to the top of the cap, especially firmly around the edges. Labels often exhibit poor adhesion if 1) the top of the cap is wet or moist, and 2) the cap is cold. Either way, first vigorously rubbing the top of the cap against warm, dry clothing will usually remedy the situation.

Before stowing the sealed sampler back in the Zip-loc bag with the others, be sure the exterior of the tube is relatively clean of sand and clay, water and oils, etc. There is no reason to introduce surplus potential contaminants to the bag of samples or cause the mass spec operator to get his work station dirty.

After retrieval, check-off the location on the map and mark it down in the notebook that sample number so and so was retrieved. Circling the sample number entry in the book with red ink and adding brief comments to the margin, such as "H_2O at bttm" or "broken tube, wire transferred," or "missing", etc., where applicable, is sufficient.

Fill-in and cover the borehole. Where samplers have been installed through pavement this is a must. Fill the hole with whatever is at hand, sand, gravel, etc. and finish-off to grade with a thick plug of hydraulic cement or asphalt patch. Make it look good, smooth, finished, as often these locations are noticeable for a long time to come.

Sampling through bare soil or overgrown terrain, i.e., woods, landfills, back lots, roughly filling in the excavation with loose soil and debris is adequate in most instances. However, in instances where appearance or surface integrity is important (as in lawns and landfill caps) be prepared to fill up and top off the boring with sand or the local soil. Where there is grass or vegetation replace the "divet".

Lastly, collect all flagging materials (although in overgrown areas you may wish to leave some markings at each location to help navigating from point to point until all samplers have been retrieved.)

After all samplers have been retrieved and before leaving the site, take a moment to look over the field map and notebook and check to see that every sampler is accounted for and that all observations have been recorded, that you feel are significant, concerning the condition of the site or specific locations. Also, consider last minute measurements for the accurate mapping of significant features, grab samples of soil, water, site specific chemical compounds, and mixtures.

C. Petrex Sample Labelling and Sample Submittal

In the field, Petrex samplers should be labeled one by one the moment they are retrieved and resealed. A small, self-adhesive label with the appropriate sample location number should be affixed to the clean, dry, upper surface of the blue cap. Be sure to underline the number written on the label, Example: 16

The numbering system of an entire survey (even those surveys composed of several isolated survey areas) should be sequential starting at 1 and ending with the highest sample location number. Adhere strictly to the numbering system of the sample location map. No number should be repeated. No number should be written illegibly.

As a sample is retrieved and labeled, circle the location number on the field map and in your field notes (preferably in red ink) and record any pertinent observations (i.e., triplicate; H_2O at bttm of hole; sample tampered with; tube broken on recovery, wires transferred immediately to spare tube; etc.).

Once all survey samplers have been retrieved travel blanks may be labeled.

Label travel blanks in sequential order, with single numbers starting-up where the last sampler retrieved from the field left off. For instance, for a survey consisting of 60 Petrex samplers, the first travel blank is labeled 61, the second blank 62, etc.

Lastly, fill out a sample submittal form. (See example form in Appendix.)

D. Shipping Petrex Samples

After all samplers are labeled and accounted for, they should be packaged for shipping.

Package and ship all samplers to NERI in Lakewood, Colorado in the same fashion they had been sent to you, i.e., in orderly clusters of 20 to 25, sealed in a heavy gauge Zip-loc bag (squeezing out all the air possible) and wrapped in numerous turns of bubble wrap. Tape each bundle securely with masking tape: around its girth and across its ends. A bundle of samplers wrapped tightly enough so as not to rattle when shaken, may be shipped with the least risk of breakage.

Do not use crumpled newspaper or rubber or plastic foam packing (including styrofoam pellets). These materials continuously release petroleum hydrocarbons, CFC's, resins, and plasticizers which may contaminate the soil gas samples.

Choose a clean sturdy cardboard box to ship the bundled samplers in; one that has not begun to lose its rigidity. Place several layers of bubble wrap between the collector bundles and the inside walls of the box. Do not over-stuff the box with collectors, better struggle with two boxes than with one large one with a couple of shattered tubes inside.

Include the sample submittal form and Chain of Custody with the samplers being shipped.

Tape the box up well with packing tape. Cover all seams, top and bottom.

Samplers should always be shipped via <u>overnight</u> courier (e.g., Federal Express Priority One) to avoid subjecting them to uncontrolled, possibly contaminating environments for greater than 24 hours. If the weekend is approaching and "overnight" entails an extra day or two day hold-over before delivery on Monday morning, do not ship the samples out until the beginning of the week. In the interim stow the boxed-up samplers in a place where you know they will be safe (preferably in a no-smoking area).

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COMPOUNDS DETECTABLE WITH PETREX SAMPLERS

The following compounds have been detected in soil gas with PETREX collectors and identified by mass spectrometry. Verification was obtained from duplicate PETREX collectors using GC/MS or other qualitative analytical instrumentation.

Most volatile compounds are detectable from ground water sources. Semi-volatiles and the most soluble of volatiles may be detectable only from shallow ground water or vadose zone sources. The following list is intended for use as a guide to developing environmental strategies. It should not be applied to specific sites and situations without advice from Northeast Research Institute (NERI) personnel.

AROMATIC HYDROCARBONS *(Benzene-Based)*

All aromatic hydrocarbons from C_6 (Benzene) to C_{12} (e.g., C_6 Alkyl Benzene) – including specifically identified:

- Benzene
- Toluene
- Xylenes
- Ethyl methyl benzene
- Ethyl benzene
- Trimethyl benzenes
- Propyl benzenes

ALKANES *(Aliphatics/Paraffins)*

All alkane hydrocarbons from C_4 (Butane) to C_{16} (Pentadecanes), C_2 (Ethane), alkanes with various alkyl groups attached, and all cycloalkanes with various alkyl groups attached – including specifically identified:

- Ethane
- Butanes
- Pentanes
- Hexanes
- Heptanes
- Octanes
- Nonanes
- Decanes
- Undecanes
- Dodecanes
- Tridecanes
- Octadecanes
- Cyclopropane
- Cyclobutanes
- Cyclopentanes
- Cyclohexanes
- Cycloheptanes
- Cyclo-octanes
- Cyclononanes
- Cyclodecanes
- Octyl cyclopropane
- Methyl cyclopentane
- Methyl proply cyclopentane
- Methyl hexane
- Trimethyl hexane
- Methyl cyclohexane
- Trimethyl cyclohexane
- Ethyl methyl cyclohexane
- Ethyl methylethyl cyclohexane
- Methyl octa decane
- Dimethyl heptane
- Dimethyl octane
- Ethyl methyl octane
- Dimethyl undecane

ALKENES *(Olefins)*

All alkenes from C_3 (Propylene) to C_{16} (Pentadecene), alkenes with various alkyl and other hydrocarbon groups attached, and C_4 to C_{16} cycloalkenes including those with various alkyl groups and other hydrocarbons attached – including specifically identified:

- Ethylene
- Propylene
- Butenes
- Pentenes
- Hexenes
- Heptenes
- Octenes
- Nonenes
- Decenes
- Cyclobutene
- Cyclopentene
- Cyclohexene
- Cycloheptene
- Cyclo octene
- Cyclononene
- Cyclodecene
- Methyl pentene
- Methyl cyclohexene

ALKYNES Alkynes from C_4 to C_{14}

DIENES Dienes from C_4 to C_{14}

STYRENES Styrene, Methyl styrene, and C_2 to C_4 styrenes

VOLATILE HALOGENATED COMPOUNDS

Vinyl chloride°
Chloromethane
Methylene chloride°
Chloroform
Carbon tetrachloride
Chloroethane
Dichloroethanes
Trichloroethanes
Tetrachloroethanes
Dichloropropanes
Dichloroethenes
Trichloroethene
Tetrachloroethene
Dichloropropene
Trichloropropene
Chlorobenzene
Chlorotoluene
Dichlorodifluoromethane
Trichlorofluoromethane
Bromoform
Dibromoethane
Bromodichloromethane
Dibromochloromethane
Bromodichloropropane

° *Compounds exhibiting a low affinity to activated carbon*

SEMI-VOLATILE ORGANICS

Hexachloroethane
Hexachlorocyclohexane
Hexachlorobutadiene
Hexachloropentadiene
Dichlorobenzenes
Tetrachlorobenzene
Hexachlorobenzene
Dibromochloropropane
Phenol
Methyl phenol
C_2 - C_3 phenols
Naphthalene
Methyl naphthalenes
C_2 - C_4 Naphthalenes
Chlorophenols
Chloronaphthalenes
Chlorobenzotrifluoride
Dichlorobenzotrifluoride
Trichlorobenzotrifluoride
Nitrobenzene
Nitrotoluene
Dinitrotoluene
Anthracene
Phenanthrene
Acenaphthalene

SULPHUR COMPOUNDS

Hydrogen Sulfide
Sulfur Dioxide
Carbon Disulfide
Carbonyl Sulfide

OTHER DETECTABLE COMPOUNDS

Ethanol
Methoxyethanol
Propanol
Butanol
Dimethyl Butanol
Hexanol
Nonanol
MEK
Butanone
Methyl Butanone
Hexanone
Methyl Hexanone
Tricosanone
Alcenyde
Benzaldehyde
Acetaldehyde

MIXTURES

The PETREX Technique can detect and characterize fresh and aged hydrocarbon mixtures including:

Gasolines (leaded/unleaded)
Diesel fuels
Jet fuels (JP4/JP5)
Aviation gasoline
White gasoline
Hydraulic fluids
Lubricants (light oils to greases)
Cutting oils
Coolants
Sesame oils
Creosotes

PETREX ENVIRONMENTAL SURVEY
Chain of Custody Document

Job Number_____ (Please refer to this job number with all correspondence and shipments)

FIELD DATA:
Facility_____

Location_____

_____

Field Manager_____Phone_____

PYMS LAB DATA: GC/MS LAB DATA:

Instrument_____ _____

Operator_____ _____

Phone_____ _____

Sample Nos._____ _____

SAMPLE DATA:

Number of Samples_____
Date Shipped to Field_____
Date Received in Field_____
Condition as Recd. in Field_____
Received By_____
Date Shipped from Field_____
Date Received from Field_____
Conditions as Recd. in Lab_____
_____
Number Received_____
Received By_____

SAMPLE TRANSFER DATA:

Relinquished By:	Relinquished To:	Date:	Time:	Reason:
1.				
2.				
3.				
4.				
5.				
6.				

Please, return with samples when pickup is complete.

SAMPLE SUBMITTAL FORM

NERI PROJECT NUMBER: _____ DATE: _____

NERI PROJECT MANAGER: _____

1) TOTAL NUMBER OF TUBES ENCLOSED: _____

2) GREATEST SAMPLE NUMBER: _____

3) MISSING SAMPLE NUMBERS: _____

4) DATE SHIPPED FROM FIELD: _____

5) TRAVEL BLANKS: _____

6) NOTES: _____

SHIP TO:
NERI-WEST, ATIN: LAB DIRECTOR
605 PARFET STREET, SUITE 100
LAKEWOOD, COLORADO 80215-5518
(303) 238-0090

LAB USE ONLY

7) REPLICATE SAMPLES: _____

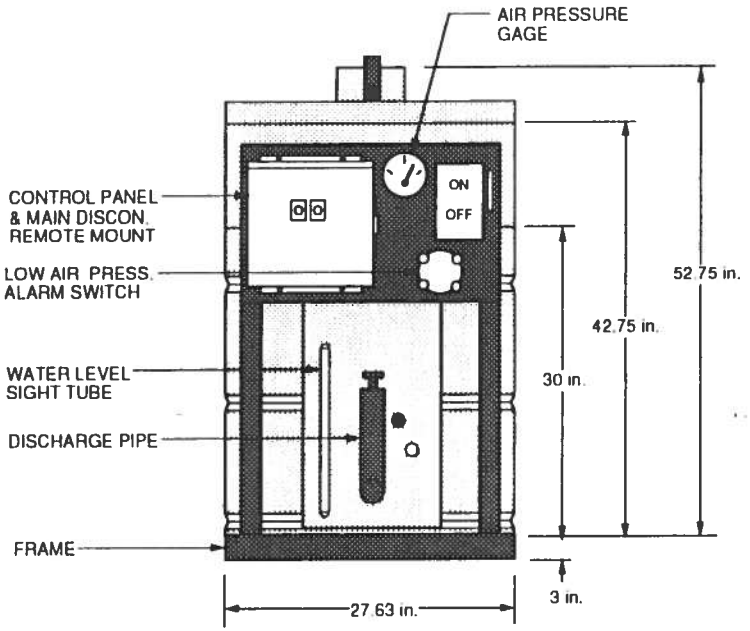
8) LAB NOTES: _____

9) QA/QC BATCH NUMBERS: _____

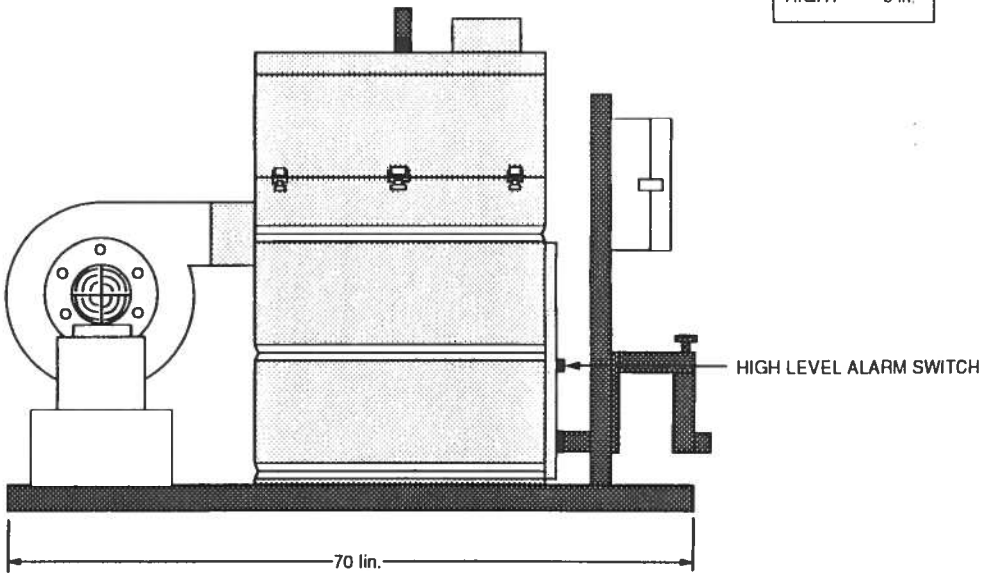
APPENDIX F

ENGINEER CUT-SHEET LOW-PROFILE AIR STRIPPER

FRONT



LEFT SIDE



MINIMUM CLEARANCE

FRONT	1.5 ft
TOP	34 in.
REAR	1 ft.
LEFT	6 in.
RIGHT	6 in.

BASIC SYSTEM

- ✓ SUMP TANK
- ✓ AERATION TRAYS
- ✓ BLOWER
- ✓ DEMISTER PAD
- ✓ PIPING
- ✓ SPRAY NOZZLE
- ✓ WATER LEVEL SIGHT TUBE
- ✓ GASKETS
- ✓ LATCHES

OPTIONAL ITEMS

- ✓ FRAME
- ___ DISCHARGE PUMP
- ___ FEED PUMP
- ___ ADDITIONAL BLOWER
- ___ EXP MOTORS
- ___ BLOWER START/STOP PANEL
- ✓ CONTROL PANEL
- ✓ MAIN DISCONNECT SWITCH
- ___ IS COMPONENTS/REMOTE MOUNT
- ✓ INTERMITTENT OPERATION
- ___ STROBE LIGHT
- ___ ALARM HORN
- ✓ LOW AIR PRESSURE ALARM SWITCH
- ✓ HIGH WATER LEVEL ALARM SWITCH
- ___ DISCHARGE PUMP LEVEL SWITCH
- ___ WATER PRESSURE GAGES
- ___ DIGITAL WATER FLOW INDICATOR
- ___ AIR FLOW METER
- ___ TEMPERATURE GAGES
- ___ LINE SAMPLING PORTS
- ___ AIR BLOWER SILENCER
- ___ WASHER WAND
- ___ AUTO DIALER

NOTES:

1. DRAWING REPRESENTS A UNIT TYPICAL TO THE SPECIFICATIONS YOU REQUESTED. MINOR CHANGES MAY RESULT IN THE MANUFACTURING PROCESS.
2. OPTIONAL ITEMS ARE SHIPPED 'LOOSE' EXCEPT WHEN A FRAME IS SUPPLIED BY N.E.E.P.

CONNECTION INFORMATION

ITEM	SIZE
GRAVITY DISCHARGE	2 in. Ø FEMALE SLIP JOINT, PVC80
DISCHARGE PUMP	1-1/4 in. Ø FEMALE SLIP JOINT, PVC80
WATER INLET	1-1/4 in. Ø FEMALE SLIP JOINT, PVC80
AIR EXHAUST NOZZLE	8 in. Ø FLANGE

POWER: 1Ø, 230 volts, 3 WIRE and GROUND

*CONSULT N.E.E.P. FOR AMPACITIES AND OTHER VOLTAGE OPTIONS