

Vieques
COAG



Edward Kolodziej
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March 4, 2005

Jean Robert Jean
RCRA Programs – Caribbean Branch
U.S. Environmental Protection Agency, Region II
290 Broadway – 22nd Floor
New York, NY 10007-1866

Re: Certification of Closure Plan Implementation
GE Vieques Facility, Puerto Rico
EPA ID Number: PRD000692582

Dear Mr. Robert Jean:

As requested in your October 22, 2004, letter and as we discussed on February 17, 2005, attached is a Certification of the implementation of the soil gas survey and groundwater monitoring activities related to the closed leach field and sediment tank at the subject facility. These activities were specified in the Amendment to the Closure Plan, dated March 1994. Also attached in support of this Certification is a list of documents demonstrating completion of these activities, and a site map that shows the location of the closed leach field and sediment tank and recent water level monitoring results.

We understand that, with the acceptance of this Certification, the General Electric Company (GE) has fulfilled its obligations under the RCRA program with respect to the leach field and sediment tank and that EPA will provide a letter to confirm the fulfillment of these obligations. GE will continue to investigate the presence of trichloroethene (TCE) in groundwater at the site under a separate workplan.

Please contact me if there are any questions.

Regards,


Edward Kolodziej
Remedial Project Manager

cc: Dale Carpenter, EPA
Osvaldo I. Fantauzzi, PR EQB
Francisco Lopez, PRIDCO

Attachments:
Closure Certification Statement
Attachment A - Document List
Figure 1 - Site Map

CLOSURE CERTIFICATION STATEMENT FOR CARIBE GENERAL ELECTRIC DISTRIBUTION TRANSFORMERS, INC., VIEQUES, PR

Facility Name: Caribe General Electric Distribution Transformers, Inc., Vieques, Puerto Rico

USEPA Identification Number: PRD000692582

Name of Unit(s) Being Closed: Former leach field, former sediment tank

The hazardous waste management unit(s) identified above has/have been closed in accordance with the specifications in an approved closure plan (certified in 1991) and subsequent amendment of the approved closure plan in 1994. The closure plan was amended in 1994 to include a soil gas survey and installation and sampling of additional monitoring wells. A list of the documents demonstrating that the soil gas survey and additional monitoring well installation and sampling have been completed is attached. This supplemental work is the subject of this certification.

I certify under penalty of law that this document and all attachments were prepared in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Edward Kolodziej : 4 Mar 2005
Signature of Owner/Operator Date
by General Electric Company
on behalf of Caribe General Electric
Distribution Transformers, Inc.

Edward Kolodziej, P.G., Remedial Project Manager
Name and Title of Responsible Official

Carl F. Bender 3/3/05
Signature of Licensed P.E. Date

Carl F. Bender, P.E. PA-23714-E
Name of Licensed P.E. and License No.

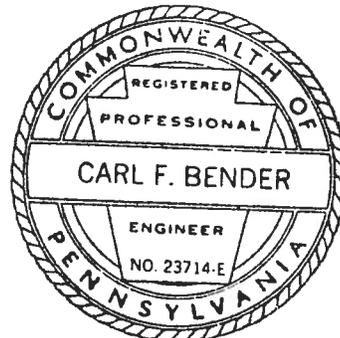
Mailing Address of P.E.:

Licensed P.E.'s Seal:

N.A. Water Systems, LLC

250 Airside Drive

Moon Township, PA 15108



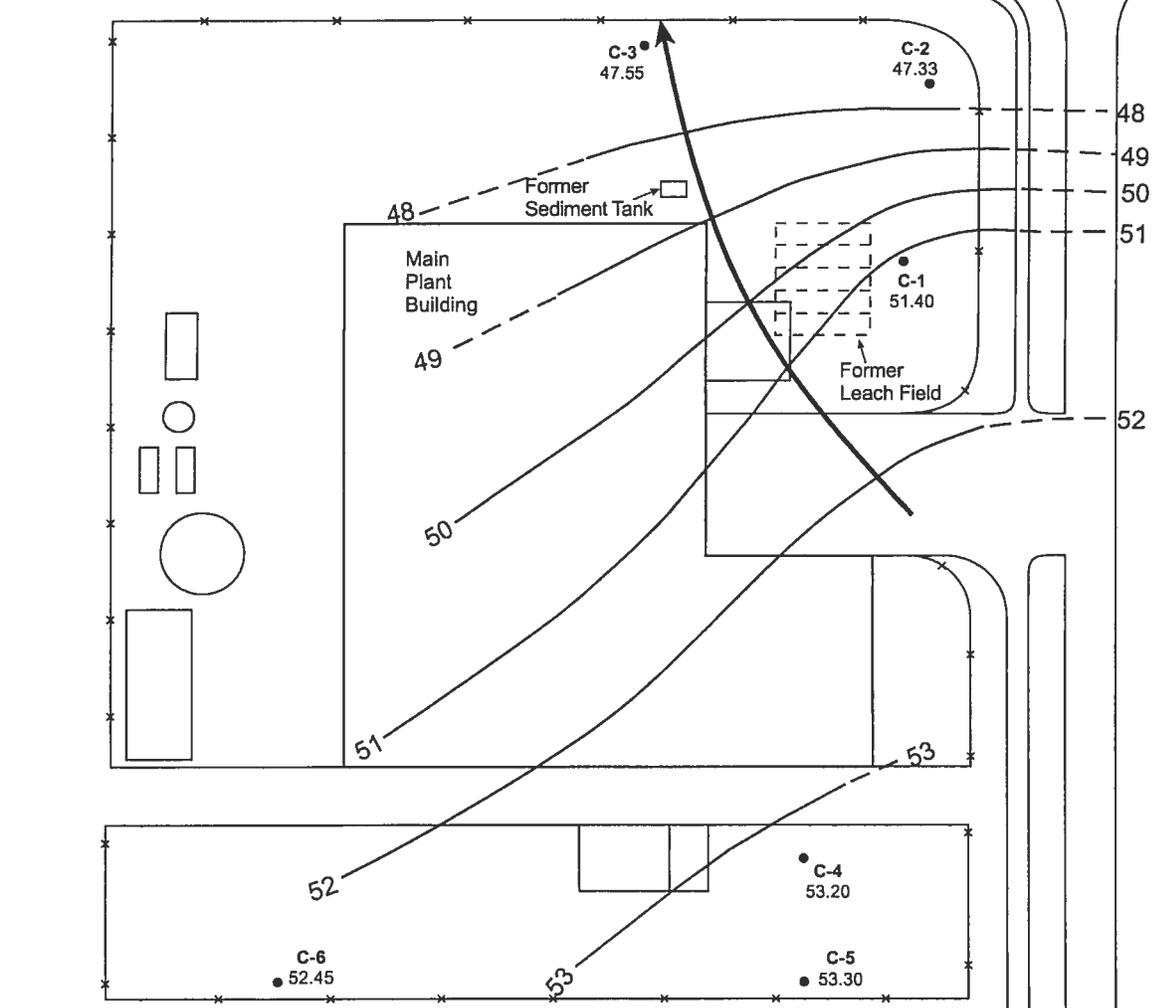
Attachment A Document List

The following documents have been submitted to EPA by General Electric to demonstrate completion of the soil gas survey and additional monitoring well installation and sampling required by the 1994 Amendment to the Closure Plan.

1. Analytical Results, First Semiannual Groundwater Sampling Event, Caribe General Electric Distribution Transformers, Inc., Vieques, Puerto Rico. Canonie Environmental Services Corp., September 1993.
2. Analytical Results, Second Semiannual Groundwater Sampling Event, Caribe General Electric Distribution Transformers, Inc., Vieques, Puerto Rico. Canonie Environmental Services Corp., March 1994.
3. Analytical Results, Third Semiannual Groundwater Sampling Event, Caribe General Electric Distribution Transformers, Inc., Vieques, Puerto Rico. Canonie Environmental Services Corp., November 1994.
4. Soil Gas Survey Report, Caribe General Electric Distribution Transformers, Inc. Vieques, Puerto Rico. Canonie Environmental Services Corp., November 1994.
5. Analytical Results, Fourth Semiannual Groundwater Sampling Event, Caribe General Electric Distribution Transformers, Inc., Vieques, Puerto Rico. Canonie Environmental Services Corp., February 1995.
6. Analytical Results, Fifth Semiannual Groundwater Sampling Event, Caribe General Electric Distribution Transformers, Inc., Vieques, Puerto Rico. Smith Environmental Technologies Corporation, August 1995.
7. Analytical Results, Sixth Semi-annual Ground Water Sampling Event Caribe General Electric Distribution Transformers, Inc., Vieques, Puerto Rico. Nittany Geoscience, Inc., March 1996.
8. Summary and Interpretation of Existing Information for Caribe General Electric Vieques, Puerto Rico, Plant. Nittany Geoscience, Inc., October 1996.
9. Analytical Results, Seventh Semi-annual Ground Water Sampling Event, Caribe General Electric Distribution Transformers, Inc., Vieques, Puerto Rico. Nittany Geoscience, Inc., December 1996.
10. Analytical Results, Eighth Semi-annual Ground Water Sampling Event Caribe General Electric Distribution Transformers, Inc., Vieques, Puerto Rico. Nittany Geoscience, Inc., April 1997.
11. Analytical Results, Ninth Semi-annual Ground Water Sampling Event Caribe General Electric Distribution Transformers, Inc. Vieques, Puerto Rico, Nittany Geoscience, Inc., August 1997.

12. Analytical Results, Tenth Semi-annual Groundwater Sampling Event Caribe General Electric Distribution Transformers, Inc., Vieques, Puerto Rico, Nittany Geoscience, Inc., May 1998
13. Analytical Results, Eleventh Semi-annual Groundwater Sampling Event Caribe General Electric Distribution Transformers, Inc., Vieques, Puerto Rico. Nittany Geoscience, Inc., September 1998.
14. Twelfth Semi-annual Groundwater Sampling Event Analytical Results, Caribe General Electric Distribution Transformers, Inc., Vieques, Puerto Rico. USFilter Operating Services, Inc., May 1999.
15. Thirteenth Semi-annual Groundwater Sampling Event Analytical Results, Caribe General Electric Distribution Transformers, Inc., Vieques, Puerto Rico, USFilter Operating Services, Inc., October 1999.
16. Fourteenth Semi-annual Groundwater Sampling Event Analytical Results, Caribe General Electric Distribution Transformers, Inc., Vieques, Puerto Rico, USFilter Engineering & Construction, August 2000.
17. Fifteenth Semi-annual Groundwater Sampling Event Results, Caribe General Electric Distribution Transformers, Inc., Vieques, Puerto Rico. USFilter Engineering & Construction, December 2000.
18. Sixteenth Semi-annual Groundwater Sampling Event Analytical Results, Caribe General Electric Distribution Transformers, Inc., Vieques, Puerto Rico. USFilter Engineering & Construction, August 2001.
19. Seventeenth Semi-annual Groundwater Sampling Event Analytical Results, Caribe General Electric Distribution Transformers, Inc., Vieques, Puerto Rico. USFilter Engineering & Construction, April 2002.
20. Eighteenth Semi-annual Groundwater Sampling Event Analytical Results, Caribe General Electric Distribution Transformers, Inc., Vieques, Puerto Rico. USFilter Engineering & Construction, August 2002.
21. GE-Vieques Monitoring Well Installation Workplan, Vieques, Puerto Rico. USFilter Engineering & Construction, August 2002.
22. Letter to Timothy Gordon (USEPA) regarding GE-Vieques Monitoring Well Installation Schedule, Vieques, Puerto Rico. USFilter Engineering & Construction, December 2002.
23. Nineteenth Semi-annual Groundwater Sampling Event Analytical Results, Caribe General Electric Distribution Transformers, Inc., Vieques, Puerto Rico. USFilter Engineering & Construction, April 2003.
24. Letter to Timothy Gordon (USEPA) regarding GE-Vieques Monitoring Well Installation Schedule, Vieques, Puerto Rico. USFilter Engineering & Construction, February 2003.

25. New Monitoring Well Installation and 20th Semi-Annual Groundwater Sampling Event Results for the GE-Vieques, Puerto Rico Facility. USFilter Engineering & Construction, September 2003.
26. December 2003 Semi-annual Groundwater Sampling Event Analytical Results, Caribe General Electric Distribution Transformers, Inc., Vieques, Puerto Rico. Veolia Water Systems, April 2004.
27. Site Status Summary – Draft 1. GE-Vieques Facility, Vieques, Puerto Rico. Veolia Water Systems, July 2004
28. GE-Vieques Monitoring Well Installation Workplan, Vieques, Puerto Rico. N.A. Water Systems, August 2004.
29. June 2004 Semi-annual Groundwater Sampling Event Analytical Results, Caribe General Electric Distribution Transformers, Inc., Vieques, Puerto Rico. N.A. Water Systems, September 2004.
30. Caribe General Electric Products - Summary of Site Closure Issues, Vieques, Puerto Rico. N.A. Water Systems, January 2005.



LEGEND

- C-1 Monitoring well location and designation
- 50.75 Water table elevation (ft amsl)
-  Water table elevation contour (dashed where inferred)
-  Direction of Groundwater Flow



FIGURE 1
Location of former waste management units
subject to closure certification
and December 20, 2004 water table map,
Caribe General Electric Distribution Transformers, Inc.,
Vieques, Puerto Rico.

Memorandum

March 3, 2005

From: Ed Kolodziej

To: File

Re: Vieques Certification Statement for Sediment Tank and Leach Field

The certification (March 2005) of completion of soil gas survey and groundwater monitoring was provided for the two subject units because these two units were specified in the closure plan amendment of Feb 1994 (individual pages dated 2 Mar 1994). See the underlined text in the attached excerpt, page 22 of the document.

**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.

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

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,

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.

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.

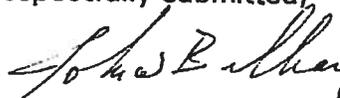
To support this work, a soil gas survey will be conducted both on-site and off-site to assist in identifying areas where impacts to the ground water from VOCs can potentially be confirmed. The soil gas survey will not provide quantitative data but will provide qualitative data. These data would be used 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

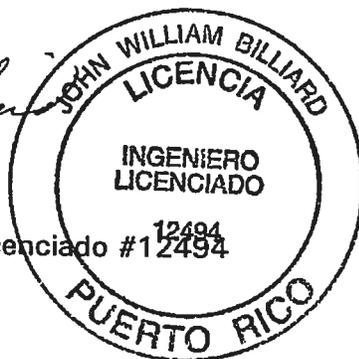
frequently collected water level data since May 28, 1993, the water level in Well C-1 appears to fluctuate in response to significant precipitation events. As a result of these fluctuations, the water level in Well C-1 temporarily rises above the water level in Well C-4. However, the calculated direction 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.

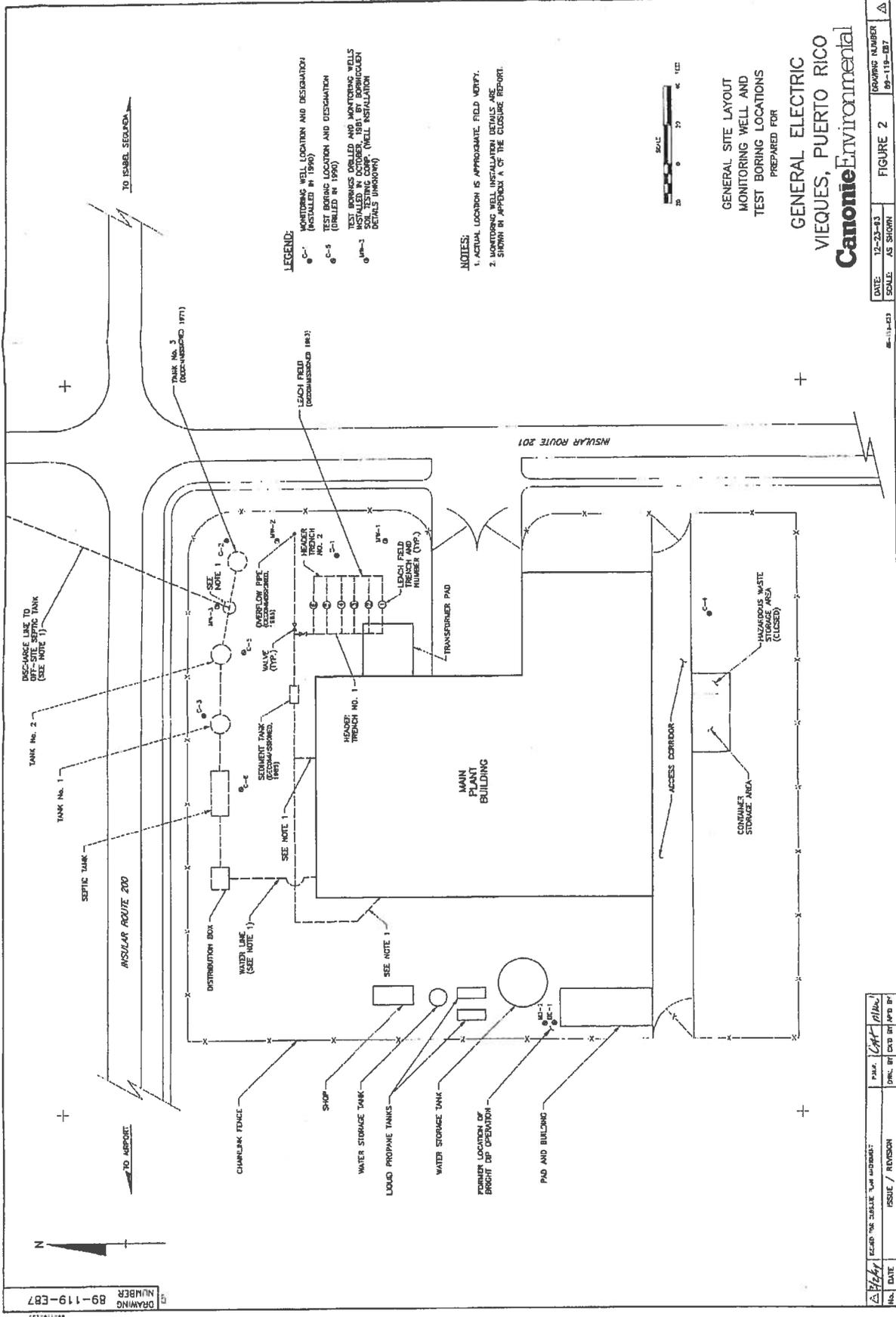
Respectfully submitted,



John W. Billiard, P.E.
Project Manager
Puerto Rico Ingeniero Licenciado #12494



JWB/alg



LEGEND:

- C-1 MONITORING WELL LOCATION AND DESIGNATION (INSTALLED IN 1996)
- C-2 TEST BORING LOCATION AND DESIGNATION (DRILLED IN 1990)
- C-3 TEST BORINGS DRILLED AND MONITORING WELLS INSTALLED IN OCTOBER, 1991 BY BORQUEN SOIL TESTING CORP. (WELL INSTALLATION DETAILS UNKNOWN)
- C-4 MONITORING WELL LOCATION AND DESIGNATION

NOTES:

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



GENERAL SITE LAYOUT
 MONITORING WELL AND
 TEST BORING LOCATIONS
 PREPARED FOR
GENERAL ELECTRIC
VIEQUES, PUERTO RICO
Canonie Environmental

DATE:	12-23-83	FIGURE 2	DRAWING NUMBER	89-119-EB7
SCALE:	AS SHOWN			

DESIGNED BY	PAUL	DATE	ISSUE / REVISION
DRAWN BY	CAJ		
CHECKED BY	ALM		

DRAWING NUMBER 89-119-EB7