Approved 1/18/01

HERCULES

Hercules Incorporated
Hercules Plaza
1313 North Market Street
Wilmington, DE 19894-0001
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December 11, 2000

VIA OVERNIGHT MAIL

Chief, Bureau of Hazardous Waste Facilities (3 copies)
Division of Solid and Hazardous Materials
New York State Department of Environmental Conservation
50 Wolf Road
Albany, NY 12233-7252

Re: Ciba Site, Glens Falls, New York, EPA ID No. NYD002069748
HWM Permit Number 5-5234-00008/00096 (Expires 1/6/2002)

Dear Sir:

Please find enclosed the "Groundwater Investigation Report, Area West of Main Plant Site," for the above site (Brown & Caldwell, December 2000).

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision 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.

If you have any questions in this matter, please contact me by telephone at (302) 5946581, by facsimile at (302) 594-7255, or by postal service at the above address.

Sincerely

Glen H. Schmiesing, P. E.
Glens Falls Project Manager
for Hercules Incorporated

GHS: Enclosure (3 sets) 0068-ltr

cc: w/enclosure
Regional Solid & Hazardous Materials Engineer, NYSDEC, Region 5, Ray Brook, NY
Chief, RCRA Programs Branch, U.S. EPA Region II, NY, NY
J. H. Tucker - Ciba Specialty Chemicals Corporation, Toms River, NJ (2 copies)
Hercules Incorporated, Glens Falls, NY

Brown and Caldwell

Groundwater Investigation Report
Area West of Main Plant Site
Ciba Site, Glens Falls, New York

December 2000

GROUNDWATER INVESTIGATION REPORT
AREA WEST OF MAIN PLANT SITE
CIBA SITE, GLENS FALLS, NEW YORK

Prepared for:

Hercules Incorporated
Hercules Plaza
Wilmington, Delaware 19894

Prepared by:

Brown and Caldwell
440 Franklin Turnpike
Mahwah, New Jersey 07430

December 2000

18927.001

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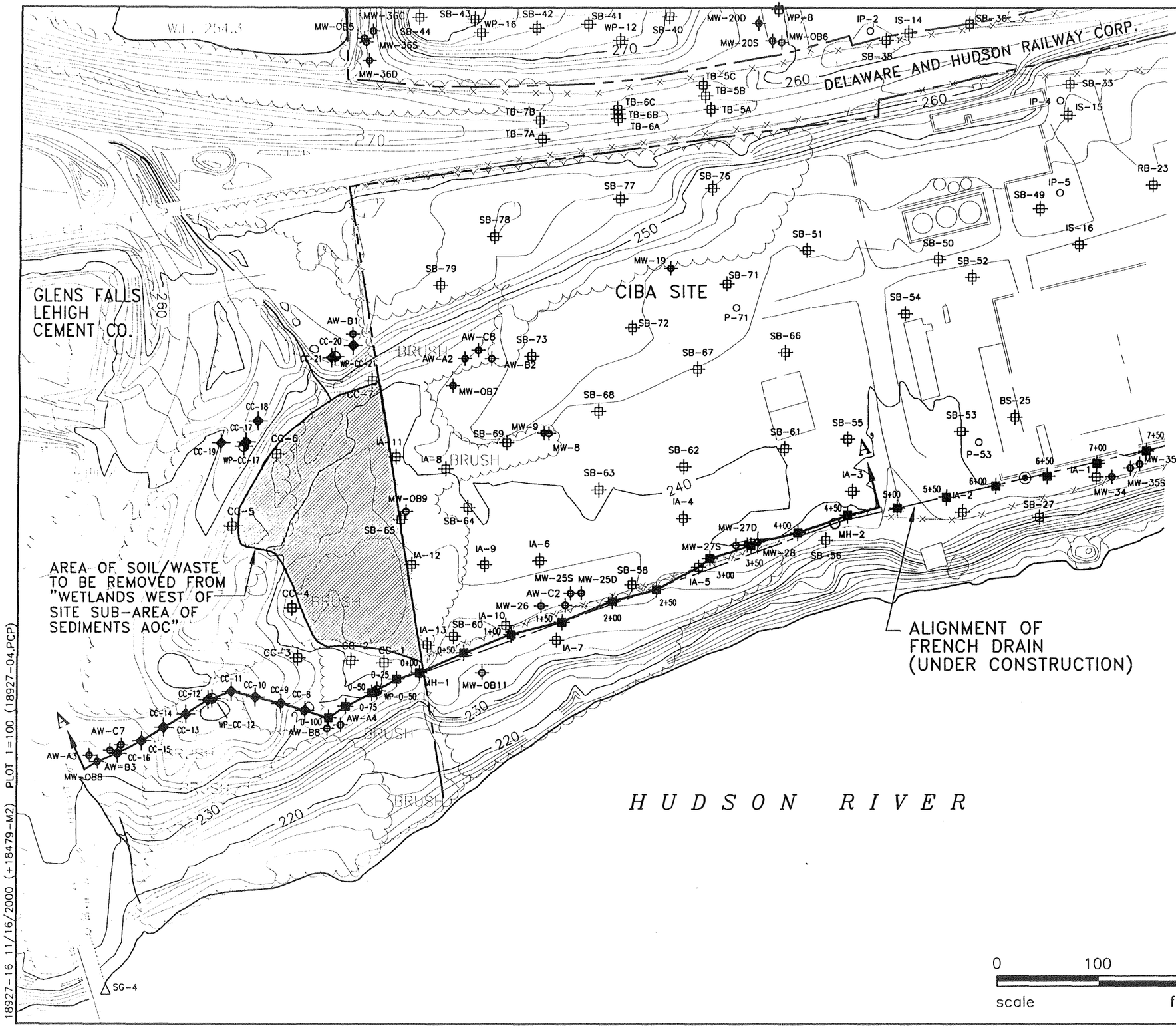
1.0 INTRODUCTION

The "CMI Groundwater Monitoring Plan Technical Approach" (Eckenfelder Engineering, P.C., April 1999) was submitted as Attachment E of the Final Corrective Measures (CM) Design for the Ciba Site near Glens Falls, New York. In a letter to Hercules Incorporated (Hercules) and Ciba Specialty Chemicals Corporation (Ciba), dated September 9, 1999, the New York State Department of Environmental Conservation (NYSDEC) provided comments on that document and additional requirements with respect to groundwater monitoring at the site. In that letter, the NYSDEC required an additional investigation of groundwater conditions in the overburden water-bearing zone in the off-site area west of the Main Plant Site, on property owned by the Glens Falls Lehigh Cement Company (Cement Company). On January 28, 2000 a work plan for the additional investigation, entitled "Groundwater Investigation Work Plan, Area West of Main Plant Site, Ciba Site, Glens Falls, New York" (Brown and Caldwell, January 2000) (referred to hereafter as the "Work Plan") was submitted by Hercules and Ciba to the NYSDEC. On March 6, 2000 Hercules and Ciba received conditional approval of the Work Plan from the NYSDEC in a letter dated February 22, 2000 (see Appendix A).

The objective of the investigation is to evaluate the nature and extent of saturated conditions above the lacustrine clay unit in the overburden zone west of the Ciba Site and identify potential flow pathways (if any) by which site-related constituents may by-pass the planned overburden groundwater extraction system (i.e., the french drain) (see Figure 1). The french drain is currently being installed as part of Corrective Measures (CM) construction in progress at the Ciba Site.

On August 28, 2000, a report entitled "Interim Report, Groundwater Investigation, Area West of the Main Plant Site, Ciba Site, Glens Falls, New York" (Brown and Caldwell, August 2000) (hereafter referred to as the "Interim Report") was submitted to the NYSDEC as an attachment to the monthly progress report on activities related to the site's Hazardous Waste Management (HWM) Permit. The Interim Report presented the findings from the first three months of water level data collection and one round of groundwater quality sampling. This report includes the data presented in the Interim Report, as well as data from



SOURCE:

BASE MAP WAS CONSTRUCTED BY STEREO PHOTOGRAMMETRIC METHODS USING AERIAL PHOTOGRAPHY FLOWN NOVEMBER 3, 1991 BASE MAP WAS PREPARED BY ROBINSON AERIAL SURVEY INC.

LEGEND:

- CC-19 — SOIL BORING DRILLED FOR THIS INVESTIGATION
- 5+50 — PILOT SOIL BORING FOR FRENCH DRAIN
- SB-69 — RFI SOIL BORING LOCATION
- WP-CC-17 — WELL POINT INSTALLED FOR THIS INVESTIGATION
- P-53 — PIEZOMETER LOCATION
- MW-OB7 — MONITORING WELL LOCATION
- SG-4 — STAFF GAUGE LOCATION
- PROPERTY BOUNDARY
- 230 — TOPOGRAPHIC ELEVATION CONTOUR (FEET,NGVD) CONTOUR INTERVAL=2 FT.
- ALIGNMENT OF FRENCH DRAIN (AS PLANNED)
- MH-2 — LOCATION OF FRENCH DRAIN MANHOLE (AS PLANNED)
- SUMP "A" — FRENCH DRAIN COLLECTION SUMP (AS PLANNED)
- A A' — LINE OF HYDROGEOLOGIC CROSS-SECTION IN FIGURE 3

FIGURE 1

LOCATION MAP AREA WEST OF CIBA SITE

HERCULES INCORPORATED
CIBA SITE GLENS FALLS, N.Y.

BROWN AND CALDWELL MAHWAH, NEW JERSEY

18927-16 11/16/2000 (+18479-M2) PLOT 1=100 (18927-04.PCP)

subsequent water level monitoring and a second round of groundwater quality sampling. It also provides more detail regarding the investigative methods and procedures, background information from previous investigations, and the investigative findings.

Section 2.0 of this report provides a general description of the area of investigation. Section 3.0 discusses the previous investigations that relate to this investigation. Section 4.0 describes the investigative methods and procedures. Section 5.0 discusses the findings of the investigation. Section 6.0 presents conclusions and recommendations based on the investigative findings.

2.0 AREA OF INVESTIGATION

The investigation described herein focuses on a portion of the Cement Company property adjacent to the Ciba Site and south of the Delaware & Hudson Railway Corporation (DHRC) property (see Figure 1). The sub-area of the Adjacent Surface Water Sediments Area of Concern (Sediments AOC) identified as the "Wetlands West of Plant Site" is located in this portion of the Cement Company property, within the low-lying area adjacent to the Ciba Site. The low-lying area is surrounded to the north, west and south by moderately steep embankments. The top of the southern embankment is the crest of the bank of the Hudson River, which flows eastward past the area of investigation.

As part of CM for the Ciba Site, visible site-related waste and soil from within the low-lying area are to be removed to a depth of 2.5 feet below grade. The approximate limits of removal are shown in Figure 1. The excavated area is to be backfilled with clean material and vegetated.

The CM for the Ciba Site also include the installation of a groundwater extraction system for the overburden water-bearing zone near the crest of the slope leading to the Hudson River, near the southern perimeter of the site. This extraction system consists of a french drain positioned at the base of the overburden zone. The french drain is currently under construction. The western end of the french drain is positioned at the property boundary with the Cement Company property (see Figure 1).

3.0 PREVIOUS INVESTIGATIONS

Data from several previous investigations, conducted as part of the RCRA Facility Investigation (RFI) and the CM Design, were used in conjunction with the data collected during this investigation to evaluate conditions in the area west of the Main Plant Site.

The findings of these previous investigations are provided in the following documents:

- Volume VII, Appendix L ("French Drain Pilot Boring Logs") of the "Final Corrective Measures Design, Ciba Site, Glens Falls, New York" (Brown and Caldwell, April 1999)

- "Site-Wide Soil Sampling Report (Interim RFI Report), CIBA -GEIGY Main Plant Site, Glens Falls, New York", (Eckenfelder Inc., September 1991)

- "Site-Wide Soil Sampling Report Addendum (Final RFI Report), CIBA-GEIGY Main Plant Site, Glens Falls, New York", (Eckenfelder Engineering, P.C., July 1992)

- "RCRA Facility Investigation Report for Groundwater, CIBA-GEIGY Site, Glens Falls, New York" (Eckenfelder Engineering, P.C., March 1993)

- "RFI Report for the Adjacent Off-Site Land AOC, CIBA-GEIGY Site, Glens Falls, New York" (Eckenfelder Inc., October 1994)

- "RFI Phase I Report for the Adjacent Surface Water Sediments AOC, CIBA-GEIGY Site, Glens Falls, New York" (Eckenfelder Inc., May 1994)

- "Phase II RFI Report for Adjacent Surface Water Sediments AOC for the Ciba Site, Glens Falls, New York" (Eckenfelder Inc., June 1997)

4.0 INVESTIGATIVE METHODS AND PROCEDURES

The methods and procedures for the investigation were conducted in accordance with the Work Plan, as modified by the letter of conditional approval from the NYSDEC dated February 22, 2000. These methods and procedures are described below.

4.1 ACCESS PERMISSION

Following receipt of conditional approval for the Work Plan, the Cement Company was contacted to gain access to their property to conduct the investigation. Contact was made in accordance with the access agreement between Hercules and the Cement Company.

4.2 SOIL BORINGS

Along the crest of the riverbank, west of the western end of the french drain, a series of nine soil borings were drilled between existing boring 0-100 and well MW-OB8 (see Figure 1). The borings were spaced approximately 25 feet apart. These borings were designated CC-8 through CC-16.

Two additional sets of borings were drilled to the north of the borings described above. The borings in the first set, designated CC-17 through CC-19, were positioned northwest of the low-lying area described in Section 2.0. Those in the second set, CC-20 and CC-21, were positioned north of the low-lying area, near well AW-B1.

Soil samples were collected from the borings from ground surface to the top of the lacustrine clay unit. Data from the borings were used to evaluate the structural configuration of the top of the clay unit, and the degree of saturation in the deposits above the clay unit.

The soil borings were sampled using a Geoprobe® direct-push drilling rig. The rig is owned and operated by Maxim Technologies Inc. The samples were collected using a Macro-Core® sample probe. The Macro-Core® is a 2-inch diameter sample probe capable collecting a

1.5-inch diameter soil core within a clear disposable acetate liner. The soil core can be collected in lengths up to 4 feet. The Macro-Core® is equipped with a pointed piston tip which prevents soil from entering the sample probe as it is driven to the top of the desired sample interval. It is also equipped with a core catcher, which reduces the potential for sampled material to fall out of the base of the sample probe as it is retrieved.

To collect soil samples from a particular depth interval, the Macro-Core® probe, with the piston tip closed, was driven to the top of the interval to be sampled using the direct push rig. The piston tip was then unlocked using extension rods which were inserted within the rods of the direct-push rig. The probe was then driven through the sample interval, forcing soil from the sample interval into the acetate liner within the probe. Soil entering the liner displaces the piston tip upward into the liner.

Typically, the samples were collected in two-foot long intervals. However, at some locations where the depth to saturation and the top of the clay were known to be relatively deep based on information from adjacent borings, the upper four to eight feet of soil was sampled in four foot long intervals.

The soil samples were visually classified and described in accordance with the Burmister Soil Classification System and the Unified Soil Classification System (USCS). The description and classification, along with information such as depth, length of recovered portion of sample interval, degree of saturation, color, and other characteristics of the soil, were recorded. These observations are provided on the soil boring logs in Appendix B.

After the soil borings were completed, they were abandoned. Some degree of caving occurred prior to abandonment, as determined by depth soundings. The remainder of the borehole, above the caving, was filled with bentonite. Each boring was then marked with a stake labeled with the boring designation.

4.3 SELECTION OF WELL POINT LOCATIONS

Based on the information obtained from the soil borings, locations were selected for the installation of well points, as described below.

Ground surface elevation data from the survey of the proposed boring locations conducted prior to drilling was used to estimate the elevation of the top of clay. Some borings had been shifted slightly from the originally surveyed location due to physical access limitations of the drill rig. For these locations, the ground surface elevation was estimated using the survey data from adjacent locations. These data, along with data for the top of clay surface elevation from previous investigations, were plotted manually on a map. The data indicated that the elevation of the surface of the clay unit is relatively consistent to the west of the french drain. No areas were identified where top of the clay was substantially lower in elevation along the riverbank crest such, that a preferential flow pathway for groundwater would be suspected. Thus, well point locations were selected for installation at two positions west of the french drain where the clay elevation is at its lowest relative to adjacent borings. These locations were adjacent to borings 0-50 and CC-12 (see Figure 1). Two well point locations were also selected to be positioned upgradient of the river bank crest and the low-lying area. These locations were selected to be adjacent to borings CC-17 and CC-21. A copy of the above-described map, with the proposed well point locations noted, was telecopied to the NYSDEC on April 28, 2000. NYSDEC concurred with the proposed locations during a telephone conversation later that day.

4.4 WELL POINT INSTALLATION

Four well points were installed at the locations described above. The well points were designated with a "WP-" prefix, followed by the designation of the adjacent boring.

The well points are constructed of a 1-inch diameter PVC riser with a 5- to 10-foot long PVC screen interval at the base. The width of the screen slots is 0.010 inch. A steel end point is attached to the base of the screen.

The Geoprobe® direct-push drill rig that was used for drilling the soil borings was used to set the well points. The PVC screen and riser were placed within 3.25-inch diameter steel drive casing, with the steel end point at the base of the screen protruding from the base of the drive casing. The diameter of the steel end point is larger than the inside diameter of the drive casing, and thus cannot pass into the casing, but rather, abuts the base of the drive casing. The well point was then advanced by driving the drive casing with the direct-push rig. As the well point was advanced, the screen was protected by the drive casing. Each well point was driven to a depth such that the base of the screen interval was at, or slightly below, the top of the clay unit. After driving a well point to the desired depth, the drive casing was raised in small increments. Filter pack sand, sized appropriately for the well screen slot size, was placed in the annular space surrounding the PVC after each increment that the drive casing was raised until filter pack sand had been placed to a level several feet above the top of the screen interval. The remaining annular space was filled with cuttings from the soil boring, which was previously drilled at the well point location. A vented well cap was placed on the top of the PVC riser. An above-grade steel protective casing with a locking cover was installed. The well points were developed by surging and bailing using disposable bailers. Development continued until the degree of turbidity in the produced water remained constant based on visual observations. Construction logs for the well points are provided in Appendix C. Equipment used to install the well points, as described below, was decontaminated between locations with a steam cleaner.

4.5 LOCATION AND ELEVATION SURVEY

Location and elevation surveys were conducted twice during this investigation. The first survey was conducted prior to drilling activities. During this survey, the proposed soil boring locations were surveyed to establish a reference for measuring the top of clay elevation as drilling progressed, and thus expedite the selection of the well point locations (see Section 4.3). The second survey was conducted after the soil borings and well point installations were complete. The soil borings were resurveyed at this time because some of the locations were shifted slightly from their originally proposed locations due to physical access limitations of the direct-push drill rig. During these surveys, the horizontal location

coordinates (New York State Plane coordinates) and the elevation of the ground surface (±0.01 feet, NGVD) were measured for the soil borings and the well points. The elevation of the water level measurement reference mark on the well points was also measured. These surveys were conducted by New York State licensed surveyors from Van Dusen and Steves, L.L.C. The survey data are provided in Appendix D.

4.6 WATER LEVEL MONITORING

Following installation of the well points, water levels in the well points and nearby overburden monitoring wells were measured at least monthly, for a six month period. These data are presented in Section 5.2 of this report. Following the water level measurements in July 2000, the well casings for most of the monitoring wells on the Ciba Site were extended to accommodate the designed increase in grade during CM construction. The new water level reference elevations were not surveyed prior to the preparation of this report, and the elevation of the groundwater could not be calculated at these wells. The casings on the wells on the Cement Company property were not extended, and thus the water level reference elevations were not altered.

The water levels were measured using an electronic water level indicator. The indicator probe was lowered into the well point until the indicator signaled that water was encountered. The probe was then raised above the water level and then slowly lowered again until water was encountered. The indicator tape was held against the inside of the well-point casing at the reference point designated for water level measurements, and a depth to water reading was recorded. This procedure was repeated three times or until a consistent value was obtained. The value was recorded to the nearest 0.01 feet. The probe was then raised to the surface. The probe and the wetted portion of the tape were then decontaminated with a non-phosphate detergent (Alconox®) wash and a distilled water rinse.

4.7 GROUNDWATER SAMPLING AND ANALYSIS

Groundwater samples were collected from the four well points--WP-0-50, WP-CC-12, WP-CC-17, and WP-CC-21--during two events. The first sampling event was conducted on May 5, 2000. The second event was conducted on September 27 and 28, 2000.

Prior to groundwater sampling, the depth to the bottom of the well point, and the depth to static water level in the well point, were measured. These measurements were used to calculate the volume of water in the well point. Water levels were measured as described in Section 4.6. The depth to the bottom of the well point was measured by lowering the water level probe to the bottom of the well point. The tape was then raised until the tension indicated the probe tip was positioned at the bottom of the well point. A measurement from the water level reference point on the top of the well point casing was then recorded. This measurement was adjusted for the length of the probe below the zero point, if necessary.

The wells points were purged of three well volumes of water, or completely evacuated, depending on the recharge rates, prior to sampling. Disposable polyethylene bailers were used for purging, with new bailers being used for each well point. The purged groundwater was collected in buckets to allow for measuring the volumes, and following sampling was poured on the ground near the well point and allowed to infiltrate.

Groundwater samples were collected from the well points using the bailers with which they were purged. Pursuant to the groundwater monitoring plan for the site ("Groundwater Monitoring Plan, CIBA-GEIGY Site, Glens Falls, New York, [Eckenfelder Inc., March 1997]), the samples were collected within 24 hours of completion of purging.

The samples for total cyanide analysis were poured from the bailer into 1,000 mL plastic bottles supplied by the laboratory, and preserved with sodium hydroxide to maintain a pH greater than 12. Samples for total chromium analysis were field filtered using a QuickFilter®. The QuickFilter® is a disposable, high capacity, 0.45 μm pore size, acrylic copolymer filter in

a polypropylene casing. The QuickFilter® was attached to a transfer vessel into which the unfiltered sample was placed from the bailer. The vessel was pressurized using a hand-operated air pump, forcing the sample through the filter into the sample container. 1000 ml plastic bottles were used for containing the samples for total chromium analysis. The total chromium samples were preserved with nitric acid to maintain a pH of less than 2. The transfer vessel was disassembled and decontaminated between samples. The decontamination steps are described later in this section. Following collection of the samples, the sample containers were placed in a cooler containing ice in a sealed plastic bag.

After the collection of the samples for cyanide and chromium analyses, additional sample was collected and pH, specific conductivity, and temperature (i.e., field parameters) were measured on the sample in the field. The pH was measured using an Oakton pHTestr 2 meter. The specific conductivity and temperature were measured using a Yellow Springs Instruments (YSI) Model 3000 meter. Both meters were calibrated prior to the measurements. The field data sheets for the groundwater samples are provided in Appendix E.

As a field quality assurance/quality control (QA/QC) measure, a duplicate sample and an equipment blank were collected and submitted for total cyanide and total chromium analysis for each of the sampling events. In both events, the duplicate sample was collected from WP-CC-21. The equipment blank was prepared by pouring analyte-free water, supplied by the laboratory, into a new disposable polyethylene bailer, into a clean filter vessel, and finally into a sample bottle. The duplicate and equipment blank were preserved in the same fashion as the other samples described above.

After sample collection, the sample bottles were labeled and placed in a cooler containing ice in sealed plastic bags. The samples were shipped in the cooler to the laboratory via overnight courier, Federal Express. The custody of the samples was documented using chain-of-custody forms. The forms were filled-out by the sampler and placed in the cooler prior to relinquishing the cooler to the courier. A signed custody seal was also placed across the closed juncture between the lid and the main body of the cooler prior to relinquishing the cooler to the courier.

The total cyanide and total chromium analyses were conducted using USEPA Methods 9012A and 6010, respectively. These analyses were performed by Eckenfelder Laboratory, LLC, which is certified by the New York State Department of Health. The analyses were conducted in accordance with the Quality Assurance Project Plan (QAPjP) for the site (Eckenfelder Inc., July 1993). The laboratory data package is provided in Appendix F. The analytical data were internally validated by the laboratory and reviewed for usability by the Brown and Caldwell project manager.

Non-dedicated and non-disposable purging/sampling equipment, which for this investigation included only the transfer vessel used for filtering the sample, was subjected to the following field decontamination procedures:

1. Tap water* and non-phosphate detergent (e.g., Alconox®) scrub
2. Tap water* rinse
3. Nitric acid (1%) rinse
4. Tap water* rinse
5. Deionized water rinse
6. Air dry
7. Wrap in aluminum foil or placed on polyethylene sheeting until ready for use.

* Tap water is from a municipal water supply system.

5.0 INVESTIGATIVE FINDINGS

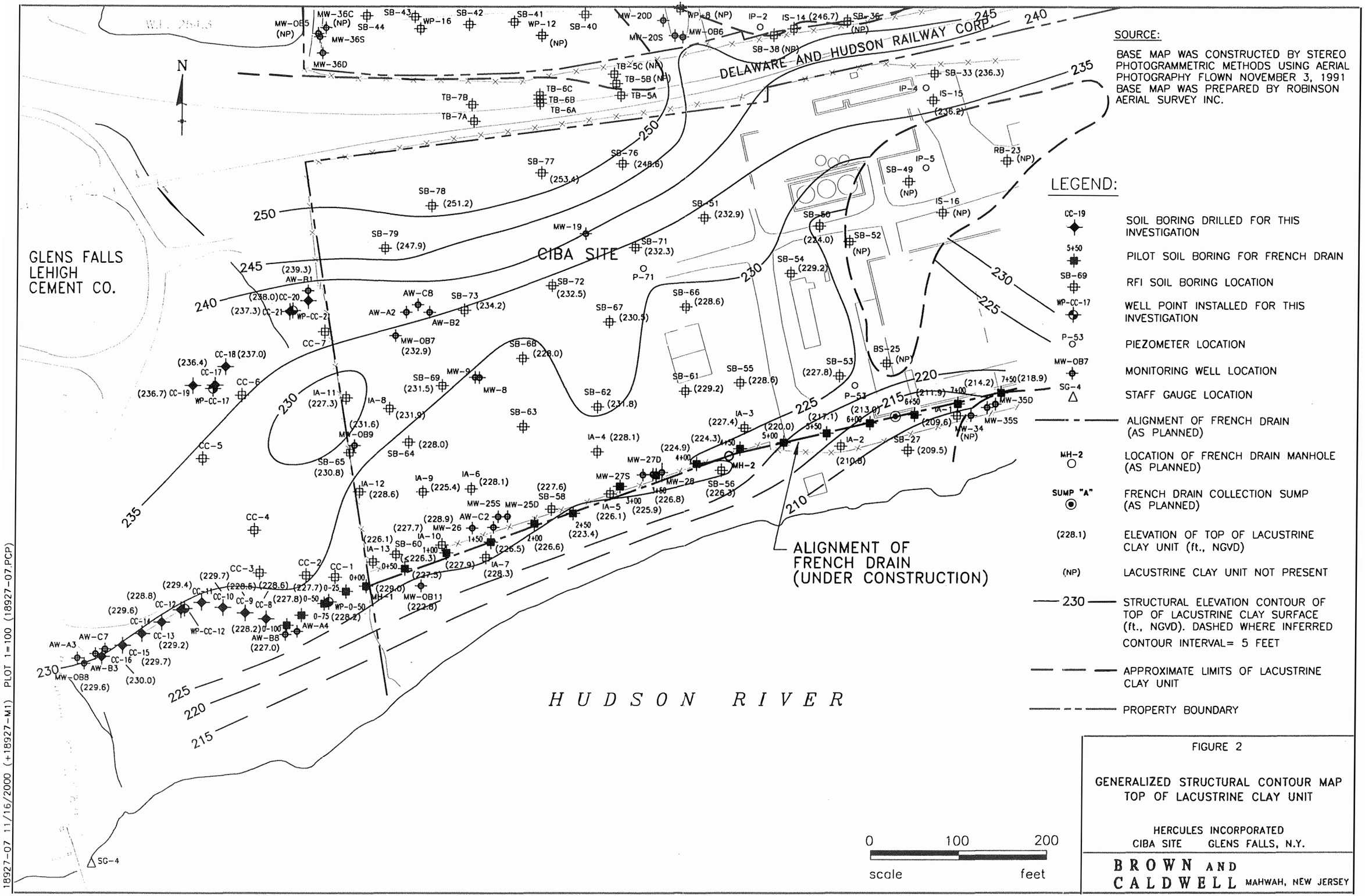
5.1 OVERBURDEN STRATIGRAPHY

The nature of the overburden deposits in and near the area of this investigation is described below. Characterization of these deposits is based on the findings of this investigation and previous investigations described in Section 3.

The lower portion of the overburden consists of a relatively thick accumulation of predominantly silty clay deposited within a former lake bed during the Pleistocene Epoch. This deposit of silty clay is referred to as the lacustrine clay unit. Based on borings drilled to bedrock during previous investigations, this unit either directly overlies bedrock, or overlies a thin (<0.5 feet to 2.5 feet) layer of glacial till which lies above the bedrock. The lacustrine clay unit typically is varved, exhibiting very thin layers that are more silt-rich or sand-rich. Figure 2 presents a structural contour map of the surface of the lacustrine clay unit. As depicted in the hydrogeologic cross-section provided in Figure 3, the elevation of the surface of the clay unit is relatively consistent to the west of the planned french drain, with the difference between the highest and lowest clay surface elevations along the river bank crest being only 2.3 feet.

The thickness of the deposits overlying the lacustrine clay unit in the areas surrounding the low-lying wetland area (i.e., to the south along the crest of the river bank, and to the north and northwest) has been measured between 8 and 20 feet. The thickness of these deposits beneath the low-lying area has not been measured, but is likely thinner than the surrounding areas based on estimates made from the structural contour map of the clay in Figure 2.

Deposits above the clay unit include a sequence of lacustrine sands and, at some locations, fill. The lacustrine sands contain varying components of gravel, silt, and clay, and were deposited during later stages of the former lake in which the underlying clay unit was formed. The fill material contains varying proportions of sand, gravel, silt and clay. It appears to be derived primarily from local lacustrine deposits, although some of the gravel components are crushed stone imported from another locality.



SOURCE:

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- MH-2 — LOCATION OF FRENCH DRAIN MANHOLE (AS PLANNED)
- SUMP "A" — FRENCH DRAIN COLLECTION SUMP (AS PLANNED)
- (228.1) — ELEVATION OF TOP OF LACUSTRINE CLAY UNIT (ft., NGVD)
- (NP) — LACUSTRINE CLAY UNIT NOT PRESENT
- 230 — STRUCTURAL ELEVATION CONTOUR OF TOP OF LACUSTRINE CLAY SURFACE (ft., NGVD). DASHED WHERE INFERRED CONTOUR INTERVAL= 5 FEET
- APPROXIMATE LIMITS OF LACUSTRINE CLAY UNIT
- PROPERTY BOUNDARY

FIGURE 2

GENERALIZED STRUCTURAL CONTOUR MAP
TOP OF LACUSTRINE CLAY UNIT

HERCULES INCORPORATED
CIBA SITE GLENS FALLS, N.Y.

BROWN AND CALDWELL MAHWAH, NEW JERSEY

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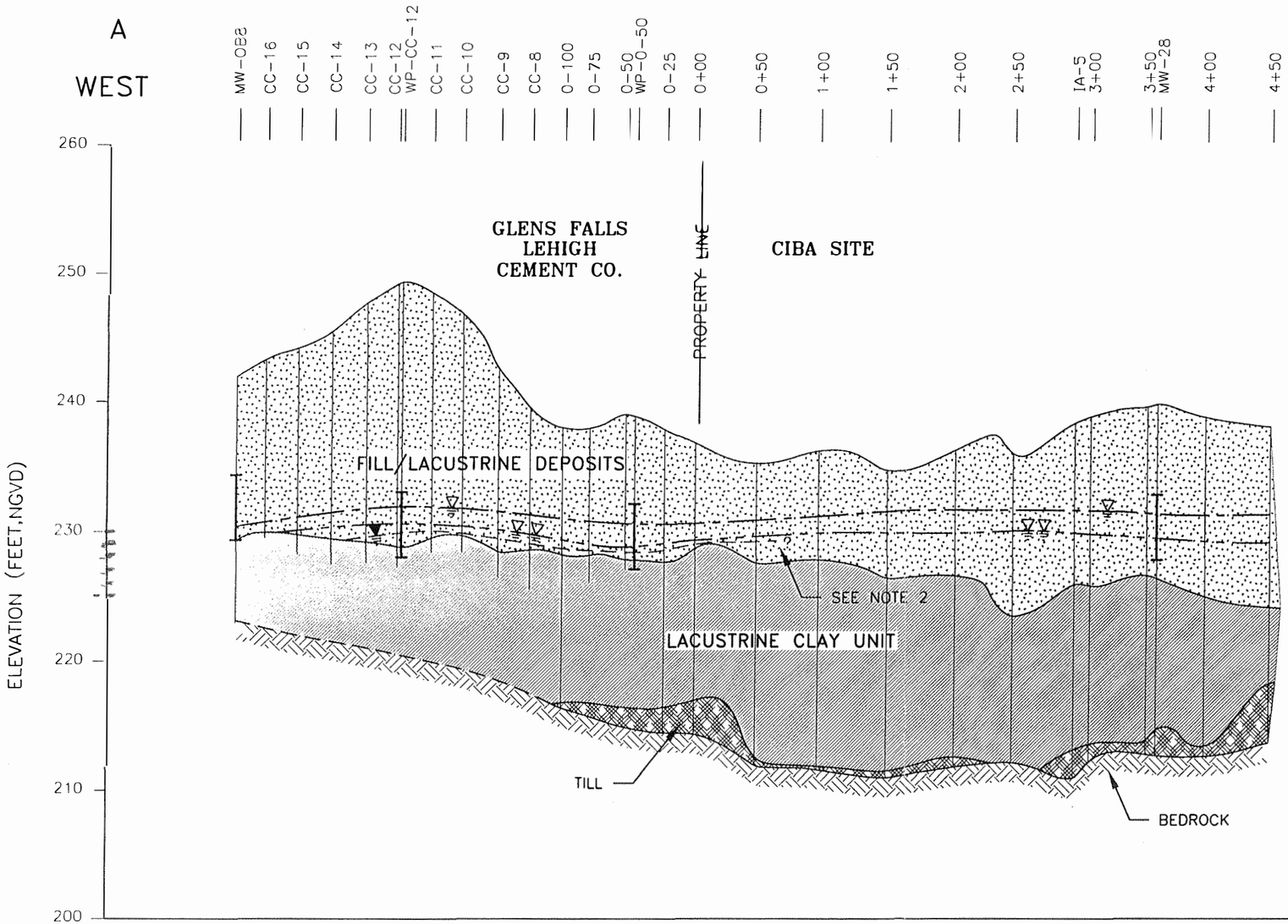

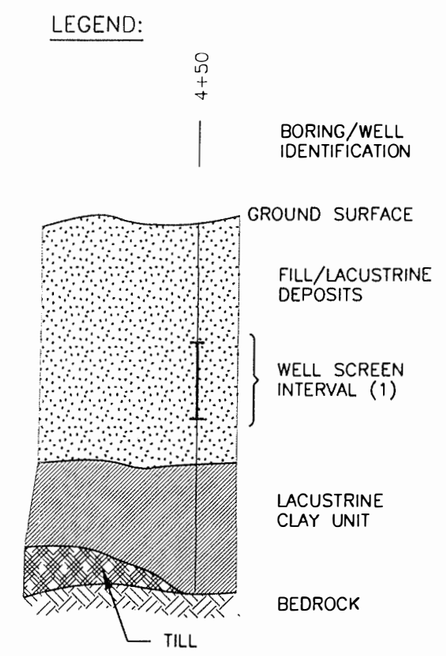

GENERALIZED POTENTIOMETRIC SURFACE, MAY 1 & 2, 2000

GENERALIZED POTENTIOMETRIC SURFACE, JULY 7, 2000

GENERALIZED POTENTIOMETRIC SURFACE, SEPTEMBER 27, 2000

(1) WELL SCREEN IS ONLY INDICATED AT WELL LOCATIONS.

NOTES:

1. SEE FIGURE 1 FOR CROSS-SECTION ORIENTATION.
2. GROUNDWATER ELEVATIONS NOT AVAILABLE FOR WELLS ON CIBA PROPERTY (SEE TEXT AND FIGURE 6).

SCALE:

HORIZONTAL 0 — 100 FEET

VERTICAL 0 — 10 FEET

VERTICAL EXAGGERATION = 10

FIGURE 3

HYDROGEOLOGIC CROSS-SECTION

HERCULES INCORPORATED
CIBA SITE GLENS FALLS, N.Y.

BROWN AND CALDWELL Mahwah, New Jersey

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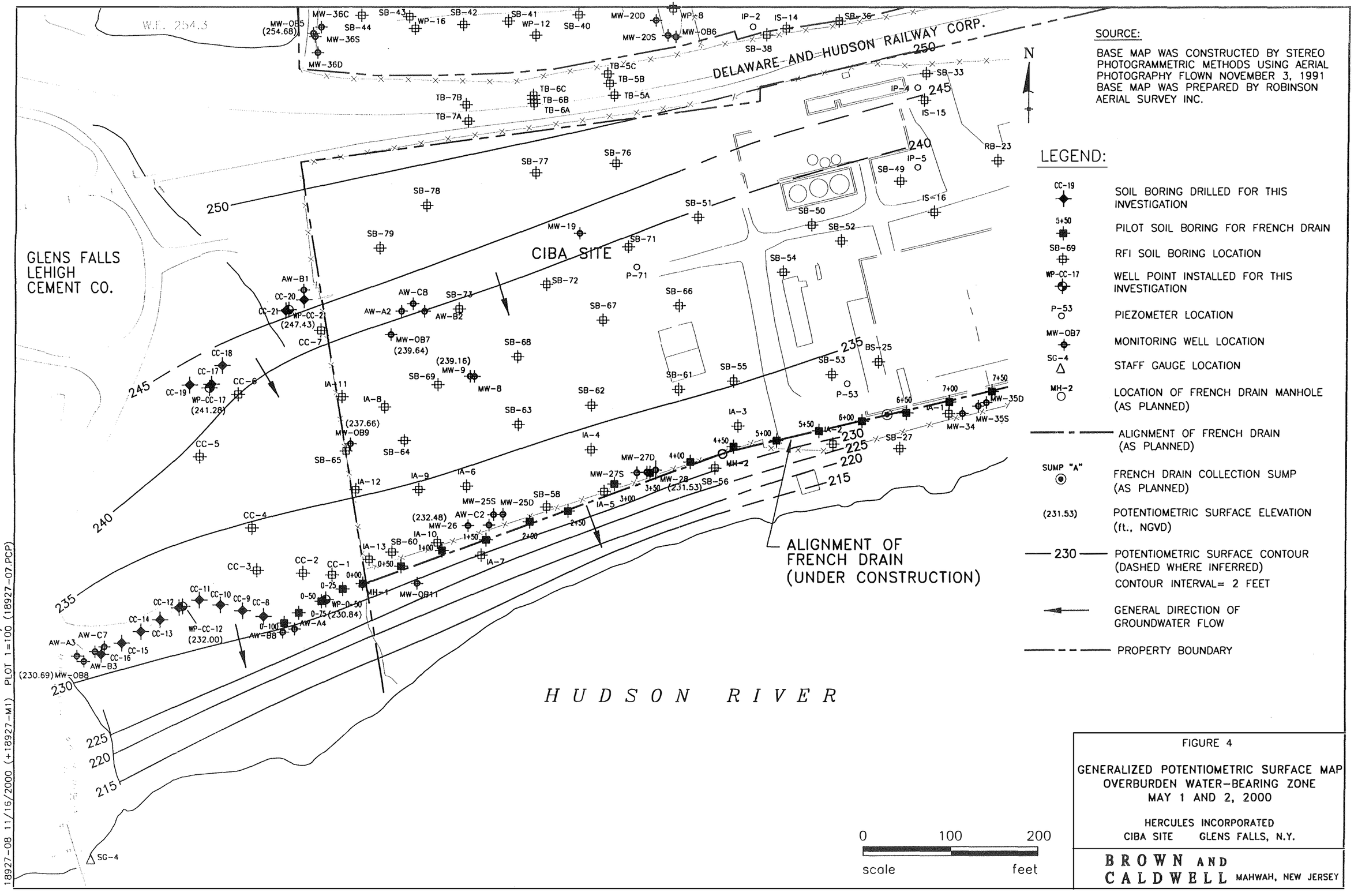

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FIGURE 4

GENERALIZED POTENTIOMETRIC SURFACE MAP
OVERBURDEN WATER-BEARING ZONE
MAY 1 AND 2, 2000

HERCULES INCORPORATED
CIBA SITE GLENS FALLS, N.Y.

BROWN AND CALDWELL MAHWAH, NEW JERSEY

5.2 GROUNDWATER FLOW

Groundwater in the overburden water-bearing zone in the area of investigation flows laterally through the relatively permeable fill and lacustrine deposits that overlie the lacustrine clay unit. The lacustrine clay unit, situated at the base of the overburden, has a relatively low hydraulic conductivity and retards the vertical migration of groundwater. Thus, the clay unit forms the lower boundary of the overburden water-bearing zone. Where the saturated zone above the clay is thin, the configuration of the clay surface likely influences horizontal groundwater flow directions in the more permeable material above.

The groundwater level data collected since the installation of the well points are provided in Table 1. Groundwater potentiometric surface maps (i.e., groundwater table maps) of the overburden water-bearing zone were prepared based on water levels measured on: May 1 and 2, 2000; July 7, 2000; and September 27, 2000. These maps are provided in Figures 4, 5, and 6. Figures 4 and 6 represent conditions during the May and September groundwater quality sampling events.

In general, the maps indicate groundwater flow through the area of investigation is to the south-southeast toward the Hudson River. Groundwater levels during the July 7 measurements are generally lower than those during the May 1 and 2 measurements, corresponding to a general decrease in the rate of precipitation between May and July. Measurements taken on September 27 indicate levels that are even lower than those measured in July. However, some of the on site wells could not be accessed for water level measurements during the September 27 event due to nearby construction activities and thus, a comparison throughout the area of investigation cannot be made. During the July 7 measurements, no water was present in well MW-OB8, which has a screened interval that extends to the top of the lacustrine clay unit. This condition has been observed at MW-OB8 in the subsequent water level measurements for this investigation, and in the majority of the groundwater monitoring events conducted since the well was installed in September 1991. The extent of the area, or areas, near MW-OB8 in which the deposits above the clay are unsaturated were estimated on Figures 5 and 6 by projecting groundwater elevation contours

TABLE 1

WATER LEVELS

Location	Date:	Water Levels							
		08/16/00		09/14/00		09/27/00		10/30/00	
	Reference Elevation (ft.,NGVD)	Depth to Water (ft. below reference)	Water Elevation (ft., NGVD)	Depth to Water (ft. below reference)	Water Elevation (ft., NGVD)	Depth to Water (ft. below reference)	Water Elevation (ft., NGVD)	Depth to Water (ft. below reference)	Water Elevation (ft., NGVD)
WP-CC-12	251.64	21.60	230.04	21.91	229.73	21.95	229.69	21.80	229.84
WP-CC-17	255.80	15.36	240.44	15.62	240.18	15.51	240.29	14.86	240.94
WP-CC-21	257.84	8.90	248.94	9.31	248.53	9.38	248.46	8.54	249.30
WP-0-50	240.82	11.90	228.92	12.12	228.70	12.21	228.61	12.03	228.79
MW-OB5	262.92	9.27	253.65	9.83	253.09	NM	NA	9.86	253.06
MW-OB7	243.75	5.74	238.01	NA	NM	NM	NA	11.92 (e)	NA
MW-OB8	244.55	dry @ 15.03	<229.52	dry @ 15.03	<229.52	dry @ 15.03	<229.52	dry @ 15.03	<229.52
MW-OB9	242.34	6.77	235.57	6.37 (e)	NA	NM	NA	6.19 (e)	NA
MW- 9	241.96	4.74	237.22	10.91 (e)	NA	NM	NA	11.11 (e)	NA
MW-26	238.86	7.36	231.50	10.42 (e)	NA	NM	NA	10.53 (e)	NA
MW-28	241.08	10.22	230.86	11.20 (e)	229.88	NM	NA	10.57 (e)	NA

(a) Measured on 5/2/00. Otherwise, measured on 5/1/00.

(b) NM - Not measured. Could not access well due to nearby construction activities.

(c) NA - Not available.

(d) Measured on 6/13/00. Otherwise, measured on 6/14/00.

(e) Reference elevation changed due to extension of well during site construction. Reference elevation not yet surveyed.

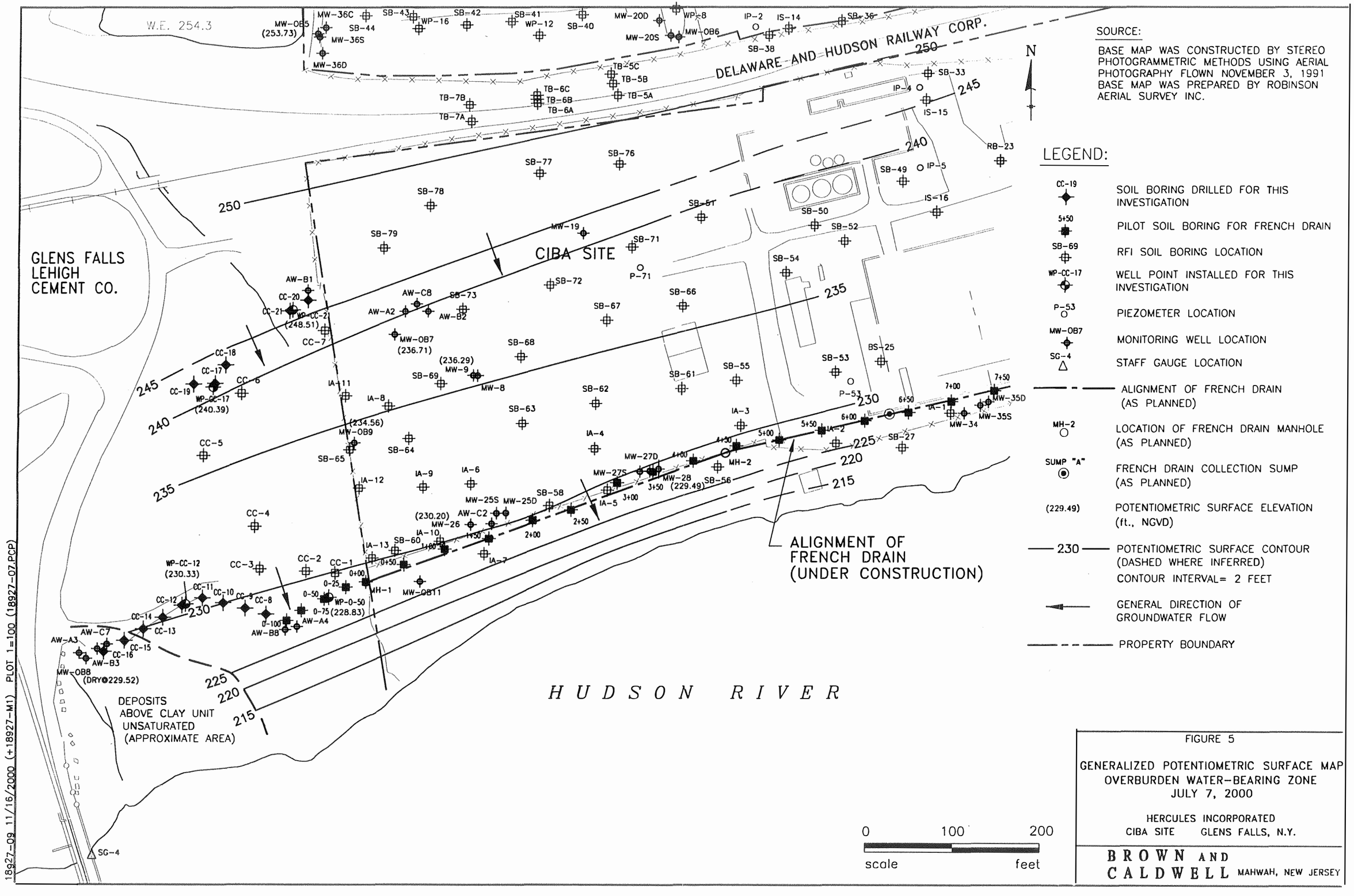


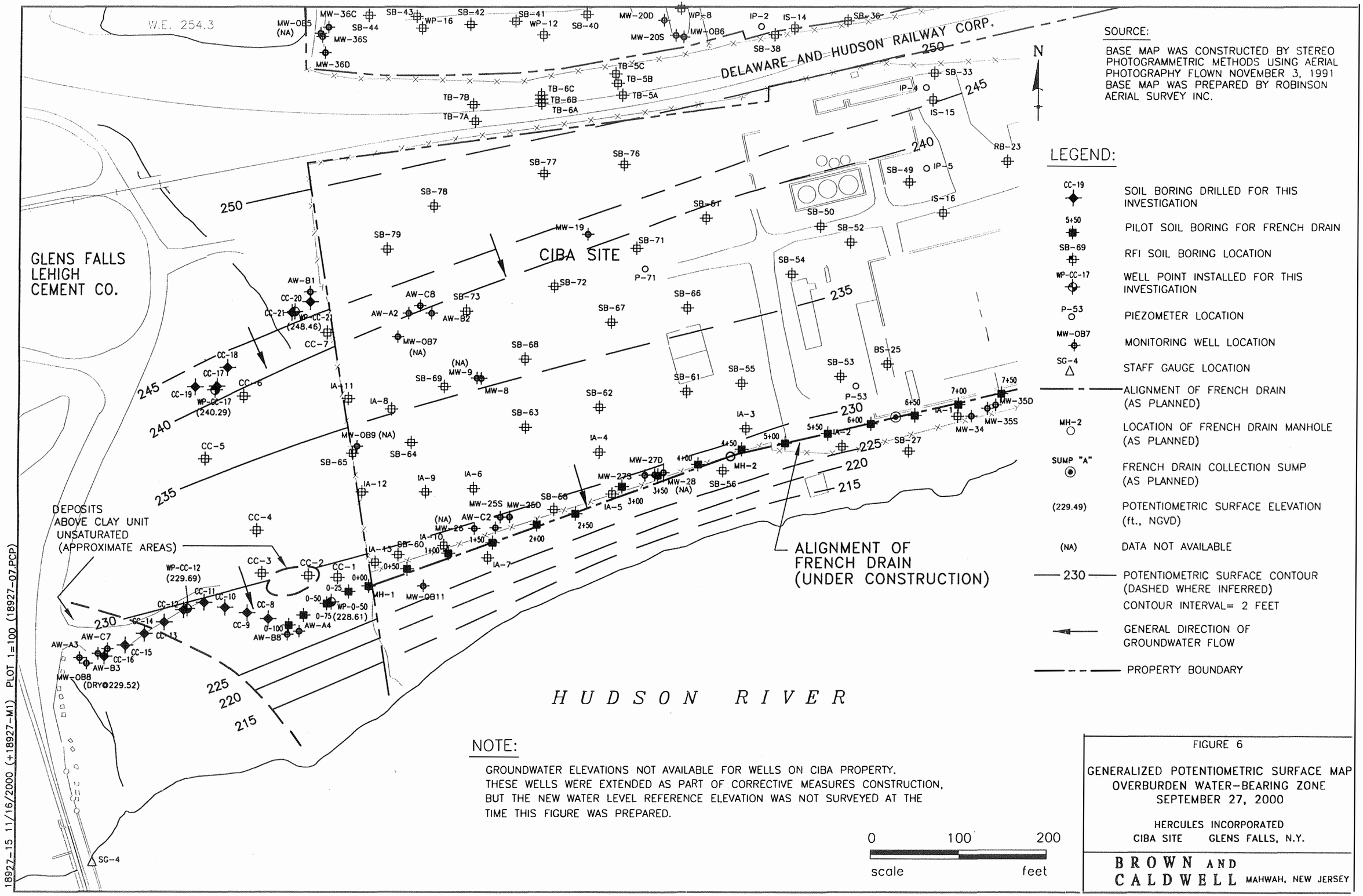
FIGURE 5

GENERALIZED POTENTIOMETRIC SURFACE MAP
OVERBURDEN WATER-BEARING ZONE
JULY 7, 2000

HERCULES INCORPORATED
CIBA SITE GLENS FALLS, N.Y.

BROWN AND CALDWELL MAHWAH, NEW JERSEY

18927-09 11/16/2000 (+18927-M1) PLOT 1=100 (18927-07.PCP)



NOTE:

GROUNDWATER ELEVATIONS NOT AVAILABLE FOR WELLS ON CIBA PROPERTY. THESE WELLS WERE EXTENDED AS PART OF CORRECTIVE MEASURES CONSTRUCTION, BUT THE NEW WATER LEVEL REFERENCE ELEVATION WAS NOT SURVEYED AT THE TIME THIS FIGURE WAS PREPARED.

0 100 200
scale feet

FIGURE 6

GENERALIZED POTENTIOMETRIC SURFACE MAP
OVERBURDEN WATER-BEARING ZONE
SEPTEMBER 27, 2000

HERCULES INCORPORATED
CIBA SITE GLENS FALLS, N.Y.

BROWN AND CALDWELL MAHWAH, NEW JERSEY

18927-15 11/16/2000 (+18927-M1) PLOT 1=100 (18927-07.PCP)

from the adjacent saturated areas to the top of clay surface contours. Groundwater monitoring at the site indicates that the presence and extent of the unsaturated area(s) varies seasonally in response to precipitation and the available amount of recharge.

The generally consistent elevations of the clay surface directly west of the french drain, and the general south-southeast direction of groundwater flow indicates that overburden groundwater flow in the western part of the Main Plant Site, and just to the west, is expected to be captured by the french drain.

5.3 GROUNDWATER QUALITY

The results of the chemical analyses of the groundwater samples collected in May and September 2000 are provided in Table 2. Based on an internal validation by the laboratory and a review by the Brown and Caldwell project manager, these analytical results are considered usable. Results of the chromium and cyanide analyses are plotted in Figures 7 and 8, respectively. Also plotted on Figures 7 and 8 are the chromium and cyanide concentrations for the samples collected most recently from nearby overburden monitoring wells installed prior to this investigation as part of the groundwater monitoring network for the site. Note that several of these wells were last sampled several years ago. As discussed in the Work Plan, chromium and cyanide were used as indicators of the presence of site-related constituents. The Groundwater Protection Concentrations (GWPC) for chromium and cyanide are 50 µg/L and 100 µg/L, respectively. Values exceeding the GWPC are underlined in Figures 7 and 8.

The first round of samples was collected in May 2000 during generally high groundwater conditions. During this round, chromium and cyanide were only detected in the wells located closest to the Main Plant Site, WP-CC-21 and WP-0-50. Of these detections, only cyanide in well WP-CC-21 was above the GWPC. WP-CC-21 is situated approximately 40 feet to the west of the Main Plant Site property line. Concentrations in wells further west and downgradient of WP-CC-21 were below the GWPC.

TABLE 2

GROUNDWATER QUALITY DATA

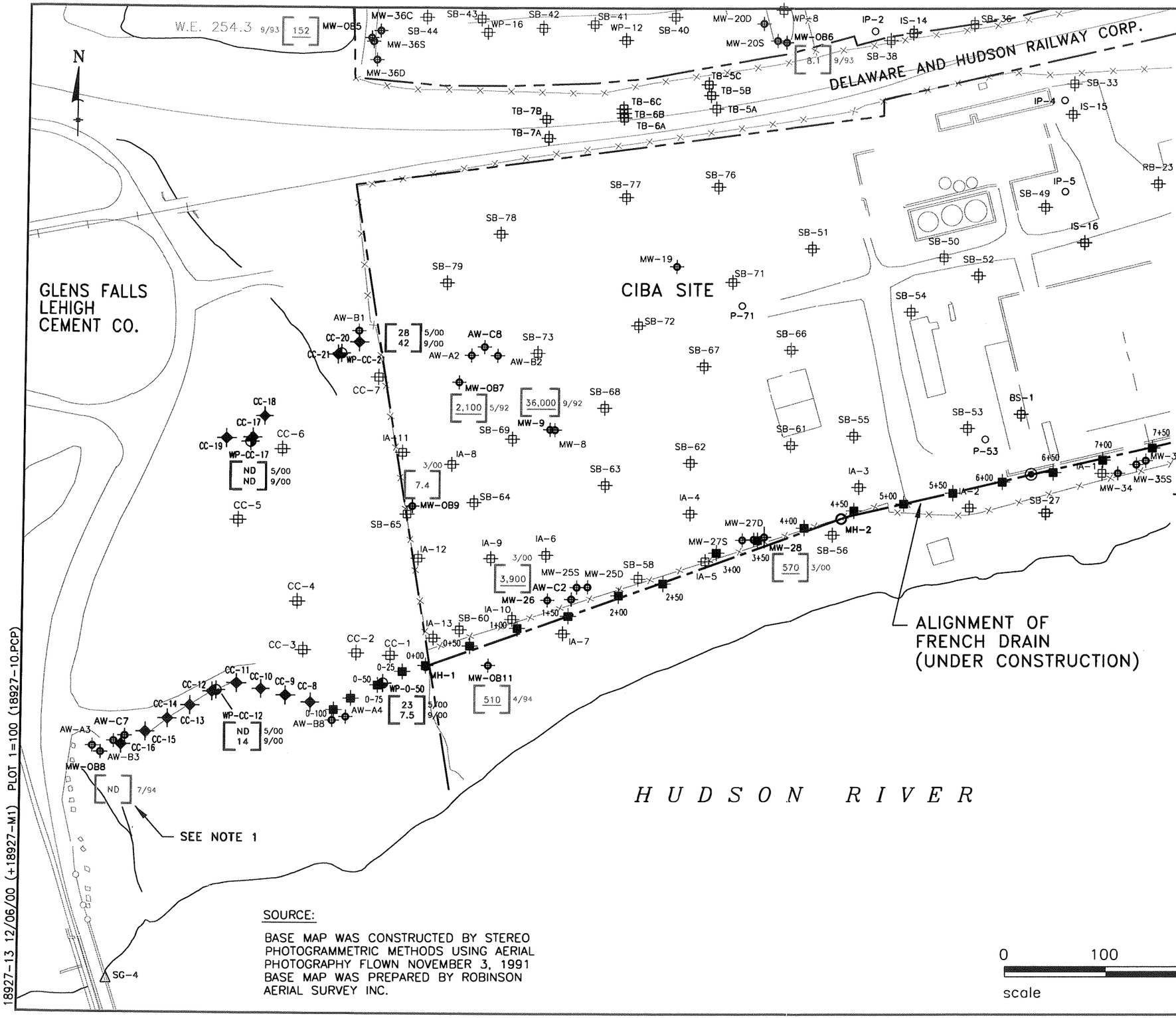
Location	Total Chromium (µg/l)		Total Cyanide (µg/l)	
	GWPC(a)- 50 µg/l		GWPC- 100 µg/l	
	May 2000 (b)	September 2000 (b)	May 2000 (b)	September 2000 (b)
WP-CC-12	5.0 U(c)	14	10 U	85
WP-CC-17	5.0 U	5.0 U	10 U	10 U
WP-CC-21	28	42	370	400
WP-0-50	23	7.5	53	240
DUP-050200 (WP-CC-21)	28	NA	370	NA
DUP-092800 (WP-CC-21)	NA (d)	41	NA	500

(a) GWPC-Groundwater Protection Concentration

(b) May 2000 samples collected on 5/2/00. September 2000 samples collected on 9/27/00 and 9/28/00.

(c) U - Constituent not detected above reporting limits. Value to left of U is reporting limit.

(d) NA - Data not available.



NOTE 1:

MW-OB8 IS TYPICALLY DRY, INCLUDING DURING THE MARCH 2000 GROUNDWATER MONITORING EVENT.

LEGEND:

- CC-19 — SOIL BORING DRILLED FOR THIS INVESTIGATION
- 5+50 — PILOT SOIL BORING FOR FRENCH DRAIN
- SB-69 — RFI SOIL BORING LOCATION
- WP-CC-17 — WELL POINT INSTALLED FOR THIS INVESTIGATION
- P-53 — PIEZOMETER LOCATION
- MW-OB7 — MONITORING WELL LOCATION
- SG-4 — STAFF GAUGE LOCATION
- PROPERTY BOUNDARY
- ALIGNMENT OF FRENCH DRAIN (AS PLANNED)
- MH-2 — LOCATION OF FRENCH DRAIN MANHOLE (AS PLANNED)
- SUMP "A" — FRENCH DRAIN COLLECTION SUMP (AS PLANNED)
- [23 5/00 / 7.5 9/00] — CHROMIUM CONCENTRATION IN GROUNDWATER (ug/l) FROM THIS INVESTIGATION (DATE OF SAMPLE ADJACENT TO DATA). UNDERLINED VALUES ARE ABOVE THE GWPC FOR CHROMIUM (50 ug/l).
- [510 4/94] — CHROMIUM CONCENTRATION IN GROUNDWATER (ug/l) FROM MOST RECENT MONITORING EVENT (DATE OF SAMPLE ADJACENT TO DATA). UNDERLINED VALUES ARE ABOVE THE GWPC FOR CHROMIUM (50 ug/l).
- ND — CONSTITUENT NOT DETECTED

SOURCE:

BASE MAP WAS CONSTRUCTED BY STEREO PHOTOGRAMMETRIC METHODS USING AERIAL PHOTOGRAPHY FLOWN NOVEMBER 3, 1991 BASE MAP WAS PREPARED BY ROBINSON AERIAL SURVEY INC.

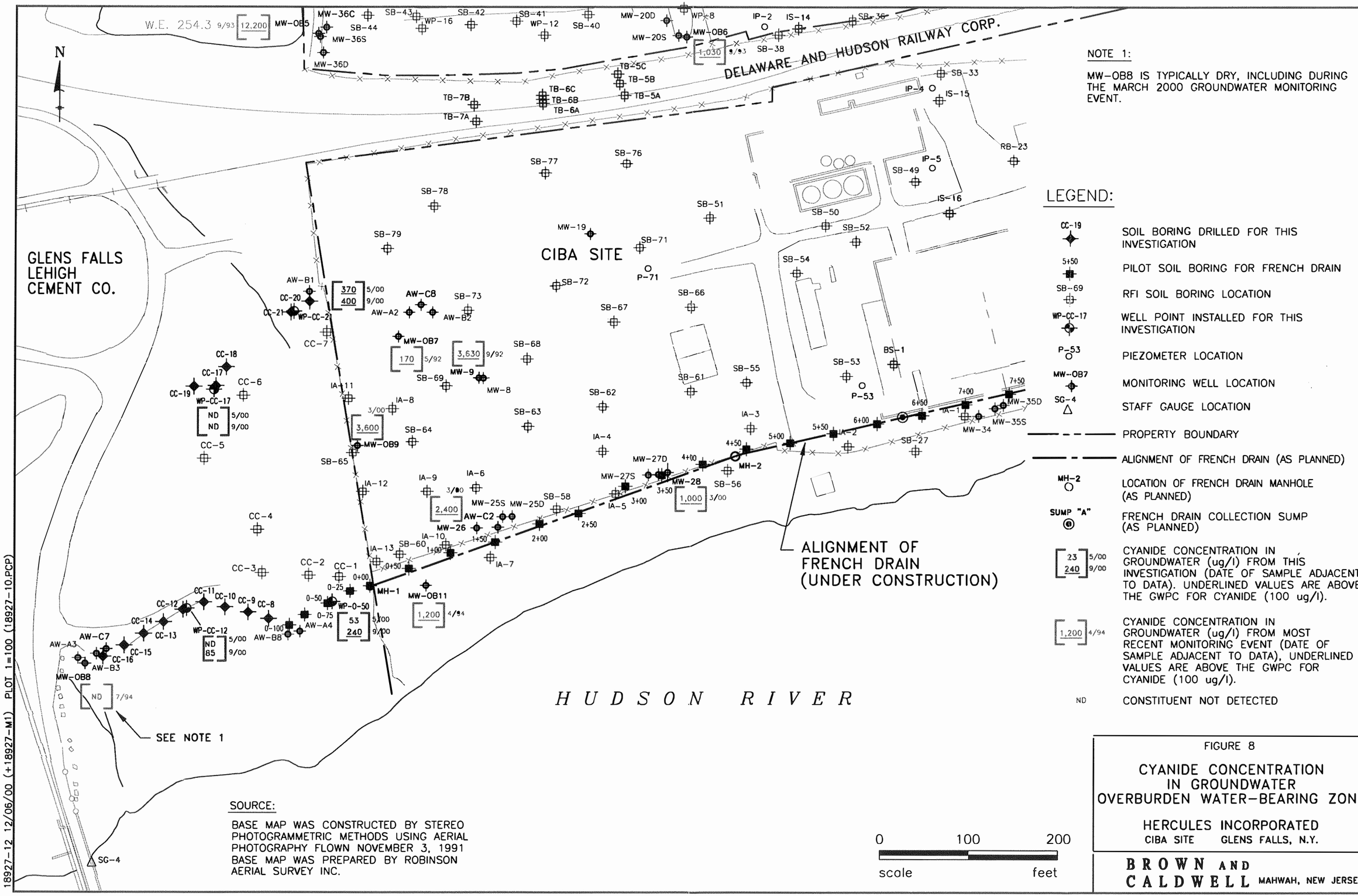
FIGURE 7

CHROMIUM CONCENTRATION
IN GROUNDWATER
OVERBURDEN WATER-BEARING ZONE

HERCULES INCORPORATED
CIBA SITE GLENS FALLS, N.Y.

BROWN AND CALDWELL MAHWAH, NEW JERSEY

18927-13 12/06/00 (+18927-M1) PLOT 1=100 (18927-10.PCP)



NOTE 1:

MW-OB8 IS TYPICALLY DRY, INCLUDING DURING THE MARCH 2000 GROUNDWATER MONITORING EVENT.

LEGEND:

- CC-19 — SOIL BORING DRILLED FOR THIS INVESTIGATION
- 5+50 — PILOT SOIL BORING FOR FRENCH DRAIN
- SB-69 — RFI SOIL BORING LOCATION
- WP-CC-17 — WELL POINT INSTALLED FOR THIS INVESTIGATION
- P-53 — PIEZOMETER LOCATION
- MW-OB7 — MONITORING WELL LOCATION
- SG-4 — STAFF GAUGE LOCATION
- PROPERTY BOUNDARY
- ALIGNMENT OF FRENCH DRAIN (AS PLANNED)
- MH-2 — LOCATION OF FRENCH DRAIN MANHOLE (AS PLANNED)
- SUMP "A" — FRENCH DRAIN COLLECTION SUMP (AS PLANNED)
- [23 / 240] 5/00 9/00 — CYANIDE CONCENTRATION IN GROUNDWATER (ug/l) FROM THIS INVESTIGATION (DATE OF SAMPLE ADJACENT TO DATA). UNDERLINED VALUES ARE ABOVE THE GWPC FOR CYANIDE (100 ug/l).
- [1,200] 4/94 — CYANIDE CONCENTRATION IN GROUNDWATER (ug/l) FROM MOST RECENT MONITORING EVENT (DATE OF SAMPLE ADJACENT TO DATA), UNDERLINED VALUES ARE ABOVE THE GWPC FOR CYANIDE (100 ug/l).
- ND — CONSTITUENT NOT DETECTED

FIGURE 8

CYANIDE CONCENTRATION IN GROUNDWATER OVERBURDEN WATER-BEARING ZONE

HERCULES INCORPORATED
CIBA SITE GLENS FALLS, N.Y.

BROWN AND CALDWELL MAHWAH, NEW JERSEY

The second round of groundwater samples was collected in August 2000 during generally low groundwater conditions. Chromium and cyanide were again detected in WP-CC-21 and WP-0-50. During this round, the cyanide concentration in both of these wells was above the GWPC, whereas during the previous round, the GWPC was exceeded in WP-CC-21 only. Chromium concentrations in these wells were below the GWPC. Chromium and cyanide were also detected in WP-CC-12, at concentrations below the GWPC. These constituents were not detected in WP-CC-12 during the previous sampling round. The increase in cyanide concentration in WP-0-50, and the detection of chromium and cyanide in WP-CC-12 during the second round are likely associated with slight shifts in the constituent plumes due to minor seasonal changes in groundwater flow paths.

Based on the data from the two rounds of sampling, the only wells where GWPCs are at times exceeded are proximal to the Main Plant Site property line. The decrease in the groundwater table elevation in the vicinity of the french drain, once it becomes operational, will likely shift groundwater flow paths in the area just west of the drain toward the drain to a greater degree. Thus, groundwater just west of the Main Plant Site, in the vicinity of these well locations, is expected to be within the capture zone of the french drain. Further, based on the evaluation presented in Section 2.4.1.1 of the "Corrective Measures Study for On-Site Soil and Groundwater" (Eckenfelder Engineering, P.C., August 1994), and the concentrations measured in this investigation, the current mass flux of site-related constituents from this area is not expected to result in detectable concentrations in the Hudson River.

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 CONCLUSIONS

The following conclusions are made based on the findings of this investigation, and previous investigations:

- The elevation of the surface of the lacustrine clay unit is relatively consistent from the western end of the french drain to at least the position of well MW-OB8, located approximately 330 feet to the west.

- Groundwater flow through the overburden water-bearing zone in the area of investigation is to the south-southeast toward the Hudson River.

- During periods of relatively lower precipitation, there are areas where the deposits above the lacustrine clay unit are unsaturated. The extent of such areas is expected to vary with fluctuating water levels.

- Groundwater flow in the overburden from the western part of the Main Plant Site is expected to be captured by the planned french drain.

- Concentrations of site-related constituents in the overburden groundwater in the area located west of the planned french drain are generally below GWPCs, with the exception of the wells closest to the Main Plant Site property line, where cyanide is at times above the GWPC. Groundwater in the vicinity of these locations is expected to be within the capture zone of the french drain.

- The current mass flux of site-related constituents in groundwater from the area west of the french drain is not expected to result in detectable concentrations of constituents in the Hudson River.

6.2 RECOMMENDATIONS

The following recommendations are made based on the findings and conclusions of this investigation:

- Add well points WP-0-50, WP-CC-12, WP-CC-17, and WP-CC-21 to the network of wells in which water levels will be measured for the hydraulic performance monitoring of the overburden groundwater extraction system (i.e., the french drain) currently under construction as part of the CM for the Ciba Site. Water level data from these well points will be used to evaluate the extent of the capture zone in the area west of the Main Plant Site.

- In the "CMI Groundwater Monitoring Plan Technical Approach" (Eckenfelder Engineering, P.C., April 1999) it was proposed that well MW-OB8 be included in the groundwater quality monitoring well network because it was the closest overburden well to the west of the french drain. However, MW-OB8 is positioned within an area where typically there is no saturation above the lacustrine clay, and thus no water in the well. It is recommended that well point WP-CC-12, installed as part of this investigation, be substituted for MW-OB8 because:

  - It is closer to the western end of the french drain and the expected limit of the capture zone; and

  - Based on the findings of this investigation, it is in an area where saturation above the clay is more frequent.

Per the approved CM Design, upon completion of CM construction activities, the CMI Groundwater Monitoring Plan will be prepared. The primary purpose of the CMI Groundwater Monitoring Plan is to describe a program for monitoring and evaluating the performance and effectiveness of the groundwater extraction systems currently being installed as part of the CM at the Main Plant Site. The CMI Groundwater Monitoring Plan would incorporate the approach described in the "CMI Groundwater Monitoring Plan

Technical Approach" (Eckenfelder Engineering, P.C., April 1999), as modified by comments from the NYSDEC in their September 9, 1999 letter, and the above-described recommendations, if approved by NYSDEC.

REFERENCES

Brown and Caldwell, January 2000. "Groundwater Investigation Work Plan, Area West of Main Plant Site, Ciba Site, Glens Falls, New York".

Brown and Caldwell, April 2000. Telefax from R. O'Neill (Brown and Caldwell) to G. Casper (NYSDEC) and G. Schmiesing (Hercules), April 28, 2000.

Brown and Caldwell, April 1999. Volume VII, Appendix L ("French Drain Pilot Boring Logs") of the "Final Corrective Measures Design, Ciba Site, Glens Falls, New York".

Brown and Caldwell, August 2000. "Interim Report, Groundwater Investigation, Area West of the Main Plant Site, Ciba Site, Glens Falls, New York".

Eckenfelder Engineering, P.C., April 1999. "CMI Groundwater Monitoring Plan Technical Approach," Attachment E of the Final Corrective Measures (CM) Design, Ciba Site, Glens Falls, New York.

Eckenfelder Engineering, P.C., August 1994. "Corrective Measures Study for On-Site Soil and Groundwater, Ciba-Geigy Site, Glens Falls, New York".

Eckenfelder Engineering, P.C., March 1993. "RCRA Facility Investigation Report for Groundwater, CIBA-GEIGY Site, Glens Falls, New York".

Eckenfelder Engineering, P.C., July 1992. "Site-Wide Soil Sampling Report Addendum (Final RFI Report), CIBA-GEIGY Main Plant Site, Glens Falls, New York".

Eckenfelder Inc., March 1997. "Groundwater Monitoring Plan, CIBA-GEIGY Site, Glens Falls, New York".

Eckenfelder Inc., June 1997. "Phase II RFI Report for Adjacent Surface Water Sediments AOC for the Ciba Site, Glens Falls, New York".

Eckenfelder Inc., May 1994. "RFI Phase I Report for the Adjacent Surface Water Sediments AOC, CIBA-GEIGY Site, Glens Falls, New York".

Eckenfelder Inc., October 1994. "RFI Report for the Adjacent Off-Site Land AOC, CIBA-GEIGY Site, Glens Falls, New York".

Eckenfelder Inc., July 1993. "Quality Assurance Project Plan for the RCRA Facility Investigation and Groundwater Monitoring at the CIBA-GEIGY Site, Glens Falls, New York".

Eckenfelder Inc., September 1991. "Site-Wide Soil Sampling Report (Interim RFI Report), CIBA -GEIGY Main Plant Site, Glens Falls, New York".

REFERENCES (CONTINUED)

New York State Department of Environmental Conservation (NYSDEC), February 2000. Letter from G. Casper (NYSDEC) to G. Schmiesing (Hercules), February 22, 2000 (received on March 6, 2000).

New York State Department of Environmental Conservation (NYSDEC), September 1999. Letter from G. Casper (NYSDEC) to G. Schmiesing (Hercules), September 9, 1999.

APPENDIX A

CONDITIONAL APPROVAL OF WORK PLAN FROM NYSDEC

New York State Department of Environmental Conservation
Division of Solid and Hazardous Materials
Bureau of Radiation & Hazardous Site Management, Room 460
50 Wolf Road, Albany, New York 12233-7252
Phone: (518) 457-9253 • FAX: (518) 457-9240
Website: www.dec.state.ny.us

DAY BOOK COPY

John P. Cahill
Commissioner

February 22, 2000

Mr. Glen Schmiesing
Hercules, Incorporated
Hercules Plaza
Wilmington, Delaware 19894

Post-it® Fax Note 7671	Date 3/16/00	# of pages ▶ 2
To Rob O'Neil	From Gary Casper	
Co./Dept. Ecksfelder	Co. NYSDEC	
Phone #	Phone #	
Fax (201) 818-6057	Fax #	

Dear Mr. Schmiesing:

Re: Ciba-Geigy [illegible], New York
Approval- PTP and Area West of Main Plant Work Plans

The Department has reviewed your Work Plans for additional investigative work at the Glens Falls site. The Work Plans are conditionally approved in accordance with the respective additional requirements, comments, and clarifications outlined below.

A. PRE-TREATMENT PLANT

1. Based on the assumptions made in the work plan, the depth to the top-of-clay is expected to be within reach of hand auguring equipment. This will likely be the case. However, a contingency plan must be in place to complete the work if the clay surface is deeper than hand auguring can reach. It is assumed that Geoprobe equipment will be able to complete the work, if needed. Please indicate if this is not your intention.

2. The work plan implies that no further investigations will be performed in this area if the results of this study define the extent of the groundwater contamination exceeding the groundwater protection concentrations. To clarify, this would be true only if it is demonstrated that there will not be any further spread of the plume beyond its defined extent.

B. AREA WEST OF MAIN PLANT SITE

1. In order to better define the top-of-clay surface in the areas north and west of the planned removal area, additional borings are needed. There appear to be saturated conditions in the overburden near Well AW-B1. However, conditions are not known elsewhere. Please add one more boring near AW-B1 and two more borings near sampling point CC-6 in order to establish three data points at each location. This will provide more precise interpretation of the top-of-clay surface at these locations and allow better placement of the groundwater monitoring points. The additional data will also aid in finding saturated conditions if the initial borings are dry.

2. Data from the proposed borings along the top of the slope at the river need to be interpreted beyond the direct boring-to-boring comparison, to determine if there are potential low spots in the top-of-clay surface between the borings. All available data, including the actual boring locations, must be considered in the analysis to determine if additional intermediate borings are justified.

3. The top paragraph on page 3-3 states that the well points may be driven to depth. Since the proposal specifies PVC well pipes and screens, this method seems inappropriate. It is assumed that they will be installed in pre-drilled boreholes using the Geoprobe equipment. If other procedures are to be used, further clarification is needed.

4. At the bottom of page 3-3 to page 3-4, it is stated that there will be no investigation within the planned soil removal area directly west of MW-OB9. This was discussed and approved in a telephone conversation with your consultant. However, it was also understood that this was only for the immediate investigation, since there was some likelihood that the wastes in this area could be contributing to the observed groundwater contamination at MW-OB9. It was also agreed that the removal operations would likely disturb or destroy any well points that were installed. For these reasons, investigation of this immediate area was deferred. It was only deferred, and not eliminated as a requirement. The need for and exact nature of any further groundwater investigation needed in this area will be reevaluated based on data collected under the scope of this work plan and likely after the waste removal operations have been completed.

5. We have interpreted section 3.2.4 to require only one groundwater sample per monitoring point. If water is available, each well must be sampled at least twice during the proposed six-month data collection period, to cover high and low groundwater conditions. If a large number of well points are installed, we might consider a reduced number for sampling, if warranted by the data existing at the time. This will require further discussion.

6. Relative to the second paragraph of Section 3.3, and the entire work plan in general, it is necessary to clarify that all determinations and decisions will continue to be based on all available data and site interpretations rather than any particular set of data. I think we are in agreement on this. However, Section 3.3 reads that the need for additional investigations will be based on "the data collected". This could imply only data collected under this work plan.

If you are in agreement with the conditions of this approval, please schedule the field work in accordance with the schedules in the respective work plans. I intend to be present during some phases of the field work and would appreciate at least five business days advance notice before the start of work. If you have any questions, please call me at (518) 457-9253.

Sincerely,

Gary D. Casper
Senior Engineering Geologist

cc: J. Reidy, EPA Region II
G. Stahler, Region 5, Raybrook

APPENDIX B

SOIL BORING LOGS

BROWN AND CALDWELL | **BORING LOG** | **Well Name/Location: CC-8**

Project: *GWI West of MPS, Ciba Site* | **Project No.:** *18927.001* | **Start Date:** *4-24-00*
Client: *Hercules Incorporated, Glens Falls, NY* | **Finish Date:** *4-24-00*

DRILLING DATA	SAMPLING METHODS		
Inspector: *Cynthia Doughty*	**Sampler Type:** *Core*	**Tube Type:** *NA*	**Core Type:** *NA*
Contractor: *Maxim/ Jeff Hammond*	**Diameter:** *2 inch (1.5 in. Core)*	**Diameter:** *NA*	**Diameter:** *NA*
Equipment: *Geoprobe- Direct Push*	**Other:** *NA*	**Other:** *NA*	**Other:** *NA*
Method: *Macro-Core Closed Piston Sampler*			

WELL CONSTRUCTION		WELL DEVELOPMENT	SURVEY DATA	
Riser Material: *NA*	**Screen Material:** *NA*	**Method:** *NA*	**Datum:** *NGVD*	
Diameter (ID): *NA*	**Diameter (ID):** *NA*	**Duration:** *NA*	**Grade:** *239.72*	**North:** *1205727.3264*
Coupling: *NA*	**Coupling:** *NA*	**Gals. Purged:** *NA*	**TWC:** *NA*	**East:** *691130.2732*
		Slug Test: *NA*	**TPC:** *NA*	

SOIL / ROCK — **SAMPLE DATA** — **Geophysical Log:** ☐ *NO* — **Comments:** *NA*

Depth (feet)	WELL DETAIL	Run No. / Samp. No	Hydraul. Cond. cm/sec / Blows/ 6 in.	Rec. (ft.)	RQD. / USCS	HNU (ppm)	VISUAL CLASSIFICATION	REMARKS
		S-1		2.2'			**FILL** Brown mf GRAVEL, some Clay. **LACUSTRINE DEPOSITS @ 1.0'.** Medium brown SILT & CLAY, trace organic matter. @ 1.3' orange to green f to m SAND, trace to no Silt.	
	Bentonite backfill	S-2		.9'				
5		S-3		.8'				
	Water in Boring at 8.2'. Borehole collapsed to @ 8.6' after sampling.	S-4		1.0'			@ 8.8' brown fm GRAVEL and cmf SAND, trace Silt.	
10		S-5		1.3'			@ 10.7' layer of orange Clayey SILT. **LACUSTRINE CLAY @ 11.1'** Gray to light brown Silty CLAY, wet.	
		S-6		3.0'				
15							End of Borehole	
20								
25								

BROWN AND CALDWELL | **BORING LOG** | **Well Name/Location: CC-9**

Project: *GWI West of MPS, Ciba Site* | **Project No.:** *18927.001* | **Start Date:** *4-24-00*
Client: *Hercules Incorporated, Glens Falls, NY* | **Finish Date:** *4-24-00*

DRILLING DATA

Inspector: *Cynthia Doughty*
Contractor: *Maxim/ Jeff Hammond*
Equipment: *Geoprobe- Direct Push*
Method: *Macro-Core Closed Piston Sampler*

SAMPLING METHODS

Sampler Type: *Core* | **Tube Type:** *NA* | **Core Type:** *NA*
Diameter: *2 inch (1.5 in. Core)* | **Diameter:** *NA* | **Diameter:** *NA*
Other: *NA* | **Other:** *NA* | **Other:** *NA*

WELL CONSTRUCTION

Riser Material: *NA* | **Screen Material:** *NA*
Diameter (ID): *NA* | **Diameter (ID):** *NA*
Coupling: *NA* | **Coupling:** *NA*

WELL DEVELOPMENT

Method: *NA*
Duration: *NA*
Gals. Purged: *NA*
Slug Test: *NA*

SURVEY DATA

Datum: *NGVD*
Grade: *242.47* | **North:** *1205734.0805*
TWC: *NA* | **East:** *691106.4196*
TPC: *NA*

SOIL / **ROCK** — **SAMPLE DATA**

Geophysical Log: ☐ *NO*
Comments: *NA*

Depth (feet)	WELL DETAIL	Run No. / Samp. No	Hydraul. Cond. cm/sec / Blows/ 6 in.	Rec. (ft.) / Rec. (ft.)	RQD. / USCS	HNU (ppm) / HNU (ppm)	VISUAL CLASSIFICATION	REMARKS
	Bentonite backfill	S-1		.7'			**FILL** Brown/gray SILT & CLAY and mf GRAVEL.	
5		S-2		1.6'			**LACUSTRINE DEPOSITS @ 4.1'.** Medium brown, orange, reddish, f-mf SAND, trace (-) to little Silt.	
		S-3		1.5'				
		S-4		1.8'				
10	Water in boring at 10.6'. Borehole collapsed to @ 10.9' after sampling.	S-5		1.4'				
		S-6		1.0'			@ 12.4' medium brown/orange cmf SAND, some Gravel, trace Silt. Moist to wet.	
15		S-7		2.6'			**LACUSTRINE CLAY @ 14.0'.** Alternating layers of gray/ light brown Silty CLAY.	
							End of Borehole	
20								
25								

BROWN AND CALDWELL | **BORING LOG** | **Well Name/Location: CC-10**

Project: *GWI West of MPS, Ciba Site* | **Project No.:** *18927.001* | **Start Date:** *4-25-00* | **Finish Date:** *4-25-00*

Client: *Hercules Incorporated, Glens Falls, NY*

DRILLING DATA	SAMPLING METHODS		
Inspector: *Cynthia Doughty*	**Sampler Type:** *Core*	**Tube Type:** *NA*	**Core Type:** *NA*
Contractor: *Maxim/ Jeff Hammond*	**Diameter:** *2 inch (1.5 in. Core)*	**Diameter:** *NA*	**Diameter:** *NA*
Equipment: *Geoprobe- Direct Push*	**Other:** *NA*	**Other:** *NA*	**Other:** *NA*
Method: *Macro-Core Closed Piston Sampler*			

WELL CONSTRUCTION		WELL DEVELOPMENT	SURVEY DATA	
Riser Material: *NA*	**Screen Material:** *NA*	**Method:** *NA*	**Datum:** *NGVD*	
Diameter (ID): *NA*	**Diameter (ID):** *NA*	**Duration:** *NA*	**Grade:** *246.70*	**North:** *1205740.4237*
Coupling: *NA*	**Coupling:** *NA*	**Gals. Purged:** *NA*	**TWC:** *NA*	**East:** *691081.3768*
		Slug Test: *NA*	**TPC:** *NA*	

SOIL / **ROCK** — **SAMPLE DATA**

Geophysical Log: ☐ *NO*

Comments: *NA*

Depth (feet)	WELL DETAIL	Run No. / Samp. No	Hydraul. Cond. cm/sec / Blows/ 6 in.	Rec. (ft.)	RQD. / USCS	HNU (ppm)	VISUAL CLASSIFICATION	REMARKS
		S-1		0.3'			**FILL** Medium brown f SAND, some (-) Silt & Clay.	
	Bentonite backfill							
5		S-2		1.7'			@ 4.8' brown m GRAVEL and CLAY & SILT.	
		S-3		1.4'			@ 6.0' brown SILT & CLAY grading to CLAY & SILT, little f/m Gravel, damp.	
		S-4		0.2'				
10		S-5		1.0'			**LACUSTRINE DEPOSITS @ 10.0'.** Medium dark brown, orange mf SAND, trace to trace (-) Silt. Trace bone fragments, damp.	
		S-6		1.8'				
	Water in Boring at 14.2'. Borehole collapsed to @ 14.3' after sampling.	S-7		1.6'				
15		S-7		2.1'				
							LACUSTRINE CLAY @ 17.0'. Light brown with gray laminae Silty CLAY.	
							End of Borehole	
20								
25								

BROWN AND CALDWELL | **BORING LOG** | **Well Name/Location: CC-11**

Project: *GWI West of MPS, Ciba Site* | **Project No.:** *18927.001* | **Start Date:** *4-25-00* | **Finish Date:** *4-25-00*

Client: *Hercules Incorporated, Glens Falls, NY*

DRILLING DATA	SAMPLING METHODS		
Inspector: *Cynthia Doughty*	**Sampler Type:** *Core*	**Tube Type:** *NA*	**Core Type:** *NA*
Contractor: *Maxim/ Jeff Hammond*	**Diameter:** *2 inch (1.5 in. Core)*	**Diameter:** *NA*	**Diameter:** *NA*
Equipment: *Geoprobe- Direct Push*	**Other:** *NA*	**Other:** *NA*	**Other:** *NA*
Method: *Macro-Core Closed Piston Sampler*			

WELL CONSTRUCTION		WELL DEVELOPMENT	SURVEY DATA	
Riser Material: *NA*	**Screen Material:** *NA*	**Method:** *NA*	**Datum:** *NGVD*	
Diameter (ID): *NA*	**Diameter (ID):** *NA*	**Duration:** *NA*	**Grade:** *248.19*	**North:** *1205746.3798*
Coupling: *NA*	**Coupling:** *NA*	**Gals. Purged:** *NA*	**TWC:** *NA*	**East:** *691057.5419*
		Slug Test: *NA*	**TPC:** *NA*	

SOIL / **ROCK** — **SAMPLE DATA**

Geophysical Log: ☐ *NO*

Comments: *NA*

Depth (feet)	WELL DETAIL	Run No. / Samp. No	Hydraul. Cond. cm/sec / Blows/ 6 in.	Rec. (ft.)	RQD. / USCS	HNU (ppm)	VISUAL CLASSIFICATION	REMARKS
		S-1	na	2.3'	na		**FILL** Brown cmf GRAVEL. @ 0.3' medium brown f SAND, some (-) Silt & Clay.	
5	Bentonite backfill	S-2	na	2.1'	na		@ 4.3' medium brown SILT & CLAY, grading to CLAY & SILT, little (-) to some cmf Gravel.	
		S-3	na	1.6'	na			
10		S-4	na	1.5'	na		**LACUSTRINE DEPOSITS @ 9.1'.** Orange/brown mf SAND, trace to trace (-) Silt.	
		S-5	na	1.8'	na			
15	Boring collapse to @ 15' after sampling. No water at 15.2'.	S-6	na	1.5'	na			
		S-7	na	1.6'	na			
		S-8	na	1.9'	na		@ 18.0' medium orange brown cmf SAND. **LACUSTRINE CLAY @ 18.8'.** Medium brown with gray laminae Silty CLAY. Moist to Wet	
20							End of Borehole	
25								

BROWN AND CALDWELL | **BORING LOG** | **Well Name/Location: CC-12**

Project: *GWI West of MPS, Ciba Site* | **Project No.:** *18927.001* | **Start Date:** *4-25-00*
Client: *Hercules Incorporated, Glens Falls, NY* | **Finish Date:** *4-25-00*

DRILLING DATA

Inspector: *Cynthia Doughty*
Contractor: *Maxim/ Jeff Hammond*
Equipment: *Geoprobe- Direct Push*
Method: *Macro-Core Closed Piston Sampler*

SAMPLING METHODS

Sampler Type: *Core* | **Tube Type:** *NA* | **Core Type:** *NA*
Diameter: *2 inch (1.5 in. Core)* | **Diameter:** *NA* | **Diameter:** *NA*
Other: *NA* | **Other:** *NA* | **Other:** *NA*

WELL CONSTRUCTION

Riser Material: *NA* | **Screen Material:** *NA*
Diameter (ID): *NA* | **Diameter (ID):** *NA*
Coupling: *NA* | **Coupling:** *NA*

WELL DEVELOPMENT

Method: *NA*
Duration: *NA*
Gals. Purged: *NA*
Slug Test: *NA*

SURVEY DATA

Datum: *NGVD*
Grade: *249.09* | **North:** *1205737.5001*
TWC: *NA* | **East:** *691034.3189*
TPC: *NA*

SOIL / **ROCK** | **SAMPLE DATA**

Geophysical Log: ☐ *NO*
Comments: *NA*

Depth (feet)	WELL DETAIL	Run No. / Samp. No	Hydraul. Cond. cm/sec / Blows/ 6 in.	Rec. (ft.)	RQD. / USCS	HNU (ppm)	VISUAL CLASSIFICATION	REMARKS
		S-1		2.3'			**FILL** Brown mf GRAVEL. @ 0.4' medium brown, gray Clayey SILT, little (-) cmf Gravel.	
	Bentonite backfill							
5		S-2		3.3'			@ 4.0' medium brown f SAND, some (-) Silt & Clay, trace Gravel.	
		S-3		1.9'			@ 8.0' medium brown CLAY & SILT, some (-) cmf Gravel.	
10		S-4		1.3'			@ 10.0' GRAVEL. @ 10.3' medium dark brown SILT & CLAY, some Gravel.	
	No water at 13.6'.	S-5		2.1'			**LACUSTRINE DEPOSITS @ 12.0'.** Gray SILT & CLAY. @ 12.9' medium brown CLAY & SILT. @ 13.2' brown mf SAND, some Silt & Clay.	
15	Boring collapsed to @ 14.9' after sampling.	S-6		1.8'			@ 14.0' gray/brown SILT & CLAY, some (+) to and mf Sand.	
		S-7		1.7'			@ 16.3' medium orange brown mf SAND, trace to trace (-) Silt.	
		S-8		1.5'			@ 19.3' medium orange brown cmf SAND, no to little Gravel.	
20		S-9		2.2'			**LACUSTRINE CLAY @ 20.3.** Medium brown/ gray Silty CLAY. Wet	
							End of Borehole	
25								

BROWN AND CALDWELL | **BORING LOG** | **Well Name/Location: CC-13**

Project: *GWI West of MPS, Ciba Site* | **Project No.:** *18927.001* | **Start Date:** *4-25-00*
Client: *Hercules Incorporated, Glens Falls, NY* | **Finish Date:** *4-25-00*

DRILLING DATA

Inspector: *Cynthia Doughty*
Contractor: *Maxim/ Jeff Hammond*
Equipment: *Geoprobe- Direct Push*
Method: *Macro-Core Closed Piston Sampler*

SAMPLING METHODS

Sampler Type: *Core* | **Tube Type:** *NA* | **Core Type:** *NA*
Diameter: *2 inch (1.5 in. Core)* | **Diameter:** *NA* | **Diameter:** *NA*
Other: *NA* | **Other:** *NA* | **Other:** *NA*

WELL CONSTRUCTION

Riser Material: *NA* | **Screen Material:** *NA*
Diameter (ID): *NA* | **Diameter (ID):** *NA*
Coupling: *NA* | **Coupling:** *NA*

WELL DEVELOPMENT

Method: *NA*
Duration: *NA*
Gals. Purged: *NA*
Slug Test: *NA*

SURVEY DATA

Datum: *NGVD*
Grade: *247.62* | **North:** *1205723.5402*
TWC: *NA* | **East:** *691012.6814*
TPC: *NA*

SOIL / ROCK | **SAMPLE DATA** | **Geophysical Log:** ☐ *NO*
Comments: *NA*

Depth (feet)	WELL DETAIL	Samp. No	Run No.	Blows/ 6 in.	Hydraul. Cond. cm/sec	Rec. (ft.)	USCS	RQD.	HNU (ppm)	VISUAL CLASSIFICATION	REMARKS
0	Bentonite backfill	S-1				2.7'				**FILL** Brown mf GRAVEL. @ 0.3' dark brown/ gray Clayey SILT, some (-) Gravel. @ 1.3' medium brown f SAND, some (-) Silt & Clay, little Gravel.	
5		S-2				2.8'				@ 4.0' medium brown SILT & CLAY, some (-) Gravel. @ 5.0' medium brown SAND, little (+) Gravel, trace Silt. @ 5.3' medium brown/gray SILT & CLAY to Clayey SILT, little Gravel.	
	Boring collapsed to @ 7.5' after sampling. No water at 7.6.	S-3				1.7'				**LACUSTRINE DEPOSITS @ 9.0'.** Gray SILT & CLAY to Clayey SILT, trace organic matter.	
10		S-4				1.9'				@ 11.2'. -11.6' f SAND, some Silt & Clay.	
		S-5				1.7'					
15		S-6				1.6'				@ 15.3' medium orange brown mf SAND, little to some mf Gravel, trace to no Silt. Moist to wet	
		S-7				1.4'				@ 17.2' orange brown cmf SAND, some mf gravel, moist to wet.	
		S-8				2.2'				**LACUSTRINE CLAY @ 18.4'.** Alternating layers of brown/ gray Silty CLAY, moist to wet.	
20										End of Borehole	
25											

BROWN AND CALDWELL | **BORING LOG** | **Well Name/Location: CC-14**

Project: *GWI West of MPS, Ciba Site* | **Project No.:** *18927.001* | **Start Date:** *4-26-00*
Client: *Hercules Incorporated, Glens Falls, NY* | **Finish Date:** *4-26-00*

DRILLING DATA

Inspector: *Cynthia Doughty*
Contractor: *Maxim/ Jeff Hammond*
Equipment: *Geoprobe- Direct Push*
Method: *Macro-Core Closed Piston Sampler*

SAMPLING METHODS

Sampler Type: *Core* | **Tube Type:** *NA* | **Core Type:** *NA*
Diameter: *2 inch (1.5 in. Core)* | **Diameter:** *NA* | **Diameter:** *NA*
Other: *NA* | **Other:** *NA* | **Other:** *NA*

WELL CONSTRUCTION

Riser Material: *NA* | **Screen Material:** *NA*
Diameter (ID): *NA* | **Diameter (ID):** *NA*
Coupling: *NA* | **Coupling:** *NA*

WELL DEVELOPMENT

Method: *NA*
Duration: *NA*
Gals. Purged: *NA*
Slug Test: *NA*

SURVEY DATA

Datum: *NGVD*
Grade: *245.61* | **North:** *1205710.3147*
TWC: *NA* | **East:** *690990.3961*
TPC: *NA*

SOIL / **ROCK** | **SAMPLE DATA** | **Geophysical Log:** ☐ *NO*
Comments: *NA*

Depth (feet)	WELL DETAIL	Run No. / Samp. No	Hydraul. Cond. cm/sec / Blows/ 6 in.	Rec. (ft.)	RQD. / USCS	HNU (ppm)	VISUAL CLASSIFICATION	REMARKS
		S-1		1.9'			**FILL** Medium brown cm GRAVEL and SILT & CLAY.	
	Bentonite backfill							
5		S-2		3.2'			@ 4.0' medium brown Clayey SILT, little mf Gravel.	
		S-3		1.7'			@ 8.0' medium brown mf SAND, some (-) mf Gravel, little (+) Silt.	
10		S-4		2.0'			**LACUSTRINE DEPOSITS @ 10.0'.** Medium brown to gray CLAY & SILT. @ 10.7' medium brown to gray Clayey SILT.	
	No water at 12.0'.	S-5		1.9'			@ 13.4' medium brown mf SAND, trace Silt.	
15	Boring collapsed to 14.1' after sampling.	S-6		1.5'			@ 14.4' brown cmf GRAVEL, some cmf Sand, moist.	
		S-7		2.6'			@ 14.8' grayish-brown SILT & CLAY, moist. **LACUSTRINE CLAY @ 16.0'.** Alternating layers of brown/gray Silty CLAY, moist to wet.	
20							End of Borehole	
25								

BROWN AND CALDWELL | **BORING LOG** | **Well Name/Location: CC-14**

Project: *GWI West of MPS, Ciba Site*
Client: *Hercules Incorporated, Glens Falls, NY*
Project No.: *18927.001*
Start Date: *4-26-00*
Finish Date: *4-26-00*

DRILLING DATA

Inspector: *Cynthia Doughty*
Contractor: *Maxim/ Jeff Hammond*
Equipment: *Geoprobe- Direct Push*
Method: *Macro-Core Closed Piston Sampler*

SAMPLING METHODS

Sampler Type: *Core* **Diameter:** *2 inch (1.5 in. Core)* **Other:** *NA*
Tube Type: *NA* **Diameter:** *NA* **Other:** *NA*
Core Type: *NA* **Diameter:** *NA* **Other:** *NA*

WELL CONSTRUCTION

Riser Material: *NA* **Screen Material:** *NA*
Diameter (ID): *NA* **Diameter (ID):** *NA*
Coupling: *NA* **Coupling:** *NA*

WELL DEVELOPMENT

Method: *NA*
Duration: *NA*
Gals. Purged: *NA*
Slug Test: *NA*

SURVEY DATA

Datum: *NGVD*
Grade: *245.61* **North:** *1205710.3147*
TWC: *NA* **East:** *690990.3961*
TPC: *NA*

SOIL / **ROCK** | **SAMPLE DATA**

Geophysical Log: ☐ *NO*
Comments: *NA*

Depth (feet)	WELL DETAIL	Run No. / Samp. No	Hydraul. Cond. cm/sec / Blows/ 6 in.	Rec. (ft.)	RQD. / USCS	HNU (ppm)	VISUAL CLASSIFICATION	REMARKS
	Bentonite backfill	S-1		1.9'			**FILL** Medium brown cm GRAVEL and SILT & CLAY.	
5		S-2		3.2'			@ 4.0' medium brown Clayey SILT, little mf Gravel.	
		S-3		1.7'			@ 8.0' medium brown mf SAND, some (-) mf Gravel, little (+) Silt.	
10	No water at 12.0'.	S-4		2.0'			**LACUSTRINE DEPOSITS @ 10.0'.** Medium brown to gray CLAY & SILT. @ 10.7' medium brown to gray Clayey SILT.	
		S-5		1.9'			@ 13.4' medium brown mf SAND, trace Silt.	
15	Boring collapsed to 14.1' after sampling.	S-6		1.5'			@ 14.4' brown cmf GRAVEL, some cmf Sand, moist.	
		S-7		2.6'			@ 14.8' grayish-brown SILT & CLAY, moist. **LACUSTRINE CLAY @ 16.0'.** Alternating layers of brown/gray Silty CLAY, moist to wet.	
20							End of Borehole	
25								

BROWN AND CALDWELL | **BORING LOG** | **Well Name/Location: CC-15**

Project: *GWI West of MPS, Ciba Site* | **Project No.:** *18927.001* | **Start Date:** *4-26-00*
Client: *Hercules Incorporated, Glens Falls, NY* | **Finish Date:** *4-26-00*

DRILLING DATA

Inspector: *Cynthia Doughty*
Contractor: *Maxim/ Jeff Hammond*
Equipment: *Geoprobe- Direct Push*
Method: *Macro-Core Closed Piston Sampler*

SAMPLING METHODS

Sampler Type: *Core* | **Tube Type:** *NA* | **Core Type:** *NA*
Diameter: *2 inch (1.5 in. Core)* | **Diameter:** *NA* | **Diameter:** *NA*
Other: *NA* | **Other:** *NA* | **Other:** *NA*

WELL CONSTRUCTION

Riser Material: *NA* | **Screen Material:** *NA*
Diameter (ID): *NA* | **Diameter (ID):** *NA*
Coupling: *NA* | **Coupling:** *NA*

WELL DEVELOPMENT

Method: *NA*
Duration: *NA*
Gals. Purged: *NA*
Slug Test: *NA*

SURVEY DATA

Datum: *NGVD*
Grade: *244.15* | **North:** *1205697.0113*
TWC: *NA* | **East:** *690968.7039*
TPC: *NA*

SOIL / ROCK | **SAMPLE DATA**

Geophysical Log: ☐ *NO*
Comments: *NA*

Depth (feet)	WELL DETAIL	Samp. No	Run No.	Blows/ 6 in.	Hydraul. Cond. cm/sec	Rec. (ft.)	USCS	RQD.	HNU (ppm)	VISUAL CLASSIFICATION	REMARKS
		S-1				3.2'				**FILL** Cmf GRAVEL @ 0.4' medium brown GRAVEL and SILT & CLAY. @ 2.3' medium brown f SAND, some (-) Silt & Clay, little Gravel. @ 2.8' medium-dark brown SILT & CLAY, little Gravel. Organic matter.	
	Bentonite backfill	S-2				0.9				**LACUSTRINE DEPOSITS @ 4.7'.** Medium brown/ orange brown mf SAND, trace to little Silt.	
5	Boring collapsed to @ 6.4' after sampling. No water at 6.3'.	S-3				1.3'				@ 6.0'- 6.3' some Silt & Clay.	
		S-4				1.6'					
10		S-5				1.5'					
		S-6				1.7'					
		S-7				2.6'				@ 13.5' brown cmf SAND and mf GRAVEL. @ 14.0' medium brown mf SAND, trace Silt.	
15										**LACUSTRINE CLAY @14.5.** Brown Silty CLAY with gray interlayers.	
										End of Borehole	
20											
25											

BROWN AND CALDWELL | **BORING LOG** | **Well Name/Location: CC-15**

Project: *GWI West of MPS, Ciba Site* | **Project No.:** *18927.001* | **Start Date:** *4-26-00*
Client: *Hercules Incorporated, Glens Falls, NY* | **Finish Date:** *4-26-00*

DRILLING DATA

Inspector: *Cynthia Doughty*
Contractor: *Maxim/ Jeff Hammond*
Equipment: *Geoprobe- Direct Push*
Method: *Macro-Core Closed Piston Sampler*

SAMPLING METHODS

Sampler Type: *Core* | **Tube Type:** *NA* | **Core Type:** *NA*
Diameter: *2 inch (1.5 in. Core)* | **Diameter:** *NA* | **Diameter:** *NA*
Other: *NA* | **Other:** *NA* | **Other:** *NA*

WELL CONSTRUCTION

Riser Material: *NA* | **Screen Material:** *NA*
Diameter (ID): *NA* | **Diameter (ID):** *NA*
Coupling: *NA* | **Coupling:** *NA*

WELL DEVELOPMENT

Method: *NA*
Duration: *NA*
Gals. Purged: *NA*
Slug Test: *NA*

SURVEY DATA

Datum: *NGVD*
Grade: *244.15* | **North:** *1205697.0113*
TWC: *NA* | **East:** *690968.7039*
TPC: *NA*

SOIL / **ROCK** | **SAMPLE DATA** | **Geophysical Log:** ☐ *NO*
Comments: *NA*

Depth (feet)	WELL DETAIL	Run No. / Samp. No	Hydraul. Cond. cm/sec / Blows/ 6 in.	Rec. (ft.) / Rec. (ft.)	RQD. / USCS	HNU (ppm) / HNU (ppm)	VISUAL CLASSIFICATION	REMARKS
		S-1		3.2'			FILL Cmf GRAVEL @ 0.4' medium brown GRAVEL and SILT & CLAY. @ 2.3' medium brown f SAND, some (-) Silt & Clay, little Gravel. @ 2.8' medium-dark brown SILT & CLAY, little Gravel. Organic matter.	
5	Bentonite backfill	S-2		0.9			**LACUSTRINE DEPOSITS @ 4.7'.** Medium brown/ orange brown mf SAND, trace to little Silt.	
	Boring collapsed to @ 6.4' after sampling. No water at 6.3'.	S-3		1.3'			@ 6.0'- 6.3' some Silt & Clay.	
		S-4		1.6'				
10		S-5		1.5'				
		S-6		1.7'				
		S-7		2.6'			@ 13.5' brown cmf SAND and mf GRAVEL. @ 14.0' medium brown mf SAND, trace Silt. **LACUSTRINE CLAY @14.5.** Brown Silty CLAY with gray interlayers. End of Borehole	
15								
20								
25								

BROWN AND CALDWELL | **BORING LOG** | **Well Name/Location: CC-15**

Project: *GWI West of MPS, Ciba Site* | **Project No.:** *18927.001* | **Start Date:** *4-26-00*
Client: *Hercules Incorporated, Glens Falls, NY* | **Finish Date:** *4-26-00*

DRILLING DATA

Inspector: *Cynthia Doughty*
Contractor: *Maxim/ Jeff Hammond*
Equipment: *Geoprobe- Direct Push*
Method: *Macro-Core Closed Piston Sampler*

SAMPLING METHODS

Sampler Type: *Core* | **Tube Type:** *NA* | **Core Type:** *NA*
Diameter: *2 inch (1.5 in. Core)* | **Diameter:** *NA* | **Diameter:** *NA*
Other: *NA* | **Other:** *NA* | **Other:** *NA*

WELL CONSTRUCTION

Riser Material: *NA* | **Screen Material:** *NA*
Diameter (ID): *NA* | **Diameter (ID):** *NA*
Coupling: *NA* | **Coupling:** *NA*

WELL DEVELOPMENT

Method: *NA*
Duration: *NA*
Gals. Purged: *NA*
Slug Test: *NA*

SURVEY DATA

Datum: *NGVD*
Grade: *244.15* | **North:** *1205697.0113*
TWC: *NA* | **East:** *690968.7039*
TPC: *NA*

SOIL / **ROCK** | **SAMPLE DATA** | **Geophysical Log:** ☐ *NO*
Comments: *NA*

Depth (feet)	WELL DETAIL	Run No. / Samp. No	Hydraul. Cond. cm/sec / Blows/ 6 in.	Rec. (ft.)	RQD. / USCS	HNU (ppm)	VISUAL CLASSIFICATION	REMARKS
	Bentonite backfill	S-1		3.2'			FILL Cmf GRAVEL @ 0.4' medium brown GRAVEL and SILT & CLAY. @ 2.3' medium brown f SAND, some (-) Silt & Clay, little Gravel. @ 2.8' medium-dark brown SILT & CLAY, little Gravel. Organic matter.	
5		S-2		0.9			**LACUSTRINE DEPOSITS @ 4.7'.** Medium brown/ orange brown mf SAND, trace to little Silt.	
	Boring collapsed to @ 6.4' after sampling. No water at 6.3'.	S-3		1.3'			@ 6.0'- 6.3' some Silt & Clay.	
		S-4		1.6'				
10		S-5		1.5'				
		S-6		1.7'				
		S-7		2.6'			@ 13.5' brown cmf SAND and mf GRAVEL. @ 14.0' medium brown mf SAND, trace Silt. **LACUSTRINE CLAY @14.5.** Brown Silty CLAY with gray interlayers. End of Borehole	
15								
20								
25								

BROWN AND CALDWELL | **BORING LOG** | **Well Name/Location: CC-16**

Project: *GWI West of MPS, Ciba Site* | **Project No.:** *18927.001* | **Start Date:** *4-26-00*
Client: *Hercules Incorporated, Glens Falls, NY* | **Finish Date:** *4-26-00*

DRILLING DATA	SAMPLING METHODS		
Inspector: *Cynthia Doughty*	**Sampler Type:** *Core*	**Tube Type:** *NA*	**Core Type:** *NA*
Contractor: *Maxim/ Jeff Hammond*	**Diameter:** *2 inch (1.5 in. Core)*	**Diameter:** *NA*	**Diameter:** *NA*
Equipment: *Geoprobe- Direct Push*	**Other:** *NA*	**Other:** *NA*	**Other:** *NA*
Method: *Macro-Core Closed Piston Sampler*			

WELL CONSTRUCTION		WELL DEVELOPMENT	SURVEY DATA	
Riser Material: *NA*	**Screen Material:** *NA*	**Method:** *NA*	**Datum:** *NGVD*	
Diameter (ID): *NA*	**Diameter (ID):** *NA*	**Duration:** *NA*	**Grade:** *243.28*	**North:** *1205684.3464*
Coupling: *NA*	**Coupling:** *NA*	**Gals. Purged:** *NA*	**TWC:** *NA*	**East:** *690945.0999*
		Slug Test: *NA*	**TPC:** *NA*	

SOIL / ROCK — **SAMPLE DATA**

Geophysical Log: ☐ *NO*
Comments: *NA*

Depth (feet)	WELL DETAIL	Run No. / Samp. No	Hydraul. Cond. cm/sec / Blows/ 6 in.	Rec. (ft.)	RQD. / USCS	HNU (ppm)	VISUAL CLASSIFICATION	REMARKS
0	Bentonite backfill	S-1		3.2'			FILL Mf GRAVEL. @ 0.5' brown f SAND, some Silt & Clay, little (-) mf Gravel'. @ 1.4' brown SILT & CLAY, little (+) mf Gravel. @ 2.7' dark brown f SAND, some Silt & Clay, little mf Gravel.	
5	Boring collapsed to @ 5.6' after sampling' No water at 5.5'.	S-2		2.4'			**LACUSTRINE DEPOSITS @ 4.0'.** Dark gray cmf SAND, some (-) cmf Gravel, trace Silt. @ 5.3' dark gray/ medium brown SILT & CLAY. @ 5.7' medium orange brown mf SAND, trace (-) to little Silt, trace organic matter.	
		S-3		1.7'				
10		S-4		1.6'				
		S-5		1.7'			**LACUSTRINE CLAY @ 13.3'.** Brown Silty CLAY moist to wet.	
15	Refusal at 13.8'.						End of Borehole	
20								
25								

BROWN AND CALDWELL | **BORING LOG** | **Well Name/Location: CC-17**

Project: *GWI West of MPS, Ciba Site* | **Project No.:** *18927.001* | **Start Date:** *4-27-00*
Client: *Hercules Incorporated, Glens Falls, NY* | **Finish Date:** *4-27-00*

DRILLING DATA

Inspector: *Cynthia Doughty*
Contractor: *Maxim/ Jeff Hammond*
Equipment: *Geoprobe- Direct Push*
Method: *Macro-Core Closed Piston Sampler*

SAMPLING METHODS

Sampler Type: *Core* | **Tube Type:** *NA* | **Core Type:** *NA*
Diameter: *2 inch (1.5 in. Core)* | **Diameter:** *NA* | **Diameter:** *NA*
Other: *NA* | **Other:** *NA* | **Other:** *NA*

WELL CONSTRUCTION

Riser Material: *NA* | **Screen Material:** *NA*
Diameter (ID): *NA* | **Diameter (ID):** *NA*
Coupling: *NA* | **Coupling:** *NA*

WELL DEVELOPMENT

Method: *NA*
Duration: *NA*
Gals. Purged: *NA*
Slug Test: *NA*

SURVEY DATA

Datum: *NGVD*
Grade: *253.71* | **North:** *1205990.3048*
TWC: *NA* | **East:** *691070.4635*
TPC: *NA*

SOIL / **ROCK** | **SAMPLE DATA**

Geophysical Log: ☐ *NO*
Comments: *NA*

Depth (feet)	WELL DETAIL	Run No. / Samp. No	Hydraul. Cond. cm/sec / Blows/ 6 in.	Rec. (ft.)	RQD. / USCS	HNU (ppm)	VISUAL CLASSIFICATION	REMARKS
		S-1		2.1'			**FILL** Medium to dark brown mf SAND, trace (-) to little Silt. @ 0.5'-1.2' brown cmf SAND and cmf GRAVEL, little Silt.	
	Bentonite backfill							
5		S-2		2.3'			@ 5.7' light to dark gray cmf SAND and f GRAVEL	
		S-3		1.2'				
10		S-4		0.6'				
	Water in borehole at 12.0'. Borehole collapsed to @ 12.1' after sampling.	S-5		1.8'			**LACUSTRINE DEPOSITS @ 12.3'.** Medium brown mf SAND, some Silt & Clay. Mottling. Damp to moist.	
15		S-6		1.8'				
		S-7		2.7'			**LACUSTRINE CLAY @ 17.3'.** Gray Silty CLAY. Moist to Wet.	
20							End of Borehole	
25								

BROWN AND CALDWELL | **BORING LOG** | **Well Name/Location: CC-18**

Project: *GWI West of MPS, Ciba Site* | **Project No.:** *18927.001* | **Start Date:** *4-27-00*
Client: *Hercules Incorporated, Glens Falls NY* | **Finish Date:** *4-27-00*

DRILLING DATA

Inspector: *Cynthia Doughty*
Contractor: *Maxim/ Jeff Hammond*
Equipment: *Geoprobe- Direct Push*
Method: *Macro-Core Closed Piston Sampler*

SAMPLING METHODS

Sampler Type: *Core* | **Tube Type:** *NA* | **Core Type:** *NA*
Diameter: *2 inch (1.5 in. Core)* | **Diameter:** *NA* | **Diameter:** *NA*
Other: *NA* | **Other:** *NA* | **Other:** *NA*

WELL CONSTRUCTION

Riser Material: *NA* | **Screen Material:** *NA*
Diameter (ID): *NA* | **Diameter (ID):** *NA*
Coupling: *NA* | **Coupling:** *NA*

WELL DEVELOPMENT

Method: *NA*
Duration: *NA*
Gals. Purged: *NA*
Slug Test: *NA*

SURVEY DATA

Datum: *NGVD*
Grade: *254.81* | **North:** *1206011.4289*
TWC: *NA* | **East:** *691082.2655*
TPC: *NA*

SOIL / **ROCK** | **SAMPLE DATA**

Geophysical Log: ☐ *NO*
Comments: *NA*

Depth (feet)	WELL DETAIL	Run No. / Samp. No	Hydraul. Cond. cm/sec / Blows/ 6 in.	Rec. (ft.)	RQD. / USCS	HNU (ppm)	VISUAL CLASSIFICATION	REMARKS
		S-1		2.1'			**FILL** Dark to medium brown mf SAND to cmf SAND and fm GRAVEL, trace (-) to little Silt. Trace organic matter.	
5	Bentonite backfill	S-2		1.8'				
	Water in boring at 9.2'.	S-3		0.8'				
10	Borehole collapsed to @ 11.8' after sampling.	S-4		1.4'			**LACUSTRINE DEPOSITS @ 10.0'.** Medium brown mf SAND, some Silt & Clay. Mottling. Damp to moist.	
		S-5		2.6'			@ 12.0' brown, gray layers, SILT & CLAY, moist.	
15		S-6		2.2'				
		S-7		2.5'			@ 15.7' gray f SAND and SILT & CLAY, wet.	
20							**LACUSTRINE CLAY @ 17.8'.** Gray Silty CLAY, wet. End of Borehole	
25								

BROWN AND CALDWELL | **BORING LOG** | **Well Name/Location: CC-19**

Project: *GWI West of MPS, Ciba Site* | **Project No.:** *18927.001* | **Start Date:** *4-26-00*
Client: *Hercules Incorporated, Glens Falls, NY* | **Finish Date:** *4-26-00*

DRILLING DATA	SAMPLING METHODS		
Inspector: *Cynthia Doughty*	**Sampler Type:** *Core*	**Tube Type:** *NA*	**Core Type:** *NA*
Contractor: *Maxim/ Jeff Hammond*	**Diameter:** *2 inch (1.5 in. Core)*	**Diameter:** *NA*	**Diameter:** *NA*
Equipment: *Geoprobe- Direct Push*	**Other:** *NA*	**Other:** *NA*	**Other:** *NA*
Method: *Macro-Core Closed Piston Sampler*			

WELL CONSTRUCTION		WELL DEVELOPMENT	SURVEY DATA	
Riser Material: *NA*	**Screen Material:** *NA*	**Method:** *NA*	**Datum:** *NGVD*	
Diameter (ID): *NA*	**Diameter (ID):** *NA*	**Duration:** *NA*	**Grade:** *255.24*	**North:** *1205989.5203*
Coupling: *NA*	**Coupling:** *NA*	**Gals. Purged:** *NA*	**TWC:** *NA*	**East:** *691045.8202*
		Slug Test: *NA*	**TPC:** *NA*	

SOIL / **ROCK** | **SAMPLE DATA** | **Geophysical Log:** ☐ *NO* | **Comments:** *NA*

Depth (feet)	WELL DETAIL	Run No. / Samp. No	Hydraul. Cond. cm/sec / Blows/ 6 in.	Rec. (ft.)	RQD. / USCS	HNU (ppm)	VISUAL CLASSIFICATION	REMARKS
		S-1		3.0'			**FILL** Light to dark brown mf SAND, trace Silt. Trace organic matter. @ 0.8' dark brown mf GRAVEL and cmf SAND. Organic matter.	
	Bentonite backfill							
5		S-2		1.1'			@ 4.6' brown mf SAND, little mf Gravel, trace Silt, moist.	
		S-3		1.5'				
		S-4		0.8'			@ 7.2' dark brown mf GRAVEL and cmf SAND. @ 7.4' medium brown- gray Silty CLAY. @ 8.0' brown SILT & CLAY, some Gravel, moist.	
10		S-5		0.0			@ 8.3' medium brown f SAND, some Silt & Clay. @ 8.6' gray mf GRAVEL and cm SAND.	
	Water in Boring at 12.5'.	S-6		1.5'			@ 12.0' brown to gray f SAND, some (-) Silt & Clay, little (-) Gravel'.	
15	Borehole collapsed to @ 14.5' after sampling.	S-7		1.7'			**LACUSTRINE DEPOSITS @ 14.0'.** Gray to brown CLAY & SILT to Clayey SILT, moist to wet. @ 15.2' gray f SAND, some (-) to little Silt & Clay.	
		S-8		2.0'				
		S-9		2.7'			@ 17.7' gray SILT & CLAY. @ 17.8' gray f SAND, some (-) Silt & Clay. **LACUSTRINE CLAY @ 18.5'.** Gray Silty CLAY, wet.	
20							End of Borehole	
25								

APPENDIX C

WELL POINT CONSTRUCTION LOGS

BROWN AND CALDWELL

Subsurface Boring Log

Well Name/Location: WP-CC-12

Project: *GWI West of MPS, Ciba Site, Glens Fall, NY*
Project No.: *18927.001*
Client: *Hercules Incorporated*
Start Date: *4-26-00*
Finish Date: *4-26-00*

DRILLING DATA

Inspector: *Cynthia Doughty*
Contractor: *Maxim/ Jeff Hammond*
Equipment: *Geoprobe*
Method: *Driving with removable outer casing*

SAMPLING METHODS

	Sampler	Tube	Core
Type:	NA	NA	NA
Diameter:	NA	NA	NA
Other:	NA	NA	NA

WELL CONSTRUCTION

	Riser	Screen
Material:	PVC	PVC
Diameter (ID):	1 inch	1 inch
Coupling:	Flush threaded	NA

WELL DEVELOPMENT

Method: *Bailer*
Duration: *1 hour*
Gals. Purged: *NA*
Slug Test: *NA* (cm/sec)

SURVEY DATA DATUM: NGVD

Grade: *249.53*
TWC: *251.64*
TPC: *NA*
North: *1205738.9233*
East: *691038.2724*

Geophysical Log: ☐ yes ☒ no
Comments:

Depth (feet)	WELL CONSTRUCTION	soil / rock	Samp. No. / Run No.	Blows/ 6 in. / Hydraul. Cond. cm/sec	Rec. (ft.) / Rec. (ft.)	USCS / RQD	HNU (ppm)	VISUAL CLASSIFICATION	REMARKS
0	Protective Casing; Backfilled with cuttings							FILL	Formation contacts determined from boring CC-12 (See log for soil descriptions).
5	1" PVC Riser								
10	Filter Pack							12 LACUSTRINE DEPOSITS	Screen interval: 16.2' to 21.2'.
15									
20	1" PVC 0.010 slot screen							20.3 LACUSTRINE CLAY	
25									
30									

BROWN AND CALDWELL

Subsurface Boring Log

Well Name/Location: WP-CC-17

Project: *GWI West of MPS, Ciba Site, Glens Fall, NY*
Project No.: *18927.001*
Client: *Hercules Incorporated*
Start Date: *4-28-00*
Finish Date: *4-28-00*

DRILLING DATA

Inspector: *Cynthia Doughty*
Contractor: *Maxim/ Jeff Hammond*
Equipment: *Geoprobe*
Method: *Driving with removable outer casing*

SAMPLING METHODS

	Sampler	Tube	Core
Type:	NA	NA	NA
Diameter:	NA	NA	NA
Other:	NA	NA	NA

WELL CONSTRUCTION

	Riser	Screen
Material:	PVC	PVC
Diameter (ID):	1 inch	1 inch
Coupling:	Flush threaded	NA

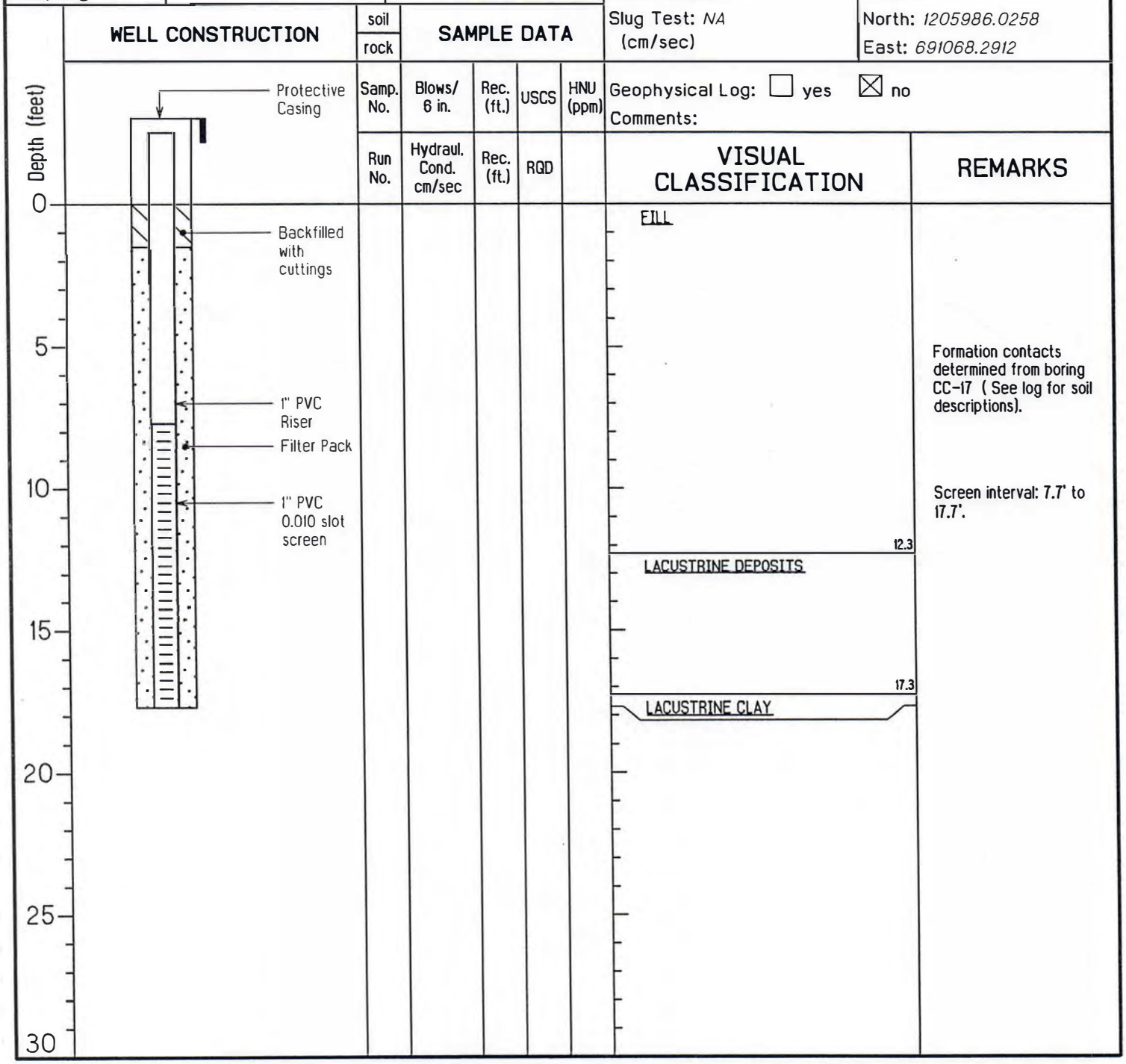
WELL DEVELOPMENT

Method: *Bailer*
Duration: *1 hour*
Gals. Purged: *NA*
Slug Test: *NA* (cm/sec)

SURVEY DATA DATUM: NGVD

Grade: *253.76*
TWC: *255.80*
TPC: *NA*
North: *1205986.0258*
East: *691068.2912*

Geophysical Log: ☐ yes ☒ no
Comments:



BROWN AND CALDWELL

Subsurface Boring Log

Well Name/Location: WP-CC-21

Project: *GWI West of MPS, Ciba Site, Glens Fall, NY*
Client: *Hercules Incorporated*
Project No.: *18927.001*
Start Date: *4-28-00*
Finish Date: *4-28-00*

DRILLING DATA

Inspector: *Cynthia Doughty*
Contractor: *Maxim/ Jeff Hammond*
Equipment: *Geoprobe*
Method: *Driving with removable outer casing*

SAMPLING METHODS

	Sampler	Tube	Core
Type:	NA	NA	NA
Diameter:	NA	NA	NA
Other:	NA	NA	NA

WELL CONSTRUCTION

	Riser	Screen
Material:	PVC	PVC
Diameter (ID):	1 inch	1 inch
Coupling:	Flush threaded	NA

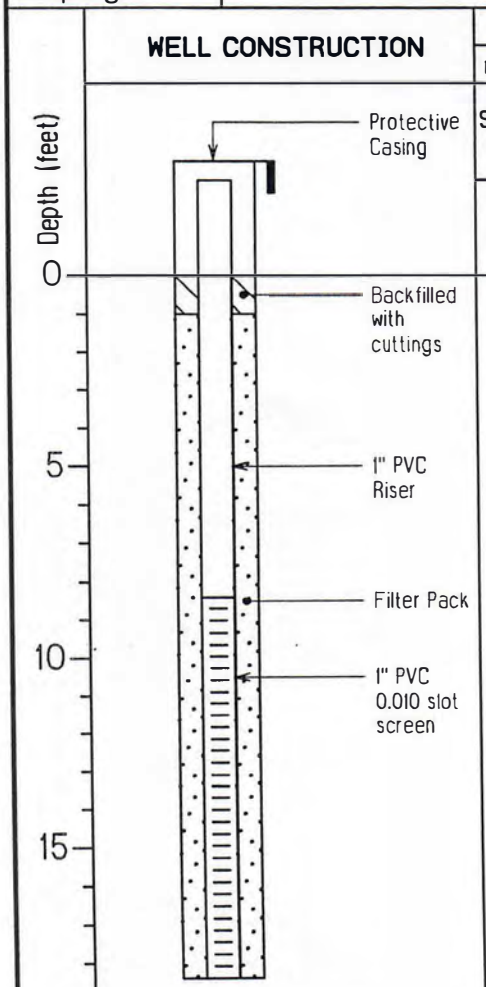
WELL DEVELOPMENT

Method: *Bailer*
Duration: *1 hour*
Gals. Purged: *NA*
Slug Test: *NA* (cm/sec)

SURVEY DATA DATUM: NGVD

Grade: *255.73*
TWC: *257.84*
TPC: *NA*
North: *1206074.6804*
East: *691157.9713*

Geophysical Log: ☐ yes ☒ no
Comments:



soil / rock	Samp. No. / Run No.	Blows/ 6 in. / Hydraul. Cond. cm/sec	Rec. (ft.)	USCS / RQD	HNU (ppm)
SAMPLE DATA					

VISUAL CLASSIFICATION

LACUSTRINE DEPOSITS

18

LACUSTRINE CLAY

REMARKS

Formation contacts determined from boring CC-21 (See log for soil descriptions).

Screen interval: 8.4' to 18.4'.

APPENDIX D

SURVEY DATA

PRE-DRILLING SURVEY DATA

Van Dusen & Steves
Land Surveyors LLC
37 Chester St.
Glens Falls, NY 12801
Phone (518) 792-8474
Fax (518) 792-8511

VAN DUSEN & STEVES

Matthew C. Steves, LLS
Leon M. Steves, LLS (Retired)

FACSIMILE TRANSMITTAL

To: BOB O'NEILL **Fax:** 761-0138

From: MATT STEVES **Date:** 4-4-2000

Re: **Pages:** 2

Notes:

POST-DRILLING SURVEY DATA

Van Dusen & Steves
Land Surveyors, LLC
169 Haviland Road
Queensbury, NY 12804
Phone (518) 792-8474
Fax (518) 792-8511

VAN DUSEN & STEVES

Matthew C. Steves, LLS
Leon M. Steves, LLS (Retired)

FACSIMILE TRANSMITTAL

To: BOB O'NEILL Fax: 201-818-6057

From: MATT STEVES Date: 5-10-00

Re: Pages: 2

Notes:

Project: 97114 Wed May 10 16:17:20 2000
Point statistics:
Starting point number: 1
Current point number: 465 ('L' indicates locked point)

Current Coordinate Listing by Point Range

Point	Northing	Easting	Elevation	Description
2714	1205727.3264	691130.2732	239.72	CC8
2715	1205734.0805	691106.4196	242.47	CC9
2716	1205740.4237	691081.3768	246.70	CC10
2717	1205746.3798	691057.5419	248.19	CC11
2718	1205738.9233	691038.2724	249.53	WP-CC-12-GND
2719	1205739.2990	691037.9412	251.64	WP-CC-12-RISER
2720	1205737.5001	691034.3189	249.09	CC12
2721	1205723.5402	691012.6814	247.62	CC13
2722	1205710.3147	690990.3961	245.61	CC14
2723	1205697.0113	690968.7039	244.15	CC15
2724	1205684.3464	690945.0999	243.28	CC16
2725	1205990.3048	691070.4635	253.71	CC17
2726	1206011.4289	691082.2655	254.81	CC18
2727	1205989.5203	691045.8202	255.24	CC19
2728	1205986.0258	691068.2912	253.76	WP-CC-17-GND
2729	1205986.2199	691068.3039	255.80	WP-CC-17-RISER
2730	1206085.8836	691175.3640	256.86	CC20
2731	1206073.6094	691154.5974	255.28	CC21
2732	1206074.6804	691157.9713	255.73	WP-CC-21-GND
2733	1206074.4721	691157.6098	257.84	WP-CC-21-RISER
2734	1205746.6759	691201.6982	238.72	WP-O-50-GND
2735	1205746.4720	691201.9005	240.82	WP-O-50-RISER

APPENDIX E

FIELD DATA SHEETS

BROWN AND CALDWELL

Hercules Incorporated
Ciba Site
Glens Falls, NY

GROUNDWATER SAMPLING FIELD DATA SHEET

Well Number: WP-0-50
Sample I.D.: _____ (if different from well no.)

Client: Hercules Job No.: 18927.001
Personnel: C. Doughty

Date: 5-2-00 Time: 10:52
Weather Conditions: _____
Air Temperature: _____

WELL DATA:

Casing Diameter: 1in ☐ Stainless Steel ☐ Galv. Steel ☒ PVC ☐ Teflon® ☐ Other: _____
Intake Diameter: 1in ☐ Stainless Steel ☐ Galv. Steel ☒ PVC ☐ Teflon® ☐ Open rock
DEPTH TO : Static Water Level: 9.98' Bottom of Well: 13.82'
DATUM: ☐ Top of Protective Casing ☒ Top of Well Casing ☐ Top of Well Wizard
CONDITION: Is Well clearly labeled? ☒ Yes ☐ No Is well clean to bottom? ☐ Yes ☐ No
Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☒ Yes ☐ No
Does Weep Hole adequately drain well head? ☐ Yes ☐ No
Is Concrete Pad Intact? (not cracked or frst heaved) ☒ Yes ☐ No
Is Padlock Functional? ☒ Yes ☐ No ☐ NA Is Inner Casing Intact? ☐ Yes ☐ No
Is Inner Casing Properly Capped and Vented? ☒ Yes ☐ No
Staging In Well 0.15 gal To Be Purged 0.45 gal

Casing ID	gals/ft
2"	.16
3"	.37
4"	.65
5"	1.02
6"	1.47

PURGE DATA:

METHOD: ☒ Bailer, Size: 3/4" OD ☐ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Waterra:HydroLift II

MATERIALS: Pump/(Bailer): ☐ Teflon® ☐ Stainless Steel ☐ PVC ☒ Other: Polyethylene
Tubing/(Rope): ☐ Teflon® ☐ Polyethylene ☐ Polypropylene ☒ Other: Nylon

Pumping Rate: _____ Elapsed Time: _____ Volume Pumped: 0.45 gal (at end of development)
Was well purged to dryness? ☐ Yes ☒ No Number of Well Volumes Removed: 3

TIME SERIES DATA:

	Well Volumes:					
Temp.:						
pH:						
Spec. Cond.:						
DO:						
ORP:						

PURGING EQUIPMENT: ☒ Dedicated (Disposable) ☐ Prepared Off-Site ☐ Field Cleaned

SAMPLING DATA:

METHOD: ☒ Bailer, Size: 3/4" OD ☐ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Syringe Sampler ☐ Inertial Lift Pump ☐ Peristaltic Pump ☐ Waterra: HydroLift II

MATERIALS: Pump/(Bailer): ☐ Teflon® ☐ Stainless Steel ☐ PVC ☒ Other: Polyethylene
Tubing/(Rope): ☐ Teflon® ☐ Polyethylene ☐ Polypropylene ☒ Other: Nylon

SAMPLING EQUIPMENT: ☒ Dedicated (Disposable) ☐ Prepared Off-Site ☐ Field Cleaned
Metals samples field filtered? ☒ Yes ☐ No Method: Pressure Filtered w/ in-line 0.45 µm Cuno filter
APPEARANCE: ☐ Clear ☐ Turbid ☐ Color: _____ ☐ Contains LNAPL ☐ Contains DNAPL
Odor: ☐ Yes: ☐ No Other:

FIELD DETERMINATIONS OF RECORD:
pH: 7.6 Temperature: 19.5C Spec. Cond.: 1001 µmhos/cm Meter Model & S/N: Oakton pH Tester 2/YSI 3000
Hach Kit Results: Fe: _____ Mn: _____ DO: _____ CO_2: _____ S: _____
NO. OF CONTAINERS: 2 Field Blank I.D.: FB-050200 Trip Blank I.D.: Duplicate I.D.:
REMARKS: Total Cyanide (pres. w/ NaOH to pH>12); Total Cr (Field Filtered) (pres. w/ HNO_3 to pH<2)

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.
Signature: Cynthia Doughty Date: 11/29/00

BROWN AND CALDWELL

Hercules Incorporated
Ciba Site
Glens Falls, NY

GROUNDWATER SAMPLING FIELD DATA SHEET

Well Number: WP-CC-12
Sample I.D.: _____ (if different from well no.)

Client: Hercules Job No.: 18927.001
Personnel: C. Doughty

Date: 5-2-00 Time: 11:44
Weather Conditions: _____
Air Temperature: _____

WELL DATA:

Casing Diameter: 1in ☐ Stainless Steel ☐ Galv. Steel ☒ PVC ☐ Teflon® ☐ Other: _____
Intake Diameter: 1in ☐ Stainless Steel ☐ Galv. Steel ☒ PVC ☐ Teflon® ☐ Open rock
DEPTH TO : Static Water Level: 19.64' Bottom of Well: 23.32'
DATUM: ☐ Top of Protective Casing ☒ Top of Well Casing ☐ Top of Well Wizard
CONDITION: Is Well clearly labeled? ☒ Yes ☐ No Is well clean to bottom? ☐ Yes ☐ No
Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☒ Yes ☐ No
Does Weep Hole adequately drain well head? ☐ Yes ☐ No
Is Concrete Pad Intact? (not cracked or frst heaved) ☒ Yes ☐ No
Is Padlock Functional? ☒ Yes ☐ No ☐ NA Is Inner Casing Intact? ☒ Yes ☐ No
Is Inner Casing Properly Capped and Vented? ☒ Yes ☐ No
Staging In Well 0.14 gal To Be Purged 0.4 gal

Casing ID	gals/ft
2"	.16
3"	.37
4"	.65
5"	1.02
6"	1.47

PURGE DATA:

METHOD: ☒ Bailer, Size: 3/4" OD ☐ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Waterra:HydroLift II

MATERIALS: Pump/(Bailer): ☐ Teflon® ☐ Stainless Steel ☐ PVC ☒ Other: Polyethylene
Tubing/(Rope): ☐ Teflon® ☐ Polyethylene ☐ Polypropylene ☒ Other: Nylon

Pumping Rate: _____ Elapsed Time: _____ Volume Pumped: 0.4 gal (at end of development)
Was well purged to dryness? ☐ Yes ☒ No Number of Well Volumes Removed: 3

TIME SERIES DATA:

	Well Volumes:					
Temp.:						
pH:						
Spec. Cond.:						
DO:						
ORP:						

PURGING EQUIPMENT: ☒ Dedicated (Bailer) ☐ Prepared Off-Site ☐ Field Cleaned

SAMPLING DATA:

METHOD: ☒ Bailer, Size: 3/4" OD ☐ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Syringe Sampler ☐ Inertial Lift Pump ☐ Peristaltic Pump ☐ Waterra: HydroLift II

MATERIALS: Pump/(Bailer): ☐ Teflon® ☐ Stainless Steel ☐ PVC ☒ Other: Polyethylene
Tubing/(Rope): ☐ Teflon® ☐ Polyethylene ☐ Polypropylene ☒ Other: Nylon

SAMPLING EQUIPMENT: ☒ Dedicated (Bailer) ☐ Prepared Off-Site ☐ Field Cleaned
Metals samples field filtered? ☒ Yes ☐ No Method: Pressure filtered in 0.45 um Quick Filter
APPEARANCE: ☐ Clear ☐ Turbid ☐ Color: _____ ☐ Contains LNAPL ☐ Contains DNAPL
Odor: ☐ Yes: ☐ No Other:

FIELD DETERMINATIONS OF RECORD:
pH: 6.4 Temperature: 19.8°C Spec. Cond.: 0.342 mS/cm Meter Model & S/N: Clinton #1681 2/YSI 3000
Hach Kit Results: Fe: _____ Mn: _____ DO: _____ CO_2: _____ S: _____
NO. OF CONTAINERS: 6 Field Blank I.D.: FB-052200 Trip Blank I.D.: Duplicate I.D.:
REMARKS: 1 filtered extra bottles for MS/MSD. Total Cyanide - pres. w/ NaOH to pH > 12
Total Cr (field filtered) - pres. w/ HNO3 to pH < 2

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.
Signature: Cynthia Doughty Date: 11/29/00

BROWN AND CALDWELL

Hercules Incorporated
Ciba Site
Glens Falls, NY

GROUNDWATER SAMPLING FIELD DATA SHEET

Well Number: WP-CC-17
Sample I.D.: _____ (if different from well no.)

Client: Hercules Job No.: 18927.001
Personnel: C. Doughty

Date: 5-2-00 Time: 13:50
Weather Conditions: _____
Air Temperature: _____

WELL DATA:

Casing Diameter: 1 in ☐ Stainless Steel ☐ Galv. Steel ☒ PVC ☐ Teflon® ☐ Other: _____
Intake Diameter: 1 in ☐ Stainless Steel ☐ Galv. Steel ☒ PVC ☐ Teflon® ☐ Open rock

Casing ID	gals/ft
2"	.16
3"	.37
4"	.65
5"	1.02
6"	1.47

DEPTH TO : Static Water Level: 14.52' Bottom of Well: 18.09'
DATUM: ☐ Top of Protective Casing ☒ Top of Well Casing ☐ Top of Well Wizard
CONDITION: Is Well clearly labeled? ☒ Yes ☐ No Is well clean to bottom? ☐ Yes ☐ No
Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☒ Yes ☐ No
Does Weep Hole adequately drain well head? ☐ Yes ☐ No
Is Concrete Pad Intact? (not cracked or frst heaved) ☒ Yes ☐ No
Is Padlock Functional? ☒ Yes ☐ No ☐ NA Is Inner Casing Intact? ☒ Yes ☐ No
Is Inner Casing Properly Capped and Vented? ☒ Yes ☐ No
Staging In Well 0.14 gal To Be Purged 0.4 gal

PURGE DATA:

METHOD: ☒ Bailer, Size: 3/4" OD ☐ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Waterra:HydroLift II

MATERIALS: Pump/(Bailer): ☐ Teflon® ☐ Stainless Steel ☐ PVC ☒ Other: Polyethylene
Tubing/(Rope): ☐ Teflon® ☐ Polyethylene ☐ Polypropylene ☒ Other: Nylon

Pumping Rate: _____ Elapsed Time: _____ Volume Pumped: 0.4 gal (at end of development)
Was well purged to dryness? ☐ Yes ☐ No Number of Well Volumes Removed: 3

TIME SERIES DATA:

	Well Volumes:					
Temp.:						
pH:						
Spec. Cond.:						
DO:						
ORP:						

PURGING EQUIPMENT: ☒ Dedicated (Bailer) ☐ Prepared Off-Site ☐ Field Cleaned

SAMPLING DATA:

METHOD: ☒ Bailer, Size: 3/4" OD ☐ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Syringe Sampler ☐ Inertial Lift Pump ☐ Peristaltic Pump ☐ Waterra: HydroLift II

MATERIALS: Pump/(Bailer): ☐ Teflon® ☐ Stainless Steel ☐ PVC ☒ Other: Polyethylene
Tubing/(Rope): ☐ Teflon® ☐ Polyethylene ☐ Polypropylene ☒ Other: Nylon

SAMPLING EQUIPMENT: ☒ Dedicated (Bailer) ☐ Prepared Off-Site ☐ Field Cleaned
Metals samples field filtered? ☒ Yes ☐ No Method: Pressure vessel w/ in-line 0.45 um Quad. Filter
APPEARANCE: ☐ Clear ☐ Turbid ☐ Color: _____ ☐ Contains LNAPL ☐ Contains DNAPL
Odor: ☐ Yes: ☐ No Other:

FIELD DETERMINATIONS OF RECORD:
pH: 6.9 Temperature: 21.6°C Spec. Cond. 1.023 mS/cm Meter Model & S/N: Oakton pH Tester 2/YSI 3000
Hach Kit Results: Fe: _____ Mn: _____ DO: _____ CO_2: _____ S: _____
NO. OF CONTAINERS: 2 Field Blank I.D.: FB-052200 Trip Blank I.D.: Duplicate I.D.:
REMARKS: Total Cyanide - Preserved w/ NaOH to pH >12. Total Cr-Hex (field ft. filtered) - Pres. w/ HNO3 to pH <2.

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.
Signature: Cynthia Doughty Date: 11/29/00

BROWN AND CALDWELL

Hercules Incorporated
Ciba Site
Glens Falls, NY

GROUNDWATER SAMPLING FIELD DATA SHEET

Well Number: WPCC-21
Sample I.D.: _____ (if different from well no.)

Client: Hercules Job No.: 18927.001
Personnel: C. Doughty

Date: 5-2-00 Time: ~~1144~~ 13:04
Weather Conditions: _____
Air Temperature: _____

WELL DATA:

Casing Diameter: 1in ☐ Stainless Steel ☐ Galv. Steel ☒ PVC ☐ Teflon® ☐ Other: _____
Intake Diameter: 1in ☐ Stainless Steel ☐ Galv. Steel ☒ PVC ☐ Teflon® ☐ Open rock
DEPTH TO : Static Water Level: 10.41' Bottom of Well: 19.13'
DATUM: ☐ Top of Protective Casing ☒ Top of Well Casing ☐ Top of Well Wizard
CONDITION: Is Well clearly labeled? ☒ Yes ☐ No Is well clean to bottom? ☐ Yes ☐ No
Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☒ Yes ☐ No
Does Weep Hole adequately drain well head? ☐ Yes ☐ No
Is Concrete Pad Intact? (not cracked or frst heaved) ☒ Yes ☐ No
Is Padlock Functional? ☒ Yes ☐ No ☐ NA Is Inner Casing Intact? ☒ Yes ☐ No
Is Inner Casing Properly Capped and Vented? ☒ Yes ☐ No
Staging In Well 0.3 gal To Be Purged 0.9 gal

Casing ID	gals/ft
2"	.16
3"	.37
4"	.65
5"	1.02
6"	1.47

PURGE DATA:

METHOD: ☒ Bailer, Size: 3/4" OD ☐ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Waterra:HydroLift II

MATERIALS: Pump/(Bailer): ☐ Teflon® ☐ Stainless Steel ☐ PVC ☒ Other: Polyethylene
Tubing/(Rope): ☐ Teflon® ☐ Polyethylene ☐ Polypropylene ☒ Other: Nylon

Pumping Rate: _____ Elapsed Time: _____ Volume Pumped: 0.9 gal (at end of development)
Was well purged to dryness? ☐ Yes ☒ No Number of Well Volumes Removed: 3

TIME SERIES DATA:

	Well Volumes:					
Temp.:						
pH:						
Spec. Cond.:						
DO:						
ORP:						

PURGING EQUIPMENT: ☒ Dedicated/(Donated) ☐ Preoared Off-Site ☐ Field Cleaned

SAMPLING DATA:

METHOD: ☒ Bailer, Size: 3/4" OD ☐ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Syringe Sampler ☐ Inertial Lift Pump ☐ Peristaltic Pump ☐ Waterra: HydroLift II

MATERIALS: Pump/(Bailer): ☐ Teflon® ☐ Stainless Steel ☐ PVC ☒ Other: Polyethylene
Tubing/(Rope): ☐ Teflon® ☐ Polyethylene ☐ Polypropylene ☒ Other: Nylon

SAMPLING EQUIPMENT: ☒ Dedicated/(Donated) ☐ Preoared Off-Site ☐ Field Cleaned
Metals samples field filtered? ☒ Yes ☐ No Method: Pressure vessel w/ 0.45 um Quick Filter
APPEARANCE: ☐ Clear ☐ Turbid ☐ Color: _____ ☐ Contains LNAPL ☐ Contains DNAPL
Odor: ☐ Yes: ☐ No Other:

FIELD DETERMINATIONS OF RECORD:
pH: 7.0 Temperature: 21.4°C Spec. Cond. 6.02 mS/cm Meter Model & S/N: Oakton pHTestr2/YSI 3000
Hach Kit Results: Fe: _____ Mn: _____ DO: _____ CO_2: _____ S: _____
NO. OF CONTAINERS: 4 Field Blank I.D.: FB-050200 Trip Blank I.D.: Duplicate I.D.: DUP-050200
REMARKS: Collected Duplicate sample from this well (DUP-050200)
Total Cyanide - Pres. w/ NaOH to pH ≥ 12. Total Cr (Field filtered) - Pres. w/ HNO3 to pH < 2

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.
Signature: Cynthia Doughty Date: 11/29/00

BROWN AND CALDWELL

Hercules Incorporated
Ciba Site
Glens Falls, NY

GROUNDWATER SAMPLING FIELD DATA SHEET

Well Number: WP-0-50
Sample I.D.: _____ (if different from well no.)

Client: Hercules Job No.: 18927.001
Personnel: C. Doughty

Date: 9-27-00 Time: 14:30
Weather Conditions: _____
Air Temperature: _____

WELL DATA:

Casing Diameter: 1in ☐ Stainless Steel ☐ Galv. Steel ☒ PVC ☐ Teflon® ☐ Other: _____
Intake Diameter: 1in ☐ Stainless Steel ☐ Galv. Steel ☒ PVC ☐ Teflon® ☐ Open rock
DEPTH TO : Static Water Level: 12.21' Bottom of Well: 13.82'
DATUM: ☐ Top of Protective Casing ☒ Top of Well Casing ☐ Top of Well Wizard
CONDITION: Is Well clearly labeled? ☒ Yes ☐ No Is well clean to bottom? ☐ Yes ☐ No
Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☒ Yes ☐ No
Does Weep Hole adequately drain well head? ☐ Yes ☐ No
Is Concrete Pad Intact? (not cracked or frst heaved) ☒ Yes ☐ No
Is Padlock Functional? ☒ Yes ☐ No ☐ NA Is Inner Casing Intact? ☒ Yes ☐ No
Is Inner Casing Properly Capped and Vented? ☒ Yes ☐ No
Staging In Well 0.06 gal To Be Purged 0.18 gal

Casing ID	gals/ft
2"	.16
3"	.37
4"	.65
5"	1.02
6"	1.47

PURGE DATA:

METHOD: ☒ Bailer, Size: 3/4" OD ☐ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Waterra:HydroLift II

MATERIALS: Pump/(Bailer): ☐ Teflon® ☐ Stainless Steel ☐ PVC ☒ Other: Polyethylene
Tubing/(Rope): ☐ Teflon® ☐ Polyethylene ☐ Polypropylene ☒ Other: Nylon

Pumping Rate: _____ Elapsed Time: 120min Volume Pumped: 0.5 gal
Was well purged to dryness? ☐ Yes ☒ No Number of Well Volumes Removed: 8.3

TIME SERIES DATA:

	Well Volumes:					
	Temp.:					
	pH:					
	Spec. Cond.:					
	DO:					
	ORP:					

PURGING EQUIPMENT: ☒ Dedicated (Yes) ☐ Prepared Off-Site ☐ Field Cleaned

SAMPLING DATA:

METHOD: ☒ Bailer, Size: 3/4" OD ☐ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Syringe Sampler ☐ Inertial Lift Pump ☐ Peristaltic Pump ☐ Waterra: HydroLift II

MATERIALS: Pump/(Bailer): ☐ Teflon® ☐ Stainless Steel ☐ PVC ☒ Other: Polyethylene
Tubing/(Rope): ☐ Teflon® ☐ Polyethylene ☐ Polypropylene ☒ Other: Nylon

SAMPLING EQUIPMENT: ☒ Dedicated (Yes) ☐ Prepared Off-Site ☐ Field Cleaned
Metals samples field filtered? ☒ Yes ☐ No Method: Pressure vessel w/ in-line 0.45 um Cuno filter
APPEARANCE: ☐ Clear ☐ Turbid ☐ Color: _____ ☐ Contains LNAPL ☐ Contains DNAPL
Odor: ☐ Yes: ☐ No Other:

FIELD DETERMINATIONS OF RECORD:
pH: 7.49 Temperature: 9.1°C Spec. Cond.: 1.199 mS/cm Meter Model & S/N: Oakton pHTestr2/YSI 3200
Hach Kit Results: Fe: _____ Mn: _____ DO: _____ CO_2: _____ S: _____
NO. OF CONTAINERS: 4 Field Blank I.D.: FB-092700 Trip Blank I.D.: Duplicate I.D.:
REMARKS: Filled 2nd Extra bottles for MS/MSD. Total Cyanide (preserved w/ NaOH to pH>12) Total Chromium (preserved w/ HNO3 to pH<2) (Field filtered)

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.
Signature: Cynthia Doughty Date: 11/29/00

BROWN AND CALDWELL

Hercules Incorporated
Ciba Site
Glens Falls, NY

GROUNDWATER SAMPLING FIELD DATA SHEET

Well Number: WP-CC-12
Sample I.D.: _____ (if different from well no.)

Client: Hercules Job No.: 18927.CC1
Personnel: C. Doughty

Date: 9-27-00 Time: 15:20
Weather Conditions: _____
Air Temperature: _____

WELL DATA:

Casing Diameter: 1in ☐ Stainless Steel ☐ Galv. Steel ☒ PVC ☐ Teflon® ☐ Other: _____
Intake Diameter: 1in ☐ Stainless Steel ☐ Galv. Steel ☒ PVC ☐ Teflon® ☐ Open rock
DEPTH TO : Static Water Level: 21.95 Bottom of Well: 23.32'
DATUM: ☐ Top of Protective Casing ☒ Top of Well Casing ☐ Top of Well Wizard

Casing ID	gals/ft
2"	.16
3"	.37
4"	.65
5"	1.02
6"	1.47

CONDITION:
Is Well clearly labeled? ☒ Yes ☐ No Is well clean to bottom? ☐ Yes ☐ No
Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☒ Yes ☐ No
Does Weep Hole adequately drain well head? ☐ Yes ☐ No
Is Concrete Pad Intact? (not cracked or frst heaved) ☒ Yes ☐ No
Is Padlock Functional? ☒ Yes ☐ No ☐ NA Is Inner Casing Intact? ☒ Yes ☐ No
Is Inner Casing Properly Capped and Vented? ☒ Yes ☐ No
Staging In Well 0.05 gal To Be Purged 0.15 gal

PURGE DATA:

METHOD: ☒ Bailer, Size: 3/4" OD ☐ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Waterra:HydroLift II

MATERIALS: Pump/(Bailer): ☐ Teflon® ☐ Stainless Steel ☐ PVC ☒ Other: Polyethylene
Tubing/(Rope): ☐ Teflon® ☐ Polyethylene ☐ Polypropylene ☒ Other: Nylon

Pumping Rate: _____ Elapsed Time: ±45 min Volume Pumped: 0.25 gal
Was well purged to dryness? ☒ Yes ☐ No Number of Well Volumes Removed: 5

TIME SERIES DATA:

	Well Volumes:					
Temp.:						
pH:						
Spec. Cond.:						
DO:						
ORP:						

PURGING EQUIPMENT: ☒ Dedicated/(Disposable) ☐ Prepared Off-Site ☐ Field Cleaned

SAMPLING DATA:

METHOD: ☒ Bailer, Size: 3/4" OD ☐ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Syringe Sampler ☐ Inertial Lift Pump ☐ Peristaltic Pump ☐ Waterra: HydroLift II

MATERIALS: Pump/(Bailer): ☐ Teflon® ☐ Stainless Steel ☐ PVC ☒ Other: Polyethylene
Tubing/(Rope): ☐ Teflon® ☐ Polyethylene ☐ Polypropylene ☒ Other: Nylon

SAMPLING EQUIPMENT: ☒ Dedicated/(Disposable) ☐ Prepared Off-Site ☐ Field Cleaned
Metals samples field filtered? ☒ Yes ☐ No Method: Pressure vessel w/ in-line 0.45 um Quick Filter
APPEARANCE: ☐ Clear ☐ Turbid ☐ Color: _____ ☐ Contains LNAPL ☐ Contains DNAPL
Odor: ☐ Yes: ☐ No Other:

FIELD DETERMINATIONS OF RECORD:
pH: 7.19 Temperature: 8.5°C Spec. Cond.: 0.965 mS/cm Meter Model & S/N: Oakton pHTestr2/YSI 3200
Hach Kit Results: Fe: _____ Mn: _____ DO: _____ CO_2: _____ S: _____
NO. OF CONTAINERS: 2 Field Blank I.D.: FB-CC-12-092700 Trip Blank I.D.: Duplicate I.D.:
REMARKS: Total Cyanide - preserved w/ NaOH to pH ≥ 12. Total Cr (Field Filtered) - pres. w/ HNO3 to pH < 2.

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.
Signature: Cynthia Doughty Date: 11/29/00

BROWN AND CALDWELL

Hercules Incorporated
Ciba Site
Glens Falls, NY

GROUNDWATER SAMPLING FIELD DATA SHEET

Well Number: WP-CC-17
Sample I.D.: _____ (if different from well no.)

Client: Hercules Job No.: 18927.001
Personnel: C. Doughty

Date: 9-28-00 Time: 10:45
Weather Conditions: _____
Air Temperature: _____

WELL DATA:

Casing Diameter: 1in ☐ Stainless Steel ☐ Galv. Steel ☒ PVC ☐ Teflon® ☐ Other: _____
Intake Diameter: 1in ☐ Stainless Steel ☐ Galv. Steel ☒ PVC ☐ Teflon® ☐ Open rock
DEPTH TO : Static Water Level: 15.51' Bottom of Well: 19.09'
DATUM: ☐ Top of Protective Casing ☒ Top of Well Casing ☐ Top of Well Wizard
CONDITION: Is Well clearly labeled? ☒ Yes ☐ No Is well clean to bottom? ☐ Yes ☐ No
Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☒ Yes ☐ No
Does Weep Hole adequately drain well head? ☐ Yes ☐ No
Is Concrete Pad Intact? (not cracked or frst heaved) ☒ Yes ☐ No
Is Padlock Functional? ☒ Yes ☐ No ☐ NA Is Inner Casing Intact? ☒ Yes ☐ No
Is Inner Casing Properly Capped and Vented? ☒ Yes ☐ No
Staging In Well 0.10gal To Be Purged 0.3 gal

Casing ID	gals/ft
2"	.16
3"	.37
4"	.65
5"	1.02
6"	1.47

PURGE DATA:

METHOD: ☒ Bailer, Size: 3/4" OD ☐ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Waterra:HydroLift II

MATERIALS: Pump/(Bailer): ☐ Teflon® ☐ Stainless Steel ☐ PVC ☒ Other: Polyethylene
Tubing/(Rope): ☐ Teflon® ☐ Polyethylene ☐ Polypropylene ☒ Other: Nylon

Pumping Rate: _____ Elapsed Time: ≈35 min Volume Pumped: 0.5 gal
Was well purged to dryness? ☐ Yes ☐ No Number of Well Volumes Removed: 5

TIME SERIES DATA:

	Well Volumes:					
Temp.:						
pH:						
Spec. Cond.:						
DO:						
ORP:						

PURGING EQUIPMENT: ☒ Dedicated (Dedicated) ☐ Prepared Off-Site ☐ Field Cleaned

SAMPLING DATA:

METHOD: ☒ Bailer, Size: 3/4" OD ☐ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Syringe Sampler ☐ Inertial Lift Pump ☐ Peristaltic Pump ☐ Waterra: HydroLift II

MATERIALS: Pump/(Bailer): ☐ Teflon® ☐ Stainless Steel ☐ PVC ☒ Other: Polyethylene
Tubing/(Rope): ☐ Teflon® ☐ Polyethylene ☐ Polypropylene ☒ Other: Nylon

SAMPLING EQUIPMENT: ☒ Dedicated (Dedicated) ☐ Prepared Off-Site ☐ Field Cleaned
Metals samples field filtered? ☒ Yes ☐ No Method: Passed use 0.45 um Quick Filter
APPEARANCE: ☐ Clear ☐ Turbid ☐ Color: _____ ☐ Contains LNAPL ☐ Contains DNAPL
Odor: ☐ Yes: ☐ No Other:

FIELD DETERMINATIONS OF RECORD:
pH: 7.05 Temperature: 10.6°C Spec. Cond.: 0.913 mS/cm Meter Model & S/N: Cole-Parmer pHTestr 2 / YSI 3000
Hach Kit Results: Fe: _____ Mn: _____ DO: _____ CO_2: _____ S: _____
NO. OF CONTAINERS: 2 Field Blank I.D.: FB-092900 Trip Blank I.D.: Duplicate I.D.:
REMARKS: Total Cyanide (preserved w/ NaOH to pH > 12), Total Chromium (Field filtered - preserved w/ HNO3 to pH < 2)

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.
Signature: Cynthia Doughty Date: 11/29/00

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BROWN AND CALDWELL

Hercules Incorporated
Ciba Site
Glens Falls, NY

GROUNDWATER SAMPLING FIELD DATA SHEET

Well Number: WP-CC-21
Sample I.D.: _____ (if different from well no.)

Client: Hercules Job No.: 18927.001
Personnel: C. Doughty

Date: 9-28-00 Time: 17:30
Weather Conditions: _____
Air Temperature: _____

WELL DATA:

Casing Diameter: 1in ☐ Stainless Steel ☐ Galv. Steel ☒ PVC ☐ Teflon® ☐ Other: _____
Intake Diameter: 1in ☐ Stainless Steel ☐ Galv. Steel ☒ PVC ☐ Teflon® ☐ Open rock
DEPTH TO : Static Water Level: 9.38' Bottom of Well: 19.13'
DATUM: ☐ Top of Protective Casing ☒ Top of Well Casing ☐ Top of Well Wizard
CONDITION: Is Well clearly labeled? ☒ Yes ☐ No Is well clean to bottom? ☐ Yes ☐ No
Is Prot. Casing/Surface Mount in Good Cond.? (not bent or corroded) ☒ Yes ☐ No
Does Weep Hole adequately drain well head? ☐ Yes ☐ No
Is Concrete Pad Intact? (not cracked or frst heaved) ☒ Yes ☐ No
Is Padlock Functional? ☒ Yes ☐ No ☐ NA Is Inner Casing Intact? ☒ Yes ☐ No
Is Inner Casing Properly Capped and Vented? ☒ Yes ☐ No
Staging In Well 0.4 gal To Be Purged 1.2 gal

Casing ID	gals/ft
2"	.16
3"	.37
4"	.65
5"	1.02
6"	1.47

PURGE DATA:

METHOD: ☒ Bailer, Size: ¾" OD ☐ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Centrifugal Pump ☐ Peristaltic Pump ☐ Inertial Lift Pump ☐ Waterra:HydroLift II

MATERIALS: Pump/(Bailer): ☐ Teflon® ☐ Stainless Steel ☐ PVC ☒ Other: Polyethylene
Tubing/(Rope): ☐ Teflon® ☐ Polyethylene ☐ Polypropylene ☒ Other: Nylon

Pumping Rate: _____ Elapsed Time: 135 min Volume Pumped: 1.25 gal
Was well purged to dryness? ☐ Yes ☐ No Number of Well Volumes Removed: 3+

TIME SERIES DATA:

	Well Volumes:					
Temp.:						
pH:						
Spec. Cond.:						
DO:						
ORP:						

PURGING EQUIPMENT: ☒ Dedicated (Disposable) ☐ Prepared Off-Site ☐ Field Cleaned

SAMPLING DATA:

METHOD: ☒ Bailer, Size: ¾" OD ☐ Bladder Pump ☐ 2" Submersible Pump ☐ 4" Submersible Pump
☐ Syringe Sampler ☐ Inertial Lift Pump ☐ Peristaltic Pump ☐ Waterra: HydroLift II

MATERIALS: Pump/(Bailer): ☐ Teflon® ☐ Stainless Steel ☐ PVC ☒ Other: Polyethylene
Tubing/(Rope): ☐ Teflon® ☐ Polyethylene ☐ Polypropylene ☒ Other: Nylon

SAMPLING EQUIPMENT: ☒ Dedicated (Disposable) ☐ Prepared Off-Site ☐ Field Cleaned
Metals samples field filtered? ☒ Yes ☐ No Method: Pressure vessel w/ 0.45 um Cuno filter
APPEARANCE: ☐ Clear ☐ Turbid ☐ Color: _____ ☐ Contains LNAPL ☐ Contains DNAPL
Odor: ☐ Yes: ☐ No Other:

FIELD DETERMINATIONS OF RECORD:
pH: 7.19 Temperature: 11.7°C Spec. Cond.: 0.713 mS/cm Meter Model & S/N: Calibrated 2/YSI 3000
Hach Kit Results: Fe: _____ Mn: _____ DO: _____ CO_2: _____ S: _____
NO. OF CONTAINERS: 4 Field Blank I.D.: FB-092400 Trip Blank I.D.: Duplicate I.D.: DUP-092800
REMARKS: Collected Duplicate Sample from this well (DUP-092800)
Total Cyanide - preserved w/ NaOH & pH > 12
Total Cr (Hexavalent Hexed) - pres. w/ HNO3 & pH < 2

I certify that this sample was collected and handled in accordance with applicable regulatory and project protocols.
Signature: Cynthia Doughty Date: 11/29/00

APPENDIX F

LABORATORY DATA PACKAGES

LABORATORY DATA PACKAGE FOR SAMPLES COLLECTED IN MAY 2000

INORGANIC DATA PACKAGE

PREPARED FOR
HERCULES INCORPORATED

NOVEMBER 27, 2000

Authorized for Release by:

1. _____
Marcia McGinnity, Laboratory Manager

2. _____
Betty L. DeVille, Inorganic Lab Manager

INORGANIC DATA PACKAGE

Prepared for:

Hercules Incorporated
Hercules Plaza
Wilmington, Delaware 19894

Prepared by:

Eckenfelder Laboratory, LLC
227 French Landing Drive
Nashville, Tennessee 37228

November 27, 2000

Page#

REPORT NARRATIVE

INORGANIC CASE NARRATIVE
Hercules #18927.001
Work Order Number
0005013

All the analyses performed by the Inorganic section were completed meeting satisfactorily the corresponding specifications for Quality Control.

Batching Information

0000003

SDG No.: 00H05
Contract: Hercules

Batch Number: 00H05a – ICP Metals

PBW 051000B	PBW 051000B	MB	WATER
LCSW 051000B	LCSW 051000B	LCS	WATER
0005013-01	WP-0-50	SAM	WATER
0005013-02	WP-CC-12	SAM	WATER
0005013-03	DUP-050200	SAM	WATER
0005013-04	WP-CC-21	SAM	WATER
0005013-05	WP-CC-17	SAM	WATER
0005013-05S	WP-CC-17S	MS	WATER
0005013-05SD	WP-CC-17SD	MSD	WATER
0005013-06	FB-050200	SAM	WATER

Batch Number: 00H05b - Cyanide

PBW 051000A	PBW 051000A	MB	WATER
LCSW 051000A	LCSW 051000A	LCS	WATER
0005013-01	WP-0-50	SAM	WATER
0005013-02	WP-CC-12	SAM	WATER
0005013-02S	WP-CC-12S	MS	WATER
0005013-02SD	WP-CC-12SD	MSD	WATER
0005013-03	DUP-050200	SAM	WATER
0005013-04	WP-CC-21	SAM	WATER
0005013-05	WP-CC-17	SAM	WATER
0005013-06	FB-050200	SAM	WATER

PARAMETERS REQUESTED

Hercules

Parameters Requested

Lab Sample ID	Field ID	Matrix	Date Time Sampled	Parameters requested
0005013-01	WP-0-50	Aqueous	5/2/2000 10:52:00 AM	Chromium Cyanide
0005013-02	WP-CC-12	Aqueous	5/2/2000 11:44:00 AM	Chromium Cyanide
0005013-03	DUP-050200	Aqueous	5/2/2000 12:00:00 PM	Chromium Cyanide
0005013-04	WP-CC-21	Aqueous	5/2/2000 1:04:00 PM	Chromium Cyanide
0005013-05	WP-CC-17	Aqueous	5/2/2000 1:50:00 PM	Chromium Cyanide
0005013-06	FB-050200	Aqueous	5/2/2000 2:20:00 PM	Chromium Cyanide

SAMPLE INFORMATION SUMMARY

Sample Information Summary for Hercules

FIELD ID	Eckenfelder Lab ID	Date and Time Sampled	Matrix
WP-0-50	0005013-01	5/2/00 10:52:00 AM	Aqueous
WP-CC-12	0005013-02	5/2/00 11:44:00 AM	Aqueous
DUP-050200	0005013-03	5/2/00 12:00:00 PM	Aqueous
WP-CC-21	0005013-04	5/2/00 1:04:00 PM	Aqueous
WP-CC-17	0005013-05	5/2/00 1:50:00 PM	Aqueous
FB-050200	0005013-06	5/2/00 2:20:00 PM	Aqueous

Eckenfelder Laboratory, LLC Chain of Custody Record

Nº 21350

Ship to:
Eckenfelder Laboratory LLC
227 French Landing Drive
Nashville, TN 37228
Attn: Analytical Laboratory
(615) 255-2288 (phone)
(615) 256-8332 (fax)
(615) 400-0253 (mobile)

Send Results to:
Name Bob O'Neil
Company Brown & Caldwell
Address 440 Franklin Turnpike
City & State Mahwah, NJ
Phone 201-818-6055
Fax 201-818-6057

Send Invoice To:
Name Same
Company
Address
City & State
Phone
Purchase Order

Details:
Page 1 of 1
Cooler No. 1 of 1
Date Shipped 5/2/00
Shipped By FedEx
Turnaround Std.
(Std. turn unless noted otherwise/There may be a surcharge for RUSH-contact Lab)

Project No./Name 18927.001

Samplers (Signature) * Cynthia Doughtty

Lab Use Only Lab #	Date Sampled	Time	Comp./ Grab	Sample Location/Description	Sample Matrix	Field pH/Temp	Field Cond.	ANALYSIS REQUIRED	No. of Bottles	Lab Use Only Containers/Pres.
5013-01	5/2/00	10:52	Grab	WP-0-50	water	7.6/16.8	-0.001	CN⁻, Total Cr	2	1A-NaOH 1H-1 1C-HNO3 1H-1
02	5/2/00	11:44	Grab	WP-CC-12/MS/MSD	water	6.4/19.8	.342	CN⁻, Total Cr	6	3x2
03	5/2/00	12:00	Grab	Dup-050200	water			CN⁻, Total Cr	2	
04	5/2/00	13:04	Grab	WP-CC-21	water	7.0/21.4	0.002	CN⁻, Total Cr	2	
05	5/2/00	13:50 ~~14:07~~ CAS	Grab	WP-CC-17	water	6.9/21.6	0.003	CN⁻, Total Cr	2	
06	5/2/00	14:20	Grab	FB-050200	water			CN⁻, Total Cr	2	

Sample Kit Prep'd by: (Signature)	Date/Time 5/1/00 1400	Received By: (Signature) Cynthia Doughtty
Relinquished by: (Signature) Cynthia Doughtty	Date/Time 5/2/00 1600	Received By: (Signature) FedEx
Relinquished by: (Signature)	Date/Time	Received By: (Signature)
Received for Laboratory by: (Signature)	Date/Time 5-3-00 0930	Work Order No./ Temp (°C) 4.0°C

REMARKS
* Signature required to ensure validity

Lab Use Only
VOA Headspace Y N (NA)
Field Filtered Y (N) NA
Correct Containers (Y) N NA
Discrepancies Y (N) NA
Cust. Seals intact Y N (NA)
Containers Intact (Y) N NA
Airbill # FX
CAR #

Distribution: Original and yellow copies accompany sample shipment to laboratory; Pink retained by samplers

SAMPLE RECEIVING LOGS

0000011

ECKENFELDER INC.®

COOLER RECEIPT FORM

PROJECT: Hercules (BC-NJ) #18927.001 LIMS# KCOSC13-01 → -06

USE OTHER SIDE OF THIS FORM TO NOTE DETAILS AND/OR COMPLETE A CORRECTIVE ACTION CONCERNING CHECK-IN PROBLEMS.

A. PRELIMINARY EXAMINATION PHASE: DATE COOLER OPENED: 5-3-00 C-of-C Number 2135-c

by (print) G. Forsythe (sign) [signature]

1. Did cooler come with a shipping slip (air bill, etc.)? YES NO

   If YES, enter carrier Name & air bill number here: Fed-Ex #819629468768

2. Were custody seals on outside of cooler? YES (NO)

   How many & where: ____, seal date ____, seal name ____

3. Were custody seals unbroken and intact at the date and time of arrival? NA YES NO

4. Did you screen samples for radioactivity using the Geiger Counter? YES (NO)

5. Were custody papers sealed in a plastic bag & taped inside to the lid? (YES) NO

6. Were custody papers filled out properly (ink, signed, etc.)? (YES) NO

7. Did you sign custody papers in the appropriate place? (YES) NO

8. Was project identifiable from custody papers? If yes, enter project name at the top of this form. (YES) NO

9. If required, was enough ice used? ____ Type of ice: bagged cubes Temp 4.0°C (YES) NO

10. Have designated person initial here to acknowledge receipt of cooler: BR (date) 5-3-00

B. LOG-IN PHASE: Date samples were logged in: 5-4-00

by (print) B. Richardi (sign) [signature]

11. Describe type of packing in cooler: Bubble wrap, Plastic bags, Ice

12. Were all bottles sealed in separate plastic bags? YES (NO)

13. Did all bottles arrive unbroken & were labels in good condition? (YES) NO

14. Were all bottle labels complete (ID, date, time, signature, preservative, etc.)? (YES) NO

15. Did all bottle labels agree with custody papers? (YES) NO

16. Were correct containers used for the tests indicated? (YES) NO

17. Were correct preservatives added to samples? (YES) NO

18. Was a sufficient amount of sample sent for tests indicated (YES) NO

19. Were bubbles absent in volatile samples? If NO, list by Sample # NA YES NO

20. Was the project manager called and status discussed? If yes, give details on the back of this form YES (NO)

21. Who was called? ____ By whom? ____ (date) ____

INORGANIC SUMMARY REPORTS

Eckenfelder
Laboratory, LLC

CLIENT: Hercules #18927.001; NY State ID# 10925

DATE RECEIVED: 05/03/00

DATE REPORTED: 05/16/00

ECKENFELDER SAMPLE NUMBER				0005013-01	0005013-02	0005013-03
CLIENT SAMPLE DESCRIPTION/SAMPLING DATE				WP-0-50 5/2/2000 10:52:00 AM	WP-CC-12 5/2/2000 11:44:00 AM	DUP-050200 5/2/2000 12:00:00 PM
ANALYTES	REPORTING LIMITS	USEPA METHOD	UNITS	CONC	CONC	CONC
Chromium	5.0	6010B	µg/L	23	<5.0	28
Cyanide	0.010	9012A	mg/L	0.053	<0.010	0.37

See attached page for definitions of terms and qualifiers.

Eckenfelder Laboratory, LLC

CLIENT: Hercules #18927.001; NY State ID# 10925
DATE RECEIVED: 05/03/00
DATE REPORTED: 05/16/00

ECKENFELDER SAMPLE NUMBER				0005013-04	0005013-05
CLIENT SAMPLE DESCRIPTION/SAMPLING DATE				WP-CC-21 5/2/2000 1:04:00 PM	WP-CC-17 5/2/2000 1:50:00 PM
ANALYTES	REPORTING LIMITS	USEPA METHOD	UNITS	CONC	CONC
Chromium	5.0	6010B	µg/L	28	<5.0
Cyanide	0.010	9012A	mg/L	0.37	<0.010

See attached page for definitions of terms and qualifiers.

CLIENT: Hercules #18927.001; NY State ID# 10925
DATE RECEIVED: 05/03/00
DATE REPORTED: 05/16/00

ECKENFELDER SAMPLE NUMBER				0005013-06
CLIENT SAMPLE DESCRIPTION/SAMPLING DATE				FB-050200 5/2/2000 2:20:00 PM
ANALYTES	REPORTING LIMITS	USEPA METHOD	UNITS	CONC
Chromium	5.0	6010B	µg/L	<5.0
Cyanide	0.0050	9012A	mg/L	<0.0050

See attached page for definitions of terms and qualifiers.

Eckenfelder Laboratory, LLC

D. Rick Davis
Vice President

ANALYTICAL REPORT NOTES, TERMS AND QUALIFIERS (INORGANIC)

Notes:

The metals and cyanide reporting limits (RLs) have been statistically determined to be no less than three standard deviations as defined in 40 CFR 136, Appendix B, Revision 1.11. All other reporting limits are referenced from the specific analytical method.

Terms:

NA Not Applicable

NR Not Requested

Qualifiers:

B The reported value is less than the practical quantitation limit (PQL, project defined) but greater than or equal to the RL.

E The reported value is estimated due to the presence of matrix interference.

N Predigested spike recovery not within control limits.

W Post digestion spike recovery not within control limits.

* RPD or absolute difference for Duplicate analysis not within control limits.

** Reference Standard Methods 19th edition.

(1) pH analyzed outside USEPA specified holding time. pH must be measured immediately after sample collection.

(2) The sample pH did not meet the preservation guidelines. Therefore the pH was adjusted upon receipt.

(3) The sample had to be diluted because of matrix interferences.

(4) Reference Standard Methods 17th edition for the distillation method.

(5) The sample was analyzed out of the USEPA holding time.

(6) The sample was received in the laboratory out of the USEPA holding time.

(7) The shipping cooler temperature exceeded 6°C upon receipt to Eckenfelder Laboratory, LLC.

(8) When the concentration of the analyte is below the detection limit, the detection limit must be divided by the %Solids (in decimal form) in order to obtain the sample's true detection limit on a dry weight basis.

(9) Analysis was subcontracted

INORGANIC QC DATA

TOTAL METALS

-2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: Hercules

Lab Code: Case No.: SAS No.: SDG NO.: 00H05

Initial Calibration Source: Ultra, CPI, Fisher

Continuing Calibration Source: Ultra, CPI, Fisher

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Chromium	1000.0	987.97	98.8	1000.0	1007.12	100.7	1028.08	102.8	P
Cyanide	506.0	476.20	94.1	506.0	534.00	105.5	514.00	101.6	AS

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

TOTAL METALS

-2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

ontract: Hercules

Lab Code: Case No.: SAS No.: SDG NO.: 00H05

nitial Calibration Source:

Continuing Calibration Source: Ultra, CPI, Fisher

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Chromium				1000.0	1009.76	101.0	1000.36	100.0	P
Cyanide				506.0	506.00	100.0			AS

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

TOTAL METALS

-2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: Hercules

Lab Code: Case No.: SAS No.: SDG NO.: 00H05

Initial Calibration Source:

Continuing Calibration Source: Ultra, CPI, Fisher

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Chromium				1000.0	998.75	99.9	1009.87	101.0	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

TOTAL METALS

-2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: Hercules

Lab Code: Case No.: SAS No.: SDG NO.: 00H05

Initial Calibration Source:

Continuing Calibration Source: Ultra, CPI, Fisher

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Chromium				1000.0	999.15	99.9			P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

TOTAL METALS

-3-

BLANKS

Contract: Hercules

Lab Code: Case No.: SAS No.: SDG NO.: 00H05

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Chromium	5.0	U	5.0	U	5.0	U	5.0	U	5.000	U	P
Cyanide	5.0	U	5.0	U					5.000	U	AS

TOTAL METALS

-3-

BLANKS

Contract: Hercules

Lab Code: Case No.: SAS No.: SDG NO.: 00H05

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Chromium			5.0	U	5.0	U	5.0	U			P

TOTAL METALS

-3-

BLANKS

Contract: Hercules

Lab Code: Case No.: SAS No.: SDG NO.: 00H05

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Chromium			5.0	U							P

TOTAL METALS

-5A-

SPIKE SAMPLE RECOVERY

SAMPLE NO.

WP-CC-17S

Contract: Hercules

Lab Code: Case No.: SAS No.: SDG NO.: 00H05

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): µG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Chromium	75 - 125	201.8564		5.0000	U	200.00	100.9		P

Comments:

TOTAL METALS
-5A-
SPIKE SAMPLE RECOVERY

SAMPLE NO.

WP-CC-17SD

Contract: Hercules

Lab Code: Case No.: SAS No.: SDG NO.: 00H05

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): µG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Chromium	75 - 125	199.3351		5.0000	U	200.00	99.7		P

Comments:

TOTAL METALS
-5A-
SPIKE SAMPLE RECOVERY

SAMPLE NO.

WP-CC-12S

Contract: Hercules

Lab Code: Case No.: SAS No.: SDG NO.: 00H05

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): µG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Cyanide	75 - 125	345.5000		10.0000	U	404.20	85.5		AS

Comments:

TOTAL METALS

-3-

BLANKS

Contract: Hercules

Lab Code: Case No.: SAS No.: SDG NO.: 00H05

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Chromium	5.0	U	5.0	U	5.0	U	5.0	U	5.000	U	P
Cyanide	5.0	U	5.0	U					5.000	U	AS

TOTAL METALS
-5A-
SPIKE SAMPLE RECOVERY

SAMPLE NO.

WP-CC-12SD

Contract: Hercules

ab Code: Case No.: SAS No.: SDG NO.: 00H05

Matrix (soil/water): WATER Level (low/med): LOW

Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): µG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Cyanide	75 - 125	407.9000		10.0000	U	404.20	100.9		AS

mments:

TOTAL METALS

-6-

DUPLICATES

SAMPLE NO.

WP-CC-17SD

Contract: Hercules

Lab Code: Case No.: SAS No.: SDG NO.: 00H05

Matrix (soil/water): WATER Level (low/med): LOW

Solids for Sample: 0.0 % Solids for Duplicate:

Concentration Units (ug/L or mg/kg dry weight): µG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Chromium		201.8564		199.3351		1.3		P

TOTAL METALS

-6-

DUPLICATES

SAMPLE NO.

WP-CC-12SD

Contract: Hercules

Lab Code: Case No.: SAS No.: SDG NO.: 00H05

Matrix (soil/water): WATER Level (low/med): LOW

Solids for Sample: 0.0 % Solids for Duplicate:

Concentration Units (ug/L or mg/kg dry weight): µG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Cyanide		345.5000		407.9000		16.6		AS

TOTAL METALS
-7-
LABORATORY CONTROL SAMPLE

:ontract: Hercules

Lab Code: Case No.: SAS No.: SDG NO.: 00H05

olid LCS Source:

Aqueous LCS Source: High Purity, JTBaker

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits	%R
Chromium	200.0	205.80	102.9					
Cyanide	500.0	499.50	99.9					

TOTAL METALS

-9-

ICP SERIAL DILUTIONS

SAMPLE NO.

WP-CC-17L

Contract: Hercules

Lab Code: Case No.: SAS No.: SDG NO.: 00H05

Matrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Chromium	5.00	U	25.00	U			P

TOTAL METALS

- 12 -

ICP LINEAR RANGES (QUARTERLY)

Contract: Hercules

Lab Code: Case No.: SAS No.: SDG NO.: 00H05

ICP ID Number: TJA61 Trace ICP Date:

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Chromium	5.00	50000.0	P

Comments:

TOTAL METALS
-13-
PREPARATION LOG

Contract: Hercules

Lab Code: Case No.: SAS No.: SDG NO.: 00H05

Method P

Sample No.	Preparation Date	Initial Volume	Volume (mL)
PBW 051000B	5/10/00		50
LCSW 051000B	5/10/00		50
WP-0-50	5/10/00		50
WP-CC-12	5/10/00		50
DUP-050200	5/10/00		50
WP-CC-21	5/10/00		50
WP-CC-17	5/10/00		50
WP-CC-17S	5/10/00		50
WP-CC-17SD	5/10/00		50
FB-050200	5/10/00		50

TOTAL METALS
-13-
PREPARATION LOG

ontract: Hercules

Lab Code: Case No.: SAS No.: SDG NO.: 00H05

ethod AS

Sample No.	Preparation Date	Initial Volume	Volume (mL)
PBW 051000A	5/10/00		250
LCSW 051000A	5/10/00		250
WP-0-50	5/10/00		250
WP-CC-12	5/10/00		250
DUP-050200	5/10/00		250
WP-CC-21	5/10/00		250
WP-CC-17	5/10/00		250
FB-050200	5/10/00		250
WP-CC-12S	5/10/00		250
WP-CC-12SD	5/10/00		250

TOTAL METALS

-14-

ANALYSIS RUN LOG

Contract: Hercules

Lab Code | Case No.: | SAS No.: | SDG No.: 00H05

Instrument ID Number: TJA61 Trace ICP | Method: P

Start Date: 5/11/00 | End Date: 5/11/00

Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1.00	09:59									X																
ZZZZZZ	1.00	10:07																									
ZZZZZZ	1.00	10:12																									
S	1.00	10:18									X																
ZZZZZZ	1.00	10:28																									
ZZZZZZ	1.00	10:35																									
ZZZZZZ	1.00	10:46																									
ZZZZZZ	1.00	10:53																									
ZZZZZZ	1.00	11:05																									
ICV1	1.00	11:12									X																
ICB1	1.00	11:24									X																
ZZZZZZ	1.00	11:31																									
ZZZZZZ	1.00	11:38																									
ZZZZZZ	1.00	11:47																									
ZZZZZZ	1.00	11:54																									
ZZZZZZ	1.00	12:01																									
ZZZZZZ	1.00	12:08																									
ZZZZZZ	1.00	12:20																									
ZZZZZZ	1.00	12:27																									
ZZZZZZ	1.00	12:34																									
ZZZZZZ	1.00	12:41																									
ZZZZZZ	1.00	12:54																									
ZZZZZZ	1.00	13:06																									
ZZZZZZ	1.00	13:13																									
ZZZZZZ	1.00	13:22																									
ZZZZZZ	1.00	13:29																									
ZZZZZZ	1.00	13:36																									
ZZZZZZ	1.00	13:43																									
ZZZZZZ	1.00	13:50																									
ZZZZZZ	1.00	13:57																									
ZZZZZZ	1.00	14:04																									
ZZZZZZ	1.00	14:11																									
ZZZZZZ	1.00	14:18																									
CCV2	1.00	14:27									X																

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

TOTAL METALS

-14-

ANALYSIS RUN LOG

Contract: Hercules

Lab Code | Case No.: | SAS No.: | SDG No.: 00H05

Instrument ID Number: TJA61 Trace ICP | Method: P

Start Date: 5/11/00 | End Date: 5/11/00

Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCB2	1.00	14:39									X																
ZZZZZZ	1.00	14:55																									
ZZZZZZ	5.00	15:04																									
ZZZZZZ	1.00	15:11																									
ZZZZZZ	1.00	15:18																									
ZZZZZZ	1.00	15:25																									
ZZZZZZ	1.00	15:32																									
ZZZZZZ	1.00	15:41																									
ZZZZZZ	1.00	15:55																									
ZZZZZZ	1.00	16:02																									
ZZZZZZ	1.00	16:12																									
CCV3	1.00	16:21									X																
CCB3	1.00	16:32									X																
PBW 051000B	1.00	16:40									X																
LCSW 051000B	1.00	16:47									X																
ZZZZZZ	1.00	16:56																									
ZZZZZZ	1.00	17:04																									
ZZZZZZ	1.00	17:11																									
ZZZZZZ	1.00	17:18																									
ZZZZZZ	5.00	17:26																									
ZZZZZZ	1.00	17:33																									
ZZZZZZ	1.00	17:40																									
ZZZZZZ	1.00	17:47																									
ZZZZZZ	1.00	17:54																									
CCV4	1.00	18:05									X																
CCB4	1.00	18:17									X																
ZZZZZZ	1.00	18:24																									
ZZZZZZ	1.00	18:31																									
ZZZZZZ	1.00	18:40																									
ZZZZZZ	1.00	18:47																									
ZZZZZZ	1.00	18:54																									
ZZZZZZ	1.00	19:01																									
ZZZZZZ	1.00	19:08																									
ZZZZZZ	1.00	19:15																									

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

TOTAL METALS

-14-

ANALYSIS RUN LOG

Contract: Hercules

Lab Code Case No.: SAS No.: SDG No.: 00H05

Instrument ID Number: TJA61 Trace ICP Method: P

Start Date: 5/11/00 End Date: 5/11/00

Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZZ	1.00	19:22																										
WP-0-50	1.00	19:29									X																	
CCV5	1.00	19:39									X																	
CCB5	1.00	19:50									X																	
WP-CC-12	1.00	19:57									X																	
DUP-050200	1.00	20:04									X																	
WP-CC-21	1.00	20:11									X																	
WP-CC-17L	5.00	20:20									X																	
WP-CC-17	1.00	20:27									X																	
WP-CC-17S	1.00	20:34									X																	
WP-CC-17SD	1.00	20:41									X																	
ZZZZZZ	1.00	20:48																										
ZZZZZZ	1.00	20:57																										
FB-050200	1.00	21:04									X																	
CCV6	1.00	21:14									X																	
CCB6	1.00	21:25									X																	
ZZZZZZ	1.00	21:32																										
ZZZZZZ	1.00	21:39																										
ZZZZZZ	1.00	21:46																										
ZZZZZZ	1.00	21:53																										
ZZZZZZ	1.00	22:00																										
ZZZZZZ	1.00	22:09																										
ZZZZZZ	1.00	22:16																										
ZZZZZZ	1.00	22:24																										
ZZZZZZ	1.00	22:31																										
ZZZZZZ	1.00	22:38																										
ZZZZZZ	1.00	22:45																										
CCV7	1.00	22:54									X																	
CCB7	1.00	23:06									X																	
ZZZZZZ	1.00	23:13																										
ZZZZZZ	1.00	23:20																										
ZZZZZZ	1.00	23:27																										
CCV8	1.00	23:38									X																	
CCB8	1.00	23:49									X																	

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

TOTAL METALS

-14-

ANALYSIS RUN LOG

Contract: Hercules

Lab Code Case No.: SAS No.: SDG No.: 00H05

Instrument ID Number: Cyanide Method: AS

Start Date: 5/11/00 End Date: 5/11/00

Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ICV1	1.00	10:14:																								X
ZZZZZZ	2.00	10:15:																								
ICB1	1.00	10:16:																								X
ZZZZZZ	1.00	10:17:																								
ZZZZZZ	5.00	10:18:																								
ZZZZZZ	1.00	10:19:																								
ZZZZZZ	1.00	10:20:																								
ZZZZZZ	1.00	10:21:																								
ZZZZZZ	1.00	10:22:																								
ZZZZZZ	1.00	10:23:																								
ZZZZZZ	1.00	10:24:																								
ZZZZZZ	1.00	10:26:																								
ZZZZZZ	1.00	10:27:																								
ZZZZZZ	1.00	10:28:																								
ZZZZZZ	1.00	10:29:																								
ZZZZZZ	1.00	10:30:																								
ZZZZZZ	1.00	10:31:																								
ZZZZZZ	1.00	10:32:																								
ZZZZZZ	100.00	10:33:																								
ZZZZZZ	1.12	10:34:																								
ZZZZZZ	1.00	10:35:																								
CCV2	1.00	10:36:																								X
ZZZZZZ	1.26	10:38:																								
ZZZZZZ	500.00	10:39:																								
PBW 051000A	1.00	10:40:																								X
LCSW 051000A	2.00	10:41:																								X
WP-0-50	2.00	10:42:																								X
WP-CC-12	2.00	10:43:																								X
DUP-050200	2.00	10:44:																								X
WP-CC-21	2.00	10:45:																								X

TOTAL METALS

-14-

ANALYSIS RUN LOG

Contract: Hercules

Lab Code Case No.: SAS No.: SDG No.: 00H05

Instrument ID Number: Cyanide Method: AS

Start Date: 5/11/00 End Date: 5/11/00

Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
WP-CC-12SD	2.00	10:51:																								X
ZZZZZZ	1.00	10:52:																								
ZZZZZZ	1.00	10:53:																								
ZZZZZZ	1.00	10:54:																								
ZZZZZZ	1.00	10:55:																								
ZZZZZZ	1.00	10:56:																								
ZZZZZZ	1.26	10:57:																								
ZZZZZZ	1.00	10:58:																								
ZZZZZZ	1.00	10:59:																								
CCV4	1.00	11:00:																								X
CCB2	2.00	11:02:																								X

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

Blank Spike Recovery
Hercules Inc.
Job #18927.001

ANALYTE	BATCH	SPIKE RESULT	SPIKE ADDED	%REC	UNITS	METHOD
Chromium	00H05a	206	200	103	ug/L	ICP
Cyanide, Total	00H05b	0.174	0.202	86	mg/L	Lachat

LABORATORY DATA PACKAGE FOR SAMPLES COLLECTED IN SEPTEMBER 2000

INORGANIC DATA PACKAGE

PREPARED FOR
HERCULES INCORPORATED

NOVEMBER 9, 2000

Authorized for Release by:

1. Marcia McGinnity
Marcia McGinnity, Laboratory Manager

2. Betty L. DeVille
Betty L. DeVille, Inorganic Lab Manager

INORGANIC DATA PACKAGE

Prepared for:

Hercules Incorporated
Hercules Plaza
Wilmington, Delaware 19894

Prepared by:

Eckenfelder Laboratory, LLC
227 French Landing Drive
Nashville, Tennessee 37228

November 9, 2000

Page#

REPORT NARRATIVE

Batching Information

SDG No.: 00H04
Contract: Hercules

Batch Number: 00H04A – ICP Metals

PBW 100900A	PBW 100900A	MB	WATER
LCSW 100900A	LCSW 100900A	LCS	WATER
0010002-01	WP-050	SAM	WATER
0010002-01S	WP-050S	MS	WATER
0010002-01SD	WP-050SD	MSD	WATER
0010002-02	WP-CC-12	SAM	WATER
0010002-03	WP-CC-17	SAM	WATER
0010002-04	WP-CC-21	SAM	WATER
0010002-05	DUP-092800	SAM	WATER
0010002-06	FB-092900	SAM	WATER

Batch Number: 00H04B - Cyanide

PBW 100600A	PBW 100600A	MB	WATER
LCSW 100600A	LCSW 100600A	LCS	WATER
0010002-02	WP-CC-12	SAM	WATER
0010002-03	WP-CC-17	SAM	WATER
0010002-01	WP-050	SAM	WATER
0010002-01S	WP-050S	MS	WATER
0010002-01SD	WP-050SD	MSD	WATER
PBW 100900A	PBW 100900A	MB	WATER
LCSW 100900A	LCSW 100900A	LCS	WATER
0010002-04	WP-CC-21	SAM	WATER
0010002-05	DUP-092800	SAM	WATER
0010002-06	FB-092900	SAM	WATER

PARAMETERS REQUESTED

Hercules

Parameters Requested

Lab Sample ID	Field ID	Matrix	Date Time Sampled	Parameters requested
0010002-01	WP-050	Aqueous	9/27/2000 2:30:00 PM	Chromium Cyanide
0010002-02	WP-CC-12	Aqueous	9/27/2000 3:20:00 PM	Chromium Cyanide
0010002-03	WP-CC-17	Aqueous	9/28/2000 4:45:00 PM	Chromium Cyanide
0010002-04	WP-CC-21	Aqueous	9/28/2000 5:30:00 PM	Chromium Cyanide
0010002-05	DUP-092800	Aqueous	9/28/2000	Chromium Cyanide
0010002-06	FB-092900	Aqueous	9/29/2000 9:15:00 AM	Chromium Cyanide

SAMPLE INFORMATION SUMMARY

Eckenfelder Laboratory, LLC Chain of Custody Record

№ 22255

Ship to:
Eckenfelder Laboratory LLC
227 French Landing Drive
Nashville, TN 37228
Attn: Analytical Laboratory
(615) 345-1115 (phone)
(615) 846-5426 (fax)
(615) 400-0253 (mobile)

Send Results to:
Name Bob O'Neill
Company Brown and Caldwell
Address 440 Franklin Turnpike
City & State Mahwah, NJ
Phone 201-818-6055
Fax 201-818-6057

Send Invoice To:
Name Same
Company
Address
City & State
Phone
Purchase Order

Details: Tow 3rd - 10-4-00

Page 1 of 1
Cooler No. 1 of 1
Date Shipped 9/29/00
Shipped By FedEx
Turnaround Std.
(Std. turn unless noted otherwise/There may be a surcharge for RUSH-contact Lab)

Project No./Name 18927.001

Samplers (Signature) * Cynthia Doughty

Lab Use Only Lab #	Date Sampled	Time	Comp./ Grab	Sample Location/Description	Sample Matrix	Field pH/Temp	Field Cond.	ANALYSIS REQUIRED	No. of Bottles	Lab Use Only Containers/Pres.
10002-01	9/27/00	14:30	Grab	WP-0-50 (MS/MSD)	water	7.49/9.1	1.199	Cyanide, Cr	4	2A-NaOH-pH-12 2C-HNO3-pH-2.0
02	9/27/00	15:20	Grab	WP-CC-12	water	7.18/8.5	0.905	Cyanide, Cr	2	1A-NaOH-pH-12 1C-HNO3-pH-2.0
03	9/28/00	16:45	Grab	WP-CC-17	water	7.05/10.6	0.913	Cyanide, Cr	2	
04	9/28/00	17:30	Grab	WP-CC-21	water	7.19/11.7	0.713	Cyanide, Cr	2	
05	9/28/00	9:99	Grab	DUP-092800	water			Cyanide, Cr	2	
06	9/09/00	9:15	Grab	FB-092900	water			Cyanide, Cr	2	

Sample Kit Prep'd by: (Signature)	Date/Time 9-14-0	Received By: (Signature) Cynthia Doughty
Relinquished by: (Signature) Cynthia Doughty	Date/Time 9/29/00 1000am	Received By: (Signature) FedEx
Relinquished by: (Signature)	Date/Time	Received By: (Signature)
Received for Laboratory by: (Signature)	Date/Time 9-30-00 1025	Work Order No./ Temp (°C) 3.0°C

REMARKS
* Signature required to ensure validity

Lab Use Only
VOA Headspace Y (N) NA
Field Filtered Y (N) NA
Correct Containers (Y) N NA
Discrepancies Y (N) NA
Cust. Seals intact Y N (NA)
Containers Intact (Y) N NA
Airbill # FX 6008 0008
CAR #

Distribution: Original and yellow copies accompany sample shipment to laboratory; Pink retained by samplers

SAMPLE RECEIVING LOGS

000001

ECKENFELDER INC.®

COOLER RECEIPT FORM

PROJECT: BC-NJ (Hercules) LIMS# D010002-01 → -06

USE OTHER SIDE OF THIS FORM TO NOTE DETAILS AND/OR COMPLETE A CORRECTIVE ACTION CONCERNING CHECK-IN PROBLEMS.

A. PRELIMINARY EXAMINATION PHASE: DATE COOLER OPENED: 9-30-00 C-of-C Number 22255

by (print) G. Forsythe (sign) GF

1. Did cooler come with a shipping slip (air bill, etc.)? YES NO

   If YES, enter carrier Name & air bill number here: Fed-Ex #8212 8857 2441

2. Were custody seals on outside of cooler? YES (NO)

   How many & where: —, seal date —, seal name —

3. Were custody seals unbroken and intact at the date and time of arrival? NA YES NO

4. Did you screen samples for radioactivity using the Geiger Counter? YES (NO)

5. Were custody papers sealed in a plastic bag & taped inside to the lid? (YES) NO

6. Were custody papers filled out properly (ink, signed, etc.)? (YES) NO

7. Did you sign custody papers in the appropriate place? (YES) NO

8. Was project identifiable from custody papers? If yes, enter project name at the top of this form. (YES) NO

9. If required, was enough ice used? Type of ice: wet cubes Temp 2 °C (YES) NO

10. Have designated person initial here to acknowledge receipt of cooler: BR (date) 9-30-00 10-2-00 (BR)

B. LOG-IN PHASE: Date samples were logged in: 10-2-00

by (print) D. Richard (sign) D Richard

11. Describe type of packing in cooler: bubble wrap, bagged ice

12. Were all bottles sealed in separate plastic bags? (YES) NO

13. Did all bottles arrive unbroken & were labels in good condition? (YES) NO

14. Were all bottle labels complete (ID, date, time, signature, preservative, etc.)? (YES) NO

15. Did all bottle labels agree with custody papers? (YES) NO

16. Were correct containers used for the tests indicated? (YES) NO

17. Were correct preservatives added to samples? (YES) NO

18. Was a sufficient amount of sample sent for tests indicated (YES) NO

19. Were bubbles absent in volatile samples? If NO, list by Sample # NA YES NO

20. Was the project manager called and status discussed? If yes, give details on the back of this form YES (NO)

21. Who was called? By whom? (date)

INORGANIC SUMMARY REPORTS

Eckenfelder
Laboratory, LLC

CLIENT: Hercules #18927.001; NY State ID# 10925
DATE RECEIVED: 09/30/00
DATE REPORTED: 10/13/00

ECKENFELDER SAMPLE NUMBER				0010002-01	0010002-02	0010002-03
CLIENT SAMPLE DESCRIPTION/SAMPLING DATE				WP-050 9/27/2000 2:30:00 PM	WP-CC-12 9/27/2000 3:20:00 PM	WP-CC-17 9/28/2000 4:45:00 PM
ANALYTES	REPORTING LIMITS	USEPA METHOD	UNITS	CONC	CONC	CONC
Chromium	5.0	6010B	µg/L	7.5	14	<5.0
Cyanide	0.010	9012A	mg/L	0.24	0.085	<0.010

See attached page for definition of terms and qualifiers.

227 French Landing Drive Nashville, Tennessee 37228 615-345-1115 FAX 615-846-5426

CLIENT: Hercules #18927.001; NY State ID# 10925
DATE RECEIVED: 09/30/00
DATE REPORTED: 10/13/00

ECKENFELDER SAMPLE NUMBER				0010002-04	0010002-05	0010002-06
CLIENT SAMPLE DESCRIPTION/SAMPLING DATE				WP-CC-21 9/28/2000 5:30:00 PM	DUP-092800 9/28/2000	FB-092900 9/29/2000 9:15:00 AM
ANALYTES	REPORTING LIMITS	USEPA METHOD	UNITS	CONC	CONC	CONC
Chromium	5.0	6010B	µg/L	42	41	<5.0
Cyanide	0.010	9012A	mg/L	0.40	0.50	<0.010

See attached page for definitions of terms and qualifiers.

Eckenfelder Laboratory, LLC

D. Rick Davis
Vice President

ANALYTICAL REPORT NOTES, TERMS AND QUALIFIERS (INORGANIC)

Notes:

The metals and cyanide reporting limits (RLs) have been statistically determined to be no less than three standard deviations as defined in 40 CFR 136, Appendix B, Revision 1.11. All other reporting limits are referenced from the specific analytical method.

Terms:

NA	Not Applicable
NR	Not Requested

Qualifiers:

B	The reported value is less than the practical quantitation limit (PQL, project defined) but greater than or equal to the RL.
E	The reported value is estimated due to the presence of matrix interference.
N	Predigested spike recovery not within control limits.
W	Post digestion spike recovery not within control limits.
*	RPD or absolute difference for Duplicate analysis not within control limits.
**	Reference Standard Methods 19th edition.
(1)	pH analyzed outside USEPA specified holding time. pH must be measured immediately after sample collection.
(2)	The sample pH did not meet the preservation guidelines. Therefore the pH was adjusted upon receipt.
(3)	The sample had to be diluted because of matrix interferences.
(4)	Reference Standard Methods 17th edition for the distillation method.
(5)	The sample was analyzed out of the USEPA holding time.
(6)	The sample was received in the laboratory out of the USEPA holding time.
(7)	The shipping cooler temperature exceeded 6°C upon receipt to Eckenfelder Laboratory, LLC.
(8)	When the concentration of the analyte is below the detection limit, the detection limit must be divided by the %Solids (in decimal form) in order to obtain the sample's true detection limit on a dry weight basis.
(9)	Analysis was subcontracted

INORGANIC QC DATA

TOTAL METALS

-2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: Hercules

Lab Code: Case No.: SAS No.: SDG NO.: 00H04

Initial Calibration Source: Ultra, CPI, Fisher

Continuing Calibration Source: Ultra, CPI, Fisher

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Chromium	1000.0	1,014.01	101.4	1000.0	1034.13	103.4	1036.53	103.7	P
Cyanide	498.0	494.40	99.3	498.0	523.00	105.0	523.00	105.0	AS

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

TOTAL METALS

-2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: Hercules

...b Code: Case No.: SAS No.: SDG NO.: 00H04

...nitial Calibration Source:

...ontinuing Calibration Source: Ultra, CPI, Fisher

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Chromium				1000.0	1029.17	102.9	1034.45	103.4	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

TOTAL METALS

-2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: Hercules

Lab Code: Case No.: SAS No.: SDG NO.: 00H04

Initial Calibration Source:

Continuing Calibration Source: Ultra, CPI, Fisher

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Chromium				1000.0	1027.85	102.8	1026.99	102.7	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

TOTAL METALS

-2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: Hercules

Lab Code: Case No.: SAS No.: SDG NO.: 00H04

Initial Calibration Source: Ultra, CPI, Fisher

Continuing Calibration Source: Ultra, CPI, Fisher

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Cyanide	498.0	519.30	104.3	498.0	517.00	103.8	526.00	105.6	AS

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

TOTAL METALS

-2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: Hercules

Lab Code: Case No.: SAS No.: SDG NO.: 00H04

Initial Calibration Source: Ultra, CPI, Fisher

Continuing Calibration Source: Ultra, CPI, Fisher

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Cyanide	498.0	501.50	100.7	498.0	516.00	103.6	498.00	100.0	AS

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

TOTAL METALS

-2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: Hercules

Lab Code: Case No.: SAS No.: SDG NO.: 00H04

Initial Calibration Source:

Continuing Calibration Source: Ultra, CPI, Fisher

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Cyanide				498.0	537.00	107.8			AS

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

TOTAL METALS

-3-

BLANKS

Contract: Hercules

Lab Code: Case No.: SAS No.: SDG NO.: 00H04

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Chromium	5.0	U	5.0	U	5.0	U	5.0	U	5.000	U	P
Cyanide	5.5	B	5.0	U					5.000	U	AS

TOTAL METALS

-3-

BLANKS

Contract: Hercules

Lab Code: Case No.: SAS No.: SDG NO.: 00H04

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Chromium			5.0	U	5.0	U	5.0	U			P

TOTAL METALS

-3-

BLANKS

Contract: Hercules

Lab Code: Case No.: SAS No.: SDG NO.: 00H04

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Cyanide	5.0	U	5.0	U							AS

TOTAL METALS

-3-

BLANKS

Contract: Hercules

Lab Code: Case No.: SAS No.: SDG NO.: 00H04

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Cyanide	5.0	U	5.0	U					5.000	U	AS

TOTAL METALS
-5A-
SPIKE SAMPLE RECOVERY

SAMPLE NO.

WP-050S

Contract: Hercules

Lab Code: Case No.: SAS No.: SDG NO.: 00H04

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): µG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Chromium	75 - 125	209.0037		7.4967	B	200.00	100.8		P
Cyanide	75 - 125	770.5000		237.2000		430.40	123.9		AS

Comments:

TOTAL METALS
-5A-
SPIKE SAMPLE RECOVERY

SAMPLE NO.

WP-050SD

Contract: Hercules

Lab Code: Case No.: SAS No.: SDG NO.: 00H04

Matrix (soil/water): WATER Level (low/med): LOW

Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): µG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Chromium	75 - 125	205.4411		7.4967	B	200.00	99.0		P
Cyanide	75 - 125	754.3000		237.2000		430.40	120.1		AS

Comments:

TOTAL METALS

-6-

DUPLICATES

SAMPLE NO.

WP-050SD

Contract: Hercules

Lab Code: Case No.: SAS No.: SDG NO.: 00H04

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate:

Concentration Units (ug/L or mg/kg dry weight): µG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Chromium		209.0037		205.4411		1.7		P
Cyanide		770.5000		754.3000		2.1		AS

TOTAL METALS
-7-
LABORATORY CONTROL SAMPLE

Contract: Hercules

Lab Code: Case No.: SAS No.: SDG NO.: 00H04

Solid LCS Source:

Aqueous LCS Source: High Purity, JTBaker

Analyte	Aqueous (ug/L)			Solid (mg/kg)				
	True	Found	%R	True	Found	C	Limits	%R
Chromium	200.0	201.45	100.7					
Cyanide	500.0	538.50	107.7					

TOTAL METALS

-7-

LABORATORY CONTROL SAMPLE

Contract: Hercules

Lab Code: Case No.: SAS No.: SDG NO.: 00H04

Solid LCS Source:

Aqueous LCS Source: High Purity, JTBaker

Analyte	Aqueous (ug/L)			Solid (mg/kg)				
	True	Found	%R	True	Found	C	Limits	%R
Cyanide	500.0	455.50	91.1					

TOTAL METALS

-9-

ICP SERIAL DILUTIONS

SAMPLE NO.

WP-050L

Contract: Hercules

Lab Code: Case No.: SAS No.: SDG NO.: 00H04

Matrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Chromium	7.50	B	25.00	U	100.0		P

TOTAL METALS

- 12 -

ICP LINEAR RANGES (QUARTERLY)

Contract: Hercules

Lab Code: Case No.: SAS No.: SDG NO.: 00H04

ICP ID Number: TJA61 Trace ICP Date: 8/00

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Chromium	5.00	50000.0	P

Comments:

TOTAL METALS
-13-
PREPARATION LOG

Contract: Hercules

Lab Code: Case No.: SAS No.: SDG NO.: 00H04

Method P

Sample No.	Preparation Date	Initial Volume	Volume (mL)
PBW 100900A	10/09/00		50
LCSW 100900A	10/09/00		50
WP-050	10/09/00		50
WP-050S	10/09/00		50
WP-050SD	10/09/00		50
WP-CC-12	10/09/00		50
WP-CC-17	10/09/00		50
WP-CC-21	10/09/00		50
DUP-092800	10/09/00		50
FB-092900	10/09/00		50

TOTAL METALS
-13-
PREPARATION LOG

Contract: Hercules

Lab Code: Case No.: SAS No.: SDG NO.: 00H04

Method AS

Sample No.	Preparation Date	Initial Volume	Volume (mL)
PBW 100600A	10/06/00		250
LCSW 100600A	10/06/00		250
WP-CC-12	10/06/00		250
WP-CC-17	10/06/00		250
WP-050	10/06/00		250
WP-050S	10/06/00		250
WP-050SD	10/06/00		250
PBW 100900A	10/09/00		250
LCSW 100900A	10/09/00		250
WP-CC-21	10/09/00		250
DUP-092800	10/09/00		250
FB-092900	10/09/00		250

TOTAL METALS

-14-

ANALYSIS RUN LOG

Contract: Hercules

Lab Code | Case No.: | SAS No.: | SDG No.: 00H04

Instrument ID Number: TJA61 Trace ICP | Method: P

Start Date: 10/10/00 | End Date: 10/10/00

Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1.00	09:43									X																
ZZZZZZ	1.00	09:49																									
S	1.00	09:54									X																
ZZZZZZ	1.00	10:04																									
ZZZZZZ	1.00	10:11																									
ZZZZZZ	1.00	10:22																									
ZZZZZZ	1.00	10:28																									
ZZZZZZ	1.00	10:39																									
ICV1	1.00	10:47									X																
ICB1	1.00	10:58									X																
ZZZZZZ	1.00	11:04																									
ZZZZZZ	1.00	11:11																									
ZZZZZZ	1.00	11:17																									
ZZZZZZ	1.00	11:25																									
ZZZZZZ	1.00	11:32																									
ZZZZZZ	1.00	11:38																									
ZZZZZZ	1.00	11:44																									
ZZZZZZ	1.00	11:54																									
ZZZZZZ	1.00	12:00																									
ZZZZZZ	1.00	12:06																									
ZZZZZZ	1.00	12:16																									
ZZZZZZ	1.00	12:27																									
ZZZZZZ	1.00	12:33																									
ZZZZZZ	1.00	12:43																									
ZZZZZZ	5.00	12:50																									
ZZZZZZ	1.00	12:57																									
ZZZZZZ	1.00	13:03																									
ZZZZZZ	1.00	13:09																									
ZZZZZZ	1.00	13:18																									
ZZZZZZ	1.00	13:24																									
ZZZZZZ	1.00	13:30																									
CCV2	1.00	13:40									X																
CCB2	1.00	13:51									X																
ZZZZZZ	1.00	13:57																									

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

TOTAL METALS

-14-

ANALYSIS RUN LOG

Contract: Hercules

Lab Code Case No.: SAS No.: SDG No.: 00H04

Instrument ID Number: TJA61 Trace ICP Method: P

Start Date: 10/10/00 End Date: 10/10/00

Sample No.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
ZZZZZZ	1.00	14:03																												
ZZZZZZ	1.00	14:09																												
ZZZZZZ	1.00	14:18																												
ZZZZZZ	1.00	14:24																												
ZZZZZZ	1.00	14:33																												
ZZZZZZ	1.00	14:39																												
ZZZZZZ	1.00	14:45																												
ZZZZZZ	1.00	14:51																												
ZZZZZZ	1.00	14:59																												
ZZZZZZ	1.00	15:05																												
CCV3	1.00	15:15								X																				
CCB3	1.00	15:26								X																				
PBW 100900A	1.00	15:32								X																				
LCSW 100900A	1.00	15:38								X																				
WP-050L	5.00	15:48								X																				
WP-050	1.00	15:54								X																				
WP-050S	1.00	16:00								X																				
WP-050SD	1.00	16:14								X																				
ZZZZZZ	1.00	16:20																												
WP-CC-12	1.00	16:30								X																				
WP-CC-17	1.00	16:36								X																				
WP-CC-21	1.00	16:42								X																				
CCV4	1.00	16:51								X																				
CCB4	1.00	17:02								X																				
DUP-092800	1.00	17:08								X																				
FB-092900	1.00	17:14								X																				
ZZZZZZ	1.00	17:21																												
ZZZZZZ	1.00	17:27																												
ZZZZZZ	1.00	17:33																												
ZZZZZZ	1.00	17:39																												
ZZZZZZ	1.00	17:46																												
ZZZZZZ	1.00	17:52																												
ZZZZZZ	1.00	17:58																												
ZZZZZZ	1.00	18:04																												

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

TOTAL METALS

-14-

ANALYSIS RUN LOG

Contract: Hercules

Lab Code Case No.: SAS No.: SDG No.: 00H04

Instrument ID Number: TJA61 Trace ICP Method: P

Start Date: 10/10/00 End Date: 10/10/00

Sample No.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCV5	1.00	18:14									X																			
CCB5	1.00	18:25									X																			
ZZZZZZ	1.00	18:31																												
ZZZZZZ	1.00	18:37																												
ZZZZZZ	1.00	18:44																												
ZZZZZZ	1.00	18:50																												
ZZZZZZ	1.00	18:56																												
ZZZZZZ	1.00	19:02																												
ZZZZZZ	1.00	19:10																												
ZZZZZZ	1.00	19:16																												
ZZZZZZ	1.00	19:22																												
CCV6	1.00	19:33									X																			
CCB6	1.00	19:44									X																			
ZZZZZZ	1.00	19:50																												
ZZZZZZ	1.00	19:57																												
ZZZZZZ	1.00	20:03																												
CCV7	1.00	20:14									X																			
CCB7	1.00	20:25									X																			

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TOTAL METALS

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ANALYSIS RUN LOG

Contract: Hercules

Lab Code | Case No.: | SAS No.: | SDG No.: 00H04

Instrument ID Number: Cyanide | Method: AS

Start Date: 10/6/00 | End Date: 10/6/00

Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ICV1	1.00	14:56:																								X
ICB1	1.00	14:57:																								X
ZZZZZZ	2.00	14:58:																								
PBW 100600A	1.00	14:59:																								X
ZZZZZZ	1.00	15:00:																								
LCSW 100600A	5.00	15:01:																								X
ZZZZZZ	2.00	15:02:																								
ZZZZZZ	2.00	15:03:																								
ZZZZZZ	1.00	15:04:																								
ZZZZZZ	1.00	15:05:																								
CCV1	1.00	15:06:																								X
ZZZZZZ	1.00	15:08:																								
WP-CC-12	2.00	15:09:																								X
WP-CC-17	2.00	15:10:																								X
ZZZZZZ	50.00	15:11:																								
ZZZZZZ	1.00	15:12:																								
ZZZZZZ	50.00	15:13:																								
ZZZZZZ	50.00	15:14:																								
ZZZZZZ	200.00	15:15:																								
ZZZZZZ	200.00	15:16:																								
CCB1	1.00	15:17:																								X
CCV2	1.00	15:18:																								X
ZZZZZZ	1.00	15:20:																								

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TOTAL METALS

-14-

ANALYSIS RUN LOG

Contract: Hercules

Lab Code Case No.: SAS No.: SDG No.: 00H04

Instrument ID Number: Cyanide Method: AS

Start Date: 10/9/00 End Date: 10/9/00

Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ICV2	1.00	09:07:																									X
ICB2	1.00	09:08:																									X
ZZZZZZ	2.00	09:09:																									
ZZZZZZ	1.00	09:10:																									
ZZZZZZ	1.00	09:11:																									
ZZZZZZ	4.00	09:12:																									
WP-050	2.00	09:13:																									X
WP-050S	2.00	09:14:																									X
WP-050SD	2.00	09:15:																									X
ZZZZZZ	50.00	09:16:																									
CCV1	1.00	09:17:																									X
ZZZZZZ	50.00	09:19:																									
ZZZZZZ	50.00	09:20:																									
ZZZZZZ	50.00	09:21:																									
ZZZZZZ	1.00	09:22:																									
ZZZZZZ	1.00	09:23:																									
ZZZZZZ	1.00	09:24:																									
CCV2	1.00	09:25:																									X
CCB2	1.00	09:27:																									X

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TOTAL METALS

-14-

ANALYSIS RUN LOG

Contract: Hercules

Lab Code Case No.: SAS No.: SDG No.: 00H04

Instrument ID Number: Cyanide Method: AS

Start Date: 10/10/00 End Date: 10/10/00

Sample No.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ICV3	1.00	14:42:																								X
ICB3	1.00	14:43:																								X
ZZZZZZ	1.00	14:44:																								
PBW 100900A	1.00	14:45:																								X
ZZZZZZ	1.00	14:46:																								
LCSW 100900A	4.00	14:47:																								X
ZZZZZZ	1.00	14:48:																								
ZZZZZZ	1.00	14:49:																								
ZZZZZZ	1.00	14:50:																								
ZZZZZZ	1.00	14:51:																								
CCV1	1.00	14:52:																								X
ZZZZZZ	1.00	14:54:																								
ZZZZZZ	1.00	14:55:																								
ZZZZZZ	1.00	14:56:																								
ZZZZZZ	1.00	14:57:																								
ZZZZZZ	2.00	14:58:																								
ZZZZZZ	2.00	14:59:																								
ZZZZZZ	2.00	15:00:																								
ZZZZZZ	2.00	15:01:																								
WP-CC-21	2.00	15:02:																								X
CCV2	1.00	15:03:																								X
DUP-092800	2.00	15:05:																								X
FB-092900	2.00	15:06:																								X
ZZZZZZ	1.00	15:07:																								
ZZZZZZ	1.00	15:08:																								
ZZZZZZ	1.00	15:09:																								
ZZZZZZ	1.00	15:10:																								
CCV3	1.00	15:11:																								X
CCB2	1.00	15:12:																								X

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

Blank Spike Recovery
Hercules Inc.
Job #18927.001

ANALYTE	BATCH	SPIKE RESULT	SPIKE ADDED	%REC	UNITS	METHOD
Chromium	00H04a	201	200	101	ug/L	ICP
Cyanide, Total	00H04b	0.199	0.215	93	mg/L	Lachat