CONSTRUCTION DOCUMENTATION REPORT
CORRECTIVE MEASURES IMPLEMENTATION
NORTH LOT
CIBA SITE
GLENS FALLS, NEW YORK

2199 OFF-SITE

Prepared for:

Hercules Incorporated
Hercules Plaza
Wilmington, Delaware 19894

Prepared by:

ECKENFELDER Engineering P.C.®
440 Franklin Turnpike
Mahwah, New Jersey 07430

February 1999

0448

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1.0 INTRODUCTION

1.1 GENERAL

This Construction Documentation Report has been prepared to describe the Corrective Measures Implementation (CMI) activities for the North Lot, Ciba Site, Glens Falls, New York. This report has been prepared in accordance with the relevant portions of Module II, Section E.2(e) of the Hazardous Waste Management (HWM) Permit (January, 1997 as Modified January 1999).

The North Lot is considered to be a portion of the Area North of Railroad Property Solid Waste Management Unit (SWMU) in the HWM Permit. Corrective Measures (CM) were implemented at the North Lot pursuant to the approved Corrective Measures Design (ECKENFELDER Engineering P.C., June 1997). The Corrective Measures design provided for excavation of soils with constituent concentrations above the TCLs for "unrestricted" use. The basis and background for the excavation limits are founded on the results of the soil borings drilled and sampled in 1990 as part of the RCRA Facility Investigation (RFI) for the Main Plant Site (MPS) and the subsequent soil sampling conducted in 1998 pursuant to the Corrective Measures Design (refer to Figure 1).

The North Lot is a sub-part of the Area North of Railroad Property SWMU (refer to Figure 2). Soils removed at this site may contain low levels of constituents of concern (e.g., lead). However, concentrations of constituents of concern in the soil and the results of the Toxicity Characteristic Leaching Procedure (TCLP) testing indicate that these materials are classified as non-hazardous. At the North Lot, the CM work generally included excavation of soil; transportation of the excavated soil for deposition at the Ciba MPS; backfill placement in the excavated area; and covering of the surface with crushed stone.

The Corrective Measures were implemented pursuant to the approved Corrective Measures Design. Appended to the report are copies of contractor submittals, field records and correspondence related to the CMI work on the North Lot.

1.2 SCHEDULE OF CMI

Edward & Thomas O'Connor Inc. (O'Connor) of Glens Falls, New York, was retained by Hercules on or about October 27, 1998, to assist with implementation of activities required by the CM. Notice to Proceed was provided to O'Connor on or about October 30, 1998. Corrective Measures were performed at the site from October 30, 1998 to November 7, 1998. On-site construction observation and monitoring was performed by ECKENFELDER INC. and is documented in daily observation reports (refer to Appendix A).

A chronological summary of the CMI activities follows:

Date	Activities
October 30, 1998	• Contractor mobilization.
November 2, 1998	• Site preparatory activities. • Excavation area cleared of trees and/or other materials. • Excavation of soil. • Off-site transportation of soil to MPS (43 truckloads). • Compaction of soil at MPS.
November 3, 1998	• Completed excavation of soil. • Delivery of certified clean sand. • Backfilling of excavation with sand. • Off-site transportation of soil to MPS (12 truckloads). • Compaction of soil at MPS.
November 4, 1998	• Delivery of certified clean sand. • Backfilling of excavation with sand. • Compaction/grading of soil at MPS. • Decontamination of excavation equipment.
November 5, 1998	• Delivery of certified clean sand and crushed stone. • Completed backfilling of excavation with sand. • Compaction/grading of excavated area followed by placement of crushed stone surface layer. • Completed compaction/grading soil at MPS. • Delivery of topsoil to MPS.

November 6, 1998	• Delivery of topsoil to MPS.
November 7, 1998	• Delivery of topsoil to MPS. • Compaction/grading of topsoil at MPS. • Contractor demobilization.

1.3 REPORT ORGANIZATION

The Corrective Measures performed at the site are described in subsequent sections of this report, which are organized as follows:

- Section 2.0 – Site Preparation;
- Section 3.0 – Excavation;
- Section 4.0 – Transportation and Disposal; and
- Section 5.0 – Backfill and Restoration
- Section 6.0 – CM Completion Certification

Photographs taken during corrective measures reside in the project files located at the ECKENFELDER INC. office in Mahwah, New Jersey.

2.0 SITE PREPARATION

Site preparatory activities were performed prior to the soil excavation and may be summarized as follows:

- O'Connor contacted the New York Underground Facilities Protection Organization to locate and identify existing underground utilities.

- O'Connor prepared a site Health and Safety Plan (HASP) for the protection of his workers and other construction-related personnel during Corrective Measures Implementation at the North Lot.

- The limits of excavation were identified and marked off in accordance with the Basis and Background Report: Soil Removal at the Existing Pretreatment Plant, North Lot, and Wetland Area (Prepared by ECKENFELDER Engineering P.C., June 1997 and Updated in September 1998, refer to Figure 1 and Appendix E).

- VanDusen & Steves, Land Surveyors, LLC, staked the sampling locations used to delineate the lateral limits of materials to be removed. The results of their surveys are reflected on Figure Nos. 1 and 2, herein.

3.0 EXCAVATION

Excavation activities were performed to remove designated soil for off-site disposal at the Ciba MPS. The activities included the removal of the upper four feet of soil from the designated area based on delineation sampling. Conventional earthwork equipment (i.e., bulldozer and excavator) was utilized by O'Connor to perform the excavation work. During excavation activities, O'Connor performed dust control measures by sprinkling the work area with water. Using these control methods, O'Connor maintained a condition of "no visible dust" in and around the work area.

During non-working hours, O'Connor securely closed and locked the access gate in the fence surrounding the North Lot to protect and secure the excavated area.

4.0 TRANSPORTATION AND DISPOSAL

Fifty-five truckloads of excavated soil were removed from the North Lot. Soil and other excavated materials (i.e., buried or landscaping items) were loaded directly from the excavated area onto trucks and subsequently covered with a tarpaulin as a dust control measure. Excavated material was transported to and disposed of at the MPS, in the area north of the railroad property (refer to Figure 2). Truck drivers provided an estimate of the amount of material carried with each truckload and these data were recorded by O'Connor at the end of each day. Estimates of the total loads transported off-site and the amount of material in each load were provided by O'Connor and are included in Appendix D.

O'Connor's equipment operator was at the disposal area at the MPS each day excavated material was transported there. The operator checked that the material was placed in lifts no greater than 12 inches in thickness. The operator spread and compacted the material, using the bulldozer/loader, to a firm grade.

Weather conditions did not permit the establishment of a vegetative cover at the disposal area at the MPS. For this reason, the disposal area was covered with a six-inch surface layer of compacted clay.

5.0 BACKFILL AND RESTORATION

Site restoration at the North Lot included backfilling, grading, and surface-treatment of the excavated area to its approximate preexisting grades and conditions.

Following the excavation of soil, the excavation was backfilled with material from an off-site source. Sand was used as the backfill material for the full depth of excavation. Presented in Appendix B are laboratory test results received from O'Connor indicating that the off-site backfill material is clean (i.e., virgin, not contaminated pursuant to applicable standards; and free of extraneous material or solid waste). Presented in Appendix C are bills of lading for each load of off-site material delivered to the North Lot. Off-site material transported to the site was stockpiled within the excavated area for subsequent placement/grading.

The excavated area was backfilled to four inches below original grade. Conventional earthwork equipment (i.e., bulldozer) was used to backfill the excavation. After placement of the granular backfill, the surface was covered with a four-inch layer of crushed stone. The entire work area was graded, at the completion of backfill operations, providing a final surface that approximates original grades.

Debris generated during construction (e.g., caution tape strung from wooden stakes) was disposed of off-site at the Ciba MPS in the designated disposal area along with the soil materials.

6.0 CM COMPLETION CERTIFICATION

Based on the information gathered and the observations made during the implementation of the Corrective Measures for the North Lot, I certify that the construction activities undertaken and materials incorporated into the work, as described in the foregoing sections of this report, to the best of my knowledge and belief, are in conformance with the approved Corrective Measures described in the Corrective Measure Design (ECKENFELDER Engineering P.C., June 1997).

ECKENFELDER Engineering P.C.

Robert D. Mutch, Jr., P.E.
Principal in Charge

APPENDIX A

ECKENFELDER INC.

DAILY OBSERVATION REPORTS

ECKENFELDER INC.

PROJECT Horsehead [illegible]

SUBJECT [illegible] HOC

BY [illegible] DATE [illegible] PAGE ____ OF ____

Week 3 - Day 5

~ [illegible] topsoil [illegible]

~ [illegible] in North Lot

~ [illegible] to North Lot

ECKENFELDER INC.

PROJECT [illegible]

SUBJECT North Lot

BY [illegible] DATE 11/2/98 PAGE ____ OF ____

Week 3 - Day 1

Tommy & Rich => operators
Frank & Tommy => drivers
Benny => laborer

[illegible]

[illegible]

North Lot

[illegible]
~ Marked [illegible]
~ went to see [illegible]
Okayed the work; needs to [illegible] Brian about an alternative to [illegible] @ the deposition site; spoke w/Bill who will be up on Tuesday & would like to get daily check-in calls; continue to call Kim & fill her in on any additional information

from a.m. until p.m.

~cleared area of trees & chipped
~began digging & finished about 1/3 of the [illegible]
~ using bulldozer to [illegible] @ [illegible]
~ using large excavator @ [illegible]
(235 Cat Excavator)

ECKENFELDER INC.

PROJECT: Hercules
SUBJECT: North Lot
BY: CRC DATE: 11/3/98 PAGE ____ OF ____

Week 3 - Day 2

Tommy & Rick => operators
Frank & Johnny => Drivers
& Jimmy

North Lot

a.m.

- finished taking soil out & hauled last of it to [illegible]

- Brian brought over sod certification [illegible]

- left message w/ Kim on status of everything going on

p.m.

- started getting truckloads of fill (sand) delivered (total = 11)

- went & watered 28 Blvd & 6 Blvd

- gentleman @ [illegible] complained to Debbie @ 28 Blvd. I checked w/ him & only if [illegible] [illegible] [illegible] give further [illegible] & have him call her.

- Brian & [illegible] discussed alternative to [illegible] will use a [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]

ECKENFELDER INC.

PROJECT [illegible]
SUBJECT North lot

BY CRC DATE 11/4/98 PAGE ____ OF ____

Week 3-Day 3

Jorge, Rick
Johnny + driving

North lot

a.m.
- continued filling w sand
- Bill Ashton by w hoe w/ [illegible]
- cleared (brush) w/ crusher w/ conveyor + put debris piles to be picked up

p.m.
- continued filling
- brought trailer back to shop
- got a total of [illegible] truckloads of sand
- by end of day all but a small corner was filled

ECKENFELDER INC.

PROJECT Hercules
SUBJECT North Lot
BY CMC DATE 11/5/98 PAGE _____ OF _____

Week 3 - Day 4

Rick on pictures
2 drivers

A.M.

~ finished filling North Lot w/ sand
& by noon the entire area was covered w/ crushed stone
~ cleaned out the area & returned bob cat

P.M.

~ finished raking the soil @ the MPS & 4 loads of topsoil were delivered

~ bid bill about Hellmans & agreed to let him handle it

~ spoke w/ Dan & told him about status of Hellmans & to tell Quakenbush to be back up for 4 more days

~ got 5 truckloads sand
~ 4 truckloads crushed stone
~ 4 truckloads of topsoil @ MPS

ECKENFELDER INC.

PROJECT Meadow Brook

SUBJECT North Lot

BY ehc DATE 11/6 PAGE ____ OF ____

Week 3 - Day 5

- trucks picked up on north side
- removed 2 truckloads topsoil

ECKENFELDER INC.

PROJECT Hacienda
SUBJECT North Lot
BY CHC DATE 11/1/08 PAGE ____ OF ____

Week 3 - Day 6

Rick → operator
Johnny → Driver

MP3

Days events

~ brought clay-like topsoil all
~ covered all 3 areas
with ~ 6" layer

~ received 12 truckloads of topsoil

~ dropped off visitor log at the trailer

APPENDIX B

CLEAN FILL CERTIFICATION

Edward And Thomas O'Connor, Inc.

BLACK TOP PAVING, EXCAVATION AND GRADING
DEALERS IN FILL, GRAVEL, SOIL AND STONE

147 MEADOWBROOK ROAD
P.O. BOX 377
GLENS FALLS, NY 12801

TELEPHONES: AREA CODE 518
OFFICE: 792-4090
FAX: 792-4194

FEBRUARY 10, 1999

HERCULES INC.
PROCUREMENT DIVISION
W.J. KRYSPIN RM 11312 SE
WILMINGTON DE 19894-0001

ATTN: GLEN SCHMIESING

CERTIFICATION

WE CERTIFY THE FOLLOWING INFORMATION CONCERNING OUR FILL USED AT THE 3 RESIDENTIAL PROPERTIES AND THE NORTH LOT OF THE CIBA GEIGY FACILITY IN QUEENSBURY IN OCTOBER & NOVEMBER.

(1) FILL SOURCE: O'CONNOR PIT ROUTE 9L (RIDGE ROAD) QUEENSBURY, N.Y.

(2) THE SAMPLE OF MATERIALS TESTED IS REPRESENTATIVE OF THE MATERIALS FROM THIS SOURCE.

(3) THE SAND FILL USED IN THE WORK CAME FROM THE O'CONNOR PIT.

(4) THE MATERIAL USED IN THE WORK ARE FREE OF CONTAMINANTS THAT WOULD PRESENT A TREAT TO HUMAN HEALTH OR THE ENVIRONMENT TO THE BEST OF OUR KNOWLEDGE AND BELIEF.

EDWARD & THOMAS O'CONNOR, INC.

RUSSELL E. O'CONNOR,
SECT. & TRES.

WITNESS:

Asst Sect.

HUDSON ENVIRONMENTAL SERVICES, INC.
Mail: 22 Hudson Falls Rd., So. Glens Falls, NY 12803
Delivery: 211 Ferry Blvd., So. Glens Falls, NY 12803
Phone: 518/747-1060 Fax: 518/747-1062

CLIENT: E & T O'Connor Construction

SAMPLE DESCRIPTION: Bank Run Sand

LOCATION: Ciba Geigy Site

H.E.S. #: 981020B01

DATE SAMPLED: 10/20/98

DATE RECEIVED: 10/20/98

MATRIX: Soil

SAMPLE TYPE: Grab

SAMPLER: Client

TOXICITY CHARACTERISTICS LEACHING PROCEDURE (TCLP) SW-846 METHOD 1311

PARAMETER	METHOD	RESULT	UNITS	TEST DATE	TCLP REGULATORY LEVELS (mg/l)
Arsenic	SW846-7060A	<0.001	mg/l	10/21/98	5.0
Barium	SW846-7080A	0.88	mg/l	10/21/98	100.0
Benzene	SW846-8260B	<0.005	mg/l	10/21/98	0.5
Cadmium	SW846-7130	<0.05	mg/l	10/21/98	1.0
Carbon Tetrachloride	SW846-8260B	<0.005	mg/l	10/21/98	0.5
Chlordane	SW846-8081	<0.0005	mg/l	10/21/98	0.03
Chlorobenzene	SW846-8260B	<0.005	mg/l	10/21/98	100.0
Chloroform	SW846-8260B	<0.005	mg/l	10/21/98	6.0
Chromium	SW846-7190	<0.05	mg/l	10/21/98	5.0
o-Cresol	SW846-8270C	<0.01	mg/l	10/21/98	200.0
m-Cresol/p-Cresol	SW846-8270C	<0.02	mg/l	10/21/98	200.0
2,4-D	SW846-8150	<0.5	mg/l	10/21/98	10.0
1,4-Dichlorobenzene	SW846-8260B	<0.005	mg/l	10/21/98	7.5
1,2-Dichloroethane	SW846-8260B	<0.005	mg/l	10/21/98	0.5
1,1-Dichloroethylene	SW846-8260B	<0.005	mg/l	10/21/98	0.7
2,4-Dinitrotoluene	SW846-8270C	<0.01	mg/l	10/21/98	0.13
Endrin	SW846-8081	<0.0001	mg/l	10/21/98	0.02
Heptachlor	SW846-8081	<0.00005	mg/l	10/21/98	0.008
Heptachlor epoxide	SW846-8081	<0.00005	mg/l	10/21/98	0.008
Hexachlorobenzene	SW846-8270C	<0.01	mg/l	10/21/98	0.13
Hexachlorobutadiene	SW846-8270C	<0.05	mg/l	10/21/98	0.5
Hexachloroethane	SW846-8270C	<0.01	mg/l	10/21/98	3.0
Lead	SW846-7420	<0.1	mg/l	10/21/98	5.0
Lindane	SW846-8081	<0.00005	mg/l	10/21/98	0.4
Mercury	SW846-7470A	<0.001	mg/l	10/21/98	0.2
Methoxychlor	SW846-8081	<0.001	mg/l	10/21/98	10
Methyl Ethyl Ketone	SW846-8260B	<0.01	mg/l	10/21/98	200.0
Nitrobenzene	SW846-8270C	<0.01	mg/l	10/21/98	2.0
Pentachlorophenol	SW846-8270C	<0.05	mg/l	10/21/98	100.0
Pyridine	SW846-8270C	<0.05	mg/l	10/21/98	5.0
Selenium	SW846-7740	<0.002	mg/l	10/21/98	1.0
Silver	SW846-7760A	0.19	mg/l	10/21/98	5.0
Tetrachloroethylene	SW846-8260B	<0.005	mg/l	10/21/98	0.7
Toxaphene	SW846-8081	<0.001	mg/l	10/21/98	0.5
Trichloroethylene	SW846-8260B	<0.005	mg/l	10/21/98	0.5
2,4,5-Trichlorophenol	SW846-8270C	<0.01	mg/l	10/21/98	400.0
2,4,6-Trichlorophenol	SW846-8270C	<0.01	mg/l	10/21/98	2.0
2,4,5-TP	SW846-8150	<0.1	mg/l	10/21/98	1.0
Vinyl Chloride	SW846-8260B	<0.01	mg/l	10/21/98	0.2

Approval By: MLHough
Date: 10-22-98

All samples were analyzed within EPA prescribed holding times.
N.Y.S.D.O.H. Lab ID# 11140

HUDSON ENVIRONMENTAL SERVICES, INC.
Mail: 22 Hudson Falls Road, South Glens Falls, NY 12803
Delivery: 211 Ferry Blvd., South Glens Falls, NY 12803
Phone: 518/747-1060 Fax: 518/747-1062

CHAIN OF CUSTODY RECORD/ Lab Work Request

Client: E T O'Connor
Client Contact/Person #: Brian O'Connor
Project Location: City [illegible] 81
Purchase Order:
HES Contact:

Mail Address:
Phone #:

HES Use Only Lab ID	Sample ID / Description	Date Collected	TIME A=a.m. P=p.m.	SAMPLE TYPE C=Composite G=Grab MATRIX	C	G	# Conts.	ANALYSIS REQUIRED
98/020801	Pink Run Sand	10/20	A (circled) / P	S		X	1	TCLP
			A / P					
			A / P					
			A / P					
			A / P					
			A / P					
			A / P					
			A / P					

Matrix: S - Soil, SE - Sediment, SO - Solid, SL - Sludge, O - Oil, DW - Drinking Water, GW - Ground Water, SW - Surface Water, L - Leachate, A - Air, WI - Wipe, DS - Drum Solids, DL - Drum Liquids, X - Other, WW - Waste Water

Special Instructions:

Sampled by: (Signature) [signature]	Date/Time	Received by: (Signature)	Date/Time
Relinquished by: (Signature) [signature]	Date/Time	Received by: (Signature) [signature]	Date/Time 10-20-98 0855
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
Dispatched by: (Signature)		Method of Shipment:	Date/Time
Received @ Laboratory: [signature]	Date/Time 10/23/98	Turnaround Time: Normal	Lab Approval:

HES Use Only

Samples Were:
1. Shipped or Hand Delivered
   NOTES:
2. Ambient or Chilled
   NOTES:
3. Received Broken/ Leaking (Improperly Sealed) Y N
   NOTES:
4. Properly Preserved
   NOTES: Y N
5. Received Within Holding Times Y N
   NOTES:

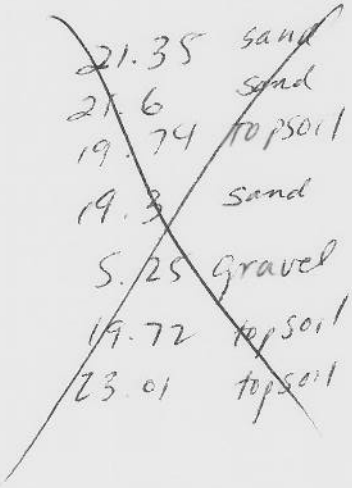
COC Tape Was:
1. Present on Outer Package Y N
2. Unbroken on Outer Package Y N
3. Present on Sample Y N
4. Unbroken on Sample
   NOTES: Y N

COC Record Was:
1. Present upon Receipt of Samples Y N

Discrepancies Between Sample Labels and COC Record? Y N
NOTES:

APPENDIX C

CONTRACTOR BILLS OF LADING AND MATERIALS SHEETS



FYI

11-3-98	215 T	Sand
	678 T	"
11-4	83T	"
11-5	140T	Rubble
	82T	Topsoil
11-6	42T	
11-7	225T	

APPENDIX D

CONTRACTOR RECORD OF SOIL TRANSPORTED OFF-SITE

CONTRACTOR RECORD OF SOIL TRANSPORTED OFF-SITE

NORTH LOT

DATE	TRUCK SIZE (C.Y.)	No. TRUCKLOADS	TOTAL SOIL TRANSPORTED OFF-SITE (C.Y.)
11/2/98	17	20	340
11/2/98	15	23	345
11/3/98	15	6	90
11/3/98	17	6	102
			877 C.Y.

APPENDIX E

BASIS AND BACKGROUND REPORT UPDATE

440 Franklin Turnpike
Mahwah, New Jersey 07430

Tel: (201) 818-6055
Fax: (201) 818-6057

ECKENFELDER®
AN INTEGRAL PART OF
BROWN AND CALDWELL

November 12, 1998

28-60415.003

Glen Schmiesing, P.E.
Project Manager
Hercules Incorporated
Hercules Plaza
Wilmington, Delaware 19894

Subject: North Lot Soil Evaluation
Ciba Site, Glens Falls, New York

Dear Glen:

This letter documents the findings of the soil sampling conducted in the North Lot portion of the Ciba Main Plant Site in the Town of Queensbury near Glens Falls, New York. On the basis of the results of previous soil analyses conducted in the North Lot during the RCRA Facility Investigation (RFI) for the Main Plant Site, elevated total lead concentrations in the 0- to 4-foot depth interval in the vicinity of boring FC-5 (see Figure 1) were identified as having to be addressed by Corrective Measures [See Appendix A of "Corrective Measures Design" (ECKENFELDER Engineering P.C., June 1997)].

The objective of the Corrective Measures is to remove soil with total lead concentrations above the target cleanup level (TCL) for unrestricted use (400 mg/kg). To evaluate the limit of removal, soil samples were collected from the area surrounding FC-5 and analyzed for total lead to determine the extent of the TCL exceedance.

The sampling and analyses were conducted in accordance with the scope of work submitted to Hercules on June 5, 1998 and Appendix A of "Corrective Measures Design" (ECKENFELDER Engineering P.C., June 1997). The samples were collected on September 9, 1998.

Twelve borings were positioned on a 50-foot by 50-foot grid, which was initially planned to be centered on existing boring FC-5. The position of FC-5 was located and marked by the survey crew prior to sampling to establish a field reference for setting the grid. However, based on a post sampling survey (see Attachment A), it appears that either the marker for FC-5 was moved prior to soil sampling, or the FC-5 location was slightly misplaced to the northeast. This discrepancy was not

identified until after the samples were analyzed. As a result, the grid was not centered on FC-5, although the sample coverage was sufficient for the purpose of the study. Noteworthy is that the location of one of the new borings, NL-8, approximately coincides with the location of FC-5.

At each boring, a 2-inch diameter, 0.5-foot long stainless steel hand corer was used to collect samples from the 0- to 2-foot and 2- to 4-foot depth intervals. The soil from each interval was extracted from the corer and placed in a stainless steel pan lined with aluminum foil. A separate pan and clean foil was used for each 2-foot interval. Soil samples were described in accordance with the Burmister Soils Classification and the Unified Soils Classification System (USCS). The length of the recovered portion of the interval, and other distinguishing features of the sampled material (e.g., odor, color, presence of waste) was recorded. The descriptions of the samples are provided in the boring logs in Attachment B. The soil samples were then mixed in the pan with a stainless steel or plastic spoon. The mixed sample was transferred to glass jars with TFE-lined caps. The soil boring holes were backfilled with the soil material remaining after the sample jars were filled.

The sample jars 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. The custody of the samples was documented using chain-of-custody forms. These forms were filled out by the samplers and placed in the sample cooler prior to relinquishing the cooler to the courier for delivery to the laboratory.

To minimize the potential for cross-contamination of samples and the introduction of contamination to a sample location, non-disposable sampling equipment were decontaminated between sample locations. Decontamination of this equipment was conducted according to the following protocol:

1. Scrub with tap water and non-phosphate detergent.
2. Rinse with tap water.
3. Rinse with 10 percent nitric acid.
4. Rinse with tap water.
5. Rinse with deionized water.
6. Air dry.
7. Wrap in a polyethylene bag or sheeting until ready for use.

Clean disposable plastic spoons were used to mix the samples. The sample pans were lined with clean aluminum foil, and separate spoons were used for each individual depth interval at each location. Used disposable equipment was disposed of in the appropriate waste containers at the site.

Soil samples were submitted to the ECKENFELDER INC. laboratory for total lead analysis by USEPA Method 6010A. However, not all of the samples were analyzed as discussed further below.

The Quality Assurance Project Plan (QAPjP) requires that a duplicate sample be analyzed for every 20 samples analyzed. Because less than 20 samples were analyzed, one duplicate sample was submitted for lead analysis. One equipment blank was also prepared and submitted for total lead analysis to provide a check on field decontamination procedures for the non-dedicated sampling equipment. The equipment blank was prepared by pouring analyte-free water over decontaminated sampling equipment and clean disposable sampling equipment, and into the sample container. Because the sampling was completed in one day, only one equipment blank was required per the QAPjP. The analytical data were internally validated by the laboratory.

The results of the lead analyses are provided in Table 1 and Figure 1. The laboratory data package is provided in Attachment C.

The samples from the borings adjacent to FC-5, as initially spotted, were analyzed first. This included the samples from borings NL-4, NL-5, NL-8, and NL-9. The 0- to 2-foot interval from NL-6 was also analyzed since the duplicate sample was split from that sample. Lead concentrations were measured below the TCL both in the 0- to 2-foot and 2- to 4-foot interval, with the exception of the samples from NL-8, where the concentration is above the TCL in both depth intervals. Accordingly, the samples from the borings adjacent to NL-8, i.e., NL-7, and NL-11, were then analyzed. The lead concentrations in the samples from NL-7 and NL-11 were measured below the TCL. No further sample analyses were required because the area identified as containing lead concentrations above the TCL was delimited by borings with concentrations below the TCL. The extent of the soil removal is defined by the positions of the borings closest to FC-5/NL-8 location where lead concentrations are below the TCL (see Figure 1).

To evaluate options for disposal of the soil to be removed, samples within the area identified for removal that exhibited concentrations above the TCL (i.e., NL-8, 0-2 feet and NL-8, 2-4 feet) were composited into a single sample at the laboratory and subjected to a Toxicity Characteristic Leaching Procedure (TCLP) test for metals (cadmium, chromium, lead, and mercury) by USEPA Method 1311. The results of the analyses of the TCLP extract were compared to the regulatory limits used to identify characteristic hazardous waste (see Table 2). The results are below these limits. Thus, the material within the area designated for removal from the North Lot may be disposed under the Permeable Cover at the Main Plant Site, and is not required to be placed under the RCRA Cap.

Please contact me if you have any questions regarding this letter report.

Very truly yours,

ECKENFELDER INC.®

Robert L. O'Neill

Robert L. O'Neill, C.P.G., P.G.
Project Manager, Hydrogeology

Attachments

cc: W. Ashton, Hercules
D. Williams, Ciba
K. Schulze, Ciba

TABLE 1

RESULTS OF LEAD ANALYSES ON SOILS
NORTH LOT

Sample (a)	Date Collected	Total Lead (d) (mg/kg)
NL-1, 0-2	09/09/98	NA (e)
NL-1, 2-4	09/09/98	NA
NL-2, 0-2	09/09/98	NA
NL-2, 2-4	09/09/98	NA
NL-3, 0-2	09/09/98	64
DUP1 091998 (b)	09/09/98	62
NL-3, 2-4	09/09/98	NA
NL-4, 0-2	09/09/98	67
NL-4, 2-4	09/09/98	7.8
NL-5, 0-2	09/09/98	50
NL-5, 2-4	09/09/98	3.8
NL-6, 0-2	09/09/98	NA
NL-6, 2-4	09/09/98	NA
NL-7, 0-2	09/09/98	62
NL-7, 2-4	09/09/98	7.3
NL-8, 0-2	09/09/98	880
NL-8, 2-4	09/09/98	1700
NL-9, 0-2	09/09/98	52
NL-9, 2-4	09/09/98	17
NL-10, 0-2	09/09/98	NA
NL-10, 2-4	09/09/98	NA
NL-11, 0-2	09/09/98	69
NL-11, 2-4	09/09/98	6.3
NL-12, 0-2	09/09/98	NA
DUP2 091998 (c)	09/09/98	NA
NL-12, 2-4	09/09/98	NA

(a) Number following comma indicates depth of sample below grade in feet.
(b) Duplicate sample for NL-3, 0-2.
(c) Duplicate sample for NL-12, 0-2
(d) Lead was not detected in equipment blank
(e) NA-Not analyzed.

TABLE 2

RESULTS OF TCLP ANALYSES ON SOILS
NORTH LOT

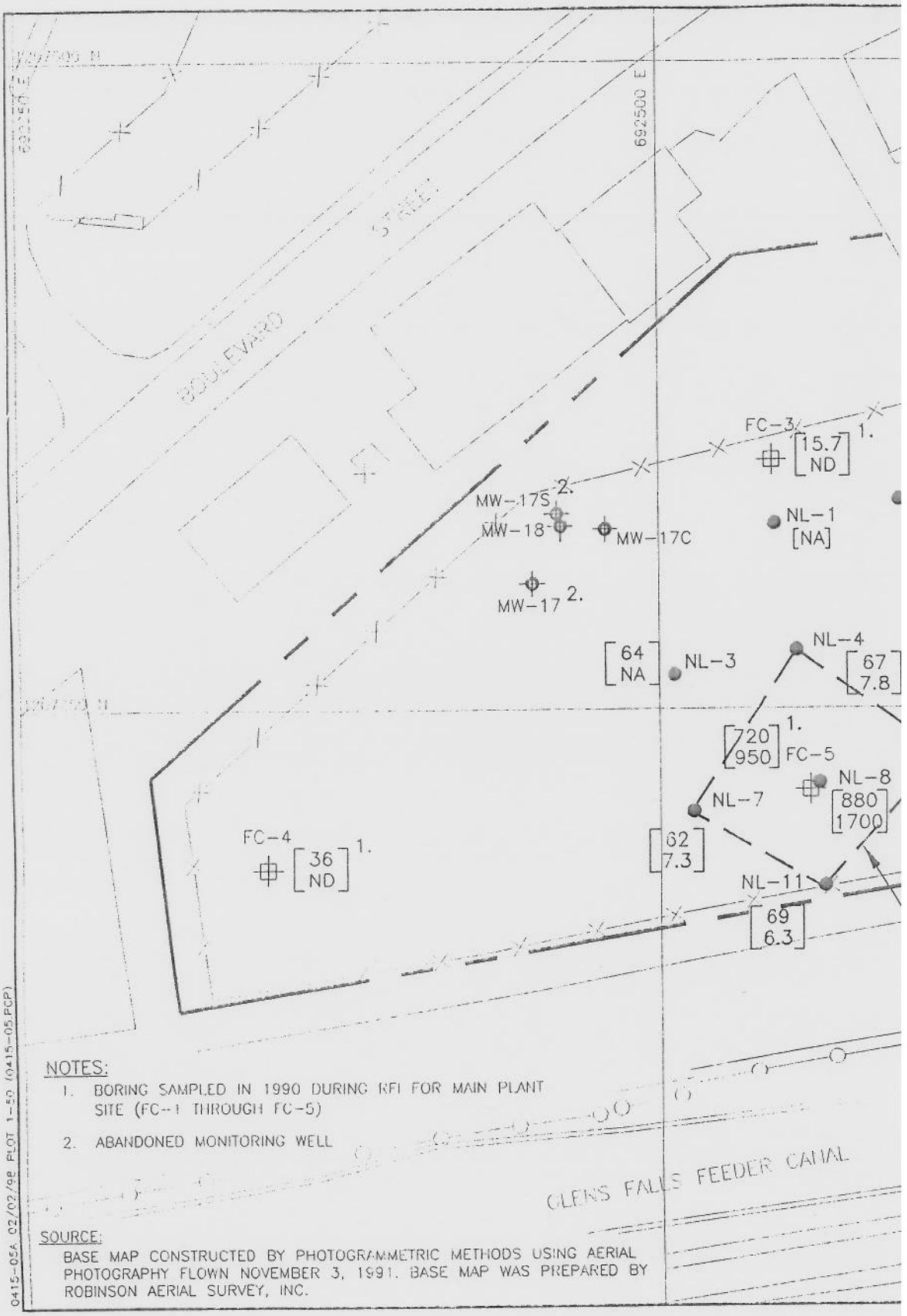
Sample	Date Collected	TCLP Cadmium (mg/l)	TCLP Chromium (mg/l)	TCLP Lead (mg/l)	TCLP Mercury (mg/l)
TCLP Regulatory Limit:		1.0	5.0	5.0	0.20
NL-8,0-2/NL-8, 2-4 Composite	09/09/98	0.020	0.050 U(a)	0.20	0.0020 U

U- Not detected above reporting limit. Number listed is reporting limit.

SOIL BORING LOCATION SURVEY DATA
NORTH LOT

Boring	Northing (a) (feet)	Easting (a) (feet)	Ground Surface Elevation (feet, NGVD) (b)
Borings for this Evaluation			
NL-1	1207320.9213	692544.5757	284.20
NL-2	1207330.1257	692592.8727	284.84
NL-3	1207263.3082	692505.6104	284.26
NL-4	1207272.5577	692553.1192	284.48
NL-5	1207282.2470	692603.8356	284.77
NL-6	1207291.4316	692651.8503	285.71
NL-7	1207210.2109	692512.8562	284.46
NL-8	1207221.1538	692561.8634	285.07
NL-9	1207232.3474	692610.2387	285.45
NL-10	1207243.5185	692659.2793	285.93
NL-11	1207181.7851	692564.2829	285.25
NL-12	1207189.8357	692614.4013	285.47
Previously Drilled Boring			
FC-5 (original coordinates)	1207218.4824	692558.6170	285.38
FC-5 (marker coordinates post-sampling)	1207251.3916	692580.0336	285.21

(a) New York State Plane Coordinates
(b) Elevations relative to National Geodetic Vertical Datum (NGVD) of 1929.



NOTES:

1. BORING SAMPLED IN 1990 DURING RFI FOR MAIN PLANT SITE (FC-1 THROUGH FC-5)
2. ABANDONED MONITORING WELL

SOURCE:

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

0415-05A 02/02/98 PLOT 1-50 (0415-05.FCP)

NOTES:

1. BASE MAP IS ADAPTED FROM PHOTOGRAMMETRIC MAPPING OF THE "HERCULES/CIBA - GEIGY PLANT, GLENS FALLS, NEW YORK", PREPARED BY ROBINSON AERIAL SURVEYS, INC., FROM AERIAL PHOTOGRAPHS TAKEN ON FLIGHT DATE 11-3-91.
2. ELEVATIONS ARE IN FEET AND ARE REFERENCED TO NATIONAL GEODETIC VERTICAL DATUM (NGVD), 1929
3. INDEX CONTOUR INTERVAL IS 10 FEET. INTERMEDIATE CONTOUR INTERVAL IS 2 FEET.
4. PROPERTY LINES AND STREET NAMES ARE TAKEN FROM "TAX MAP OF THE TOWN OF QUEENSBURY, NEW YORK, MAP 8, SECTION 113". ECKENFELDER ENGINEERING, P.C. ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THESE DATA. THE PROPERTY LINES RELATIVE TO THE BASE MAP ARE APPROXIMATE AND HAVE NOT BEEN CONFIRMED BY GROUND SURVEY.
5. WHERE LIMITS OF AREA/UNITS ARE COINCIDENT WITH PROPERTY LINE OR EDGES OF OTHER FEATURES, LINES/EDGES ARE NOT SHOWN.

LEGEND:

SPECIAL NOTE:

THIS FIGURE IS ADAPTED FROM DRAWING 9926-001 WHICH IS PART OF THE CORRECTIVE MEASURES DESIGN FOR THE SITE, SUBMITTED TO THE NYSDEC JULY 1997.