JACOBS ENGINEERING GROUP INC.

10901 WEST 84th TERRACE, SUITE 210, LENEXA, KANSAS 66214
TELEPHONE (913) 492-9218 • FAX (913) 492-6198

Site: MEW
ID #: MOD980896598
Break: 6.2 Jacobs
Other:

June 18, 1991

Ms. Pauletta France-Isetts, P.E.
U.S. Environmental Protection Agency
Region VII Superfund Branch
726 Minnesota Avenue
Kansas City, Kansas 66101

Re: Missouri Electric Works Site
Trip Report

Dear Ms. France-Isetts:

Please find enclosed a Trip Report describing Jacobs field oversight of PRP well installation activities at the subject facility for the period inclusive of May 13 through June 4, 1991.

Please call should you have any questions or comments.

Sincerely,

Terence D. Hagen
Site Manager

TDH\srw

Enclosures

MEW Site File
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S00153990
SUPERFUND RECORDS

# 157505

JE4\C:LETTERS\LE0TH618.DOC

JACOBS ENGINEERING GROUP INC.

# ALTERNATIVE REMEDIAL CONTRACTS STRATEGY

## REGIONS VI, VII & VIII

REMEDIAL PLANNING ACTIVITIES

AT

SELECTED UNCONTROLLED HAZARDOUS

SUBSTANCE DISPOSAL SITES

U.S. EPA CONTRACT NO. 68-W8-0122

IN ASSOCIATION WITH,

TERRACON CONSULTANTS EC, INC.

McCLELLAND ENGINEERS, INC.

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U.S. ENVIRONMENTAL PROTECTION AGENCY
ALTERNATIVE REMEDIAL CONTRACTS STRATEGY
AT
HAZARDOUS WASTE SITES

ARCS
CONTRACT NO. 68-W8-0122

# TRIP REPORT
# MISSOURI ELECTRIC WORKS
# CAPE GIRARDEAU, MISSOURI
# FIELD ACTIVITIES
# WORK ASSIGNMENT NO. 18-7P6R
# U.S. EPA REGION VII

JACOBS ENGINEERING GROUP INC.
10901 WEST 84TH TERRACE, SUITE 210
LENEXA, KANSAS 66214
(913) 492-9218

JACOBS PROJECT NO. 10-D243-00

JUNE 11, 1991

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**TRIP REPORT**
**MISSOURI ELECTRIC WORKS**
**CAPE GIRARDEAU, MISSOURI**

## 1.0 INTRODUCTION

On May 13-17, 20-24, and 28, and June 3-4, U.S. Environmental Protection Agency (EPA) representatives, Mr. Todd Trometer and Mr. Klaas Doeden of Jacobs Engineering Group Inc. (Jacobs) were present (separately) at the Missouri Electric Works (MEW) in Cape Girardeau, Missouri. The EPA representatives were present to observe monitor well installation and receive split groundwater samples from MEW contractors, the Earth Technology Corporation (TETC) and Brotcke Engineering (BE).

Installation of a monitor well at the proposed location, MW-12, could not be completed as water from the deep water bearing zone was highly turbid and this zone could not be sufficiently developed. However, water samples were obtained from the open borehole and submitted for laboratory analysis for polychlorinated-biphenyls (PCBs), semi-volatiles and volatile organics.

Activities were performed under the Alternative Remedial Contracts Strategy (ARCS) Contract, Work Assignment No. 18-7P6R, under the direction of Ms. Pauletta France-Isetts, the EPA Remedial Project Manager (RPM). These activities were conducted by MEW to supplement information obtained during the Remedial Investigation (RI) and are beyond the Scope of Work as specified in the Administrative Order On Consent dated December 30, 1988.

## 2.0 PROJECT DESCRIPTIONS

### 2.1 Site Background

The MEW facility is a 6.4 acre site located on U.S. Highway 61 on the southwest side of Cape Girardeau, Missouri. MEW has sold, serviced, or remanufactured electric motors, transformers, and electrical equipment controls at this site since October 1954. According to EPA documents, more than 16,000 transformers have been repaired or scrapped at the site.

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In late June 1987, EPA notified 40 parties of the existence of PCB contamination at MEW and their potential responsibility for the cost of appropriate removal or remedial action. Subsequently, EPA has made additional notifications. Thus far, over 500 potentially responsible parties (PRPs) have been identified.

In June 1988, the MEW site was proposed as an addition to the National Priority List (NPL), EPA's list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term cleanup response under the Superfund program. The site was ultimately added to the NPL in February 1990.

On December 30, 1988 an Administrative Order on Consent (AOC) (Docket No. 7-89F-0002) was issued by EPA Region VII in which the PRPs agreed to perform a study to determine the nature and extent of the threat to human health and the environment and evaluate remedial alternatives.

On July 31, 1990 findings of the RI conducted by TETC were presented to the MEW PRP committee. Analytical results for groundwater samples obtained from the shallow water bearing zone indicate the presence of volatile organic compounds in the part per billion range. Compounds detected include chlorobenzene, 1,1-dichloroethane, trichloroethene, tetrachlorethane, trans-1,2 dichloroethene, and benzene.

### 2.2 Objectives

Field activities to be completed included the installation of a monitor well in a deep water bearing unit to determine if groundwater at this interval has been impacted by either PCBs, chlorinated hydrocarbons, or other volatile organic compounds.

## 3.0 FIELD ACTIVITIES

### 3.1 Introduction

Field activities conducted by TETC and BE include the execution of a drilling program through unconsolidated and bedrock sediments to locate a deep water bearing unit as well as the collection of representative groundwater samples from this unit.

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Oversight activities performed by Jacobs were initiated at the beginning of the drilling program and concluded with the collection of an open borehole water sample at the site of the proposed monitor well MW-12.

Listed below are the personnel who were on-site during completion of the field activities, the company each represented, and the dates each was on-site.

| | | | |
|---|---|---|---|
| TETC | Mr. Henry Beiro | 5/16/91 - 5/28/91 | |
| | Mr. Jeff Smith | 6/04/91 | |
| BE | Mr. Guy Autry | 5/15/91 - 5/28/91 | |
| | Mr. Mike Umphert | 5/15/91 - 5/28/91 | |
| | Mr. Stan Umphert | 5/15/91 - 5/28/91 | |
| Jacobs | Mr. Klaas Doeden | 5/20/91 - 5/28/91 | |
| | Mr. Todd Trometer | 5/15/91 - 5/17/91 | 6/03/91 - 6/04/91 |

### 3.2 General Site Conditions and Observations

Topography of the 6.4 acre site is relatively flat, however steep slopes are located on the south boundary of the site with gentle slopes on the north and west side of the site. The ground surface of the site was covered by a thin veneer of gravel prior to storage of transformers with a special gravel pad constructed around the location of MW-12 prior to initiation of field activities. Where the gravel is absent, the ground is covered by native vegetation which is maintained by MEW.

### 3.3 Oversight of Drilling Program and Groundwater Sampling

Activities performed by Jacobs personnel included oversight of the drilling program in unconsolidated and bedrock sediments and the collection of open borehole groundwater split samples.

All relevant and important observations of site activities were recorded in a field logbook (Appendix A) and documented by photograph (Appendix B).

### 3.4 Sampling Activities

Split groundwater samples were collected from the open borehole at the location of proposed monitor well MW-12 (Figure 1). Prior to collection of the samples, approximately 20,000 gallons of water were purged by

MEW Site File
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Subtro pump placed at a depth of 210 feet below grade surface (bgs) in order to develop the water bearing interval.

Samples were collected from the outflow tube of the submersible pump for volatiles, semi-volatiles and PCBs. Immediately upon collection, all samples were placed on ice and prepared for delivery to the EPA Region VII Laboratory in Kansas City, Kansas. Sample collection field sheets and chains of custody are included as Appendix C and Appendix D, respectively.

### 3.5 Daily Chronology

**May 15, 1991**

ARCS representative, Mr. Todd Trometer (Jacobs), arrived on site and met with TETC representative Mr. Henry Beiro (geologist) and Brotcke Engineering personnel Mr. Guy Autry, Mr. Mike Umphert, and Mr. Stan Umphert (drill crew). Construction of a gravel pad and set up of air-rotary drilling equipment was completed.

**May 16, 1991**

Drilling operations began by air-rotary method in unconsolidated sediments with weathered limestone encountered at a depth of 34.5 feet bgs. The boring was drilled to a depth of 57 feet bgs and then reamed out in preparation of 12 inch steel surface casing. The surface casing could not be placed to a depth of 59 feet bgs due to refusal and was alternately placed to a depth of 30.5 bgs.

**May 17,1991**

The annulus was grouted to ground surface with a cement-bentonite mixture. The cement-bentonite mixture was prepared in a ChemGrout mixer and placed in the borehole by tremie method.

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**May 20, 1991**

ARCS representative, Mr. Klaas Doeden (Jacobs) met with the TETC representative. Drilling operations resumed at a depth of 59 feet bgs and had advanced to a depth of 137 feet bgs by day's end.

**May 21, 1991**

The boring was advanced to a depth of 162 feet bgs when drilling operations ceased and preparations were made to install an 8 inch steel casing. Following installation of the casing to 162 feet bgs, the annulus was grouted to ground surface with a cement-bentonite mixture. The cement-bentonite mixture was prepared in a ChemGrout mixer and placed in the borehole by tremie method.

**May 22, 1991**

A sample of borehole water was obtained by the TETC representative for PCB analysis. Drilling resumed at a depth of 162 feet bgs and continued until a water bearing unit was encountered at 222 feet. This unit was accessed by advancing the boring an additional 8 feet to 230 feet bgs to provide a water producing zone sufficient for well installation. Water encountered in this zone was extremely turbid requiring large amounts of water to be purged before well installation could be accomplished. Runoff of the turbid purge water followed the natural topography and exited the site on the property of Morrill Construction Company (MCC). Following this event, Mr. Charles Morrill arrived on-site to express his concern regarding the runoff. The drill crew under the direction of the TETC representative immediately ceased operations.

**May 23, 1991**

A sample of turbid purge water/mud from MCC was collected by the TETC representative for PCB analysis. Construction of a mud pit for the containment of purge water was started. Mr. Rush Limbaugh and Mr. John Hahn, legal representatives for MEW, Ms. Sara Sullivan with the EPA, and Ms. Liz Edmonds of the Department of Justice arrived on and observed operations while making a brief site visit. Following the

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completion of the mud pit, drill crew personnel moved to MCC and began containerizing mud from purge water runoff into 55 gallon drums.

**May 24, 1991**

The drill crew finished cleanup of MCC by placing a load of gravel on the road. They then left the site early for the weekend break.

**May 28, 1991**

The drill crew arrived on-site and were placed on standby by the TETC representative until a decision was made to delay resumption of field activities until analytical results for PCB samples were received.

**June 3, 1991**

Mr. Doug Kaminskey, Environmental Coordinator for the City of Cape Girardeau, made a site visit prior to the resumption of field activities; he expressed his concern to MEW representatives about the purge water discharge. Mr. Todd Trometer, who arrived on-site before TETC and BE personnel, was informed of Mr. Kaminskey's visit and contacted him per Mr. Kaminskey's request to discuss site developments.

**June 4, 1991**

Field activities resumed following the arrival on-site of TETC and BE personnel. The decision was made by the TETC representative to attempt to develop the water bearing zone. A Subtro submersible pump was placed in the borehole to a depth of 210 feet bgs, after which purging began with purge water being directed along the natural drainage on the south side of the property. After purging of approximately 20,000 gallons, no noticeable improvement in turbidity was discerned.

A decision was made by the TETC representative not to install a well but rather to collect water samples from the open borehole. Split groundwater samples for analysis of volatiles, semi-volatiles, and PCBs were collected from the open borehole at proposed monitor well location MW-12A. The purge rate of the Subtro submersible

MEW Site File
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pump was decreased to a slower rate as water samples were collected from the pump's outflow tube. The split water samples, collected by Mr. Todd Trometer, were prepared for transport.

## 4.0 SAMPLE HANDLING, CUSTODY, AND DOCUMENTATION PROCEDURES

Following collection of the split groundwater samples for volatiles, semi-volatiles, and PCBs, each sample container was labeled with an EPA sample number specific to this project, placed on ice to preserve the samples, and prepared for transport to the EPA Region VII Laboratory. On June 6, 1991 the samples were delivered by Mr. Todd Trometer into the custody of EPA personnel at the Region VII Laboratory in Kansas City, Kansas. Field sheets and chain of custody are included in Appendix C and Appendix D, respectively.

## 5.0 DEVIATIONS FROM APPROVED PLANS

The approved field activities work plan as included in a Scope of Work Letter Report from Mr. R. Michael Nugent of TETC to Ms. Pauletta France-Isetts of EPA dated May 2, 1991, details information for the completion of a pilot hole and installation of a monitor well. Deviations from the Scope of Work Letter Report are listed below.

Following completion of the pilot hole, the boring was not grouted to ground surface. Development of the water bearing zone at the proposed location of MW-12 produced discharge with extremely high sediment yield which drained into the pilot hole.

A groundwater sample was not obtained from monitor well MW-11.

Installation of a monitor well at proposed location MW-12 was not completed as the water bearing zone was extremely turbid and was difficult to develop.

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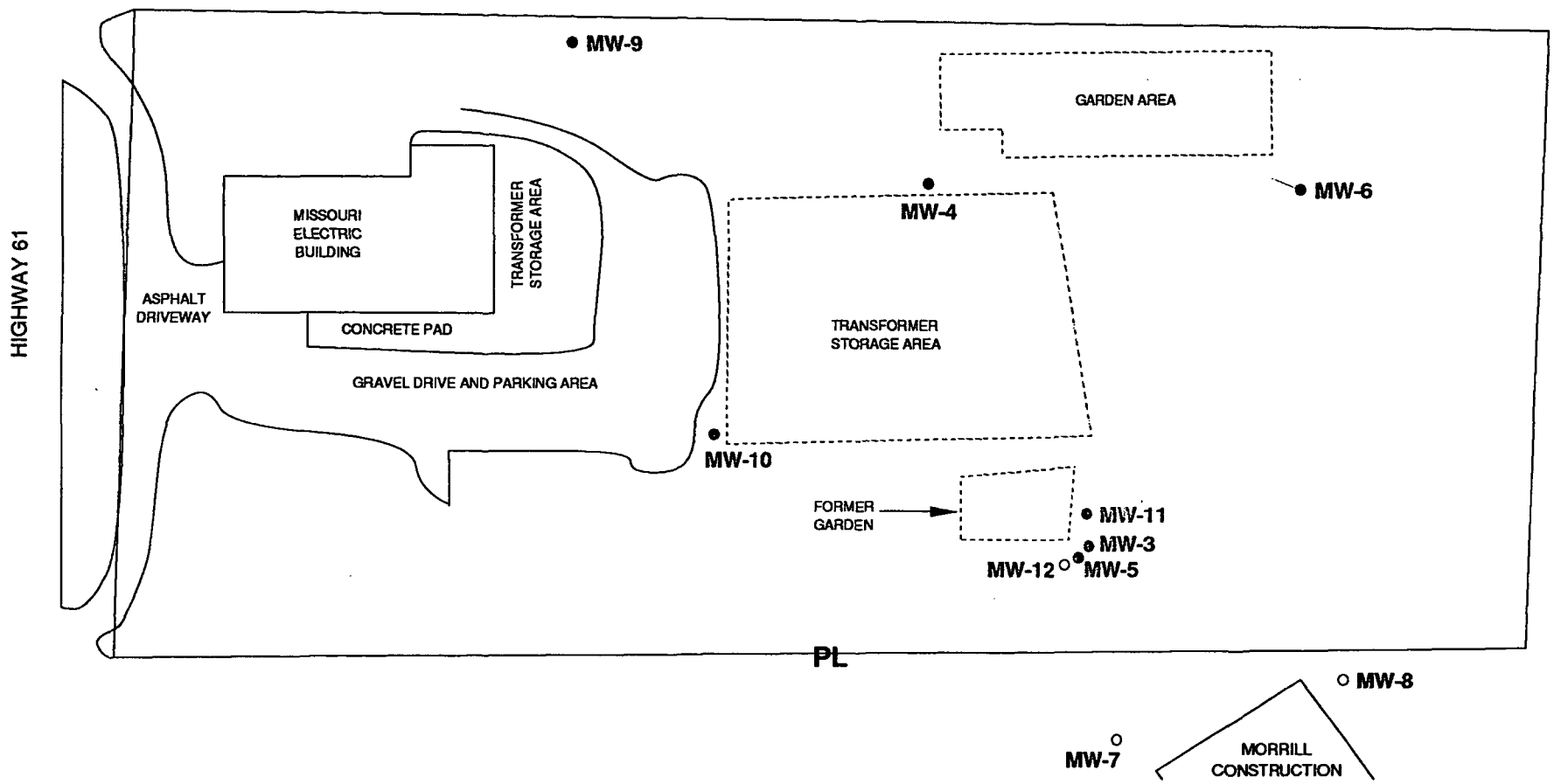
MEW Site File
Break6_000651




0 60 120
SCALE IN FEET

● EXISTING MONITORING WELLS
○ PROPOSED WELL

N

| | |
|---|---|
| FIGURE DESCRIPTION: MONITORING WELL LOCATIONS | WORK ASSIGNMENT NO. 18-7P6R |
| SITE NAME MISSOURI ELECTRIC WORKS CAPE GIRARDEAU, MO | JACOBS PROJECT NO. 10-D218-01 |
| JE JACOBS ENGINEERING GROUP INC. | ARCS |
| DRAWN BY: DJK DATE: 6/17/91 | FIGURE NO. 1 |
| CHECKED BY: KD DATE: 6/17/91 | |

D218-002

**PHOTOGRAPH NO. 1**

**SITE NAME: MISSOURI ELECTRIC WORKS**

| | | | |
|---|---|---|---|
| **Subject:** | Installation of steel surface casing. | | |
| **Location:** | Adjacent to MW-3 and MW-5. | | |
| **Date:** | 05/16/91 | **Time:** | 1514 |
| **Photographer:** | Todd Trometer | **File No:** | N/A |
| **Film:** | ASA 400 | **Witness:** | N/A |
| **Direction of Photograph:** | Southeast | | |

MEW Site File
Break6_000652

**PHOTOGRAPH NO. 2**

**SITE NAME: MISSOURI ELECTRIC WORKS**

| | | | |
|---|---|---|---|
| **Subject:** | Drill rig set up on proposed location of MW-12. | | |
| **Location:** | Adjacent to MW-3 and MW-5. | | |
| **Date:** | 05/21/91 | **Time:** | 1407 |
| **Photographer:** | Klaas Doeden | **File No:** | N/A |
| **Film:** | ASA 200 | **Witness:** | N/A |
| **Direction of Photograph:** | Southeast | | |

MEW Site File
Break6_000653

**PHOTOGRAPH NO. 3**

**SITE NAME: MISSOURI ELECTRIC WORKS**

| | | | |
|---|---|---|---|
| **Subject:** | TETC representative collecting turbid water sample. | | |
| **Location:** | Proposed location of MW-12. | | |
| **Date:** | 05/22/91 | **Time:** | 0730 |
| **Photographer:** | Klaas Doeden | **File No:** | N/A |
| **Film:** | ASA 200 | **Witness:** | N/A |
| **Direction of Photograph:** | East | | |

MEW Site File
Break6_000654

**PHOTOGRAPH NO. 4**

**SITE NAME: MISSOURI ELECTRIC WORKS**

| | | | |
|---|---|---|---|
| **Subject:** | Discharge of purge water. | | |
| **Location:** | Proposed location of MW-12. | | |
| **Date:** | 05/22/91 | **Time:** | 1500 |
| **Photographer:** | Klaas Doeden | **File No:** | N/A |
| **Film:** | ASA 200 | **Witness:** | N/A |
| **Direction of Photograph:** | East | | |

MEW Site File
Break6_000655

**PHOTOGRAPH NO. 5**

**SITE NAME: MISSOURI ELECTRIC WORKS**

| | | | |
|---|---|---|---|
| **Subject:** | Purge water discharge by partially hidden transformer. | | |
| **Location:** | Approximately 75 feet southeast of drill rig. | | |
| **Date:** | 05/22/91 | **Time:** | 1530 |
| **Photographer:** | Klaas Doeden | **File No:** | N/A |
| **Film:** | ASA 200 | **Witness:** | N/A |
| **Direction of Photograph:** | North | | |

MEW Site File
Break6_000656

**PHOTOGRAPH NO. 6**

**SITE NAME: MISSOURI ELECTRIC WORKS**

| | | | |
|---|---|---|---|
| **Subject:** | Discharge of purge water down natural drainage. | | |
| **Location:** | Approximately 75 feet southeast of drill rig. | | |
| **Date:** | 05/23/91 | **Time:** | 1535 |
| **Photographer:** | Klaas Doeden | **File No:** | N/A |
| **Film:** | ASA 200 | **Witness:** | N/A |
| **Direction of Photograph:** | East | | |

MEW Site File
Break6_000657

**PHOTOGRAPH NO. 7**

**SITE NAME: MISSOURI ELECTRIC WORKS**

| | | | |
|---|---|---|---|
| **Subject:** | Construction of mud pit. | | |
| **Location:** | Approximately 20 feet southeast of drill rig. | | |
| **Date:** | 05/23/91 | **Time:** | 1109 |
| **Photographer:** | Klaas Doeden | **File No:** | N/A |
| **Film:** | ASA 200 | **Witness:** | N/A |
| **Direction of Photograph:** | Southeast | | |

MEW Site File
Break6_000658

**PHOTOGRAPH NO. 8**

**SITE NAME: MISSOURI ELECTRIC WORKS**

| | | | |
|---|---|---|---|
| **Subject:** | Decontamination of backhoe. | | |
| **Location:** | Next to transformer storage yard approximately 200 feet east of warehouse. | | |
| **Date:** | 05/23/91 | **Time:** | 1305 |
| **Photographer:** | Klaas Doeden | **File No:** | N/A |
| **Film:** | ASA 200 | **Witness:** | N/A |
| **Direction of Photograph:** | West | | |

MEW Site File
Break6_000659

**PHOTOGRAPH NO. 9**

**SITE NAME: MISSOURI ELECTRIC WORKS**

| | | | |
|---|---|---|---|
| **Subject:** | Removal of discharge mud from Morrill Construction Company property. | | |
| **Location:** | North side of Morrill Construction Company property. | | |
| **Date:** | 05/23/91 | **Time:** | 1505 |
| **Photographer:** | Klaas Doeden | **File No:** | N/A |
| **Film:** | ASA 200 | **Witness:** | N/A |
| **Direction of Photograph:** | East | | |

MEW Site File
Break6_000660

**PHOTOGRAPH NO. 10**

**SITE NAME: MISSOURI ELECTRIC WORKS**

| | | | |
|---|---|---|---|
| **Subject:** | Removal of discharge mud from Morrill Construction Company property. | | |
| **Location:** | North side of Morrill Construction Company property. | | |
| **Date:** | 05/23/91 | **Time:** | 1635 |
| **Photographer:** | Klaas Doeden | **File No:** | N/A |
| **Film:** | ASA 200 | **Witness:** | N/A |

**Direction of Photograph:** North

MEW Site File
Break6_000661

Times Continued 5-15-91 Todd Trometer
oversight manager Todd Trometer

Activities planned
Drillers plan to jet out the pilot core hole since it has collapsed in with mud. Then they are going to try and run I packer tests. They are also going to finish the construction of a work pad to allow the drill rig to be set up over the site.

Weather:
Sunny, humid, and warm. Sky is clear. No precipitation.

Personnel:

| | |
|---|---|
| Todd Trometer | Jacobs |
| Henry Beiro | Earth Tech (Senior Geologist) |
| Guy Autry | Drillers (Driller) |
| Stan Umphest | " (Drill helper) |
| Mike Umphest | " (Drill helper) |

0722 Arrived site. No personnel from Earth Tech or Brotcke Eng were onsite

0850 Earth Tech, Henry Beiro, arrives onsite

0800 Brotcke Eng, , arrive onsite.

0825 Henry Beiro of Earth Tech. stated that when he bailed MW-5 he observed a very strong solvent odor coming out of the well. He also recorded the water level elevations

MEW Site File
Break6_000662

Times Continued 5-15-91 — Todd Thomas
Oversight Manager — Todd Transitor

Continued in MW 3, 5, 11. They are listed below

| | |
|---|---|
| MW 3 | 37.03 |
| MW 5 | 36.47 |
| MW 11 | 38.10 |
| MW 12 | 34.50 |

Level were recorded on May 13, 1991

0850 MMCEO bring air Compressor onsite
~~MMCEO~~ Air Compressor is a model 1600 Gardner Denver
1600 C.F.M.

0855 Constructing of gravel pad is still going on. Left site to run errands & get supplies.

0925 Arrived back onsite. Left message for Terry Hagen of Jacobs Eng. on progress at site.

0935 Drillers are going to use a SCHRAMM T-660H

1000 Gravel pad construction is complete.

1120 Left site for Lunch. Still waiting on drillers.

1250 Arrived back onsite. At Lunch I went with Henry Beino of Earth Tech to contact drillers to find out when they were going to be onsite. The Word was that they should be onsite anytime. Henry Beino left site to run errands.

~~1320 Left site to call Terry Hagen & run errands.~~

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Break6_000663

Time continues 5-15-91 — Todd Tromiter
Oversight manager — Todd Tromiter

1255 Photo 1 Roll #1
ASA 400 E
Picture of final gravel pad construction

1256 Photo 2 Roll #1
ASA 400 W
Picture of SCHRAMM drilling that is going to be used by Brotcke Eng. Drill rig is air rotary.

1320 Left site to call Terry Hogan & run errands

1405 Arrived back onsite. Drillers were already onsite and are unloading PVC pipe. Henry Biero was also onsite

1408 PVC Pipe is wrapped in plastic and is being placed on the ground by the new monitor well site.

1411 Henry Biero stated that the drillers have a lot of setting up to do. They are going to try and drill down to bedrock if possible.

1510 Drillers are setting up over hole. One of the drill helpers went to get water, Henry Biero went with him to document the water source

MEW Site File
Break6_000664

Trim
Continued 5-15-91 — Todd Trometer

Oversight Manager — Todd Trometer

1534 Left site to call Terry Hagen to update him on the progress of the monitor well installation.

1552 Drillers are having problems locating a usable water supply. Henry Biero is calling around trying to find a suitable location.

1610 Water is coming out of the municipal water supply from a fire hydrant about 2 blocks from the site. Henry Biero of Earth Tech verified this fact.

1722 Photo 3 Roll #1
ASA 400 E
Picture of water/air phase seperators to keep the air line free of foreign particles

1730 Photo 4 Roll #1
ASA 400 SE
Drilling equipment set up over monitor well site.

1757 Drillers are getting ready to make there blow pipe.

1838 Blooey tube, blow tube, is complete

1852 Drillers leaving site Jacobs & Earth Tech are doing the same

MEW Site File
Break6_000665

Times Continued 5-16-91 _____ Todd Clements

Oversight manager _____ Todd Clements

0703 limestone is brown-gray

0707 Photo 6 Roll #1

ASA 400 SW

Picture of 6, 8, and 12 inch outer casing

0710 Photo 7 Roll #1

ASA 400 N

- Photo of water tank being used

0746 At 41' driller lost 41' ten inched. Driller has been hitting zone of chatter every 50 often. Drillers is going to drill down until he gets out of the weathered/fractured bedrock. He will try and set casing at around 60-65 ft.

0815 Compressed air filters are Van Air System brand. There are six in total, 3 used for coming out of the air compressor and 3 for the air line coming out of the drill rig.

0822 Blow tube seems to be blowing out clean water. May possibly be into the formation.

0846 Driller is at 58'

MEW Site File
Break6_000666

Times continued 5-16-91 Todd Trometer
oversight manager Todd Trometer

0630 Arrived onsite. Drillers & Earth Tech personnel were already onsite. Drillers have started drilling, they are at 15'.

Activities Planned -
Drill down to bedrock and set casing in bedrock. They are going to set 12" I.D. schedule casing.

Weather:
Humid, cloudy, wet. Gravel pad is clear but grassy areas are wet.

Personnel

| | |
|---|---|
| Todd Trometer | Jacobs |
| Henry Berio | Earth Tech |
| Guy Autry | Brotcke Eng |
| Stan Umphert | " |
| Mike Umphert | " |
| Scott McCarthy | " |

0649 Well is getting blown out very well. Blow tube has water gushing out of it.

0651 ~~5 1/6" stabilizer bit~~ 9 7/8" tricone bit is being used to ream out the hole

0657 Entered the weathered rock zone at a depth of ?34'-35'. At 42' now.

0700 Photo 5 Roll #1
ASA 400 SE
- Picture of blow tube.

MEW Site File
Break6_000667

Times
Continued 5-16-91 ——————— ~~Todd Trometer~~
Oversight Manager Todd Trometer

0900 Drillers are [redacted] cutting 12" casing to fit well.

0902 Drillers are at 59'. They are going to start reaming out the borehole in order to place the casing in the bore hole.

0923 Seal plate is off and drillers are tripping out of the borehole

0928 Photo 8 Roll #1
ASA 400 E
Picture of 9⅞" tricone bit used to drill initial borehole to a depth of 59'. Drillers are putting on a Reamer bit then they are going to set the casing.

0956 Drillers are still doing prep work in order to ease the monitor well to 59'. Left site to call Terry Hagen of Jacobs to give progress report.

1017 Arrived back onsite after confirming the progress of the monitor well installation with Terry Hagen.

1037 Another Brotche Eng. person showed up with the grout mixture.

MEW Site File
Break6_000668

Times
Continued 5-16-91 Todd Trombetta
Onersite Manager Todd Trombetta

1040 Driller is using Supra foam to help reamout the borehole

1043 Henry Biero leaves site to rent a storage shed. Drillers are unloading grouting supplies still.

1112 Drillers are still reaming out the hole. It is raining.

1116 Left site for lunch.

1200 Arrived back onsite. Driller has 10 more feet left to ream out the borehole. Sky is partly cloudy now.

1223 Scott McCarty of Brotcke Eng. left site to come back at some later date.

1242 Henry Biero is deconing equipment including the water level indicator.

1248 Photo 9 Roll #1
ASA 400 W
Grout mixer. Grout mixer is a Chem Grout

1250 Henry Biero of Earth Tech measure the water level at MW-11. 37.35'. No smell of solvents or organics. MW-3, elevation is 36.70 No smell. MW-5's water level is 37.62, Both Henry & myself observed a solvent smell.

MEW Site File
Break6_000669

Time
Continued 5-16-91 — Lorel Quinto

continued This solvent smell was kind of sweet

water level elevations

| | |
|---|---|
| MW-3 | 36.70' |
| MW-5 | 37.62' |
| MW-4 | 37.35' |

- variations of these readings to previous readings may be due to adding water to the drilling process or blowing out water from the bore hole.

- Huntly Biero didn't decontaminated the water level indicator between each location.
- water level indicator is a Slope Indicator model 51453

1302 Drillers have it completed the ~~drilling~~ reaming out of the borehole. Ran out of gas

1355 Drillers have being running again. 5 ft left to ream

1439 Drillers are tripping out of the borehole in order to set casing.

1457 Photo 10 Roll #1
ASA 400 E
Tricone bit used to ream out the boreholes

MEW Site File
Break6_000670

Times
Continued 5-16-91 Todd Trometer
Oversight manager Todd Trometer

1509 1st 20 foot segment of outer casing is being put down the the bore hole.

1514 Photo 11 Roll #1
ASA 400 E
Picture of 1st 20' section of outer casing going in.

1534 Driller starts to weld the 2nd 20' segment to the 1st.

1540 Henry Biero of Earth Tech left site to run errands.

1552 Left site to update Terry Hagen of Jacobs on progress.

1620 Arrived back onsite.

1644 Naturalgel, bentonite in 50 lbs bags is going to be used in the grout mix. Henry Biero is ~~painting~~ putting permanent lettering on the well ~~numbers on each well~~ onsite. He is painting it on the steel casing. The Driller is still welding the casing together.

1717 Drillers are having problems getting the outer casing down the hole.

MEW Site File
Break6_000671

Trimo
Continuo 5-16-91 Todd Tometer
Oversight Manager Todd Tometer

1734 Drillers still can't get the casing down all the way so they are going to grout it at 38.5' where the casing is stuck. The drillers poured 2 5-gallon buckets of bentonite pellets down the side of the hole first. Next, they are putting tremie pipe down the side of the casing so they can grout the borehole.

1805 Drillers have the Tremie pipe down the borehole and are testing it with $H_2O$ to see if the grout will go where it is needed. Casing is Stuck at 38.5'. Some of the water pumped through.

1809 Grout Mix Contains 2 94lbs bag of Type I Portland cement with 15 gallons of $H_2O$ & 6lbs of bentonite.

1815 Drillers are having problems with the grout going down the borehole so they are going to flush the borehole out with $H_2O$ then quit for the day. Tomorrow they are going to pull out all of the casing and set it aside while they ream out the borehole again.

1830 All of the parties participating parties are leaving the site

MEW Site File
Break6_000672

Times
Continued 5-17-91 _____ Todd Trometer
Oversight Manager Todd Trometer

0627 Arrived onsite. Drillers & Earth Tech personnel were already onsite.

Activities Planned
Drillers are going to pull out the 3 segments of welded casing & ream out the borehole once more so the borehole can be cased in.

Personnel
Todd Trometer — Jacobs
Henry Brero — Earth Tech
Guy Autry — Protective Eng
Stan Umphert — "
Mike Umphert — "

Weather
Dew on the grass. Sky is clear & weather is humid. Temp is around 75°F.

0715 Gas truck arrived onsite to fill up drill rig.

0730 Gas truck leaves site.

0740 Drillers are video taping there work.

0743 Photo ID Roll #1
ASA400 SE
Drillers pulling the 3 segments of the outer casing out of the bore hole.

MEW Site File
Break6_000673

Times
Continued 5-18-91 Todd Trumeter
Oversight Manager Todd Trumeter

0817 Drillers are still trying to get the tremie pipe down the borehole with the outer casing.

0829 Drillers are going to pump grout down the borehole. Grout mixture is as follows:

15 gallons $H_2O$
Bentonite
2(94 lb bags) Portland Type I Cement 94 lb bags

They are trying to make it thick.
Drillers first put a home made skirt full of bentonite pellets at the bottom of the outer casing to create a seal. They then lowered the tremie pipe & followed it with the outer casing.

0855 Photo 13 Roll #1
ASA400 SE
Picture of drillers grouting borehole

0916 Drillers checked the grout level inside of the borehole after 10 bags of cement plus mixture to make grout was added. The level was at 24'. The drillers are going to grout some more & then check the grout level.

0930 1/ more cement bags plus mixture were added and then the grout level was checked. It is coming up.

MEW Site File
Break6_000674

Times
Continued 5-17-91

0935 Left site to call Terry Hagen to give him a progress report.

0946 Henry Biers stated earlier that he wasn't going to use the microtip to test MW-5 due to the high humidity which may cause false readings

0950 Arrived back onsite.

1000 Leaving site to check out. Drillers added a total of 18 bags of cement & mixture to the borehole. Grout level is at 18'. Drillers are now going to get more cement to finish off grouting the borehole

5-17-91

MEW Site File
Break6_000675

TIMES CONTINUED 5-20-91 KLAAS DOEPEN
OVERSITE MANAGER Klaas Doepen

0940 KJD ARRIVES ON SITE AND CHECKS IN AT MAIN OFFICE. BROTCKE ~~BROS~~ KJD ENG DRILL CREW (GUY AUTRY HEAD DRILLER). AND EARTH TECHNOLOGY GEOLOGIST HENRY BEIRO ON SITE.

09[illegible] KJD MOVES TO WORK AREA AND CHECKS IN WITH H.B.. DRILLING WITH SCHRAMM TH 660 ROTA-DRILL IS PRESENTLY AT 87 FEET BGS. DRILL RATE IS APPROXIMATELY 5 FEET / HOUR

1041 H.B. LEAVES SITE TO MAKE PHONE CALLS

1120 H.B. RETURNS TO SITE. DRILLING PRESENTLY AT 97 FEET BGS.

1205 KJD AND HB LEAVE SITE FOR LUNCH. DRILL CREW TAKES BREAK.

1255 KJD AND HB RETURN TO SITE. DEPTH OF BORING IS 110 FEET BGS. WEATHER IS OVER CAST, ≈ 73°F, WIND 0-3 MPH TO THE SOUTH.

1333 BORING DRILLED TO 115 FEET BGS

1416 KJD LEAVES SITE TO CHECK IN AT HOTEL

MEW Site File
Break6_000676

TIMES CONTINUED 5-20-91 KLAAS DUEDEN
Klaas Dueden

1430 WEATHER BECOMING VERY CLOUDY WITH POSSIBLE RAIN CLOUDS TO THE WEST

1520 HARD RAIN BEGINS

1545 KJD CALLS T. HAGEN AT JEG IN LENEXA, KS. BUT T.H. NOT IN.

1616 KJD ARRIVES BACK ON SITE. DRILLING PRESENTLY AT 137 FEET BGS. HARD RAIN ENCOUNTERED OFF SITE HAS MISSED WORK AREA.

1640 LIGHT RAIN BEGINS ON SITE. DRILL CREW BEGINS SHUT DOWN PROCEDURE BY CLEANING OUT BORE HOLE WITH FOAM. WATER LOSS DURING DRILLING DIFFICULT TO GAGE DUE LOSS OUT OF BLOW PIPE. DRILL CREW USING ≈ 300 GALLONS $H_2O$ FOR EVERY 5 FEET DRILLED.

1645 DRILL CREW LEAVES SITE

1650 KJD AND HB LEAVE SITE

1700 KJD CALLS T.H. AT JEG, LENEXA, KS

Klaas J. Dueden 5-20-91

MEW Site File
Break6_000677

TIMES CONTINUED 5/21/91 KLAAS DOEDEL Klaas Doedel

0740 KJD ARRIVES ON SITE. DRILLING IN OPERATION PRESENTLY AT 147 FEET BGS. WEATHER IS CLEAR, ≈ 62°F, WITH NO BREEZE

| PERSONNEL | COMPANY |
|---|---|
| KLAAS DOEDEL | JACOBS |
| HENRY BEIRO | EARTH TECH |
| GUY AUTRY | BROCKE |
| MIKE UMPHERT | " " |
| STAN UMPHERT | " " |

H.B INDICATES THAT LIMESTONE SEEMS TO BE FAIRLY SOLID WITH FEW MUD SEAMS OR FRACTURES. DRILL CREW IS IN LEVEL D PPE (NORMAL DRILLING UNIFORM, NO MUCK → PPE).

0814 H. BEIRO LEAVES DRILLING AREA TO CHECK PERIMETER OF PROPERTY TO INSURE DRILLING FLUIDS NOT LEAVING PROPERTY AND TO MEASURE WATER LEVELS IN MONITORING WELLS.

0842 KJD LEAVES SITE TO PICKUP FILM

0935 KJD RETURNS TO SITE. BORING PRESENTLY AT 160.5 FEET. BGS

1000 BORING AT 162 FEET BGS. DRILL CREW CLEANS OUT HOLE WITH FOAMING SURFACTANT

MEW Site File
Break6_000678

TIMES CONTINUED 5/21/91 KLAUS DOEDE / KOLL HOLO

1004 DRILL CREW TAKE BREAK AS H.B. LEAVES SITE TO CALL OFFICE

1009 DRILL CREW BEGINS REMOVING DRILL PIPE IN PREPARATION OF INSTALLATION OF 8 IN DIAMETER PROTECTIVE SURFACE CASING

1034 DRILL CREW CONTINUES REMOVING DRILL STRING AS H.B. RETURNS TO SITE

1055 DRILL STRING OUT, DRILL CREW BEGINS INSTALLATION OF SURFACE CASING. KJD OBTAINS WATER LEVEL INFO FROM H.B.

| WELL | W.L. | TIME | |
|---|---|---|---|
| MW-7 | 24.80 | 0845 | |
| MW-8 | 17.35 | 0853 | |
| MW-6A | 41.46 | 0856 | |
| MW-4 | 39.40 | 0859 | |
| MW-10 | 38.36 | 0905 | |
| MW-9 | 34.47 | 0910 | |
| MW-11 | 63.76 | 0925 | NO CAP |
| MW-3 | 52.65 | 0930 | |
| MW-5 | 40.40 | 0935 | WITH MUD |

1129 KJD AND HB LEAVE SITE FOR LUNCH.

1240 KJD CALLS THAT JEG IN LENEXA, KS

MEW Site File
Break6_000679

TIMES CONTINUED 9/24/91 KLAAS DUEDEL

Klaas Duedel

TO INFORM HIM OF DRILLING PROGRESS. RELATED INFORMATION THAT DRILL CREW IS NOW INSTALLING SECOND SURFACE CASING TO 162 FEET BGS BUT WILL NOT GROUT IT IN. NO SINGLE ZONE OF SUBSTANCIAL WATER PRODUCTION WAS LOCATED SO NO WATER SAMPLE WILL BE TAKEN FROM OPEN BOREHOLE KJD ALSO STATE THAT H.B. INFORMED HIM THAT FIRST CASING WAS INSTALLED TO A DEPTH OF 38 FEET BGS NOT 57 FEET BGS AS HAD BEEN PLANNED AS CASING WOULD NOT FIT DOWN HOLE ROCK WAS ENCOUNTERED AT 34 FEET BGS WHICH PUTS BOTTOM OF CASING 4 FEET BELOW TOP OF ROCK

1313 KJD BACK ON SITE. DRILL CREW CONTINUES WITH CASING INSTALLATION.

1510 PROTECTIVE CASING INSTALLED TO DEPTH OF 162 FEET BGS. DRILL CREW TAKES BREAK

1531 DRILL CREW BEGINS TO SET TREMIE PIPE DOWNHOLE. DECISION HAS BEEN MADE TO GO AHEAD AND GROUT SURFACE CASING INSTEAD OF USING BENTONITE PELLETS. TREMIE PIPE NOT DECONNED

1552 H.B. RETURNS TO SITE

MEW Site File
Break6_000680

TIMES CONTINUED — KLAUS DOEDER

1615 DRILL CREW BEGINS MIXING GROUT FOR CASING WITH CHEMGROUT MACHINE

1630 DRILL CREW BEGINS GROUTING BOREHOLE

1800 TREMIE HOSE BLOWS OUT. DRILL CREW TAKES TIME OUT TO FIX HOSE

1830 SECOND CASING GROUTED TO GROUND SURFACE. 50 BAGS OF TYPE I PORTLAND CEMENT, 2 BAGS OF BENTONITE, AND ≈ 500 GAL $H_2O$ USED.

1835 DRILL CREW BEGINS CLEANUP OF WORK AREA.

1840 DRILL CREW, H.B, AND KJD LEAVES SITE FOR DAY

5/21/92

MEW Site File
Break6_000681

TIMES CONTINUED 5/22/91 KLAAS DOEDE

Klaas Doede

0722 KJD ARRIVES ON SITE. DRILLING OPERATIONS IN PROGRESS. WATER LEVEL IN HOLE PRIOR TO OPERATIONS WAS 42.40 FEET BGS. WEATHER IS CLOUDY, COOL ≈ 60°F, WITH NO BREEZE.

0730 HB. PREPARES TO COLLECT PCB SAMPLE FROM BLOWPIPE. SAMPLE WAS COLLECTED BY RUNNING DRILL PIPE AND AIR INTO BORE HOLE TO DISPLACE WATER OUT BLOW PIPE. WATER WAS PURGED FOR APPROXIMATELY 3 MINUTES TO TRY TO OBSTAIN FORMATION $H_2O$. NO SAMPLE COLLECTED FOR VOAS AS WATER IS AIR STRIPPED DUE TO INJECTION OF AIR. PCB SAMPLE IS VERY TURBID AND FOAMY FROM SURFACTANT USED IN DRILLING FLUID. DRILL CREW IN LEVEL D PPE

0740 PAUL BROTCKE AND TERRY HART OF BROTCKE ENG ARRIVE ON SITE TO CHECK DRILLING PROGRESS

0820 P.B. AND T.H. LEAVE SITE.

| PERSONNEL | COMPANY |
|---|---|
| KLAAS DOEDE | JACOBS |
| HENRY BEIRO | EARTH TECH |
| GUY ALTRY | BROTCKE |
| MIKE HUMPHERT | " |
| | " |

MEW Site File
Break6_000682

MES
CONTINUED

KLAUS DOEDEN
Klaus Doeden

0830 S.U. LEAVES SITE TO PICK UP WATER. BORING PRESENTLY AT ≈170 FEET BGS

0845 S.U. RETURNS TO SITE

0854 H.B. LEAVES SITE TO RUN ERRANDS

0930 BORING DRILLED TO 182 FEET BGS.

0940 DRILLING CONTINUES AT 182 FEET BGS AFTER ADDING SECTION OF DRILL PIPE

1020 S.U. LEAVES SITE FOR WATER AS H.B. ARRIVES ON SITE. LIGHT INTERMITTENT RAIN BEGINS

1110 S.U. RETURNS TO SITE

1150 BORING DRILLED TO 201 FEET BGS HB AND KJD LEAVE SITE FOR LUNCH

1247 HB AND KJD RETURN TO SITE AFTER LUNCH. S.U. LEAVES SITE TO PICK UP LOAD OF $H_2O$

1251 WATER BEARING UNIT ENCOUNTERED AT DEPTH OF 222 FEET. BORING DRILLED TO 230 FEET BGS. DRILL CREW CONTINUES CIRCULATION OF AIR DOWNHOLE TO CLEAN OUT

MEW Site File
Break6_000683

TIMES 5/22/91 KLAAS DOEDEE
CONTINUED Klaas Doede

BOREHOLE WATER PRESENTLY COMING OUT OF HOLE IS A VERY TURBID REDDISH BROWN

1316 KJD LEAVES SITE TO CALL INTO OFFICE. INTERMITTENT RAIN CONTINUES

1340 KJD CALLS JEG OFFICE TO INFORM BILL GRESHAM OF PROGRESS IN REGARD TO DRILLING PROGRAM. KJD RELAYS INFORMATION THAT WATER WAS ENCOUNTERED FROM 222 TO 230 FEET BGS AND THAT WATER IS BEING PURGED OUT OF HOLE TO REMOVE MUD. BG. STATED CONCERN OF SAMPLING ON FRIDAY WITH RESPECT TO DELIVERY OF SAMPLES FROM LAB

1403 KJD ARRIVES BACK ON SITE. DRILL CREW IS STILL PUMPING WATER FROM BOREHOLE. S.U. AND H.B. GO OFF SITE

1420 H.B. ARRIVES BACK ON SITE. BOREHOLE STARTING TO PRODUCE MORE WATER AS EVIDENCED FROM BLOW PIPE DISCHARGE. DISCHARGE MAY CAUSE DRAINAGE ONTO NEIGHBORING PROPERTY TO THE SOUTH

1440 H.B. LEAVES SITE TO CALL OFFICE. MUD FROM PUMPING OF BOREHOLE HAS STARTED TO FLOW OFFSITE. DRILLERS MAY NEED TO DIG A MUDPIT OR CASE OFF THE HOLE AND LOOK

MEW Site File
Break6_000684

TIMES CONTINUED

KLAUS DUEDER
Klaus Dueder

FOR A DEEPER WATER BEARING ZONE

1459 CHARLIE MORRILL AND ASSISTANT FROM NEIGHBORING MORRILL CONS. CO. COME ON SITE TO EXPRESS THEIR CONCERN OVER FLOW OF MUD ONTO THEIR PROPERTY. ALSO EXPRESS CONCERN THAT MUD MAY HAVE PCBS.

1502 HB RETURNS TO SITE AND CONFERS WITH C. MORRILL. DRILL CREW STOPS PURGING OPERATIONS

1507 C. MORRILL AND ASSISTANT LEAVE SITE WITH H.B. AND DRILL CREW TO SURVEY PROBLEM

1538 DRILL CREW IS BACK ON SITE AND ARE UNLOADING WATER TANK FROM TRUCK. THEY MAY CONSIDER CLEANING UP MUD BY OBTAINING 55 GAL. DRUMS AND CONTAINERIZING IT.

1545 KJD LEAVES SITE TO CALL B. GRESHAM AT JEG

1555 KJD CONTACTS B.G. TO INFORM HIM OF DEVELOPMENTS ON SITE. B.G. INFORMS

MEW Site File
Break6_000685

TIMES CONTINUED 5/22/91 PLANS DOCKET

Klaus Daech

KJD THAT LAWYERS WILL VISIT SITE ON 5/23. LAB WILL BE ABLE TO ACCEPT SAMPLES ON TUESDAY IF WELLS ARE SAMPLED ON FRIDAY. KJD INDICATED POSSIBLE DELAYS IF DRILL CREW DIGS A MUD PIT OR CASES MUDDY WATER ZONE TO DRILL FOR A CLEAN ZONE

1650 KJD RETURNS TO SITE. DRILL CREW NOT AT SITE NOR ON MORRILL PROPERTY.

1720 KJD LEAVES SITE FOR DAY AFTER WAITING FOR DRILL CREW TO SHOW UP

Klaus Daech 5/22/91

MEW Site File
Break6_000686

TIMES CONTINUED 5/23/91 KLAAS DOEDEN

0650 KJD ARRIVES ON SITE. DRILL CREW AND H.B NOT ON SITE. PERSONNEL FROM ROWLAND OIL CO. FUELING UP RIG. WEATHER: PARTLY CLOUDY, COOL ≈62°F NO BREEZE

0700 DRILL CREW AND EARTH TECH GEOLOGIST ON SITE

| PERSONNEL | COMPANY |
|---|---|
| KLAAS DOEDEN | JACOBS |
| HENRY BEIRO | EARTH TECH |
| GUY AUTRY | BROWN ENG |
| MIKE UMPHERT | " " |
| STAN UMPHERT | " " |

H.B. INFORMS KJD THAT HE TOOK SAMPLE OF MUD FROM MORRILL PROPERTY AND SENT IT TO LAB FOR PLB ANALYSIS. HE PLANS TO ACQUIRE A BACKHOE TO SCOOP UP MUD AND DEPOSIT IT ON MEW SITE AND THEN DIG A MUD PIT AND BERM SO DRILL CREW MAY CONTINUE PUMPING MUD FROM HOLE

0724 FUEL MAN LEAVES SITE. KJD G.A. AND S.U. LEAVE SITE TO PICK UP FRONT END LOADER

MEW Site File
Break6_000687

TIMES CONTINUED 5/23/91 KLAUS DOEDEN

0803 GA AND SJ RETURN TO SITE AND WILL ATTEMPT TO CLEAN OUT MUD AND DIG MUD PIT

0820 DRILL CREW TAKES BREAK

0845 H.B. ESTABLISHES BOOT WASH STATION AND REQUESTS DRILLERS WORKING IN MUD TO WEAR TYVEK DRILLERS CONTACT OFFICE WHICH REQUESTS THEM TO GO TO LEVEL C PPE. AS THERE IS NO FUGITIVE DUST AND NO VOLATILE ORGANICS LEVEL C SEEM INAPPROPRIATE AT THIS TIME. G.A. RESUMES CONSTRUCTION OF MUD PIT.

0915 REPRESENTATIVES FROM MEW ARRIVE ON SITE (RUSH LIMBAUGH JOHN HAHN

0920 EPA AND DEPT OF JUSTICE LAWERS ARRIVE ON SITE SARA SULLIVAN (EPA) DAVE THOMPSON + LIZ EDMONDS (DOJ) H.B. TAKES TIME TO EXPLAIN DEVELOPMENTS TO VISITORS.

0949 LAWYERS FROM DOJ + EPA AND MEW REPRESENTATIVES WALK AROUND SITE

1015 LAWYERS + MEW REPS LEAVE SITE

MEW Site File
Break6_000688

INES 5/23/91 KLAAS DOEDEN
NTINUED Klaas Doeden

0945 HB LEAVES SITE TO GO TO MORRILL CONS. CO TO INFORM THEM THAT BARRELS ARE NOT ONSITE YET

1127 DRILL CREW TAKES BREAK.

1143 HB RETURNS TO SITE. DRILL CREW RESUMES WORK ON PIT.

1247 KJD CALLS JEG FOR BILL GRESHAM BUT WAS NOT IN. KJD WILL TRY TO CALL LATE AFTERNOON.

1338 KJD ARRIVES BACK ON SITE: ADDITIONAL BROTCKE PERSONNEL HAVE DROPPED OFF 8-55 GAL DRUMS, ≈ 1000 GAL WATER TANK AND VISQUEEN SHEETING. DRILL CREW WAS ON SITE AT 1240. AT 1300 THEY UNLOADED SUPPLY TRUCK AND PUT LINING IN 10X20X6 DEEP PIT FROM 1320 TO 1330 THEY PURGED MUD & WATER TO ABOUT A DEPTH OF 4 FEET IN PIT (2 FT $H_2O$ IN PIT)

1353 DRILL CREW DECONS BACKHOE WITH STEAM MACHINE IN LEVELD. DECON FLUIDS NOT BEING CONTAINED KJD NOTICES PVC BAILER ON GROUND NEAR MW-4

MEW Site File
Break6_000689

TIMES CONTINUED 5/23/91 KLAAS DOEDEN

1400 H.B, G.A, AND M.U. LEAVE SITE TO DROP OFF BARRELS AT MORRIL CONS. ESTIMATED VOLUME PUMPED IN 10 MINUTES $10' \times 20' \times 2' = 400\ FT^3$ $400\ FT^3 \times 7.43\ gal/FT^3 = 2972\ gal$ $2972\ gal / 8\ MIN = 371.5\ gal/MIN$. WEATHER IS CLOUDY, 73°F, WITH NO BREEZE ~~NOTE~~.

1449 H.B. LEAVES SITE TO MAKE PHONE CALL S.U. FINISHES DECON OF BACKHOE & DECON FLUIDS ON GROUND AND NOT CONTAINERIZED AND NO PPE USED

1455 DRILL CREW MOBILIZES TO MORRILL CONST CO.

1500 DRILL CREW BEGINS TO EXCAVATE MUD WITH BACKHOE AND TO CONTAINERIZE IT.

1508 KJD LEAVES SITE TO CALL B. GRESHAM

1539 KJD CALL B. GRESHAM AND TELLS HIM OF DAY'S DEVELOPMENTS KJD STATED THAT MEW & DOJ, EPA LAWYERS HAD BEEN ON SITE, HB SENT MUD SAMPLE TO LAB FOR PCB ANALYSIS, DRILL CREW HAS CONSTRUCTED MUD PIT, AND HAS CLEANED UP OR IS CLEANING UP MORRILL PROPERTY

MEW Site File
Break6_000690

TIMES CONTINUED 5/23/91 KLAUS DUEDEN

Klaus Dueden

1610 KJD ARRIVES ON MORRILL SITE.
DRILL CREW USING BACKHOE TO
REMOVE DRILLING MUD

1630 DRILL LEAVES MORRILL PROPERTY
TO DROP _ DRUMS OFF AT MEW.
AREA STILL NEEDS SOME WORK.
H.B. TOLD KJD THAT THEY WILL
TRY TO REMOVE A LITTLE MORE
MUD TOMORROW AND THEN PLACE
NEW GRAVEL ON ROAD. * EXPLORATORY
BOREHOLE WAS NOT GROUTED IN
AFTER TRIPPING OUT. A 5 GALL
BUCKET WAS PLACED OVER THE
HOLE BUT DRILLING MUD HAS
RUN INTO THE HOLE. AFTER
PUMPING TODAY SUCTION IN BOREHOLE
HAS CAUSED BUCKET TO CAVE
IN. BACKHOE WAS MOBED BACK
TO THE MEW SITE.

1640 KJD AND DRILLERS LEAVE SITE FOR
DAY

Klaus J. Dueden 5/23/91

MEW Site File
Break6_000691

MEW Site File
Break6_000692



TIMES CONTINUED 5/24/91 KLAAS DOEDEN
Klaas Doeden

0722 KJD ARRIVES ON SITE. H.B OF EARTH TECH ON SITE. WEATHER IS OVERCAST, 72°F, NO BREEZE AND HEAVY RAIN. HB INFORMS ME THAT TODAYS PLANS INCLUDE THE EXCAVATION OF SOME SOIL FROM MORRILL CONS. WHICH WILL BE PLACED ON MEW PROPERTY. THEY WILL THEN GET A LOAD OF GRAVEL AND PLACE IT ON ROAD. THEY WILL ALSO PLACE HAY BALES IN DRAINAGE PATHWAYS TO REDUCE RUNOFF

0750 DRILL CREW ARRIVES ON SITE AND DISCUSS WITH HB TODAYS PLANS

0809 DUMP TRUCK ARRIVES ON SITE

0813 DRILL CREW MOBILIZES DUMP TRUCK AND BACKHOE TO MORRILL CONS.

PERSONNEL NOW PRESENT ON SITE

| PERSONNEL | COMPANY |
|---|---|
| KLAAS DOEDEN | |
| HENRY BELLO | |
| GUY AUTRY | |
| MIKE UMPHERY | |
| STAN UMPHERY | |

0900 DRILL CREW LEAVES SITE TO RETURN BACKHOE AFTER GRADING GRAVEL DRILLERS LEAVE TO RETURN BACKHOE



TIMES CONTINUED 5/24/91 KLAAS DOEDEN
Klaas Doeden

0910 H.B. AND KJD LEAVE MORRILL CONSTRUCTION CO. KJD NOTICES DRAINAGE DITCHES FROM MORRILL SITE FILLED WITH MUD PRODUCED FROM DRILLING

0920 RAIN HAS BECOME LIGHT TO MODERATE IN INTENSITY

0947 DRILL CREW ARRIVES BACK ON SITE AND IS PLACING HAY BALES OUTSIDE OF MUD PIT TO SLOW DOWN MUD RUNOFF

1010 ALL PERSONNEL LEAVE SITE FOR WEEKEND

PHOTOLOG ROLL #1 FOR 5/20 - 5/24

| PHOTO # | DATE | TIME | DESCRIPTION |
|---|---|---|---|
| 1 | 5/21 | 1400 | VIEW OF WAREHOUSE |
| 2 | 5/21 | 1402 | VIEW NORTHEAST SIDE OF DUMP |
| 3 | 5/21 | 1407 | VIEW OF DRILLING AREA |
| 4 | 5/21 | 1615 | DRILL CREW MIXING GROUT |
| 5 | 5/22 | 730 | EK REP COLLECTING SAMPLE |
| 6 | 5/22 | 735 | VIEW OF BLOWPIPE |
| 7 | 5/22 | 1415 | BLOWPIPE DISCHARGE |
| 8 | 5/22 | 1420 | BLOWPIPE DISCHARGE |
| 9 | 5/22 | 1500 | BLOWPIPE DISCHARGE |
| 10 | 5/22 | 1526 | DRILLING FLUIDS MOVING OFFSITE |
| 11 | 5/22 | 1530 | " " |
| 12 | 5/22 | 1535 | " " |

MEW Site File
Break6_000693



THES 5/24/91 KLAAS DOEDEN
INTINUED Klaas Doeden

| PHOTO # | DATE | TIME | DESCRIPTION |
|---|---|---|---|
| 13 | 5/22 | 1541 | DRILLING FLUIDS HOUSING OFFSITE |
| 14 | 5/22 | 1550 | " " |
| 15 | 5/23 | 0840 | CONSTRUCTION OF MUD PIT |
| 16 | 5/23 | 0850 | " " |
| 17 | 5/23 | 0850 | " " |
| 18 | 5/23 | 0955 | " " |
| 19 | 5/23 | 1109 | DECON OF BACKHOE |
| 20 | 5/23 | 1335 | " " |
| 21 | 5/23 | 1345 | |
| 22 | 5/23 | 1500 | REMOVAL OF DRILLING MUD |
| 23 | 5/23 | 1505 | |
| 24 | 5/23 | 1520 | GRAVEL ROAD AFTER CLEANUP |

KJD

5/24/91 Klaas Doeden



5/TIMES 5/28/91 KLAAS DOEDEN
CONTINUED Klaas Doeden

0935 KJD ARRIVES ON SITE. DRILL CREW FROM BROTCKE NOT ON SITE. HENRY BEIRO FROM EARTH TECH NOT ON SITE WEATHER IS WARM ≈ 80°F, PARTLY CLOUDY AND NO BREEZE

1005 DRILL CREW AND H.B ON SITE

| PERSONNEL | COMPANY |
|---|---|
| KLAAS DOEDEN | JACOBS |
| HENRY BEIRO | EARTH TECH |
| GUY AUTRY | BROTCKE |
| MIKE UMPHERT | " " |
| STAN UMPHERT | " " |

H.B. INFORMS KJD THAT THEY ARE ON STANDBY UNTIL THEY RECEIVE ANALYTICAL RESULTS OF MUD SAMPLE SENT TO LAB

1059 DRILL CREW ATTEMPT TWO PURGE SOME WATER OUT OF MW-11 TO CLEAN OUT SCREEN. PUMP NOT DECONNED BEFORE AND AFTER TRIPPING OUT OF HOLE

1139 KJD LEAVES SITE TO CHECK INTO HOTEL AND PICK UP LUNCH

1210 KJD RETURNS TO SITE. DRILL CREW AND HB OFFSITE FOR LUNCH

TIMES 5/28/91 KLAUS DOEDEN
CONTINUED Klaus Doeden

1259 HB RETURNS TO SITE

1310 HB LEAVES SITE. DRILL CREW ON STANDBY

1345 KJD LEAVES SITE FOR MOTEL

1400 KJD CALL T. HAGEN AT JEG TO INFORM HIM OF DELAYS

1430 KJD RETURNS TO SITE. HB IS COLLECTING SAMPLES FOR FLOCCULANT ANALYSIS UNDER PRESUMPTION THAT WATER MAY BE DISCHARGED IF MUD CONTENT IS REDUCED

1509 CHARLES MORRILL OF MORRILL CONSTRUCTION ARRIVES ON SITE AND EXPRESS CONCERN ABOUT MUD IN GUTTERS AROUND CONS CO

15

1525 C.M. LEAVES SITE. G.A. ARRIVES ON SITE AND INFORM H.B. THAT HIS OFFICE WANTS CREW TO SHUT DOWN UNTIL FRIDAY WHEN PLB

1540 KJD LEAVES SITE TO PREPARE FOR RETURN TO KC.

Klaus Doeden 5/28/91

Times 6-3-91
Oversight Manager

Todd Tromater
Todd Tromater

1330 Arrived onsite and signed in at the Land office. MEW personnel notified me that Doug Kaminskey, the Environmental Coordinator for the City of Cape Girardeau, ~~had~~ wanted to talk to someone incharge. No one else was onsite. Left to call Doug Kaminskey

1335 Talked with Doug Kaminsky. he stated that we was concerned with discharges on MEW property. He was specifically concerned with the possibility of contaminating other areas near the site through runoff. I told him I would contact the RPM on the issue.

1420 Arrived back onsite. After examing the site further I noticed that the drillers dug a ditch. Approx. 6 x 10' and about 5' deep the held discharges coming from drilling.

1442 Left site to run errands & call Terry Hagen back. No Earth Tech or Brotcke personnel are onsite

Todd Tromater 6-3-91

Times 6-4-91 Todd Tromater
over sight manager Todd Tromater

0734 Arrived onsite. Drillers were already onsite. Drillers are wearing Tyveks, hard hats, softey glasses, boats, and gloves.

Activities Planned
Drillers are going to pump the well, possibly for 48 hrs. and decon equipment.

Weather.
Sunny. and hot. Clear, no precip. humid.

Personnel

| | |
|---|---|
| Todd Tromater | Jacobs |
| Guy Autry | Bratcke Eng |
| Stan Umphert | " |
| Mike Umphert | " |

0837 Drillers are wiring up their SUBTRO pump to pump well. Generator is suppose to arrive onsite at 1000.

0857 Drillers are lower pump into well.

0912 Drillers have finished lowering pump into well. They are going to get some supplies and ~~then~~ wait for generator to arrive.

0920 Leaving site to call Terry Hagen of Jacobs and get filter.

Times Continued 6-4-91 Todd Tromater
oversight Manager Todd Tromater

1015 Arrived back onsight. ~~Compressor~~ Generator has arrived onsight ~~yet~~. Generator is a Coleman Quiet-pac 50 KW.

1037 Drillers have taken off Tyvek. They are currently wearing hard hats, safety glasses, and boat. Clothing includes shorts. no shirt or pants. 1 driller is wearing a shirt.

1039 Drillers start generator & are pumping well

1043 Photo 1
ASA 200 W
Photo of wood pile being burnt on MEW property.

1104 Drillers left site to run errands. Todd Tromater of Jacobs is leaving to call Terry Hagen of Jacob.

1145 Arrived back onsite. Driller were already onsite. Driller made an exclusion zone around the drill rig.

1215 Owner of MEW property came back onsite to look at where to drilling fluids were being pumped. He wasn't happy.

1221 Photo 2
ASA 200 E
Drilling fluids being pumped on site at a rate of approx. 75 gpm.

Times Continued 6-4-91 Todd Trometer
Oversight Manager Todd Trometer

1230 Photo 3
ASA200 SE
Photo of exclusion zone set up by drillers.

1537 Arrived back onsite after talking with Terry Hagen and Jill Biesma of Jacobs Eng. Drillers were already onsite and are waiting for Earth Tech personnel to arrive onsite. Words is that the drillers are suppose to stop ~~drilling~~ pumping drilling fluids on the ~~ground~~ ground.

1600 Jeff Smith of Earth Tech arrives onsite. We had a meeting and discussed whats going on at the site. He left to call someone on the drilling fluid issue and when the ground water split sample was going to be taken. Todd Trometer left to call Terry Hagen to give him an update. Drillers pumped out approx. 20,000 gallons of water out of the well. Flow rate reduced but water didn't clear up.

1615 Left site

1640 Arrived back onsite after talking with Terry Hagen of Jacobs. Terry stated that a should take a split sample upon well completion. If well is not going to be completed then d should take a split sample when Earth Tech personnel do so.

Times Continued 6-4-91 Todd Trometer
Oversight Manager Todd Trometer

1700 Drillers are pumping well. Jeff Smith of Earth Tech stated that he is going to obtain groundwater samples at this point. Pump is at 210'. Drilling activities are going to resume on June 17, 1991. Jeff said that the PRP steering committee hasn't determined if a well is going to be set. For this reason EPA split samples are also going to be taken.

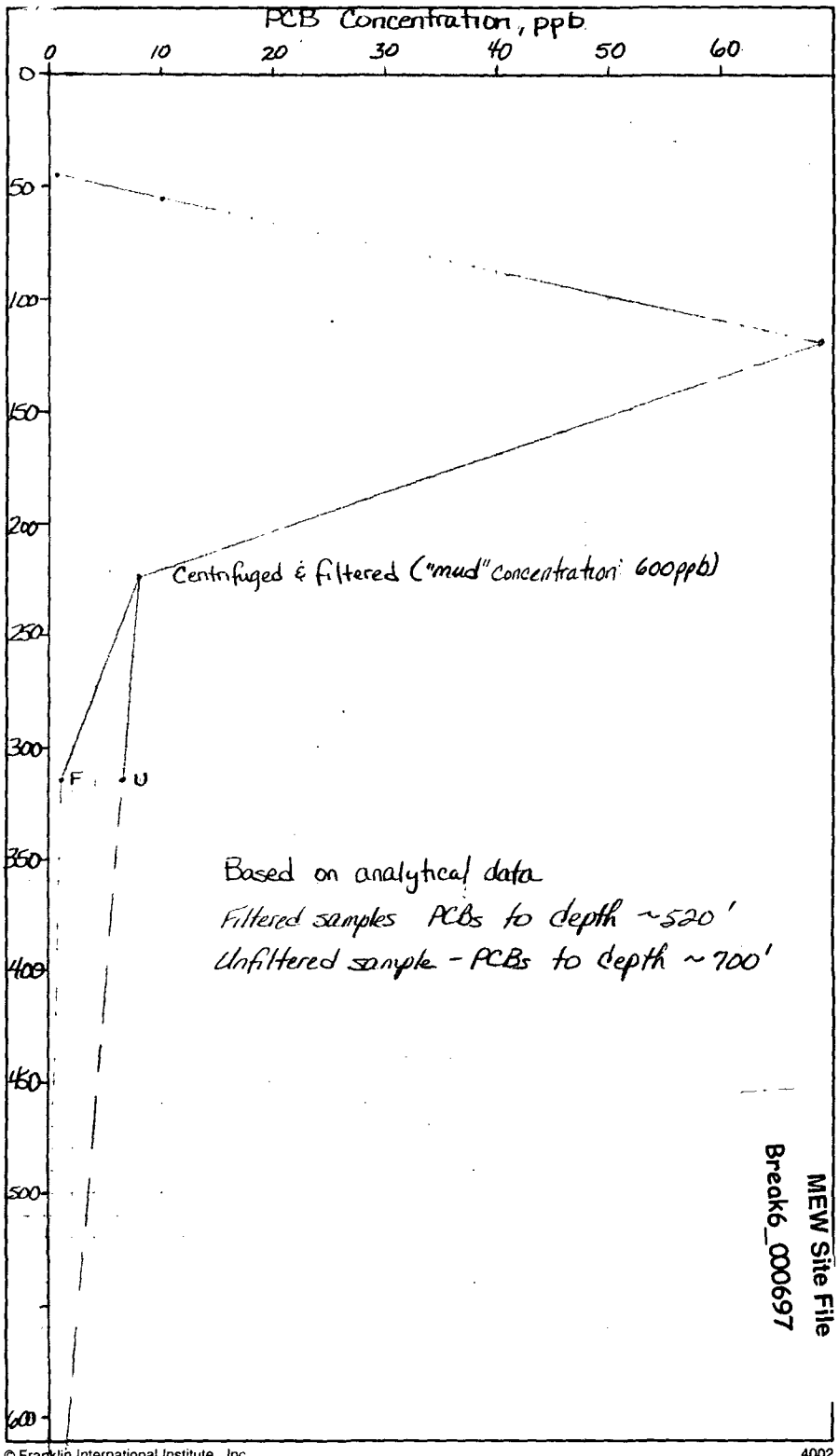
1719 Photo 4
ASA 200 SE
Photo of groundwater being pumped into manmade pit.

1741 Jeff Smith stated that their samples are going to be centrifused and the water and sediments ~~is~~ are going to be analyzed.

1800 Sample Collection begins. Samples were taken from the discharge hose.

1820 Sample collection ends. Jeff Smith collected 4 VOA vials and 4 1 L glass jars. Samples were collected in alternating order with VOA's being first then Semi-VOAs and PCBs. Samples were then placed in and ice cooler. Sediments had high sediment loads, highly turbid, and ~~viscous~~ had a high viscosity.

Todd Trometer 6-4-91




MEW Site File
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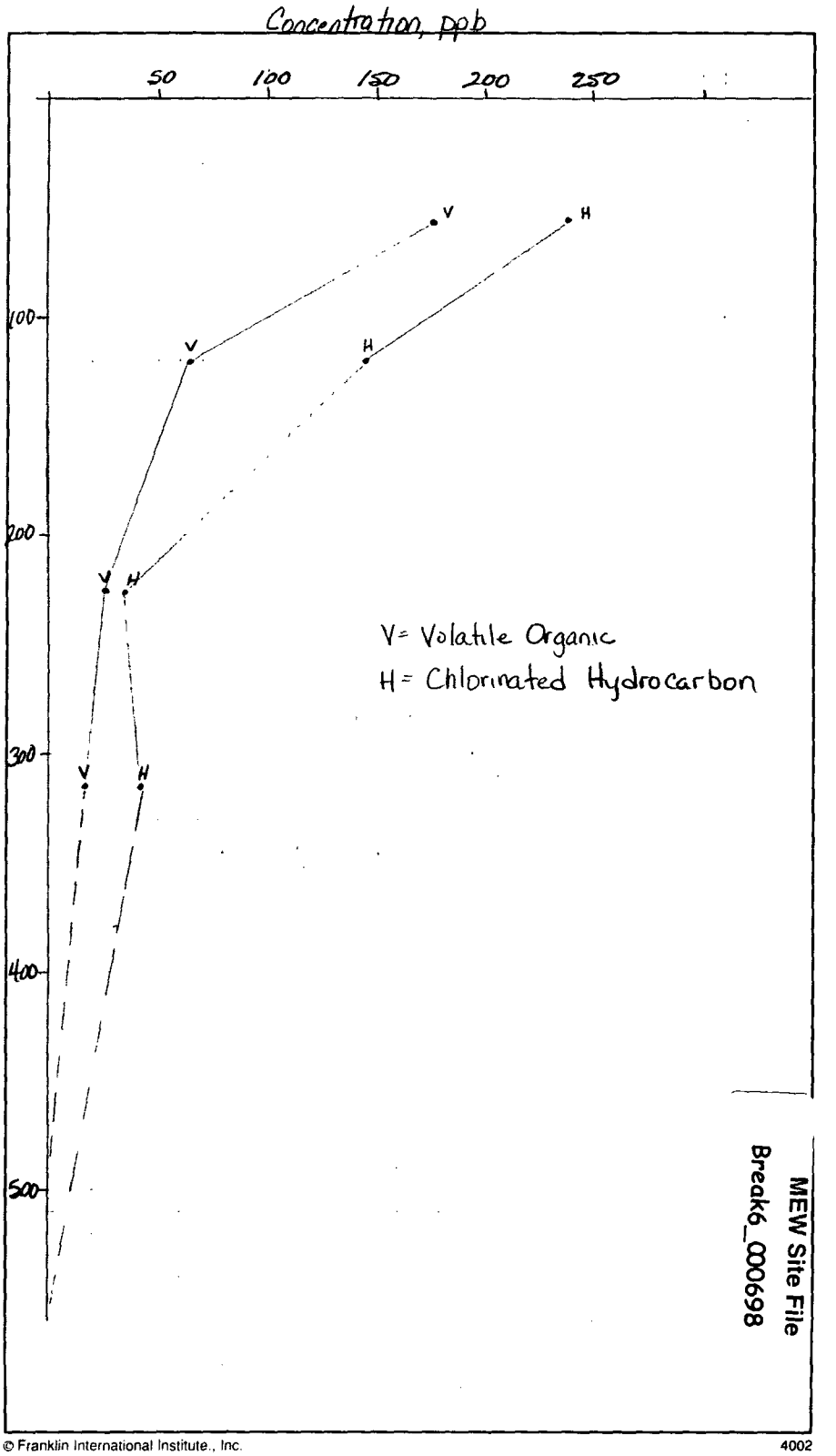


MEW Site File
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