

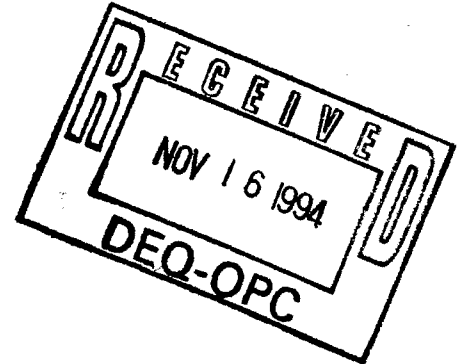


November 9, 1994

Hercules Incorporated
West 7th Street
P.O. Box 1937
Hattiesburg, MS 39401
(601) 545-3450

Certified Mail - Return Receipt Requested
No. Z 060 871 905

Ken Whitten
Department of Environmental Quality
P. O. Box 10385
Jackson MS 39829-0385



Dear Mr. Whitten:

Please find the attached work plan for three temporary well points.
Following your approval we will proceed with developing the plan.

Very truly yours,

Charles S. Jordan
Environmental Supervisor

CSJ:mcl

Attachment

Installation of Three Temporary

Well Points at

Hercules, Inc.

613 West 7th Street

Hattiesburg, MS

Facility

presented to:

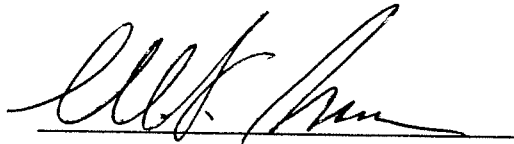
Charles Jordan, Environmental Supervisor

Hercules, Inc.

- Hattiesburg, MS

October 27, 1994

by

A handwritten signature in black ink, appearing to read "M.S. Bonner", written over a horizontal line.

Michael S. Bonner, Ph.D

BONNER ANALYTICAL TESTING COMPANY

TABLE OF CONTENTS

	Page
1.0 Well Point Installation	1 - 3
2.0 Well Development	3
3.0 Purging	3 - 5
4.0 Sampling	5
5.0 Analytical Protocol	5
6.0 QA/QC	6
6.1 Trip Blank (Volatile)	6
6.2 Equipment Blank (Rinsate Blank)	6
7.0 Sample Archival	7
8.0 Decontamination	7
9.0 Health and Safety	8
10.0 Personnel	8
11.0 Well Point Abandonment	9

INTRODUCTION

At the request of the Mississippi Department of Environmental Quality (MDEQ), Hercules Inc. of Hattiesburg, MS will install, develop, purge and sample three temporary well points in the following locations (shown on the attached B&V - Figure 13):

#1 - Background - same location as B&V background.

#2 - On north perimeter of Area 1 geophysics.

#3 - On north perimeter of property.

The MDEQ will be notified 10 days prior to commencement of work. Following the analysis of samples collected from these temporary well points (and assuming analytical data does not indicate contamination above the applicable action level and greater than three times background) the well points will be removed.

1.0 Well Point Installation

Well points will be installed by advancing boreholes utilizing the hollow-stem drilling technique. Bore holes will be advanced until groundwater is encountered and at that point, two inch PVC well points will be installed.

A five foot screened interval will be utilized and a factory slot of 0.01" will be used. All casing will be flush thread. (Filter pack shall be analyte free quartz sand meeting the following size specifications:

Particle Size in Inches	Allowable
> 0.039"	35% Max.
< 0.039 - \geq 0.01	50% Min.
< 0.01	0.5% Max.

The filter pack shall be tremied into the annulus to a depth of 2 feet above the screened area.

Following the filter pack, a two foot layer of fine sand (mason) shall be applied via tremie. If the zone is saturated, two feet of 10% hydrated bentonite shall be tremied, followed by 90/10 grout to the surface. An elevation data marker shall be placed in the grout at the surface as a reference point. If the zone is unsaturated, the bentonite seal will be omitted.

The well point casing will be allowed to extend a minimum of 18" above ground surface and shall be equipped with a locking cap. Because the well points are being installed as

temporary fixtures, no protective casing will be installed. Each well point will be flagged with safety orange. The wells shall be surveyed with longitude and latitude reported along with elevation above sea level (± 0.01 ft.).

The following boring/well construction log information will be included where applicable:

- o Well identification #;
- o Date/Time of well construction;
- o Borehole diameter and well casing diameter;
- o Well depth ± 0.01 ft.;
- o Casing length;
- o Casing materials;
- o Casing and screen joint type;
- o Screened interval(s);
- o Screen materials;
- o Screen slot size/design;
- o Filter pack material and size;
- o Calculated and actual filter pack volume;
- o Filter pack placement method;
- o Annular sealant composition;
- o Annular sealant placement method;
- o Calculated and actual annular sealant volume;
- o Surface sealant composition;

- o Surface seal placement method;
- o Calculated and actual surface sealant volume;
- o Surface seal design;
- o Well development procedure;
- o Turbidity measurement
- o Type/design of protective casing;
- o Well cap and lock;
- o Ground surface elevation (± 0.01 ft.);
- o Survey reference point elevation on well casing (± 0.01 ft.);
- o Top of monitoring well casing elevation (± 0.01 ft.);
- o Top of protective steel casing elevation (± 0.01 ft.);

2.0 Well Development

Prior to well development, water depth will be determined to ± 0.01 ft. Following completion, each well point shall be developed by pumping and/or bailing, as deemed most appropriate. The well points will be developed until a turbidity of < 5 NTU's is achieved. As a minimum, the well points will be allowed to completely recharge prior to purging.

3.0 Purging

The object of purging shall be to remove five well volumes at a rate similar to the recharge

rate in order that turbidity effects are minimized. The following steps shall be used:

1. Establish the water depth and well depth to ± 0.01 ft.
2. Remove liquid from the surface and bottom hole to determine whether organic phases exist.
3. Determine pH, temperature, conductivity and turbidity prior to purging the well.
4. Remove five well volumes at a rate of 0.2 to 0.3 liter/min. utilizing a peristaltic pump if ground water is within 28 feet of surface. Alternately, if groundwater is deeper, purging may be accomplished by means of a centrifuged pump, bladder pump or bailer. (Purging by bailer must be done with caution so as not to disturb the well filter pack).
5. After removing 5 well volumes pH, temperature, conductivity and turbidity must be determined twice within 20 minutes. These data points should be $\pm 10\%$ and further, the turbidity must be < 5 NTU's. If turbidity is not < 5 NTU's, remove additional well volumes as necessary.

In the event the well is purged dry, the following protocol should be followed:

1. Allow the well to recover.
2. If the well has not fully recovered within two hours but has sufficient water for testing then:
 - a. Test the well for pH, temperature, conductivity and turbidity.

- b. Test the well again within 20 minutes for the same parameters.
 - c. Collect samples as outlined in the sample collection process.
3. If pH, temperature and conductivity are not $\pm 10\%$ and /or turbidity is > 5 NTU and if data reflect elevated levels of any pollutant of concern, consider repurging and sampling the well.

4.0 Sampling

Sampling should commence as soon as the well recovers but no later than two hours after purging is completed. Samples shall be collected utilizing disposable teflon bailers. Analytical parameters shall include the TAL of inorganics and the TCL list of organics excluding pesticides and PCBs.

Samples collected for metals analysis shall be preserved with nitric acid to a pH of < 2 and stored in polyethylene containers. VOA samples shall be collected in duplicate in 40 ml vials preserved with hydrochloric acid to a pH of < 2 . VOA samples must contain no air bubbles. Semivolatile samples shall be collected in one liter amber glass containers with teflon-lined closures. Three replicates of samples shall be collected at one designated well for QA/QC analysis.

5.0 Analytical Protocol

All analyses will conform to the methodologies outlined in EPA/SW846 current addition.

6.0 QA/QC

One equipment blank , one matrix spike (MS) and one matrix spike duplicate (MSD) shall be analyzed for each event. One trip blank for VOA only shall be analyzed for each sampling event.

6.1 Trip Blank (Volatile)

Trip blank (volatile) duplicate samples shall be prepared in the laboratory utilizing deionized water and bottles from the batches to be used in the field collection and decontamination procedures. The trip blank will be taken to the field and returned to the laboratory in the same environment as the samples.

6.2 Equipment Blank (Rinsate Blank)

Following decontamination of the drilling equipment, carefully transfer about two liters of analyte-free deionized water to a new disposable teflon bailer. Allow the contents of the bailer to drain over a piece of the decontaminated hollow stem into an analyte-free stainless steel bowl. Transfer the rinsate water to appropriate sample containers. Label and archive the rinsate blank as outlined.

7.0 Sample Archival

Following sample collection, affix a completed label to each container. Cover the label with clear tape to protect from moisture. Place the sample bottle in a zip-lock and wrap the container in bubble wrap. Write the sample ID number on the outside of the bubble wrap with a permanent marker, then secure the bubble-wrapped container with clear tape.

8.0 Decontamination and Residuals Management

Borehole cuttings will be left in place at the well site unless OVA readings indicate gross contamination. In the event gross contamination is encountered, cuttings will be drummed on site and analyzed for disposal.

Well development, purge and decontamination water will be placed in the Hercules treatment facility for disposal.

The hollow stem, drill rod, and associated tools will be decontaminated before each well point is advanced. The procedure shall be as follows:

1. Pressure wash with steam and potable water.
2. Brush with phosphate-free detergent to remove any additional debris.
3. Pressure wash with steam and potable water.
4. Rinse with analyte-free water.

9.0 Health And Safety

1. All personnel shall have received 40 Hours of OSHA training and shall have current up-date training.
2. Hercules Inc. shall provide any additional safety briefings deemed appropriate for the scope of this project.
3. During boring, developing and purging operations, FID readings shall be recorded to ensure that a safe environment is maintained.
4. Elevated (> 50 ppm) FID readings shall mandate respiratory protection, cease and desist operations, and re-evaluation by project director, project supervisor, project health and safety officers, and Hercules personnel.
5. Any injuries or potentially unsafe conditions shall be reported immediately to the health and safety officer and then to the project supervisor and project director.

10.0 Personnel

Project Director - Michael S. Bonner, Ph.D.

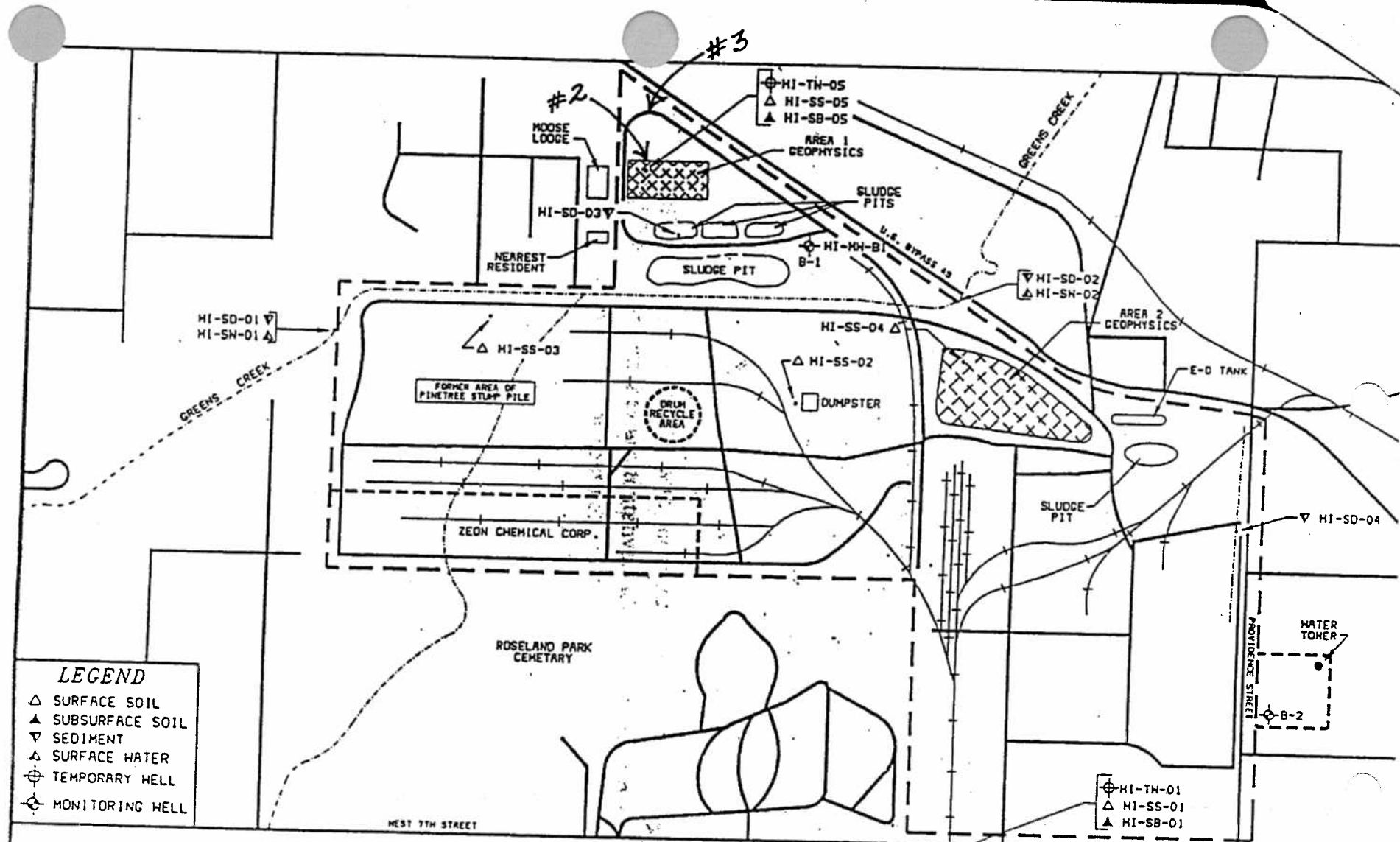
Project Supervisor - Joseph Powers

Health and Safety Officer - David Carter

Hercules, Inc. Contact - Charles Jordan, Environmental Supervisor

11.0 Well Point Abandonment

Assuming that the well points are found to be free of analytes of concern , the well points shall be abandoned by then cutting the rises off at ground level and filling the casing with 90/10 grout to surface. Calculated and actual grout used will be recorded to ensure that the wells are properly sealed.



LEGEND

- △ SURFACE SOIL
- ▲ SUBSURFACE SOIL
- ▽ SEDIMENT
- △ SURFACE WATER
- ⊕ TEMPORARY WELL
- ⊕ MONITORING WELL

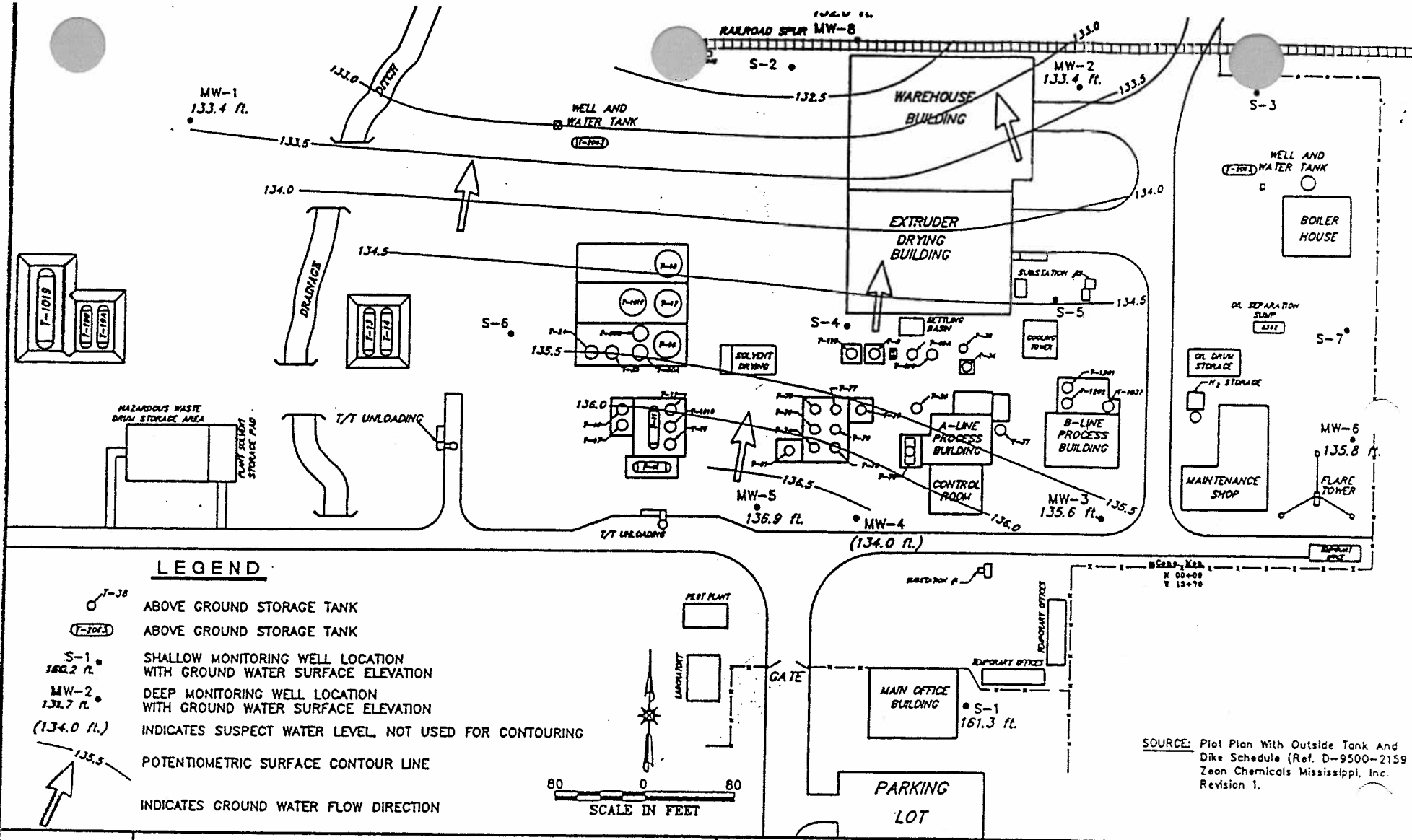
NOT TO SCALE



SAMPLE LOCATION MAP

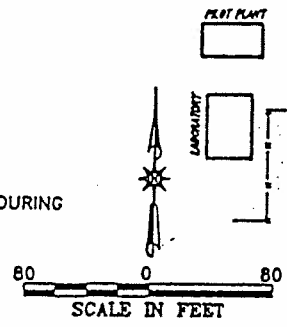
HATTIESBURG, MISSISSIPPI
HERCULES, INC.
FORREST COUNTY, MISSISSIPPI

FIGURE 13



LEGEND

- T-38 ABOVE GROUND STORAGE TANK
- T-1013 ABOVE GROUND STORAGE TANK
- S-1 160.2 ft. SHALLOW MONITORING WELL LOCATION WITH GROUND WATER SURFACE ELEVATION
- MW-2 132.7 ft. DEEP MONITORING WELL LOCATION WITH GROUND WATER SURFACE ELEVATION
- (134.0 ft.) INDICATES SUSPECT WATER LEVEL, NOT USED FOR CONTOURING
- 133.5 POTENTIOMETRIC SURFACE CONTOUR LINE
- INDICATES GROUND WATER FLOW DIRECTION



SOURCE: Plot Plan With Outside Tank And Dike Schedule (Ref. D-9500-2159 Zeon Chemicals Mississippi, Inc. Revision 1.

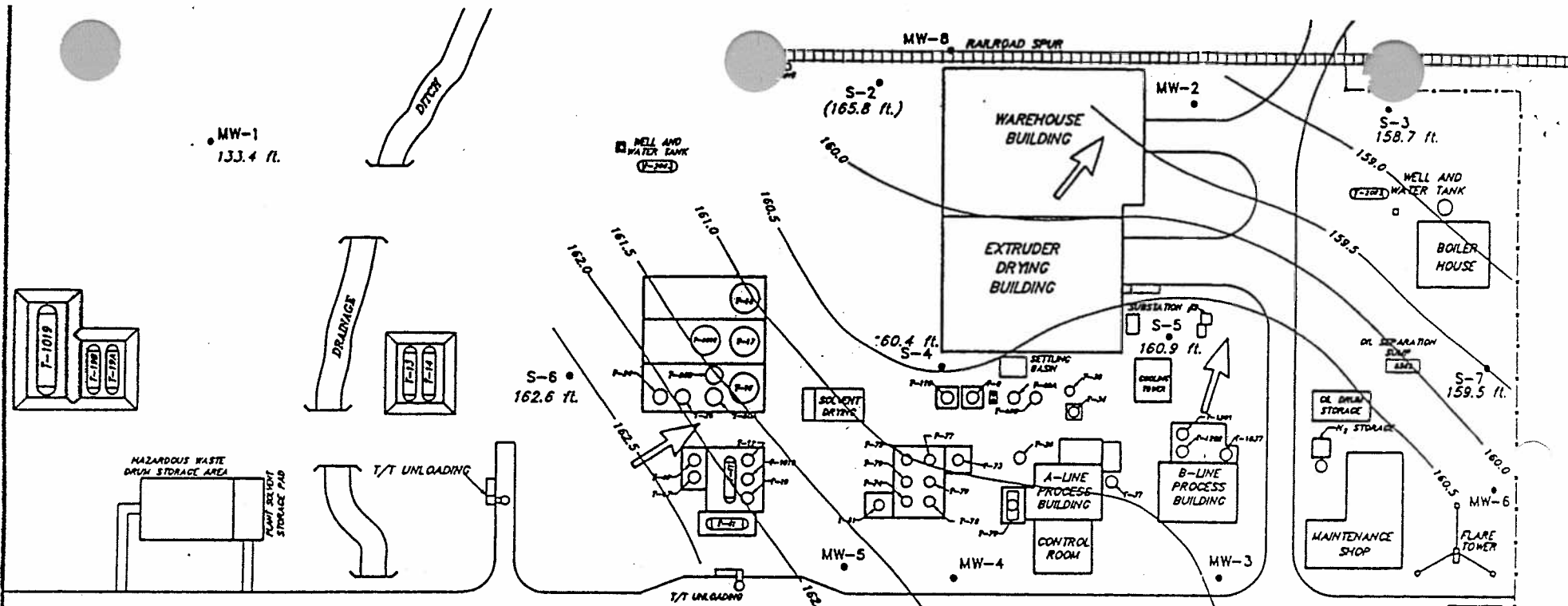
MALCOLM PIRNIE

**ZEON CHEMICALS MISSISSIPPI, INC.
HATTIESBURG, MISSISSIPPI**

**DIRECTION OF GROUND WATER FLOW
IN DEEP AQUIFER - DECEMBER 1991**

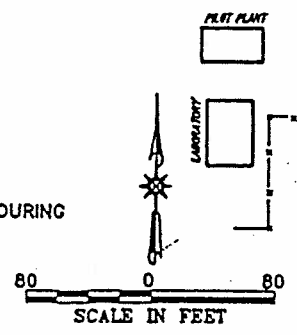
**MALCOLM PIRNIE, INC.
FIGURE 3-4**

14-011000VA1-058 SCALE: 1:488



LEGEND

- T-38 ABOVE GROUND STORAGE TANK
- T-204.3 ABOVE GROUND STORAGE TANK
- S-1 161.3 ft. SHALLOW MONITORING WELL LOCATION WITH GROUND WATER SURFACE ELEVATION
- MW-2 131.7 ft. DEEP MONITORING WELL LOCATION WITH GROUND WATER SURFACE ELEVATION
- (131.6 ft.) INDICATES SUSPECT WATER LEVEL, NOT USED FOR CONTOURING
- WATER TABLE CONTOUR LINE
- INDICATES GROUND WATER FLOW DIRECTION



REVISION No. 1
 X 05+09
 Y 13+70

SOURCE: Plot Plan With Outside Tank And Dike Schedule (Ref. D-9500-21591) Zeon Chemicals Mississippi, Inc. Revision 1.

**MALCOLM
PIRNIE**

**ZEON CHEMICALS MISSISSIPPI, INC.
HATTIESBURG, MISSISSIPPI**

**DIRECTION OF GROUND WATER FLOW
IN SHALLOW SATURATED ZONE - DECEMBER 1991**

**MALCOLM PIRNIE, INC.
FIGURE 3-C**