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# ADEM

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July 22, 1999

D. Karen Knight, CHMM
OSC
USEPA Region IV
Waste Management Division
61 Forsyth Street, S.W.
Atlanta, Georgia 30303-3104

RE: Center Star Manufacturing
Oxford, Alabama

Karen, here is the information that you requested. A complete report will be FED EX'd today as the complete Bhate report is approximately 50 pages. Please call me at (334)271-7994 if you need any further information.

Sincerely,

Larry

Lawrence A. Norris
Hazardous Waste Branch
ADEM

10 pages to follow.

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## 1.0 BACKGROUND AND SCOPE

The subject site is located in the southwest ¼ of Section 30, Township 16 South, Range 8 East in Oxford, Calhoun County, Alabama (Figure 1). More specifically, the site is located at 207 West Hamric Drive, Oxford, Alabama. The site consists of 5.1 acres of land developed with Center Star Manufacturing, a textile manufacturer. A Phase I Environmental Site Assessment (ESA), dated March 16, 1998, was conducted by Bhate.

Among other concerns, the Phase I ESA recommended assessment activities to determine the potential for contamination from on-site and off-site sources. An unregistered underground storage tank is located west of the subject property, in a contractor's yard. Hagar Hinge, located south of the site across Highway 78, has documented volatile organic compound (VOC) releases. During two investigations of Hagar Hinge, dated August 25, 1995 and July 19, 1996, soil and groundwater contamination were discovered in the form of Trichloroethylene (TCE).

The facility ceased operations several years ago and is in bankruptcy. First Commercial Bank has requested Phase II sampling activities to assess potential environmental liability that may be incurred if they proceed with foreclosure.

The scope of work consisted of installing seven (7) temporary monitoring wells, using a Geoprobe Sampling System. All temporary monitoring wells were installed to depths at which further advancement of the probe was refused.

Two (2) wells were installed along the west boundary of the site, near the location of the unregistered UST. One (1) groundwater sample was collected from each. The samples were taken from the top of the water column and analyzed for Benzene, Toluene, Ethylbenzene and Xylenes (BTEX), by EPA Method 602.

Three (3) temporary monitoring wells were installed south of the subject building, along Highway 78. Two (2) groundwater samples were collected from each of those wells. The samples were collected from the upper and lower portions of the water column and analyzed for volatile organic compounds (VOC), by EPA Method 8260B.

One (1) temporary well each was installed inside the building near a former dye pit and north of the building in an expected upgradient location. One (1) groundwater sample was collected from each of these wells for VOC analysis.

## 2.0 FIELD ACTIVITIES

On June 29 and 30, 1998, Bhate personnel installed five (5) temporary monitoring wells (TMW-1 through TMW-5). TMW-1, TMW-2 and TMW-3 were installed along Highway 78, across from the Hagar Hinge facility. TMW-4 and TMW-5 were installed along the western property line, adjacent to the unregistered UST. Two (2) additional temporary wells were installed on August 5, 1998. TMW-7 was installed inside the building near a former dye pit and TMW-6 was located in the parking lot north of the building in an expected upgradient location. The temporary monitoring well locations are shown on Figure 2.

The wells were installed, using a Geoprobe Direct Push System. No soil samples were collected. The wells consisted of three-quarter (3/4) inch diameter Schedule 40 PVC casing, with well screen (0.01-inch factory slotted) attached. Well construction data are summarized in Table 1.

Groundwater samples were collected on July 2, and August 6, 1998 using a stainless steel bailer. Prior to collecting samples, each well was purged. This process was continued, until approximately three (3) well volumes of water were removed or until the well was dry. All groundwater samples were placed in labeled 40 ml vials with septum lids.

All drilling and sampling equipment were decontaminated, prior to mobilization to the site. All downhole equipment was decontaminated between each sampling location, using a laboratory grade detergent with a tap water and distilled water rinses.

Two (2) groundwater samples (upper and lower water column) were collected from each of the temporary monitoring wells TMW-1, TMW-2 and TMW-3. The "upper" groundwater sample was collected from the top of the water column and the "lower" groundwater sample was collected from the bottom of the water column in each well (Table 1). One (1) groundwater sample was collected from the top of the water column in TMW-4 and TMW-5. One (1) groundwater sample was also collected from the bottom of the water column in wells TMW-4, TMW-6 and TMW-7. All samples were placed in an insulated cooler on ice and delivered, with relevant chain-of-custody records, to Specialized Assays, Inc. for laboratory analyses.

## 3.0 AQUIFER CHARACTERIZATION

Water levels were measured in each temporary monitoring well on August 6, 1998. The depths to water ranged from about 7 feet to 28 feet beneath the surface. Since water levels rose considerably after well installation, it is likely the shallow aquifer exists under confined to semi-confined conditions. Water level measurements are summarized in Table 2.

The relative elevations of the top of casing for each well were determined by Bhate using a transit/level and survey rod. Relative elevations were referenced to a benchmark with an assigned elevation of 100.00 feet. The water level measurements were used to calculate relative groundwater elevations. These were used to develop a potentiometric surface map (Figure 3). Interpretation of the water table contour map indicates the direction of groundwater movement in the uppermost aquifer is to the south.

## 4.0 LABORATORY ANALYSIS

Groundwater samples collected from temporary wells TMW-1, TMW-2 and TMW-3, on July 2, 1998, were analyzed for VOCs by EPA Method 8260B. The laboratory analytical data indicated that the sample collected from the upper portion of TMW-1 contained Tetrachloroethene (26.9 ppb). The sample collected from the lower portion of TMW-1 also contained Tetrachloroethene (19,700 ppb). All other VOC compounds were reported as Below Method Detection Limits (BDL), for both samples collected from TMW-1. The laboratory results from the sample collected from the upper portion of TMW-2 were reported as BDL for all VOC compounds.

The groundwater sample collected from the lower portion of TMW-2 contained concentrations of cis-1,2-Dichloroethene (48.9 ppb), Tetrachloroethene (94.5 ppb), TCE (13.7 ppb) and Vinyl Chloride (3.3 ppb). The laboratory results from the sample collected from the upper portion of TMW-3 reportedly contained cis-1,2-Dichloroethene (35.9 ppb), Tetrachloroethene (72.1 ppb), 1,2,3-Trichlorobenzene (9.5 ppb), 1,2,4-Trichlorobenzene (6.2 ppb) and TCE (9.7 ppb). The sample collected from the lower portion of TMW-3 reportedly contained cis-1,2-Dichloroethene (36.5 ppb), Tetrachloroethene (67.9 ppb), 1,2,3-Trichlorobenzene (3.9 ppb), 1,2,4-Trichlorobenzene (2 ppb) and TCE (9.3 ppb).

Groundwater samples were also collected from TMW-4, and new temporary wells TMW-6, and TMW-7 on August 5, 1998. VOCs were not detected in groundwater sampled from TMW-4 and TMW-6. The sample collected from TMW-7, located next to the dye pit, contained tetrachloroethene at a concentration of 47,200 ppb and TCE at 37 ppb. These compounds have a maximum contaminant level (MCL) of 5 ppb. Other VOCs were detected in the sample but at concentrations below the respective MCLs. Laboratory reports for the groundwater samples are provided in Appendix A. A summary of the groundwater analytical data, along with applicable MCLs is included in Table 2.

Groundwater collected from temporary wells TMW-4 and TMW-5, located near the unregistered UST, were analyzed for BTEX by EPA Method 602. The laboratory analytical results indicate that the samples collected from TMW-4 and TMW-5 were reported as BDL for all BTEX components. A summary of the groundwater analytical data, along with MCLs, is included in Table 2.

Interpretation of the analytical results indicates that the highest VOC concentrations were detected in groundwater sampled from TMW-7, located near the former dye pit. VOCs were not detected in two (2) wells located upgradient from TMW-7. VOCs were detected at lesser concentrations in three (3) wells located downgradient of TMW-7. This indicates the likely source of VOCs is beneath the building near TMW-7. The elevated concentrations of Tetrachloroethene indicate dense non-aqueous phase liquid (DNAPL) may be present in the aquifer.

Contaminants may be migrating off site to the south. Currently the lateral and vertical extent of groundwater contamination and the VOC source is unknown.

## 5.0 CONCLUSIONS AND RECOMMENDATIONS

Concentrations of Tetrachloroethene, Trichloroethene and Vinyl Chloride were detected in site groundwater samples at levels above the applicable ADEM MCLs. Tetrachloroethene was found in temporary well TMW-1 (upper and lower samples), TMW-2 (lower sample ), TMW-3 (upper and lower sample) and TMW-7. Trichloroethylene was detected in monitoring well TMW-2 (lower sample), TMW-3 (upper and lower sample) and TMW-7. Vinyl Chloride was present in TMW-2 (lower sample). Other VOCs were present at concentrations less than the respective MCLs. Based on the VOC distribution and direction of groundwater movement, the VOC plume appears to originate beneath the Center Star Manufacturing site.

The site owner or operator is required to report the suspected release, according to CERCLA Regulations and the Alabama Water Pollution Control Act. It is recommended that First Commercial provide the property owner with a copy of this report. After the property owner notifies ADEM of the suspected release, First Commercial should enter into negotiations with ADEM to determine requirements for the site before foreclosing on the property.

## 6.0 CLOSING REMARKS

This report has been prepared on behalf of First Commercial Bank, for specific application to the subject site. The information presented in this report is based solely on information provided by First Commercial Bank, on information obtained during sampling, and on the results of specific laboratory analysis.

Future environmental conditions at the subject site can change, subject to future operational conditions and land usage. Changes in surrounding land use, groundwater fluctuations, geologic conditions and/or other factors may also result in altered environmental conditions. The opinions and findings of this report represent those conditions apparent at the times and dates the investigation was conducted.

This investigation was conducted in accordance with current Alabama Department of Environmental Management regulations and industry practice. No other warranties are implied or expressed.

TABLE 1
WELL CONSTRUCTION DATA
CENTER STAR MANUFACTURING
207 WEST HAMRIC DRIVE
OXFORD, ALABAMA
BEI PROJECT NO.: 3980045

| Well ID # | Date Installed | Screen Interval (ft) | Total Depth (ft) |
|---|---|---|---|
| TMW-1 | 6/29/98 | 35 - 40 | 40 |
| TMW-2 | 6/30/98 | 10 - 15; 30 - 35 | 35 |
| TMW-3 | 6/30/98 | 5 - 15; 25 - 30 | 30 |
| TMW-4 | 6/30/98 | 5 - 15; 25 - 30 | 30 |
| TMW-5 | 6/30/98 | 3 - 18 | 18 |
| TMW-6 | 8/5/98 | 24-39 | 39 |
| TMW-7 | 8/5/98 | 32-42 | 42 |
| Well locations are shown on Figure 2. | | | |

TABLE 2
WATER LEVEL MEASUREMENTS
CENTER STAR MANUFACTURING
OXFORD, ALABAMA
BEI PROJECT NO.: 3980045

| Well I.D. | Measurement Date | Top of Casing Elevation (feet) | Depth to Groundwater' (feet) | Total Depth (feet) | Groundwater Elevation (feet) |
|---|---|---|---|---|---|
| TMW-1 | 8/6/98 | 71.55 | 7.08 | 39.89 | 64.47 |
| TMW-2 | 8/6/98 | NA | NA | NA | NA |
| TMW-3 | 8/6/98 | 77.88 | 11.85 | 29.87 | 66.03 |
| TMW-4 | 8/6/98 | 86.56 | 10.01 | 18.37 | 76.55 |
| TMW-5 | 8/6/98 | 97.37 | 13.77 | 29.28 | 83.6 |
| TMW-6 | 8/6/98 | 94.08 | 9.69 | 39.64 | 84.39 |
| TMW-7 | 8/6/98 | 93.39 | 28.8 | 42.4 | 64.59 |

NA = Well could not be located on 8/6/98

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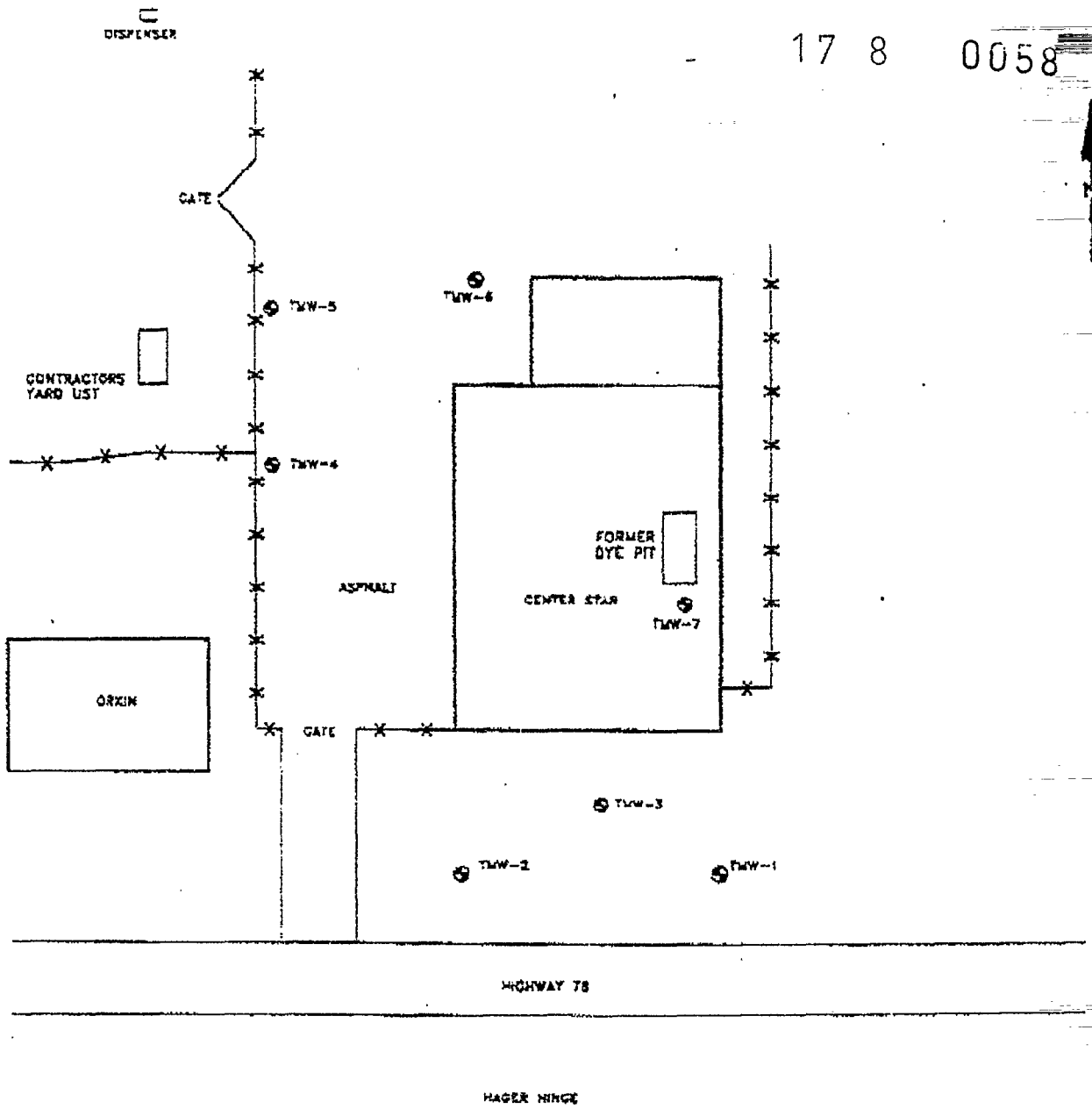


LEGEND

TEMPORARY MONITORING WELL LOCATION

NOTE: This information is depicted to provide visual aid within the context of this report and should not be used as a sole reference in precise dimensioning of features indicated.

Bhate Environmental, Inc.
Environmental Engineers & Scientists

SITE MAP

| PROJECT NO. | SCALE | DATE | DRAWN BY: JNC |
|---|---|---|---|
| 3980045 | NTS | 4/16/98 | DRAWING NO: F-1 |

Phase II Assessment
Center Star Manufacturing
207 West Hamric Drive
Oxford, Alabama

Figure 2

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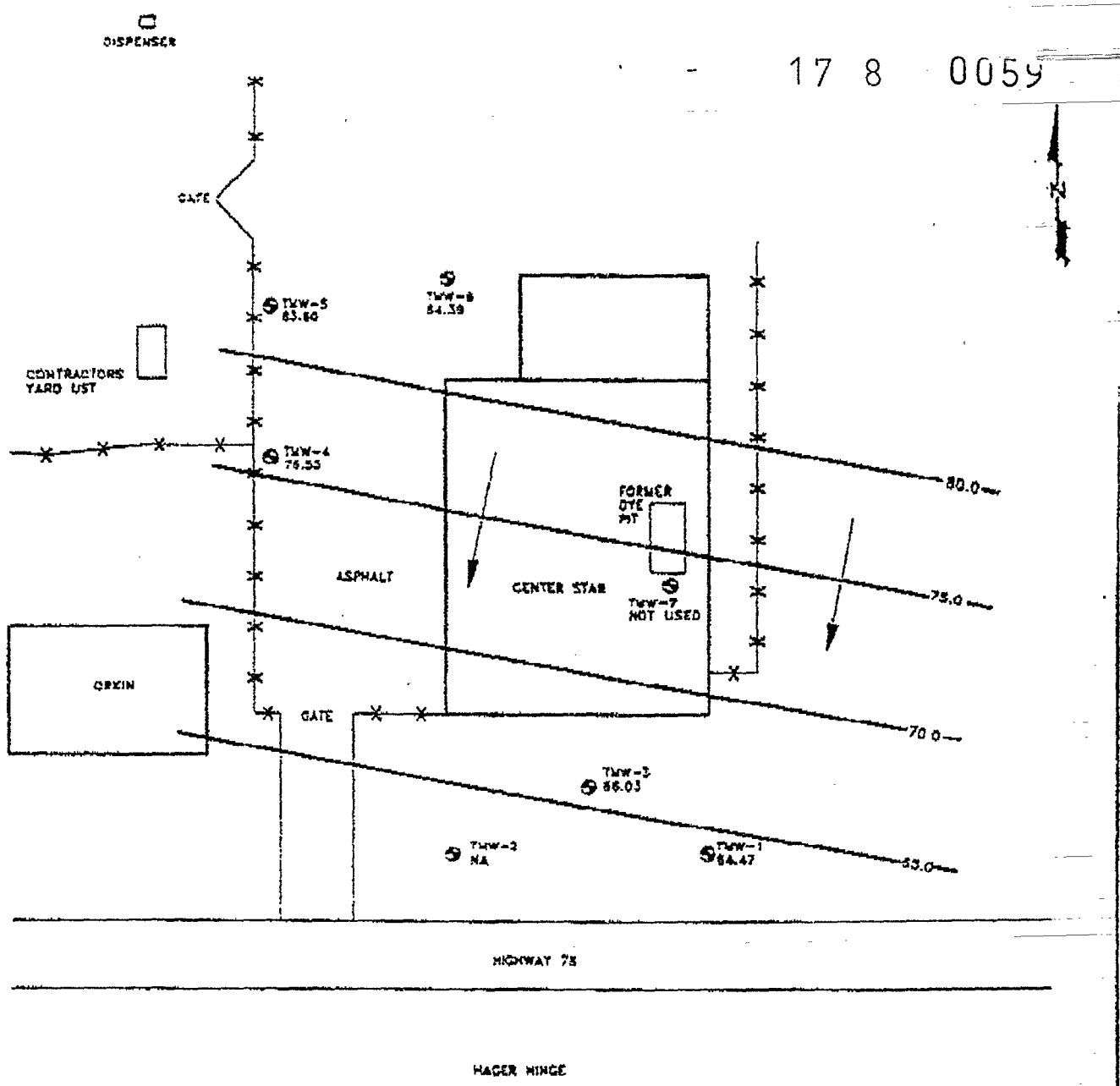


LEGEND

| | |
|---|---|
| ⊗ | TEMPORARY MONITORING WELL LOCATION |
| 84.47 | GROUNDWATER ELEVATION MEASURED ON 8/6/98 |
| ——→ | DIRECTION OF GROUNDWATER MOVEMENT |

NOTE: This information is depicted to provide visual aid within the context of this report and should not be used as a sole reference in precise dimensioning of features indicated.

Bhate Environmental, Inc.
Environmental Engineers & Scientists

POTENTIOMETRIC SURFACE MAP

| PROJECT NO. | SCALE | DATE | DRAWN BY: JNG |
|---|---|---|---|
| 3980045 | NTS | 4/15/98 | DRAWING NO: WATERTBL |

Phase II Assessment
Center Star Manufacturing
207 West Hamric Drive
Oxford, Alabama

Figure 3

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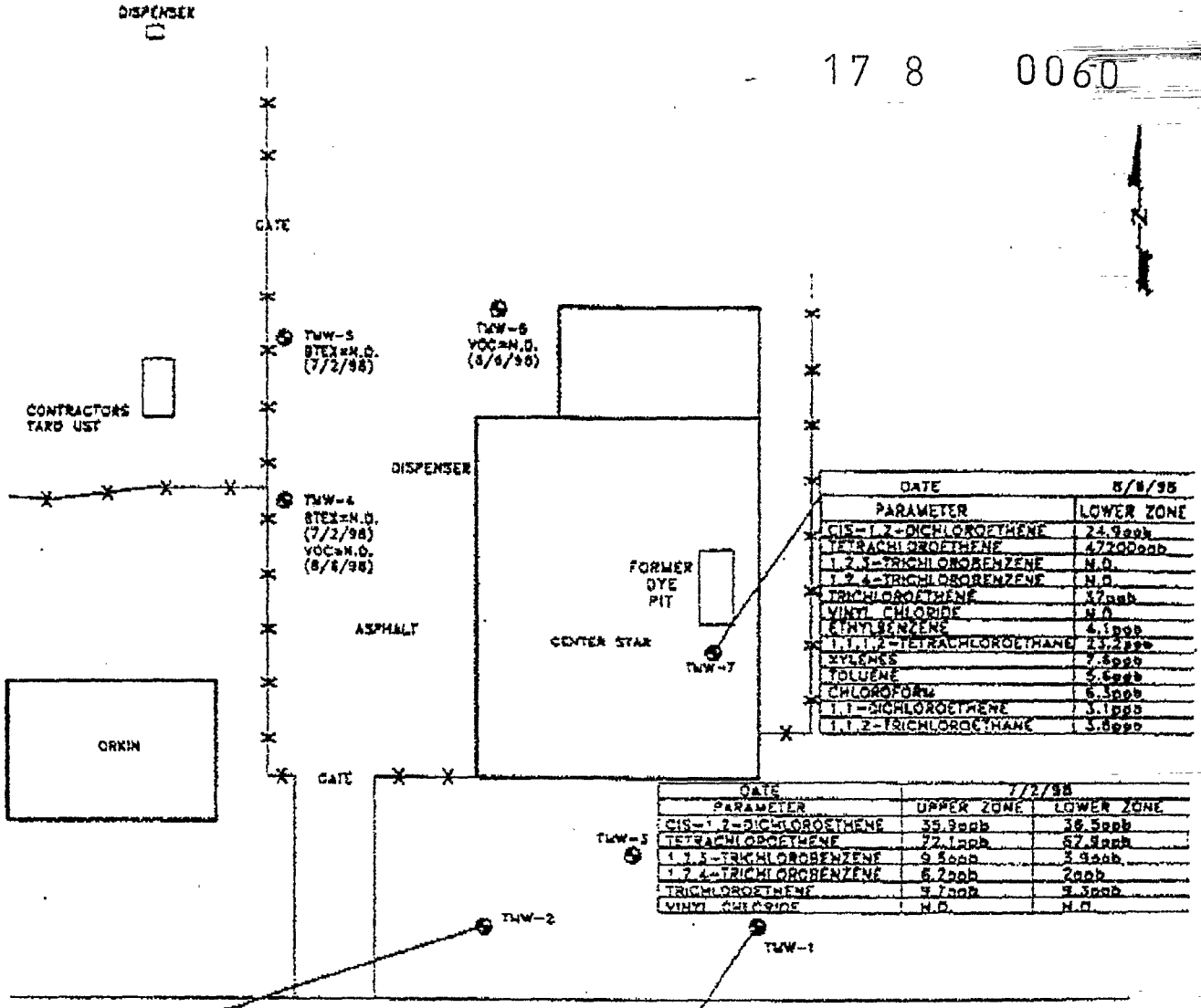


| DATE | 8/6/98 |
|---|---|
| PARAMETER | LOWER ZONE |
| CIS-1,2-DICHLOROETHENE | 24.9ppb |
| TETRACHLOROETHENE | 4720ppb |
| 1,2,3-TRICHLOROBENZENE | N.D. |
| 1,2,4-TRICHLOROBENZENE | N.D. |
| TRICHLOROETHENE | 37ppb |
| VINYL CHLORIDE | N.D. |
| ETHYLBENZENE | 4.1ppb |
| 1,1,1,2-TETRACHLOROETHANE | 23.2ppb |
| XYLENES | 7.8ppb |
| TOLUENE | 5.6ppb |
| CHLOROFORM | 6.3ppb |
| 1,1-DICHLOROETHENE | 3.1ppb |
| 1,1,2-TRICHLOROETHANE | 3.8ppb |

| DATE | 7/2/98 | |
|---|---|---|
| PARAMETER | UPPER ZONE | LOWER ZONE |
| CIS-1,2-DICHLOROETHENE | 35.9ppb | 38.5ppb |
| TETRACHLOROETHENE | 72.1ppb | 67.8ppb |
| 1,2,3-TRICHLOROBENZENE | 9.5ppb | 3.9ppb |
| 1,2,4-TRICHLOROBENZENE | 6.2ppb | 2ppb |
| TRICHLOROETHENE | 9.7ppb | 9.3ppb |
| VINYL CHLORIDE | N.D. | N.D. |

| DATE | 7/2/98 | |
|---|---|---|
| PARAMETER | UPPER ZONE | LOWER ZONE |
| CIS-1,2-DICHLOROETHENE | N.D. | 48.9ppb |
| TETRACHLOROETHENE | N.D. | 94.3ppb |
| 1,2,3-TRICHLOROBENZENE | N.D. | N.D. |
| 1,2,4-TRICHLOROBENZENE | N.D. | N.D. |
| TRICHLOROETHENE | N.D. | 13.7ppb |
| VINYL CHLORIDE | N.D. | 5.3ppb |

HAGER HINGE

| DATE | 7/2/98 | |
|---|---|---|
| PARAMETER | UPPER ZONE | LOWER ZONE |
| CIS-1,2-DICHLOROETHENE | N.D. | N.D. |
| TETRACHLOROETHENE | 26.9ppb | 19,700ppb |
| 1,2,3-TRICHLOROBENZENE | N.D. | N.D. |
| 1,2,4-TRICHLOROBENZENE | N.D. | N.D. |
| TRICHLOROETHENE | N.D. | N.D. |
| VINYL CHLORIDE | N.D. | N.D. |

LEGEND

- TEMPORARY MONITORING WELL LOCATION
- N.D. NOT DETECTED
- ppb PARTS PER BILLION

NOTE: This information is depicted to provide visual aid within the context of this report and should not be used as a sole reference in precise dimensioning of features indicated.

Bhate Environmental, Inc.
Environmental Engineers & Scientists

ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES

| PROJECT NO. | SCALE | DATE | DRAWN BY: JNG |
|---|---|---|---|
| 3980045 | NTS | 4/16/98 | DRAWING NO. F-3NEW |

Phase II Assessment
Center Star Manufacturing
207 West Hamric Drive
Oxford, Alabama

Figure 4

TABLE 3
GROUNDWATER ANALYTICAL DATA
CENTER STAR MANUFACTURING
207 WEST HAMRIC DRIVE
OXFORD, ALABAMA
BEI PROJECT NO.: 3980045

| VOLATILE ORGANICS | MONITORING WELL ID# | | | | | | | | | | | MCL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TMW-1 | | TMW-2 | | TMW-3 | | TMW-4 | | TMW-5 | TMW-6 | TMW-7 | |
| | upper | lower | upper | lower | upper | lower | 7/2/98 | 8/5/98 | | | | |
| Benzene | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | 5 |
| Toluene | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | 5.6 | 1,000 |
| Ethylbenzene | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | 4.1 | 700 |
| Xylenes | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | BDL | 7.6 | 10,000 |
| cis-1,2,-Dichloroethene | BDL | BDL | BDL | 48.9 | 35.9 | 36.5 | NA | BDL | NA | BDL | 24.9 | 70 |
| PCE * Tetrachloroethene | 26.9 | 19,700 | BDL | 94.5 | 72.1 | 67.9 | NA | BDL | NA | BDL | 47,200 | 5 |
| 1,2,3-Trichlorobenzene | BDL | BDL | BDL | BDL | 9.5 | 3.9 | NA | BDL | NA | BDL | BDL | NE |
| 1,2,4-Trichlorobenzene | BDL | BDL | BDL | BDL | 6.2 | 2.0 | NA | BDL | NA | BDL | BDL | 70 |
| TCE * Trichloroethene | BDL | BDL | BDL | 13.7 | 9.7 | 9.3 | NA | BDL | NA | BDL | 37 | 5 |
| Vinyl Chloride | BDL | BDL | BDL | 3.3 | BDL | BDL | NA | BDL | NA | BDL | BDL | 2 |
| 1,1-Dichloroethene | BDL | BDL | BDL | BDL | BDL | BDL | NA | BDL | NA | BDL | 3.1 | 7 |
| 1,1,1,2-Tetrachloroethane | BDL | BDL | BDL | BDL | BDL | BDL | NA | BDL | NA | BDL | 23.2 | NE |
| 1,1,2-Trichloroethane | BDL | BDL | BDL | BDL | BDL | BDL | NA | BDL | NA | BDL | 3.8 | 5 |

All lab results are reported in parts-per-billion (ppb)
MCL = Maximum Contaminant Level (ADEM)
BDL = Below Method Detection Limit
NA = Not Analyzed
NE = Not Established

| | | RAL (PPB) µg/L | MCL |
|---|---|---|---|
| TETRA-CHLOROETHYLENE | PCE | 70 | 5 |
| 1,2-DICHLOROETHENE | DCE | 400 | 70 |
| TRICHLOROETHYLENE | TCE | 300 | 5 |