Ground Water Monitoring Report
Initial Eight Quarterly Events

Former Gulf States Creosoting Site
Hattiesburg, Mississippi

March 16, 2005

Project No. 21-04

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Executive Summary

Kerr-McGee Chemical, LLC (KMC) has conducted investigations and remediation at the former Gulf States Creosoting site in Hattiesburg, Mississippi since 1996. During that time, site ground water quality and conditions have been characterized through multiple phases of investigation, which have included the installation and sampling of 24 monitoring wells and over 30 temporary well points. The lateral extent of affected ground water has been fully delineated, and has been confirmed by eight quarterly monitoring events during which both affected wells and plume-defining wells have been sampled.

Two separate and distinct areas of ground water contamination have been identified: the former Process Area/northeast drainage ditch area and the Fill Area. The shallow geology beneath these areas is significantly different, and the shallow water-bearing zones beneath the two areas are not hydraulically connected. The two affected ground water zones are unused for any purpose in the Hattiesburg area. Furthermore, in 2002, the Hattiesburg City Council adopted an ordinance prohibiting the development and use of ground water resources within the City limits.

In 2003, KMC completed remedial measures that included the removal and offsite disposal of materials constituting potential sources of ground water contamination (i.e., free product or creosote-saturated soils). In addition, remedial measures included containment and control elements designed to either reduce the potential for migration of constituents via the ground water pathway or to preclude the potential for infiltration/percolation of water through affected soils left in place.

The results of the initial eight quarterly ground water monitoring events indicate that concentrations in both affected areas have reached either steady-state or declining conditions. Furthermore, a preliminary evaluation indicates that conditions are favorable for natural attenuation of ground water constituents. KMC proposes to conduct annual ground water monitoring to demonstrate that constituents are no longer migrating via the ground water pathway, and that natural attenuation of affected ground water is continuing to occur.

1.0 Introduction

This *Ground Water Monitoring Report* documents the results of ground water monitoring activities conducted at the former Gulf States Creosoting site in Hattiesburg, Mississippi from December 2001 through October 2003. Ground water monitoring was performed in accordance with the Mississippi Department of Environmental Quality (MDEQ)-approved *Ground Water Monitoring Plan* (Michael Pisani & Associates, June 25, 2001). This report is organized as follows:

- Section 1 includes background information on the site, a summary of previous ground water investigations, and information on the current ground water monitoring well network.
- Section 2 describes procedures for the collection, handling, and analysis of ground water samples.
- Section 3 presents the results from the initial eight quarterly sampling events, including potentiometric surface maps, tables summarizing analytical results, graphical charts, and a preliminary site-specific evaluation of monitored natural attenuation parameters.
- Section 4 presents proposed changes to the program for future ground water monitoring activities.

1.1 Site Description and Background

The former Gulf States Creosoting site is located in Hattiesburg, Mississippi near the intersection of U.S. Highways 49 and 11. The site is situated entirely within Section 16 of Township 4 North, Range 13 West, in Forrest County, Mississippi (Figure 1-1). Creosoting operations were conducted at the site between the early 1900s and approximately 1960. Wood treating operations were confined to a 2.5-acre area at the northeast corner of the site; this area is referred to as the former Process Area (see Figure 1-2).

The property was developed commercially beginning in approximately 1962. During the redevelopment of the site, fill materials containing creosote residuals were apparently placed in the southwestern portion of the site adjacent to Gordon's Creek; this area is referred to as the Fill Area. The original plant area is currently occupied by automobile dealerships, auto parts retailers, and other commercial operations (Figure 1-2).

1.2 Summary of Previous Ground Water Investigations

Ground water beneath the Gulf States Creosoting site has been studied extensively beginning in 1994. In 1994, Environmental Protection Systems (EPS) conducted a limited investigation of the former Process Area only, which included the installation of four ground water monitoring wells. From early 1997 through December 2001, Kerr-McGee Chemical, LLC (KMC) conducted ground water assessment activities during five different phases of investigation.

In February through April 1997, KMC conducted a Remedial Investigation (RI). The RI included detailed site-wide stratigraphic characterization, as well as the installation of four new monitoring wells. Water level data, ground water quality data, and aquifer characterization data were obtained from the four new wells and four existing wells.

In 1998, KMC conducted a Phase II RI. The Phase II RI included additional stratigraphic characterization, the collection of ground water samples from 13 temporary well points, the installation of eight new monitoring wells, and the collection of water level data and ground water quality data from the eight new wells and six of the existing wells.

In August and September 2000, KMC conducted additional site investigation activities. The additional activities included the collection of ground water samples from 18 temporary well points, the plugging and abandonment of three of the monitoring wells installed during the 1994 EPS investigation, the installation of two new monitoring wells, and the collection of water level data and ground water quality data from the two new wells and 13 existing wells.

In February and March 2001, KMC conducted additional site investigation activities. The additional activities included the collection of ground water samples from two temporary well points.

In June 2001, KMC submitted a *Ground Water Monitoring Plan* (GWMP) for the site. The plan included the installation of nine additional monitoring wells, with proposed locations based on the results of sampling from existing wells and temporary well points. LDEQ approved the GWMP, including the proposed monitoring well locations, in a letter dated July 17, 2001. The nine new monitoring wells were installed and developed in November and December 2001. Figure 1-3 depicts the locations of all monitoring wells in the existing monitoring network.

Major conclusions from these ground water investigations were:

- The shallow geology of the former Process Area and the Fill Area are significantly different. The shallow water bearing zones beneath the two areas are not hydraulically connected.
- Ground water flow within the sand channel beneath the former Process Area is eastward in the general direction of the Leaf River. Ground water flow continues in an easterly direction beneath the adjacent residential area. Ground water within the Fill Area sands flows toward Gordon's Creek and downstream along the creek. This provides further evidence that the shallow water bearing zones beneath the two areas are not hydraulically connected.
- Shallow ground water (i.e., ground water at depths less than 200 feet below land surface) is unused for any purpose in the Hattiesburg area. Furthermore, in 2001, the Hattiesburg City Council adopted an ordinance resolution prohibiting the development and use of ground water resources within the City limits.
- Ground water beneath the former Process Area has been impacted by historical creosoting operations. However, no free-phase DNAPLs are present in monitoring wells within the former Process Area. Affected ground water does not extend westward, southward, or northward from the former Process Area.

- Creosote constituents have migrated offsite to the east of the former Process Area via the ground water pathway. However, the number and concentrations of constituents decrease dramatically with distance from the former Process Area. The former Process Area plume extends to a maximum distance of 500 feet offsite.
- Historically, a ditch that flowed offsite to the east from the former Process Area (the northeast drainage ditch) may have conveyed process wastewater from wood treating operations. Ground water beneath and immediately adjacent to this ditch has been impacted by the vertical migration of constituents from the ditch itself. Affected ground water is confined to a narrow band beneath and adjacent to the ditch.
- Affected ground water beneath the Fill Area is generally confined to portions of the site where historical filling with impacted materials occurred. The area containing affected ground water extends northward from the Fill Area in a narrow band along the east bank of Gordon's Creek.

1.3 Source Area Remediation

In 2003, KMC completed the vast majority (i.e., over 95 percent) of site remediation specified in the MDEQ-approved *Final Remedial Action Work Plan* (MP&A, August 3, 2001) and *Removal Action Work Plan – Northeast Drainage Ditch* (MP&A, August 21, 2002). Each of these plans included the removal and offsite disposal of materials that constituted potential sources of ground water contamination (i.e., free product or creosote-saturated soils). In addition, each plan included containment and control elements designed to either reduce the potential for migration of constituents via the ground water pathway or to preclude the potential for infiltration/percolation of water through affected soils left in place.

Specifically, cleanup activities undertaken in part to address affected ground water included the following:

- Approximately 2,400 tons of affected material and associated liquids were removed from two subsurface features within the former Process Area (the concrete sump and wooden substructure). Solids were transported and disposed offsite at a permitted Subtitle C landfill. Liquids were transported to KMC's facility in Texarkana, Texas facility for reuse/recycle.
- Affected soils remaining in place within the former Process Area were capped with an impermeable composite liner and 4 inches of asphalt.
- Approximately 13,300 tons of affected soils and debris were removed from the northeast drainage ditch. These materials were transported and disposed offsite at permitted Subtitle C and Subtitle D landfills.
- Prior to the installation of culvert pipe in the former ditch, HDPE liner was installed above potentially-affected soils remaining in place.
- Approximately 800 tons of affected sediment, soils, and associated liquids were removed from Gordon's Creek adjacent to the Fill Area. Solids were transported and disposed offsite at a permitted Subtitle C landfill. Liquids were transported to KMC's facility in Columbus, Mississippi facility for reuse/recycle.

- A Waterloo Barrier System (i.e., interlocking sheet piling) was installed around the Fill Area to eliminate the potential for seepage of free product and affected ground water to Gordon's Creek. Geosynthetic Clay Liner (GCL) was installed above the Fill Area to reduce the potential for ground water mounding behind the sheet piling barrier.
- Monitoring and recovery wells were installed within the Fill Area containment cell to allow for the recovery of free product. Approximately 800 phreatophytic trees (i.e., hybrid poplars and black willows) were planted within the containment cell to uptake affected ground water.

These source removal/containment and control activities were all completed within the last 24 months, and their effects on reducing constituent concentrations in ground water will likely take time to observe. However, once source materials are removed and/or contained, monitored natural attenuation of ground water contamination typically becomes a viable ground water remedy.

2.0 Ground Water Monitoring Program

This section describes the ground water monitoring program for the site. Ground water sampling procedures are discussed in greater detail in Sections 3 and 4 of the GWMP.

2.1 Ground Water Monitoring Well Network

A network of 24 monitoring wells currently exists to monitor ground water quality and conditions beneath the site. Existing monitoring well locations are depicted on Figure 1-3. Well completion information is summarized in Table 2-1.

The rationale for the locations of the 24 existing monitoring wells is as follows:

- Wells MW-1R, MW-2R, and MW-4 were installed to monitor ground water beneath the former Process Area.
- Wells MW-06 through MW-09 and MW-16 through MW-22 were installed to monitor ground water downgradient of the former Process Area and/or ground water beneath and adjacent to the northeast drainage ditch.
- Wells MW-10 through MW-15 were installed to monitor ground water within and adjacent to the Fill Area.
- Wells MW-01, MW-03, MW-04, and MW-05 were installed to characterize ground water conditions on a site-wide basis.

2.2 Summary of Ground Water Monitoring Activities

The first quarterly ground water monitoring event was conducted shortly after the installation and development of wells MW-14 through MW-22, during the week of December 17, 2001. The remaining seven quarterly monitoring events were conducted during the weeks of March 18, 2002, June 3 and 10, 2002, September 16, 2002, December 16, 2002, March 24, 2003, June 23, 2003, and October 6, 2003. Activities undertaken during each event included:

- Recorded static water levels in all existing monitoring wells;
- Purged wells to facilitate the collection of representative ground water samples;
- Collected samples for laboratory analyses; and
- Analyzed samples for site constituents and biogeochemical parameters.

Ground water monitoring activities are described in further detail in the following subsections.

2.2.1 Sample Containers and Preservatives

Prior to each sampling event, clean, dedicated sample containers were provided by KMC's contract laboratory, Lancaster Laboratories of Lancaster, Pennsylvania. The laboratory added the appropriate type and volume of chemical preservative to each sample container prior to shipping. The appropriate container type, preservative, and prescribed holding time for each analysis are summarized in Table 3-1 of the GWMP.

2.2.2 Water Level Measurement and Well Purging

Prior to purging, the water level in each well was measured to the nearest 0.01 foot with an electronic water level indicator. Water level data were used in conjunction with surveyed top-of-casing data to determine ground water elevations, flow direction, and hydraulic gradient. A discussion regarding ground water flow beneath the site is presented in Section 3.1 of this report.

Prior to sampling, wells were purged with an adjustable-rate, low-flow submersible pump and disposable polyethylene tubing. When necessary, the pumping rate was adjusted so that the purge rate was equal to the recharge rate (i.e., little or no drawdown was induced in the well). During purging, a multiprobe meter with a flow-through cell was used to monitor field parameters (i.e., pH, Eh, specific conductance, temperature, and dissolved oxygen). The approximate volume of water removed during purging was measured and recorded. Well purging was considered complete when field indicator parameters had stabilized to within 10 percent of the mean for three consecutive readings and less than 0.1 meter of drawdown was induced.

2.2.3 Sample Collection and Handling

Once well purging was complete, ground water samples were collected with the low-flow pump and dedicated tubing. In accordance with US EPA-prescribed procedures, the intake for the tubing was placed at the approximate midpoint of the screened interval. Ground water was discharged directly from the tubing into clean, laboratory-supplied sample containers. Samples for analyses of biogeochemical analysis were collected first, followed by samples for PAH analysis. Samples were placed immediately on ice in insulated coolers. Strict chain-of-custody documentation was maintained during sample collection, transport, and laboratory analysis.

Samples were packaged in a manner that minimized the potential for leakage or breakage. Sample coolers were delivered to the analytical laboratory via overnight courier. The temperature of the samples was recorded upon receipt at the laboratory.

2.2.4 Chain-of-Custody Control

Chain-of-custody forms were utilized to document sample custody from collection through analysis. Custody forms contain the following information:

- Sample identification number;
- Sampler's printed name and signature;
- Date and time of sample collection;
- Sample matrix;
- Analyses requested;
- Chemical preservatives; and
- Signatures of individuals in possession of the samples at any time.

The sampler retained one copy of each chain-of-custody form. Two copies of each form were shipped to the laboratory inside the sample coolers. Chain-of-custody seals were placed on each cooler to prevent tampering with the samples. Samples remained in the physical possession of the sample custodian, in direct view of the sample custodian, or stored in a secured area at all times.

2.2.5 Analytical Program

Samples were analyzed for polycyclic aromatic hydrocarbons (PAHs) by SW-846 Method 8270 (initial quarterly event only) or SW-846 Method 8310 (during all subsequent events, to achieve lower detection limits). Samples were also analyzed for biogeochemical parameters in order to evaluate the viability of monitored natural attenuation (MNA) as a ground water remedy. Data obtained from these analyses will be used to document intrinsic remediation of ground water constituents and may, in the future, be utilized in the evaluation of solute fate and transport. Specific parameters for the analytical program are listed in Table 2-2.

3.0 Ground Water Monitoring Results

This section summarizes the results from the initial eight quarterly ground water monitoring events. Information on ground water flow, a summary of laboratory analytical results, and a preliminary site-specific evaluation of monitored natural attenuation are provided in the following subsections.

3.1 Ground Water Flow Assessment

Prior to sampling, water level measurements were recorded in all wells in the monitoring well network. Water level data were used in conjunction with surveyed top-of-casing data to determine ground water elevations. A summary of ground water elevation data is presented in Table 3-1.

Ground water elevation data were then contoured to determine ground water flow direction and gradient beneath the site. Figures 3-1 through 3-8 depict the potentiometric surface beneath the former Process Area and offsite areas during the first four quarterly events; the Fill Area potentiometric surface is shown on Figures 3-9 through 3-16.

The quarterly ground water elevation data are consistent with the data from previous ground water investigations at the site. The data indicate that the shallow water-bearing zones beneath the former Process Area and the Fill Area are not hydraulically connected. Ground water flow within the sand channel beneath the former Process Area is eastward in the general direction of the Leaf River, generally at an extremely flat gradient. Ground water flow continues in an easterly direction beneath the adjacent residential area. The shallow ground water system shows minimal seasonal variability in flow direction and gradient, with the average hydraulic gradient between MW-03 and MW-22 approximately 0.002 to 0.003 ft/ft.

Ground water within the Fill Area sands flows westward toward Gordon's Creek and downstream along the creek, also with minimal seasonal variability in flow direction and gradient. The average hydraulic gradient between MW-11 and the stream gauge (directly toward the stream) is 0.02 ft/ft and between MW-10 and MW-15 (downstream) is 0.003 ft/ft.

Figure 3-17 and 3-18 are charts depicting water level elevations over time in wells completed in the Process Area sand channel and Fill Area sands, respectively. The seasonal water level fluctuations track very closely from well to well. This is to be expected, given the relatively flat hydraulic gradients and homogeneous nature of both aquifers. The ground water elevation data demonstrate very little lateral movement of ground water, with most of the variation being "up and down" movement caused by seasonal fluctuations.

3.2 Ground Water Analytical Results

Ground water analytical results from the initial eight quarterly sampling events are summarized in Table 3-2. Due to their volume, laboratory reports are provided under separate cover. Consistent with previous ground water monitoring results, the number and concentrations of PAH compounds are highest in wells within areas where creosote and creosote residuals were handled and/or deposited (i.e., the former Process Area, the Fill Area, and the northeast drainage ditch). The number and concentrations of PAHs decrease dramatically with distance from these areas. Figure 3-18 shows the approximate extent of affected ground water in both the Fill Area and the former Process Area/northeast drainage ditch area.

Of the 21 wells sampled during the initial eight quarterly events, 10 wells contained target constituents. Naphthalene is the most prevalent PAH compound detected in site ground water, and is the only constituent reported at levels exceeding MDEQ Tier 1 Target Remediation Goals (TRGs) in wells located outside of historical source areas. This is to be expected, as naphthalene: 1) is the most abundant single constituent of coal tar (*The Merck Index*, 12th Edition, 1996); and 2) has the highest water solubility of any of the PAHs (31 milligrams per liter, or mg/L).

Charts showing naphthalene concentrations over time are provided in Appendix A. Initially, concentrations were plotted on a linear scale. Where necessary due to highly variable concentrations, concentrations were also plotted on a logarithmic scale. For comparative purposes, the MDEQ Tier 1 TRG for naphthalene (6.2 micrograms per liter, or µg/L) is shown on the graphs. However, as previously stated, shallow ground water in the Hattiesburg area is unused, and a City ordinance prohibits the development and use of ground water resources within the City limits.

In most wells, naphthalene concentrations were relatively consistent over the initial eight quarterly events (i.e., concentrations remained within the same order of magnitude). However, significant decreasing trends were identified in wells MW-1R, MW-12, MW-17, and MW-18. None of the wells showed significant increasing trends, nor were target constituents reported for the first time in any plume defining wells.

Should plume defining wells consistently exceed MDEQ Tier 1 TRGs, the Contingency Plan for the site calls for additional ground water assessment. During 2001-2003 ground water monitoring activities, naphthalene was detected at levels exceeding the MDEQ Tier 1 TRG (again, 6.2 µg/L) in two plume-defining wells, MW-14 and MW-18. The initial eight

monitoring events yielded the following naphthalene results for the two wells, reported in µg/L:

Date	MW-14	MW-18
December 2001	3J	470
March 2002	23	830
June 2002	10	170
September 2002	42	27
December 2002	6.2J	480
March 2003	ND	140
June 2003	ND	ND
October 2003	ND	13

J values represent estimated concentrations between the method detection limit (MDL) and the laboratory limit of quantitation (LOQ)

Naphthalene concentrations in samples collected from well MW-14 results during the last four sampling events did not exceed the Tier 1 TRG. MW-14 appears to be located immediately at the edge of the former Fill Area plume. The rapidly declining naphthalene concentrations in well MW-12, located just outside and downgradient of the Fill Area containment cell, indicates that the Waterloo Barrier System is beginning to achieve its desired effect (i.e., cutting off seeps and the migration of affected ground water). If this is the case, future naphthalene concentrations in MW-14 should continue to be below the Tier 1 TRG.

Naphthalene concentrations in samples from well MW-18 during the past year exhibited an overall downward trend. Furthermore, source removal activities conducted in the former Process Area are anticipated to result in continued attenuation of ground water constituents in the years to come.

For the above-stated reasons, KMC does not believe that additional ground water assessment activities in the vicinity of MW-14 and MW-18 are warranted at this time. Instead, KMC proposes to continue monitoring PAH concentrations in these wells. Should results indicate increasing concentration trends, KMC will submit a plan for additional site investigation activities.

3.3 Preliminary Natural Attenuation Evaluation

Ground water samples were analyzed for biogeochemical parameters in order to help evaluate the viability of monitored natural attenuation (MNA) as a ground water remedy. As discussed in the GWMP, KMC does not view MNA as a stand-alone ground water remedy. As previously stated, KMC has performed site remediation that includes source removal/ containment and control measures that address potential sources of affected ground water in the former Process Area, the Fill Area, and along the northeast drainage ditch. KMC does not view MNA to be a "no action" remedy, but rather an alternative that augments source

removal/control measures in helping to achieve remedial objectives that are protective of human health and the environment.

The biogeochemical results are presented with the PAH data in Tables 3-2. The first step in the natural attenuation evaluation process is to determine if conditions in the affected aquifers are favorable for natural attenuation to occur. A "line of evidence" for this demonstration is developed by evaluating and comparing values for biogeochemical indicator parameters in samples collected from wells within the plume to those in samples from wells outside the plume. Table 3-3 presents the results of such a comparison for the initial eight quarterly monitoring events.

According to the US EPA, trends that support occurrence of natural attenuation include the following:

- Dissolved oxygen concentrations below background;
- Nitrate concentrations below background;
- Iron (+2) concentrations above background;
- Sulfate concentrations below background; and
- Methane concentrations above background.

The results summarized in Table 3-3 indicate that, with the exception of MW-2R, most wells within the former Process Area/northeast drainage ditch plume showed strong evidence or positive trend analysis indicating natural attenuation. The evaluation was less meaningful for the Fill Area, as only a single well (MW-12) is located within the Fill Area plume. Overall, however, the data demonstrate that conditions are favorable for natural attenuation to occur.

4.0 Proposed Future Ground Water Monitoring Activities

This section presents proposed modifications to the ground water monitoring program.

4.1 Monitoring Frequency

The analytical results from the first eight quarterly monitoring events do not indicate rapid increases, or "spikes," in target constituent concentrations over the initial two-year monitoring period. Though water level elevation data do show seasonal fluctuations, no significant changes in ground water flow direction or gradient were observed from event to event. In addition, as noted in Section 3.2, target constituents were not reported for the first time in any plume defining wells during the initial eight quarterly monitoring events. For these reasons, KMC believes that annual ground water monitoring is sufficient to demonstrate that:

- Lateral migration of constituents via the ground water pathway is not occurring;
- Source removal/containment and control activities are achieving their desired effects; and
- Natural attenuation of constituents in ground water is occurring.

MP&A conducted a ground water sampling event in December 2004. From this point forward, KMC proposes conducting annual ground water monitoring in the fall (September through November) of each year. MDEQ will be notified of sampling a minimum of two weeks in advance of each annual event.

4.2 Monitoring Well Network

There are currently 24 monitoring wells onsite, not including those within the Fill Area containment cell. Of those wells, all but MW-01, MW-04, and MW-07 were sampled during the initial eight sampling events. Based on the analytical data and the ground water flow conditions, KMC proposes deleting from the program and plugging and abandonment of eight monitoring wells. These wells, and the rationale for plugging and abandonment, are as follows:

- **MW-01, MW-03, MW-04, MW-05 and MW-10** – All of these wells are upgradient of affected ground water, and no samples from any of these wells has historically contained target constituents at levels above Tier 1 TRGs. In fact, only MW-03 has ever contained target constituents above laboratory reporting limits.
- **MW-20 and MW-21** – These wells were installed to determine the width of the plume associated with the northeast drainage ditch. Neither has yielded samples containing target constituents, and because source material have been removed and ground water flow direction is to the east, lateral migration of constituents from the former ditch is highly unlikely.
- **MW-13** – KMC has received objections from the leaseholder of the property, which is located across Gordon's Creek from the Fill Area. MP&A was denied access to the well during the last two monitoring events. No target constituents have ever been reported in samples from MW-13.

KMC does not propose to plug any wells located within either plume or any downgradient plume defining wells. KMC will not plug and abandon the wells proposed above until MDEQ approval is received.

5.0 Summary and Conclusions

The following summary and conclusions are based on the results of ground water monitoring activities at the site:

1. KMC has conducted ground water investigations at the site since 1996. Affected ground water is present in two separate and distinct areas. The extent of affected ground water in both areas has been fully delineated.

2. The affected shallow water-bearing zones are not used for any purpose in the Hattiesburg area. Furthermore, a 2002 City ordinance prohibits the development and use of ground water within the City limits.

3. KMC has completed remedial measures that included the removal of potential sources of ground water contamination. Additional containment measures reduce the potential for migration of affected ground water and preclude infiltration/percolation of water through affected soils left in place.

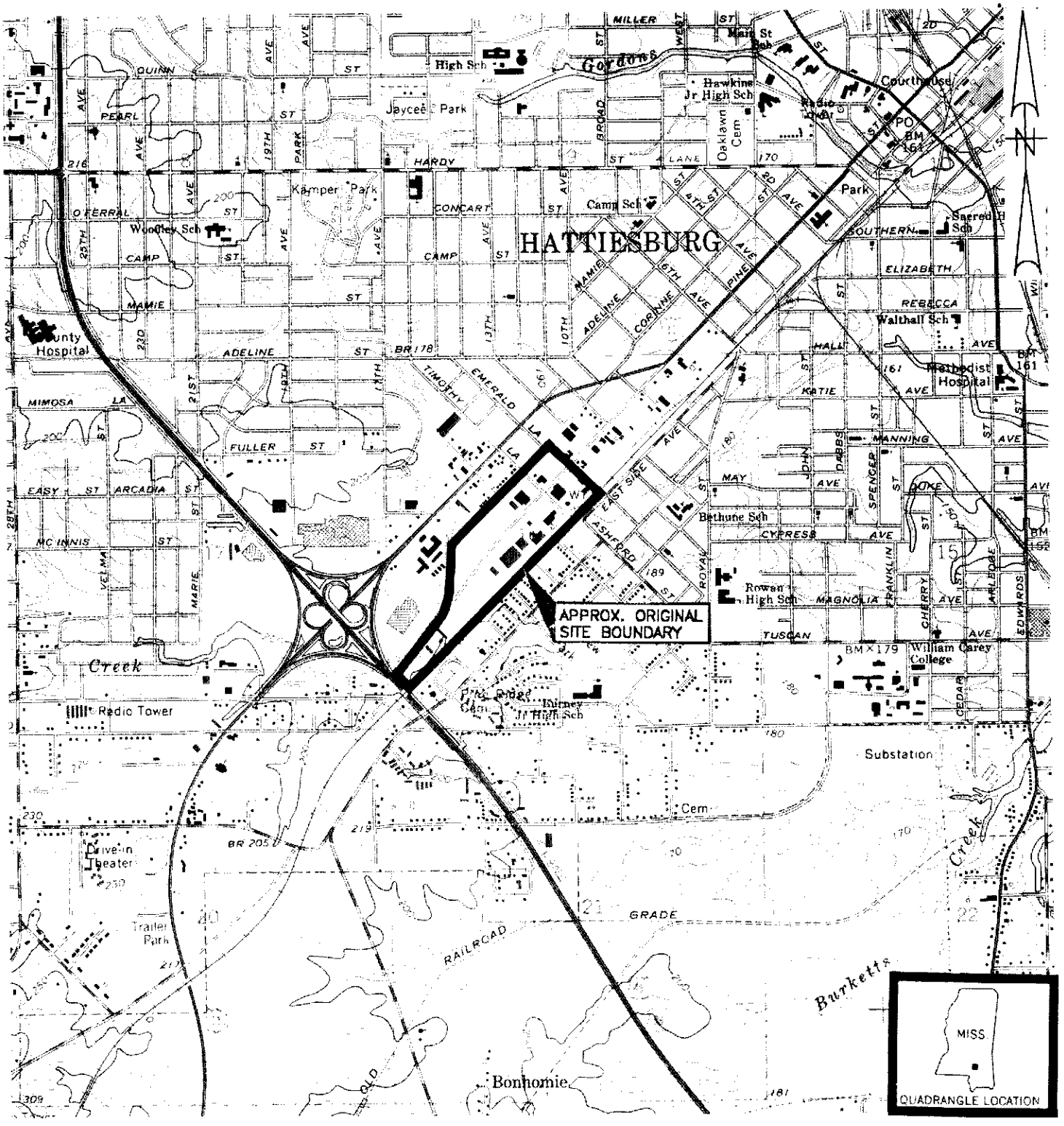
4. Constituent concentrations in both affected areas have reached either steady-state or declining conditions. Furthermore, a preliminary evaluation indicates conditions are favorable for natural attenuation of ground water constituents.

5. KMC is requesting MDEQ approval of annual ground water monitoring. In addition, KMC is requesting MDEQ permission to plug and abandon eight existing monitoring wells.

Figures

Ground Water Monitoring Report
Initial Eight Quarterly Events

Former Gulf States Creosoting Site
Hattiesburg, Mississippi



SCALE 1:24 000

1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 10 FEET

SOURCE: USGS MAP OF HATTIESBURG, MISSISSIPPI, 7.5' QUADRANGLE, 1964 PHOTOREVISED 1982

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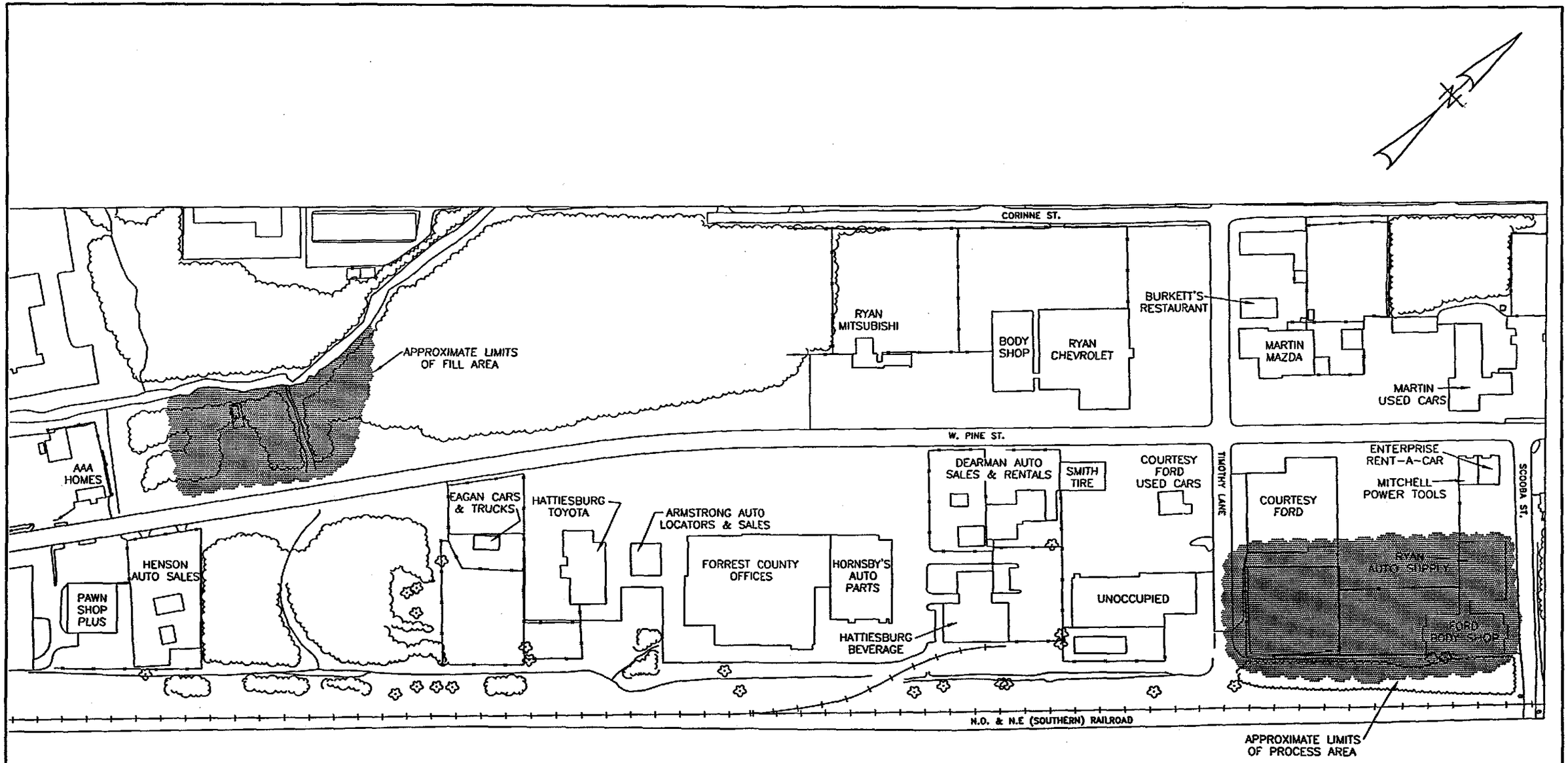
SCALE:

DWG. NO.: 21-01/07A

FIGURE 1-1
SITE LOCATION

FORMER GULF STATES CREOSOTING SITE

HATTIESBURG, MISSISSIPPI



BASE MAP FROM ATLANTIC TECHNOLOGIES, LTD., HUNTSVILLE, ALABAMA, APRIL 1, 1996

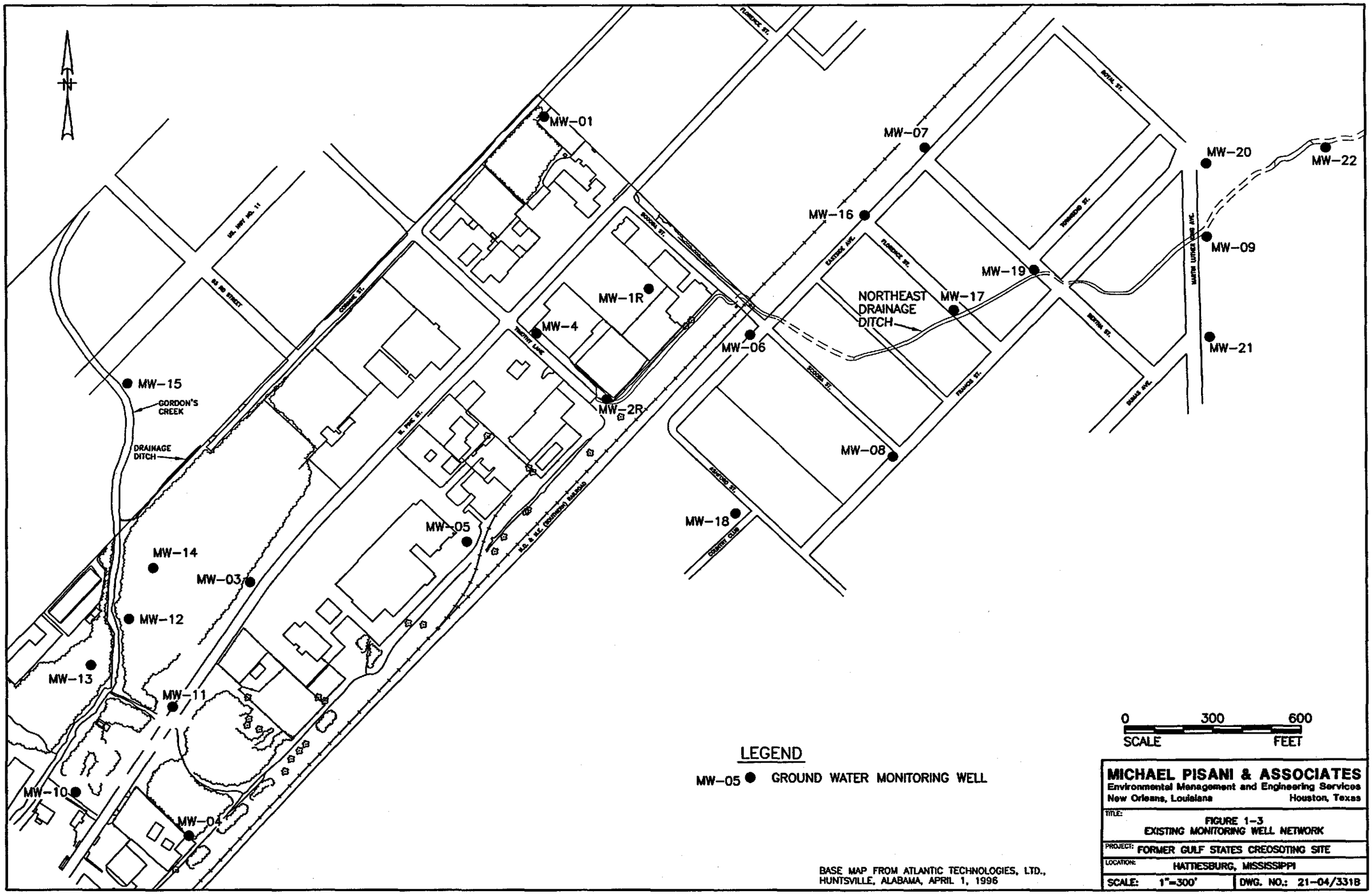
MICHAEL PISANI & ASSOCIATES
Environmental Management and Engineering Services
New Orleans, Louisiana Houston, Texas

TITLE: FIGURE 1-2
CURRENT SITE FEATURES

PROJECT: FORMER GULF STATES CREOSOTING SITE

LOCATION: HATTIESBURG, MISSISSIPPI

SCALE: 1"=200' DWG. NO.: 21-02/31B



0 300 600
SCALE FEET

LEGEND

MW-05 ● GROUND WATER MONITORING WELL

BASE MAP FROM ATLANTIC TECHNOLOGIES, LTD., HUNTSVILLE, ALABAMA, APRIL 1, 1996

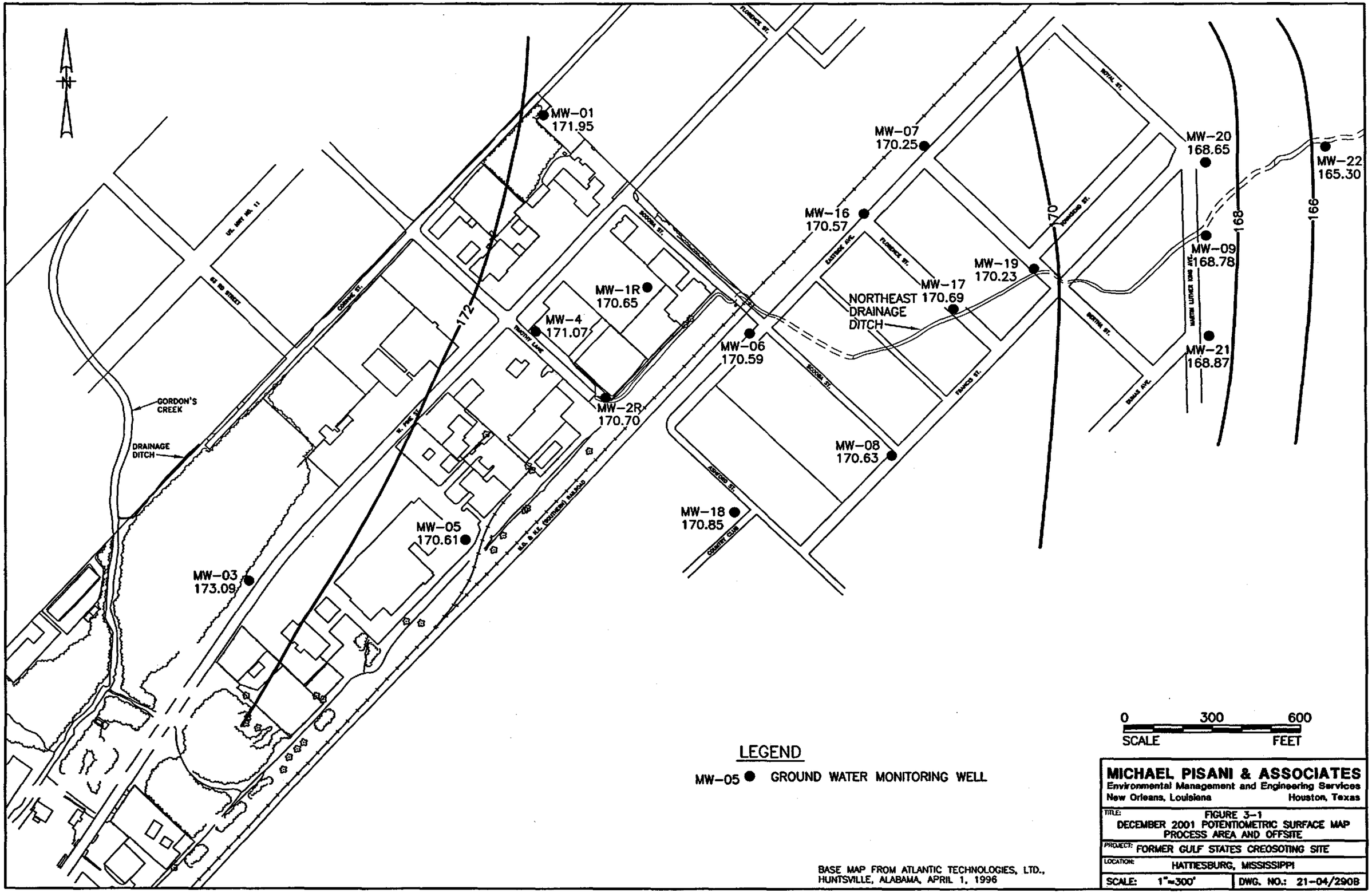
MICHAEL PISANI & ASSOCIATES
Environmental Management and Engineering Services
New Orleans, Louisiana Houston, Texas

TITLE: FIGURE 1-3
EXISTING MONITORING WELL NETWORK

PROJECT: FORMER GULF STATES CREOSOTING SITE

LOCATION: HATTIESBURG, MISSISSIPPI

SCALE: 1"=300' DWG. NO.: 21-04/331B



0 300 600
SCALE FEET

LEGEND

MW-05 ● GROUND WATER MONITORING WELL

BASE MAP FROM ATLANTIC TECHNOLOGIES, LTD.,
HUNTSVILLE, ALABAMA, APRIL 1, 1996

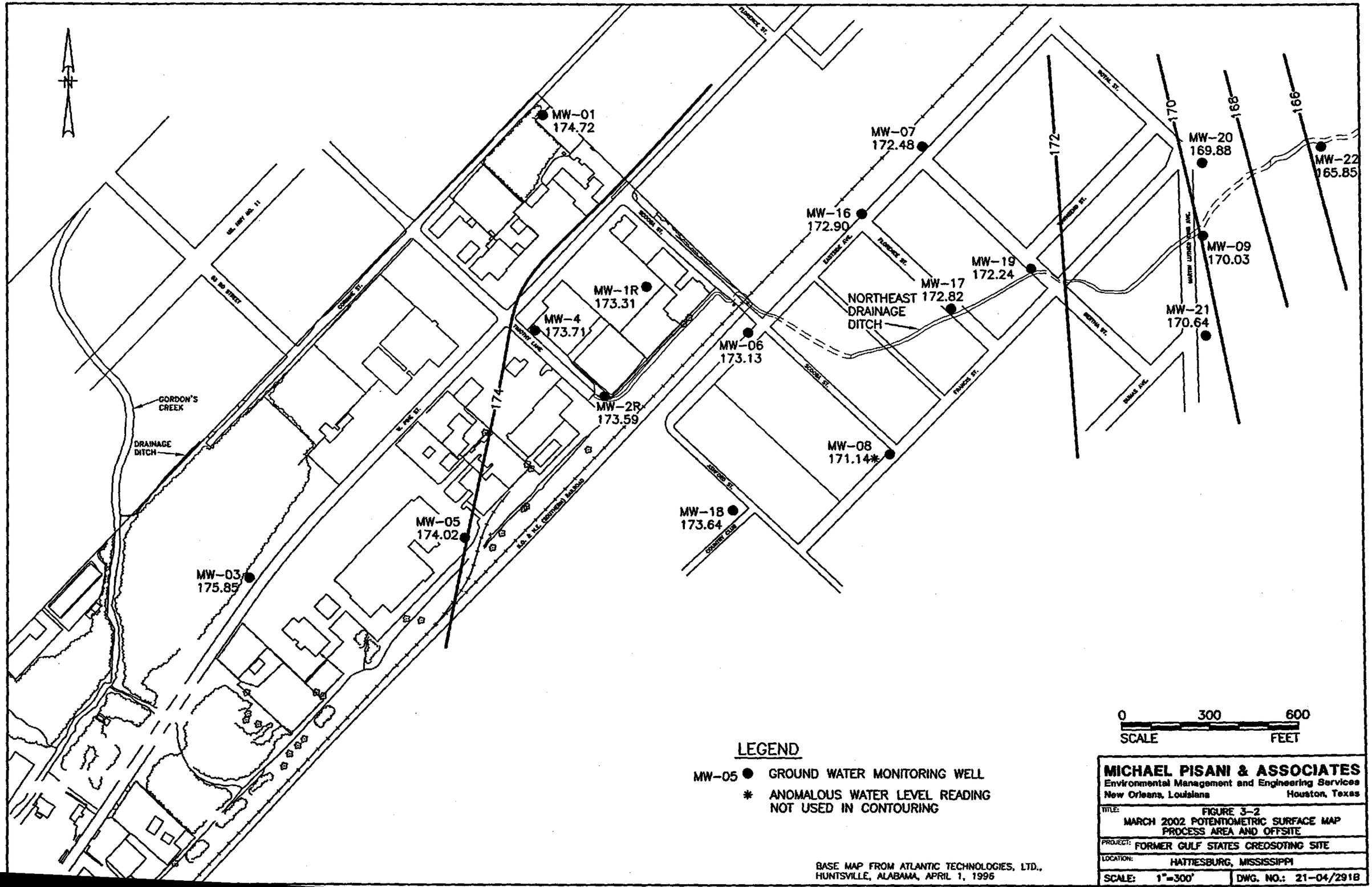
MICHAEL PISANI & ASSOCIATES
Environmental Management and Engineering Services
New Orleans, Louisiana Houston, Texas

TITLE: FIGURE 3-1
DECEMBER 2001 POTENTIOMETRIC SURFACE MAP
PROCESS AREA AND OFFSITE

PROJECT: FORMER GULF STATES CREOSOTING SITE

LOCATION: HATTIESBURG, MISSISSIPPI

SCALE: 1"=300' DWG. NO.: 21-04/290B



LEGEND

MW-05 ● GROUND WATER MONITORING WELL

* ANOMALOUS WATER LEVEL READING NOT USED IN CONTOURING

0 300 600
SCALE FEET

BASE MAP FROM ATLANTIC TECHNOLOGIES, LTD., HUNTSVILLE, ALABAMA, APRIL 1, 1995

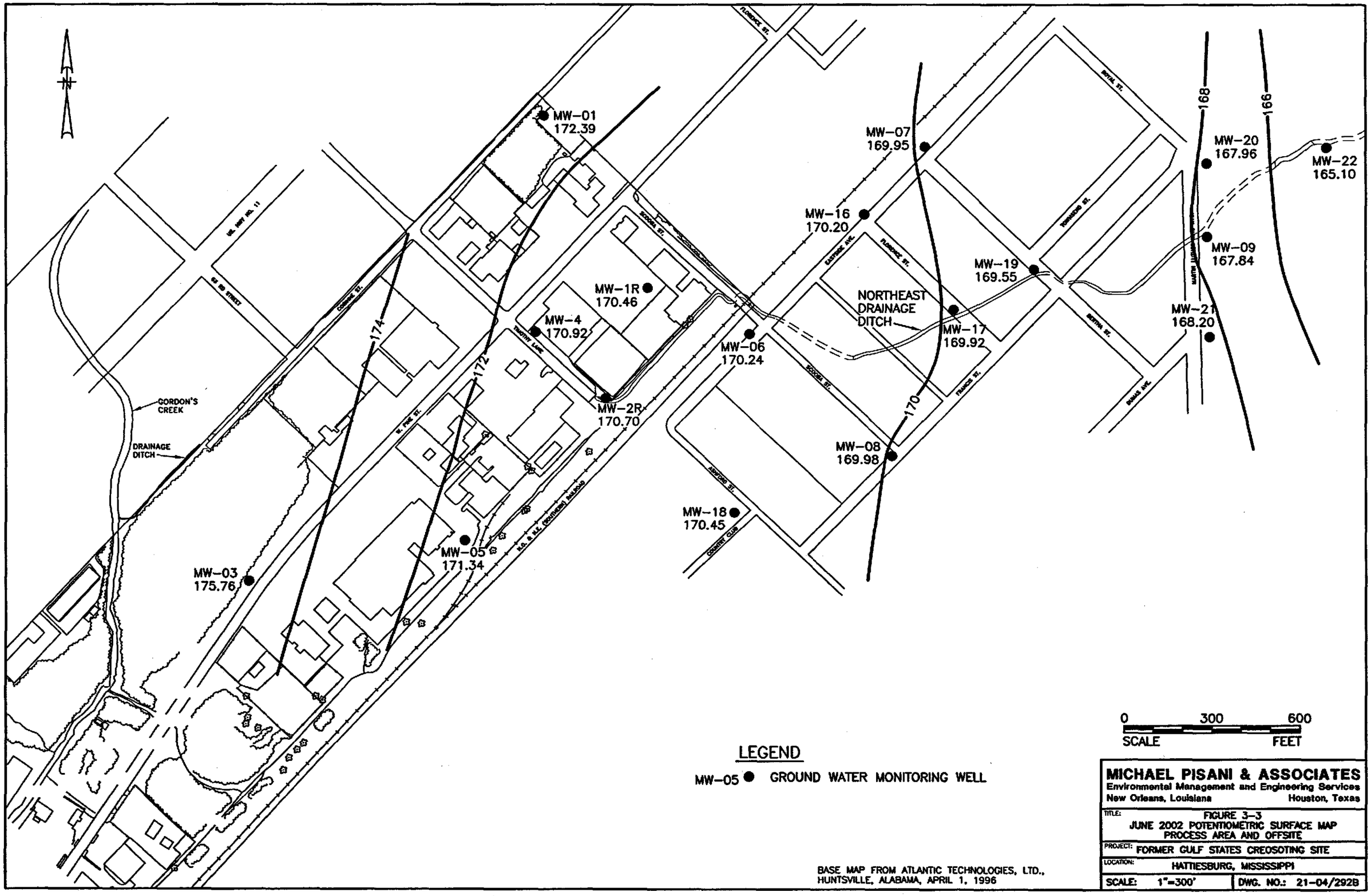
MICHAEL PISANI & ASSOCIATES
Environmental Management and Engineering Services
New Orleans, Louisiana Houston, Texas

TITLE: FIGURE 3-2
MARCH 2002 POTENTIOMETRIC SURFACE MAP
PROCESS AREA AND OFFSITE

PROJECT: FORMER GULF STATES CREOSOTING SITE

LOCATION: HATTIESBURG, MISSISSIPPI

SCALE: 1"=300' DWG. NO.: 21-04/2918



LEGEND

MW-05 ● GROUND WATER MONITORING WELL

BASE MAP FROM ATLANTIC TECHNOLOGIES, LTD., HUNTSVILLE, ALABAMA, APRIL 1, 1996

MICHAEL PISANI & ASSOCIATES
Environmental Management and Engineering Services
New Orleans, Louisiana Houston, Texas

TITLE: FIGURE 3-3
JUNE 2002 POTENTIOMETRIC SURFACE MAP
PROCESS AREA AND OFFSITE

PROJECT: FORMER GULF STATES CREOSOTING SITE

LOCATION: HATTIESBURG, MISSISSIPPI

SCALE: 1"=300' DWG. NO.: 21-04/292B

MW-01
171.04

MW-07
168.68

MW-16
168.87

MW-20
167.21

MW-22
164.75

MW-09
166.89

MW-19
168.28

MW-1R
169.11

MW-4
169.62

NORTHEAST
DRAINAGE
DITCH

MW-17
168.49

MW-06
168.86

MW-21
167.15

MW-2R
169.55

MW-08
168.83

MW-18
169.10

MW-05
169.89

MW-03
173.16

GORDON'S
CREEK

DRAINAGE
DITCH

172

170

168

166

FLORENCE ST.

ROYAL ST.

US HWY NO. 11

43 RD STREET

CORINNE ST.

SCHOOL ST.

TIMOTHY LANE

W. PINE ST.

EASTERN AVE.

TOMAHAWK ST.

MARTIN LUTHER KING AVE.

FRANCIS ST.

BERTHA ST.

DUMAS AVE.

REDFORD ST.

COUNTRY CLUB

M.P. & N.E. (SOUTHERN) RAILROAD

N

0 300 600
SCALE FEET

LEGEND

MW-05 ● GROUND WATER MONITORING WELL

BASE MAP FROM ATLANTIC TECHNOLOGIES, LTD.,
HUNTSVILLE, ALABAMA, APRIL 1, 1996

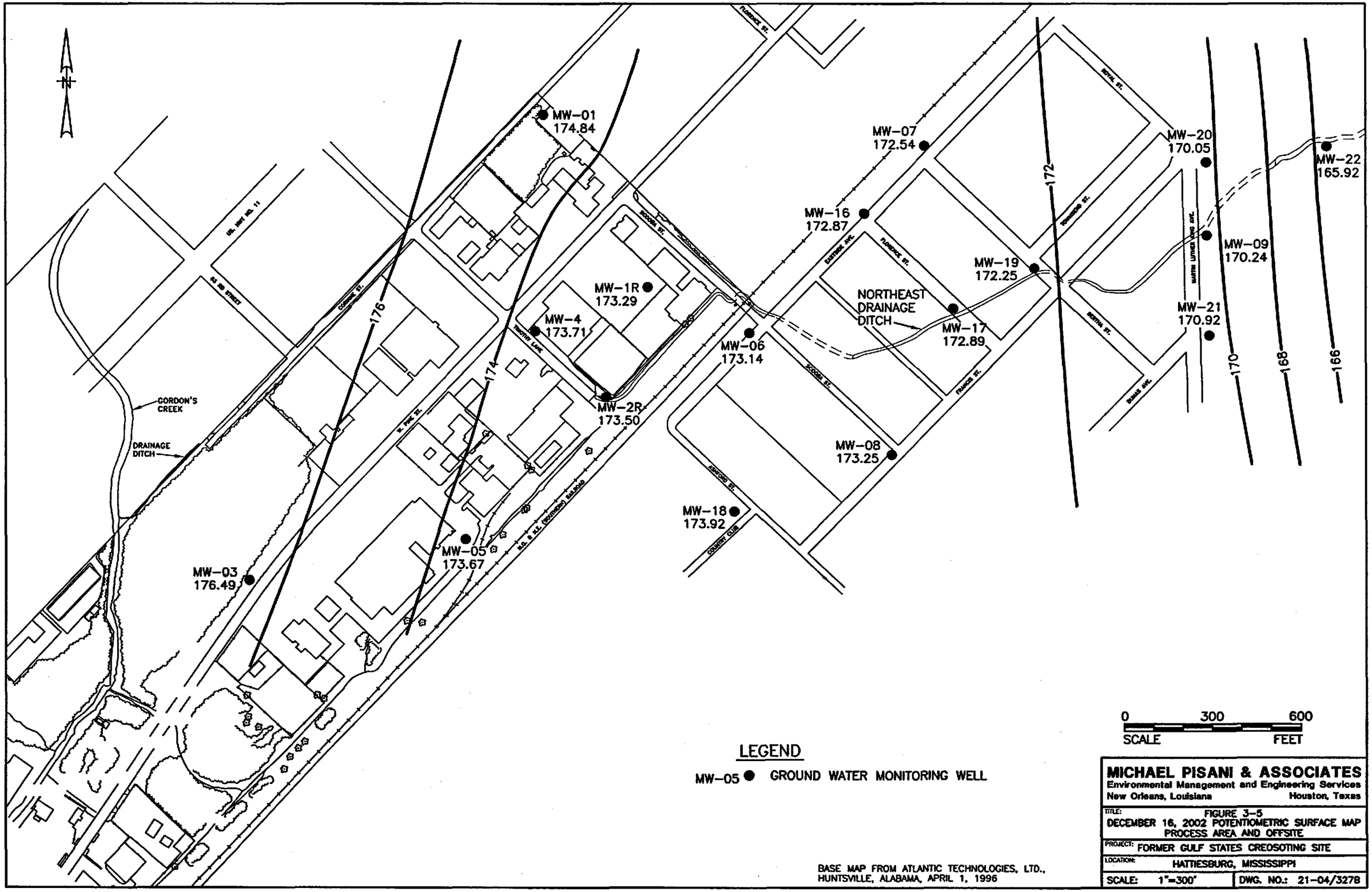
MICHAEL PISANI & ASSOCIATES
Environmental Management and Engineering Services
New Orleans, Louisiana Houston, Texas

TITLE: FIGURE 3-4
SEPTEMBER 2002 POTENTIOMETRIC SURFACE MAP
PROCESS AREA AND OFFSITE

PROJECT: FORMER GULF STATES CREOSOTING SITE

LOCATION: HATTIESBURG, MISSISSIPPI

SCALE: 1"=300' DWG. NO.: 21-04/2938



LEGEND

MW-05 ● GROUND WATER MONITORING WELL

0 300 600
SCALE FEET

BASE MAP FROM ATLANTIC TECHNOLOGIES, LTD.,
HUNTSVILLE, ALABAMA, APRIL 1, 1996

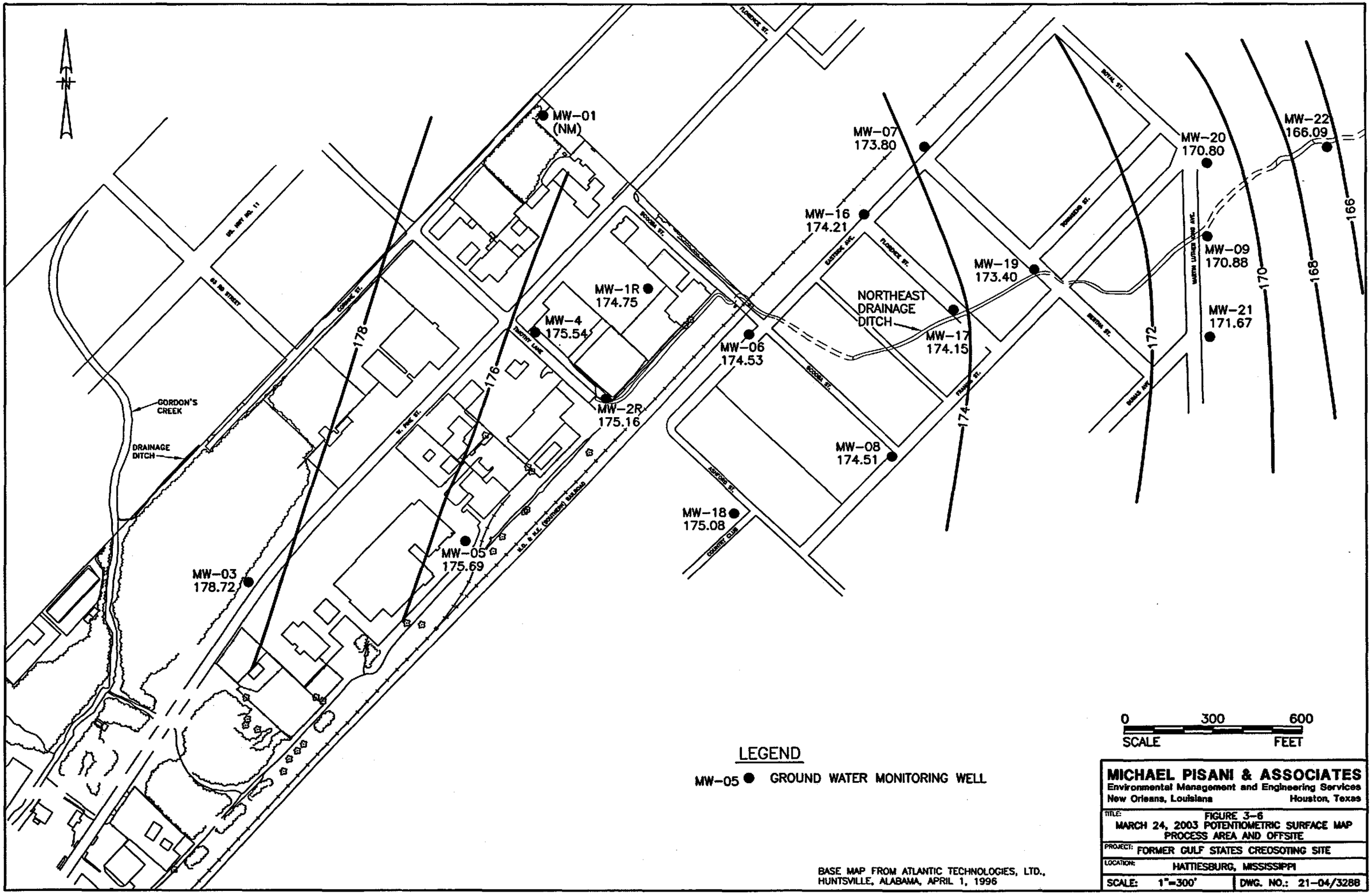
MICHAEL PISANI & ASSOCIATES
Environmental Management and Engineering Services
New Orleans, Louisiana Houston, Texas

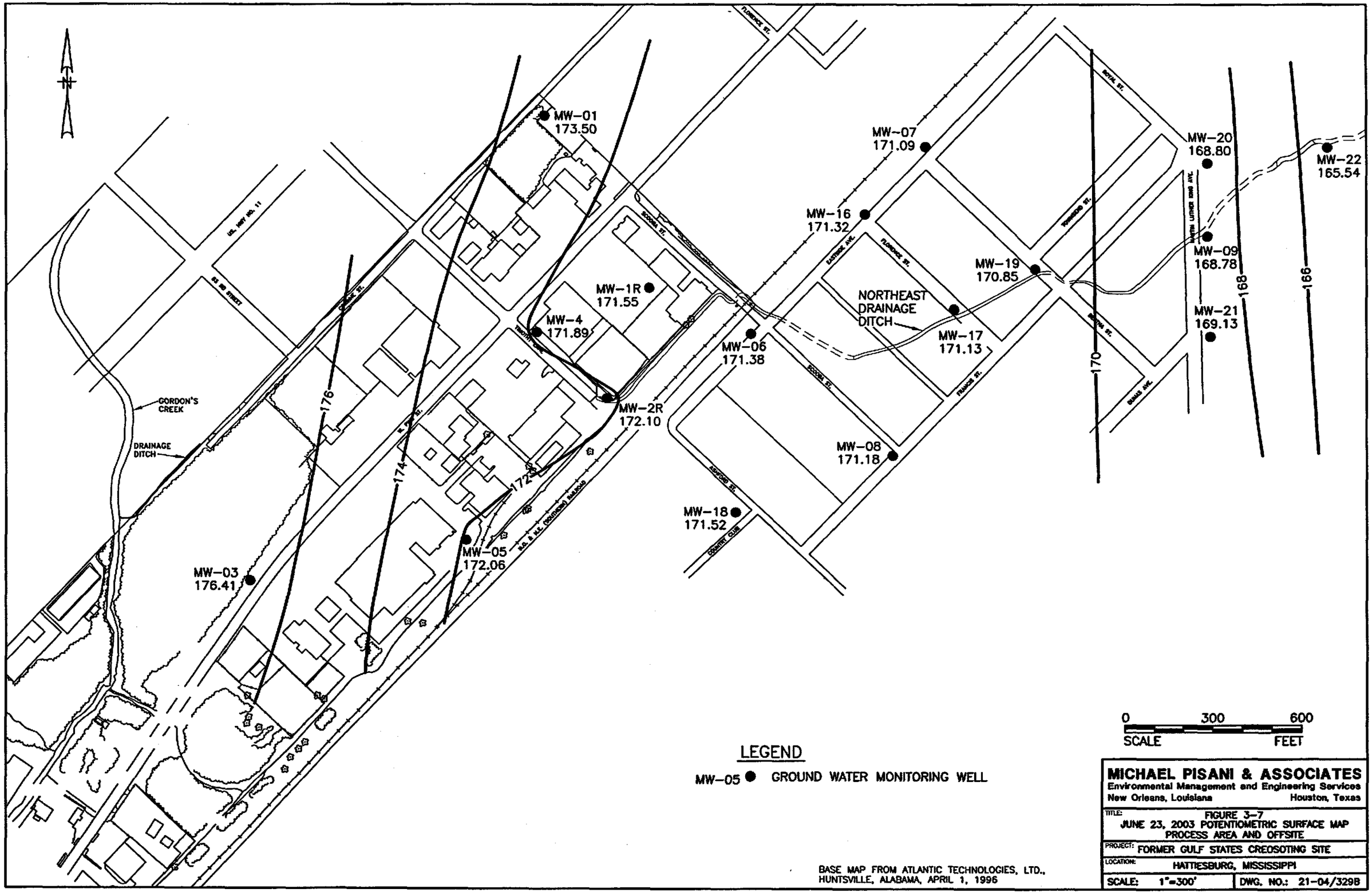
TITLE: FIGURE 3-5
DECEMBER 16, 2002 POTENTIOMETRIC SURFACE MAP
PROCESS AREA AND OFFSITE

PROJECT: FORMER GULF STATES CREOSOTING SITE

LOCATION: HATTIESBURG, MISSISSIPPI

SCALE: 1"=300' DWG. NO.: 21-04/3278


MW-01
(NM)
MW-1R
174.75
MW-2R
175.16
MW-03
178.72
MW-04
175.54
MW-05
175.69
MW-06
174.53
MW-07
173.80
MW-08
174.51
MW-09
170.88
MW-16
174.21
MW-17
174.15
MW-18
175.08
MW-19
173.40
MW-20
170.80
MW-21
171.67
MW-22
166.09
NORTHEAST
DRAINAGE
DITCH
GORDON'S
CREEK
DRAINAGE
DITCH
178
176
174
172
170
168
166
FLORENCE ST.
CORINNE ST.
TIMOTHY LANE
W. PINE ST.
SCHOOL ST.
EASTSIDE AVE.
TORRENCE ST.
MAIN ST.
BERTHA ST.
FRANKLIN ST.
BANKS AVE.
ASHFORD ST.
COUNTRY CLUB
M.P. & N.E. (NORTHERN) RAILROAD
0
300
600
SCALE
FEET
LEGEND
MW-05 ● GROUND WATER MONITORING WELL
BASE MAP FROM ATLANTIC TECHNOLOGIES, LTD.,
HUNTSVILLE, ALABAMA, APRIL 1, 1996
MICHAEL PISANI & ASSOCIATES
Environmental Management and Engineering Services
New Orleans, Louisiana Houston, Texas
TITLE: FIGURE 3-6
MARCH 24, 2003 POTENTIOMETRIC SURFACE MAP
PROCESS AREA AND OFFSITE
PROJECT: FORMER GULF STATES CREOSOTING SITE
LOCATION: HATTIESBURG, MISSISSIPPI
SCALE: 1"=300'
DWG. NO.: 21-04/3288



LEGEND

MW-05 ● GROUND WATER MONITORING WELL

BASE MAP FROM ATLANTIC TECHNOLOGIES, LTD.,
HUNTSVILLE, ALABAMA, APRIL 1, 1996

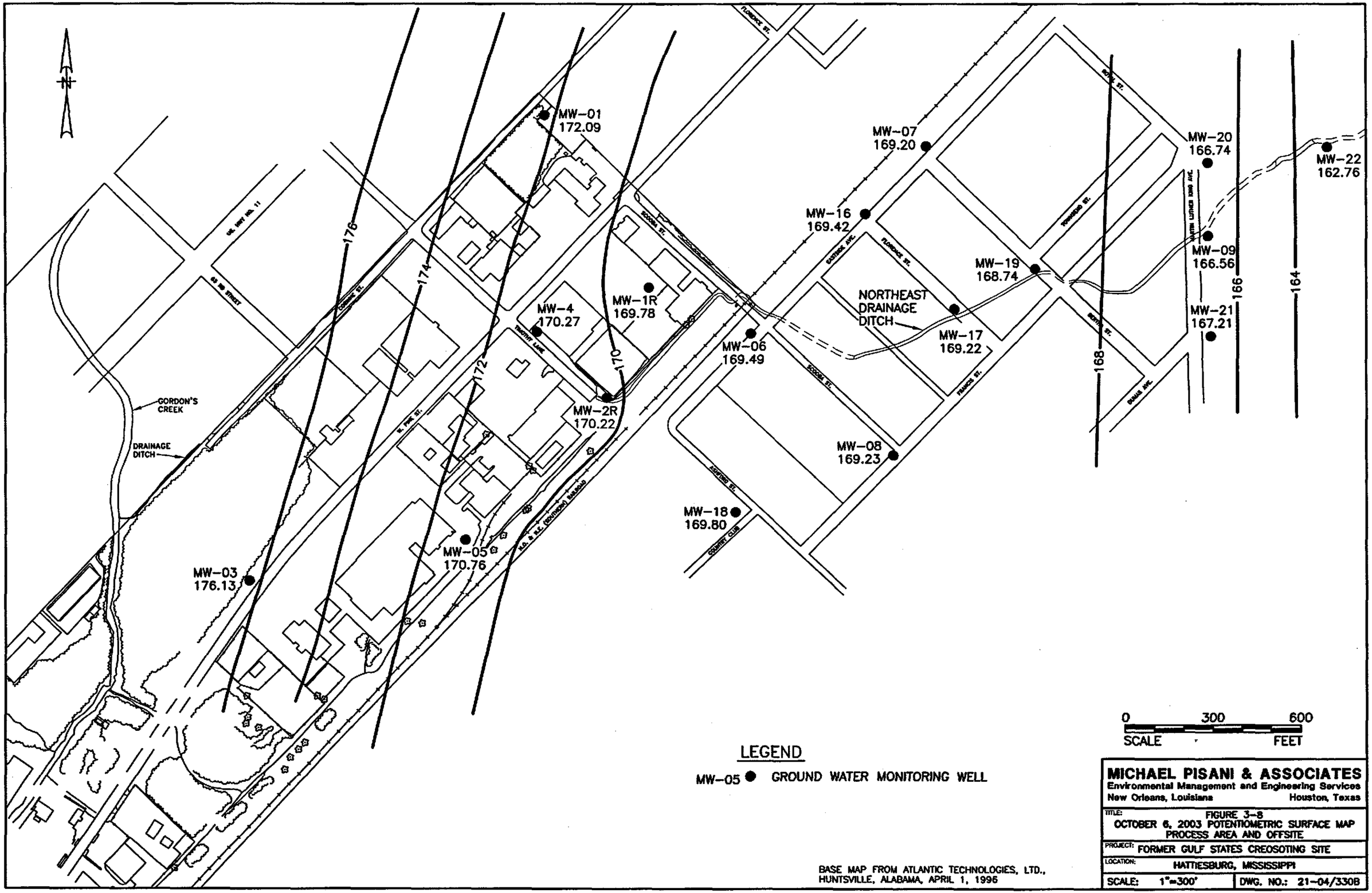
MICHAEL PISANI & ASSOCIATES
Environmental Management and Engineering Services
New Orleans, Louisiana Houston, Texas

TITLE: FIGURE 3-7
JUNE 23, 2003 POTENTIOMETRIC SURFACE MAP
PROCESS AREA AND OFFSITE

PROJECT: FORMER GULF STATES CREOSOTING SITE

LOCATION: HATTIESBURG, MISSISSIPPI

SCALE: 1"=300' | DWG. NO.: 21-04/329B



LEGEND

MW-05 ● GROUND WATER MONITORING WELL

0 300 600
SCALE FEET

BASE MAP FROM ATLANTIC TECHNOLOGIES, LTD.,
HUNTSVILLE, ALABAMA, APRIL 1, 1996

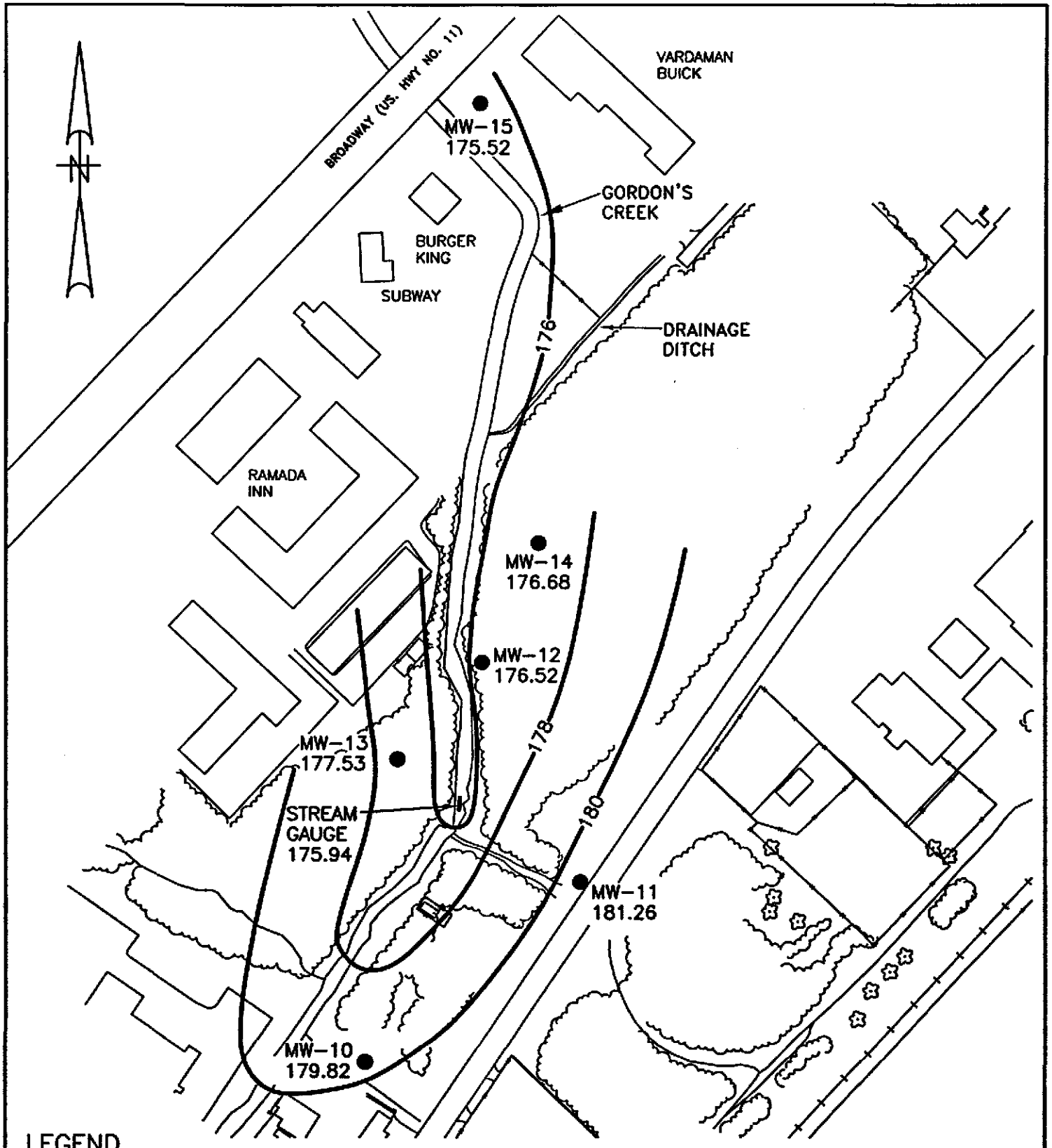
MICHAEL PISANI & ASSOCIATES
Environmental Management and Engineering Services
New Orleans, Louisiana Houston, Texas

TITLE: FIGURE 3-8
OCTOBER 6, 2003 POTENTIOMETRIC SURFACE MAP
PROCESS AREA AND OFFSITE

PROJECT: FORMER GULF STATES CREOSOTING SITE

LOCATION: HATTIESBURG, MISSISSIPPI

SCALE: 1"=300' DWG. NO.: 21-04/330B



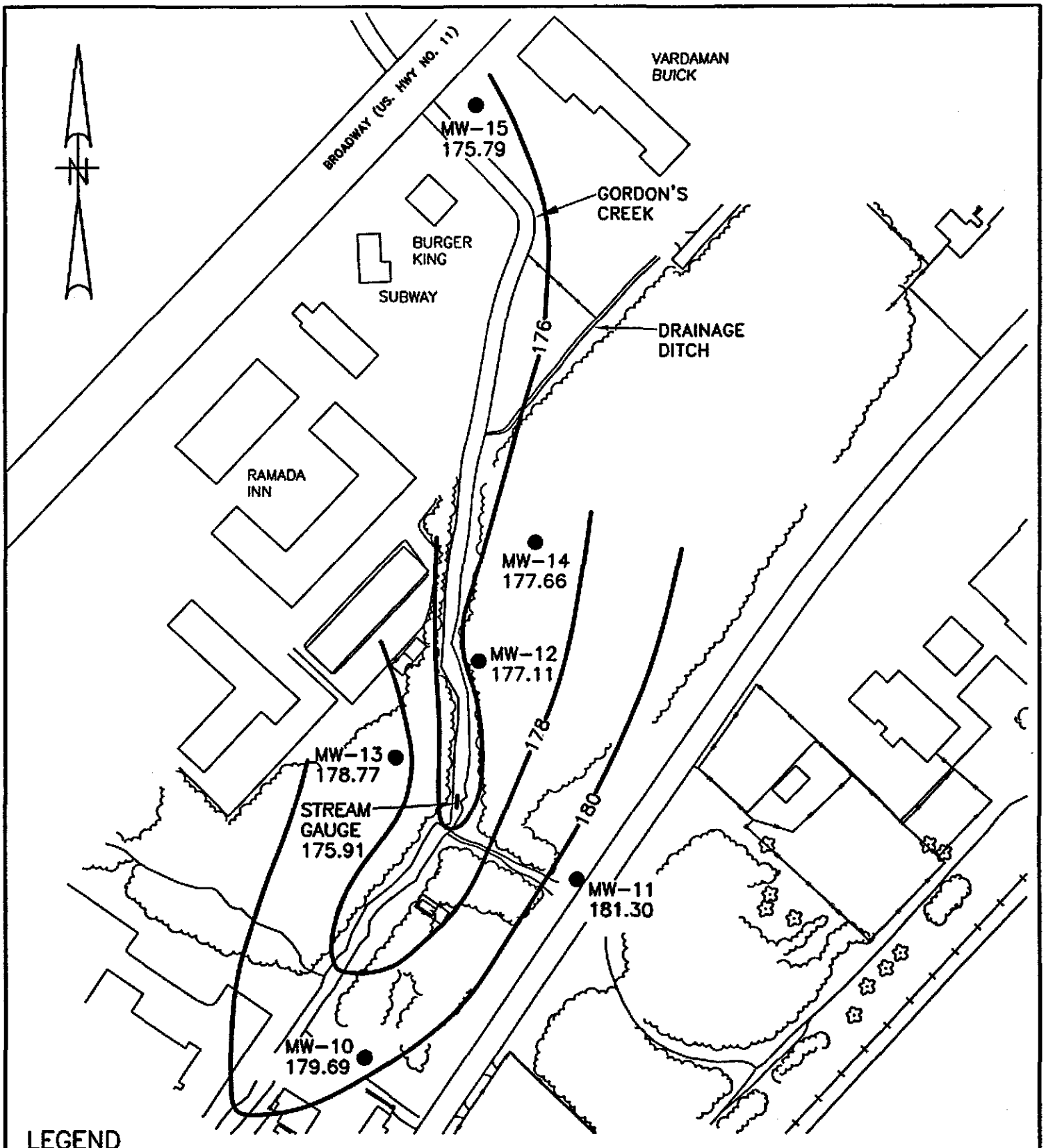
BASE MAP FROM ATLANTIC TECHNOLOGIES, LTD., HUNTSVILLE, ALABAMA, APRIL 1, 1996

MICHAEL PISANI & ASSOCIATES
Environmental Management and Engineering Services
New Orleans, Louisiana Houston, Texas

SCALE: 1"=200' | DWG. NO.: 21-04/286A

FIGURE 3-9
DECEMBER 2001 POTENTIOMETRIC SURFACE MAP
FILL AREA

FORMER GULF STATES CREOSOTING SITE
HATTIESBURG, MISSISSIPPI



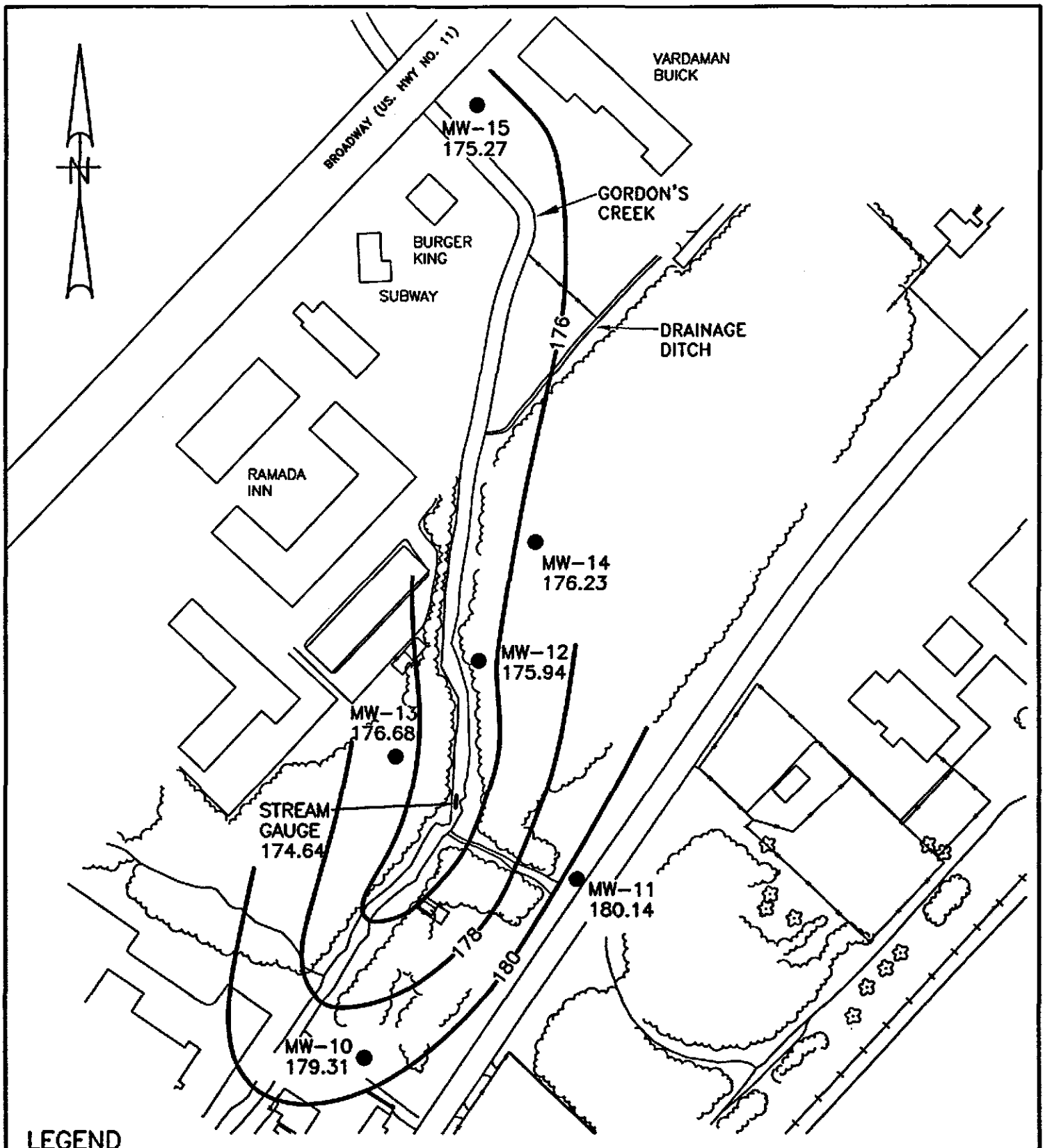
BASE MAP FROM ATLANTIC TECHNOLOGIES, LTD., HUNTSVILLE, ALABAMA, APRIL 1, 1996

MICHAEL PISANI & ASSOCIATES
Environmental Management and Engineering Services
New Orleans, Louisiana Houston, Texas

SCALE: 1"=200' | DWG. NO.: 21-04/287A

FIGURE 3-10
MARCH 2002 POTENTIOMETRIC SURFACE MAP
FILL AREA

FORMER GULF STATES CREOSOTING SITE
HATTIESBURG, MISSISSIPPI



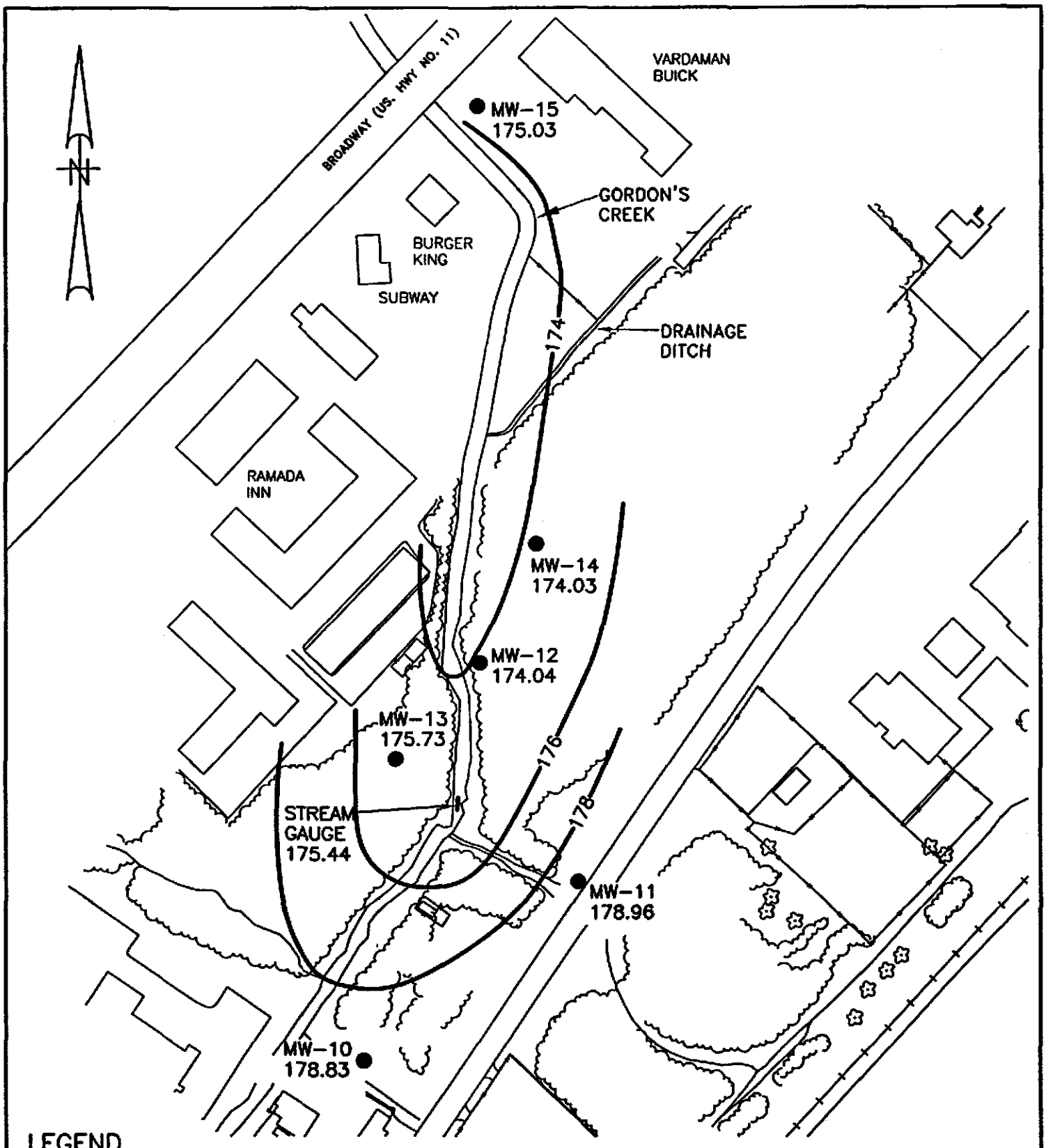
BASE MAP FROM ATLANTIC TECHNOLOGIES, LTD., HUNTSVILLE, ALABAMA, APRIL 1, 1996

MICHAEL PISANI & ASSOCIATES
Environmental Management and Engineering Services
New Orleans, Louisiana Houston, Texas

SCALE: 1"=200' | DWG. NO.: 21-04/288A

FIGURE 3-11
JUNE 2002 POTENTIOMETRIC SURFACE MAP
FILL AREA

FORMER GULF STATES CREOSOTING SITE
HATTIESBURG, MISSISSIPPI



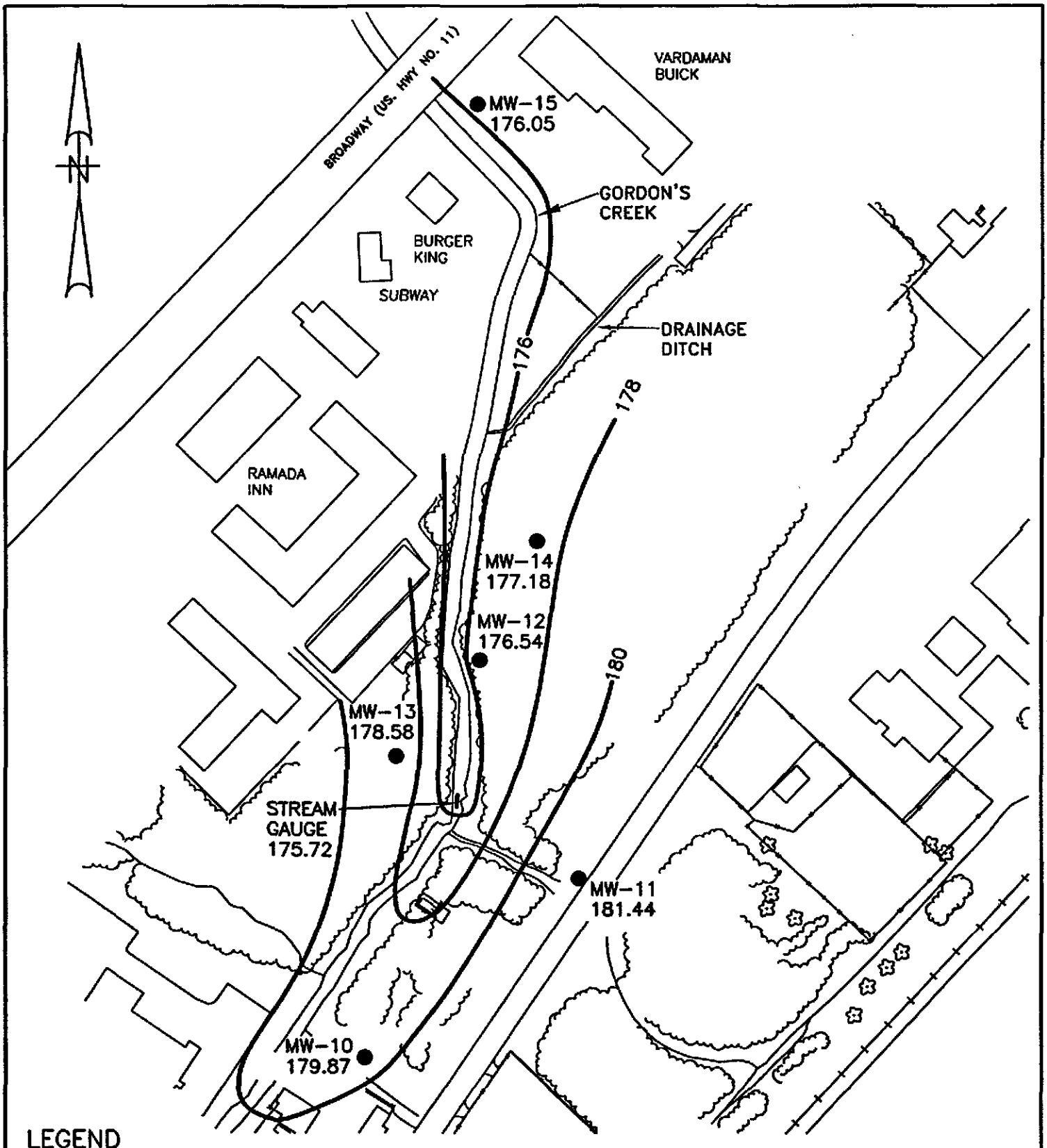
BASE MAP FROM ATLANTIC TECHNOLOGIES, LTD., HUNTSVILLE, ALABAMA, APRIL 1, 1996

MICHAEL PISANI & ASSOCIATES
Environmental Management and Engineering Services
New Orleans, Louisiana Houston, Texas

SCALE: 1"=200' | DWG. NO.: 21-04/289A

FIGURE 3-12
SEPTEMBER 2002 POTENTIOMETRIC SURFACE MAP
FILL AREA

FORMER GULF STATES CREOSOTING SITE
HATTIESBURG, MISSISSIPPI



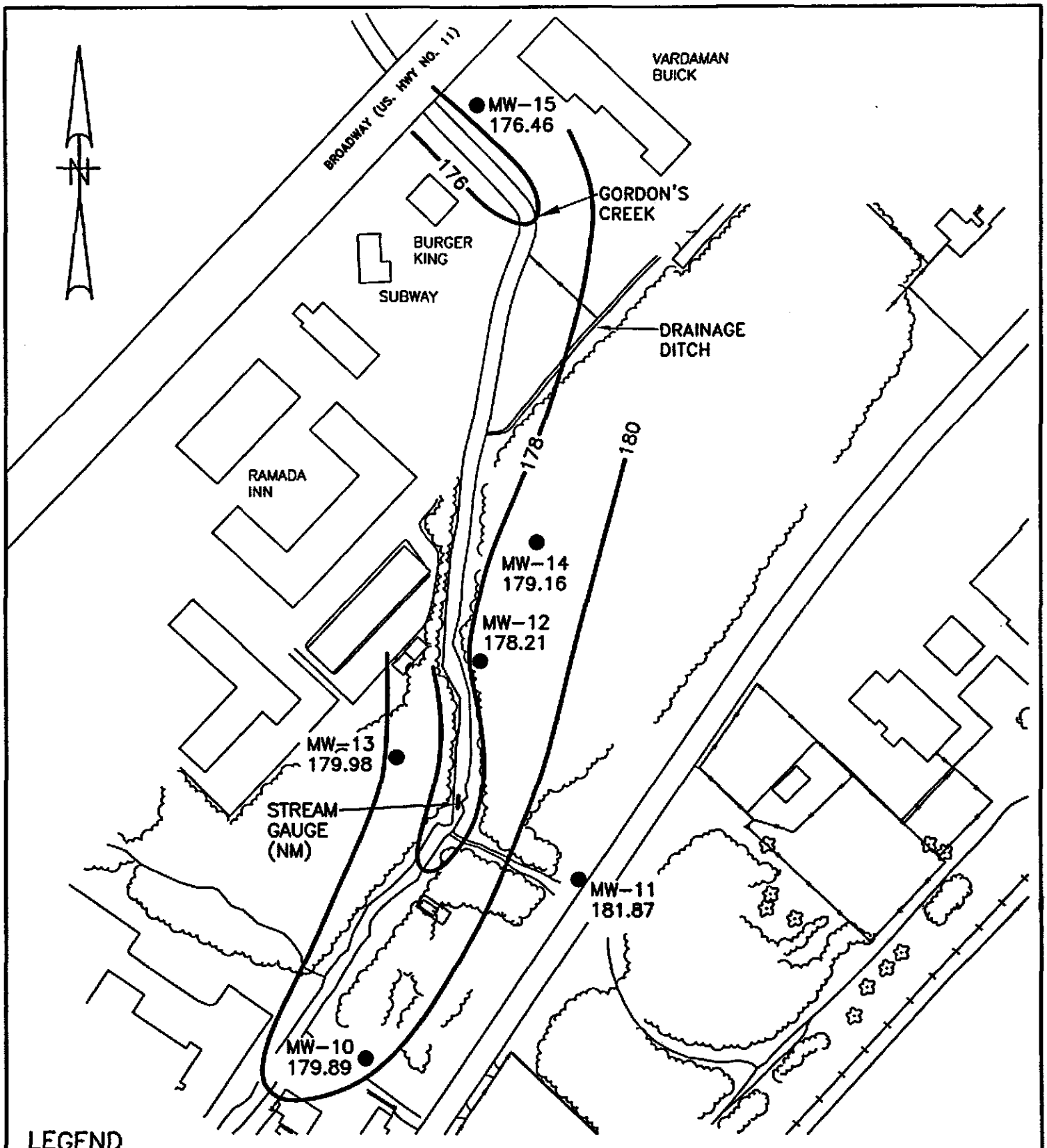
BASE MAP FROM ATLANTIC TECHNOLOGIES, LTD., HUNTSVILLE, ALABAMA, APRIL 1, 1996

MICHAEL PISANI & ASSOCIATES
Environmental Management and Engineering Services
New Orleans, Louisiana Houston, Texas

SCALE: 1"=200' | DWG. NO.: 21-04/323A

FIGURE 3-13
DECEMBER 16, 2002 POTENTIOMETRIC SURFACE MAP
FILL AREA

FORMER GULF STATES CREOSOTING SITE
HATTIESBURG, MISSISSIPPI



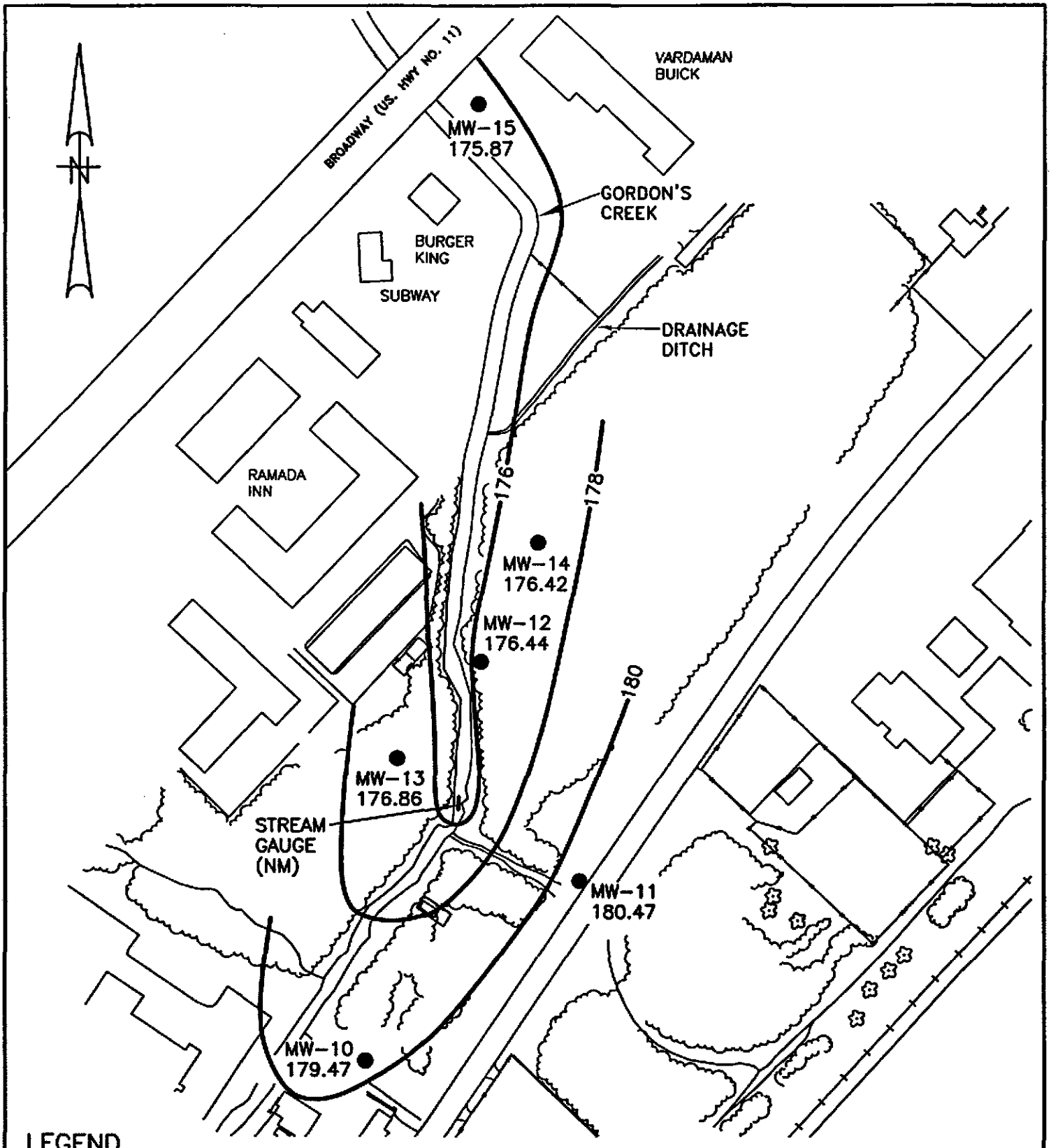
BASE MAP FROM ATLANTIC TECHNOLOGIES, LTD., HUNTSVILLE, ALABAMA, APRIL 1, 1996

MICHAEL PISANI & ASSOCIATES
Environmental Management and Engineering Services
New Orleans, Louisiana Houston, Texas

SCALE: 1"=200' | DWG. NO.: 21-04/324A

FIGURE 3-14
MARCH 24, 2003 POTENTIOMETRIC SURFACE MAP
FILL AREA

FORMER GULF STATES CREOSOTING SITE
HATTIESBURG, MISSISSIPPI



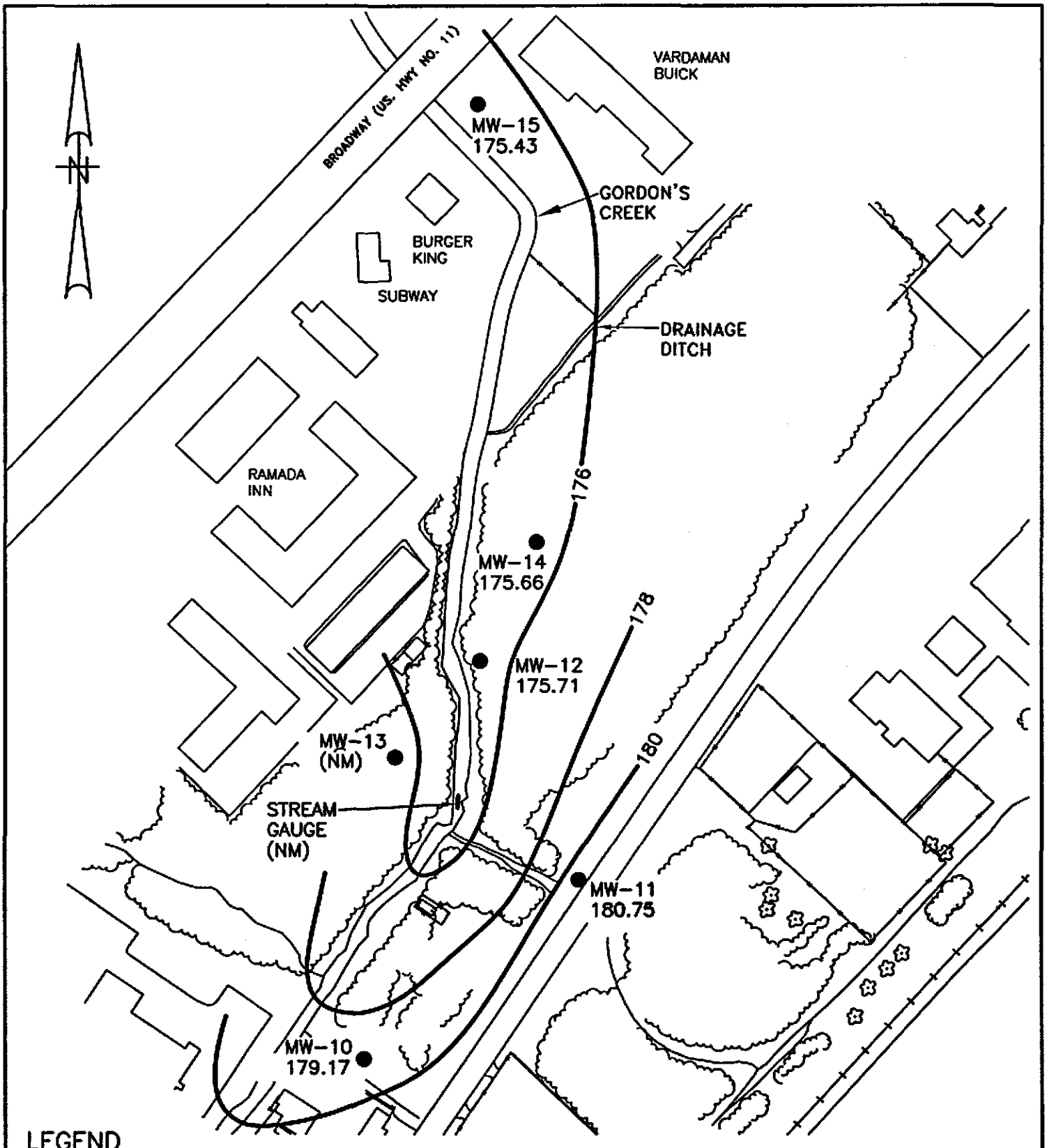
BASE MAP FROM ATLANTIC TECHNOLOGIES, LTD., HUNTSVILLE, ALABAMA, APRIL 1, 1996

MICHAEL PISANI & ASSOCIATES
Environmental Management and Engineering Services
New Orleans, Louisiana Houston, Texas

SCALE: 1"=200' | DWG. NO.: 21-04/325A

FIGURE 3-15
JUNE 23, 2003 *POTENTIOMETRIC SURFACE MAP*
FILL AREA

FORMER GULF STATES CREOSOTING SITE
HATTIESBURG, MISSISSIPPI



BASE MAP FROM ATLANTIC TECHNOLOGIES, LTD., HUNTSVILLE, ALABAMA, APRIL 1, 1996

MICHAEL PISANI & ASSOCIATES
Environmental Management and Engineering Services
New Orleans, Louisiana Houston, Texas

SCALE: 1"=200' | DWG. NO.: 21-04/326A

FIGURE 3-16
OCTOBER 6, 2003 POTENTIOMETRIC SURFACE MAP
FILL AREA

FORMER GULF STATES CREOSOTING SITE
HATTIESBURG, MISSISSIPPI

Figure 3-17

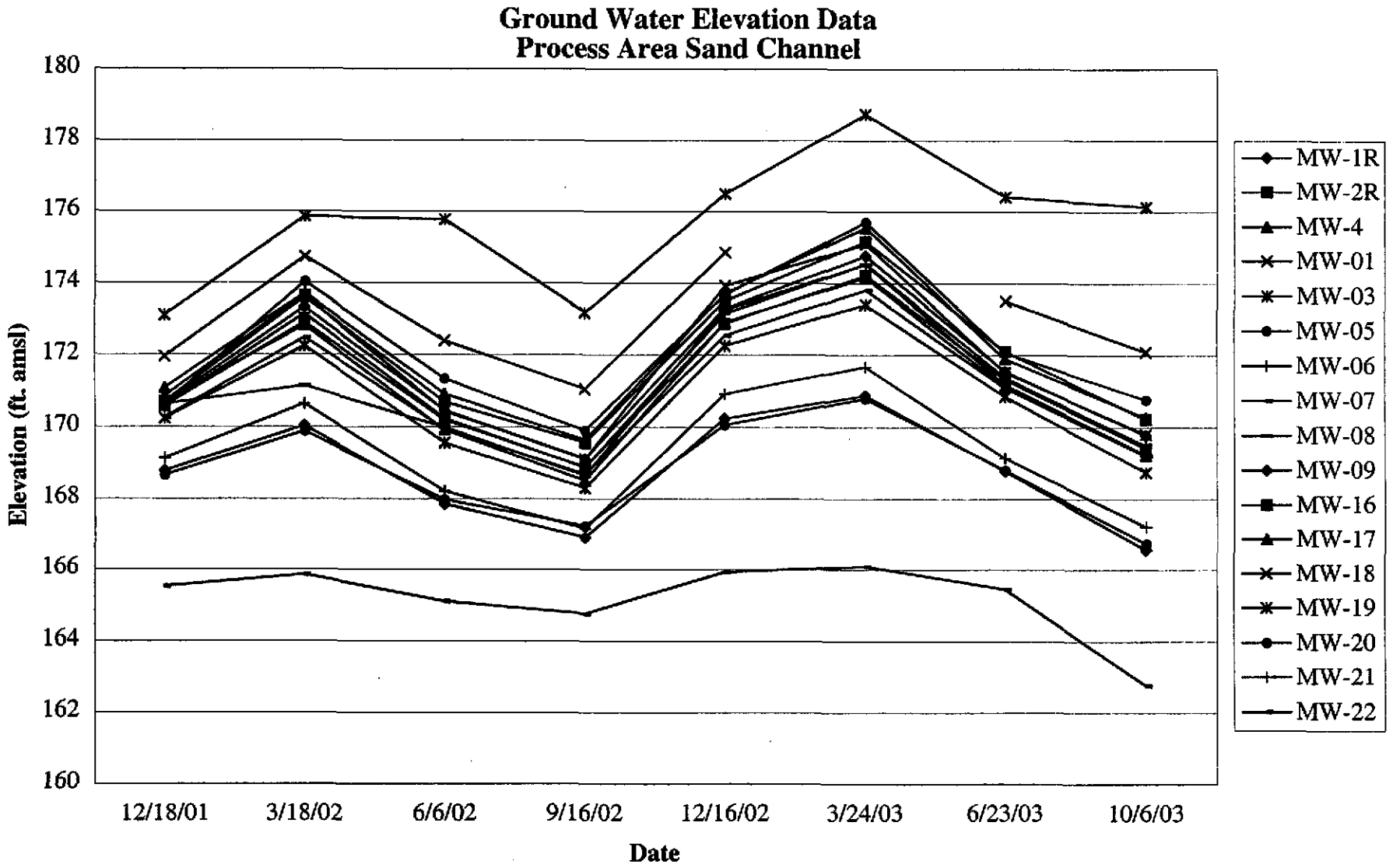
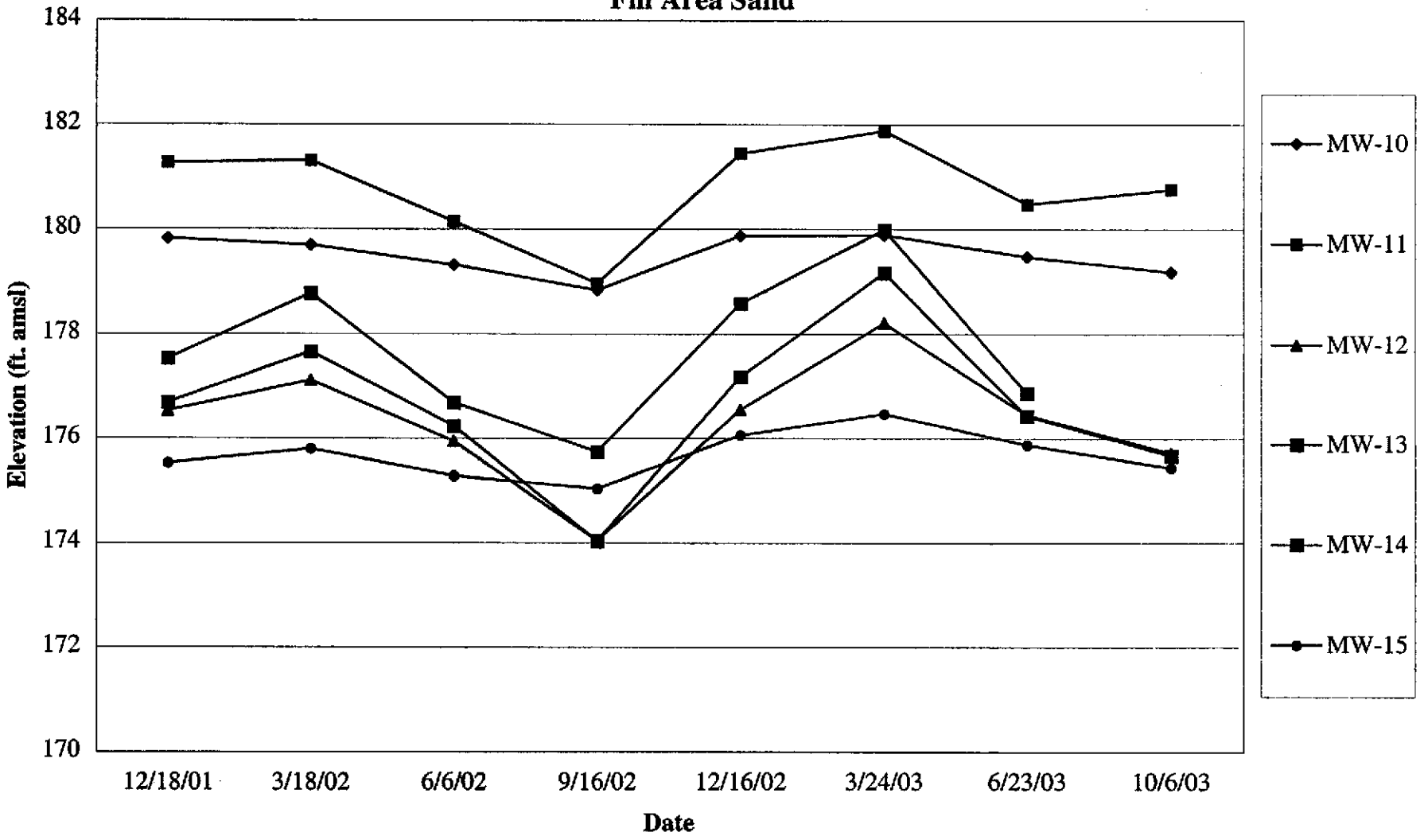
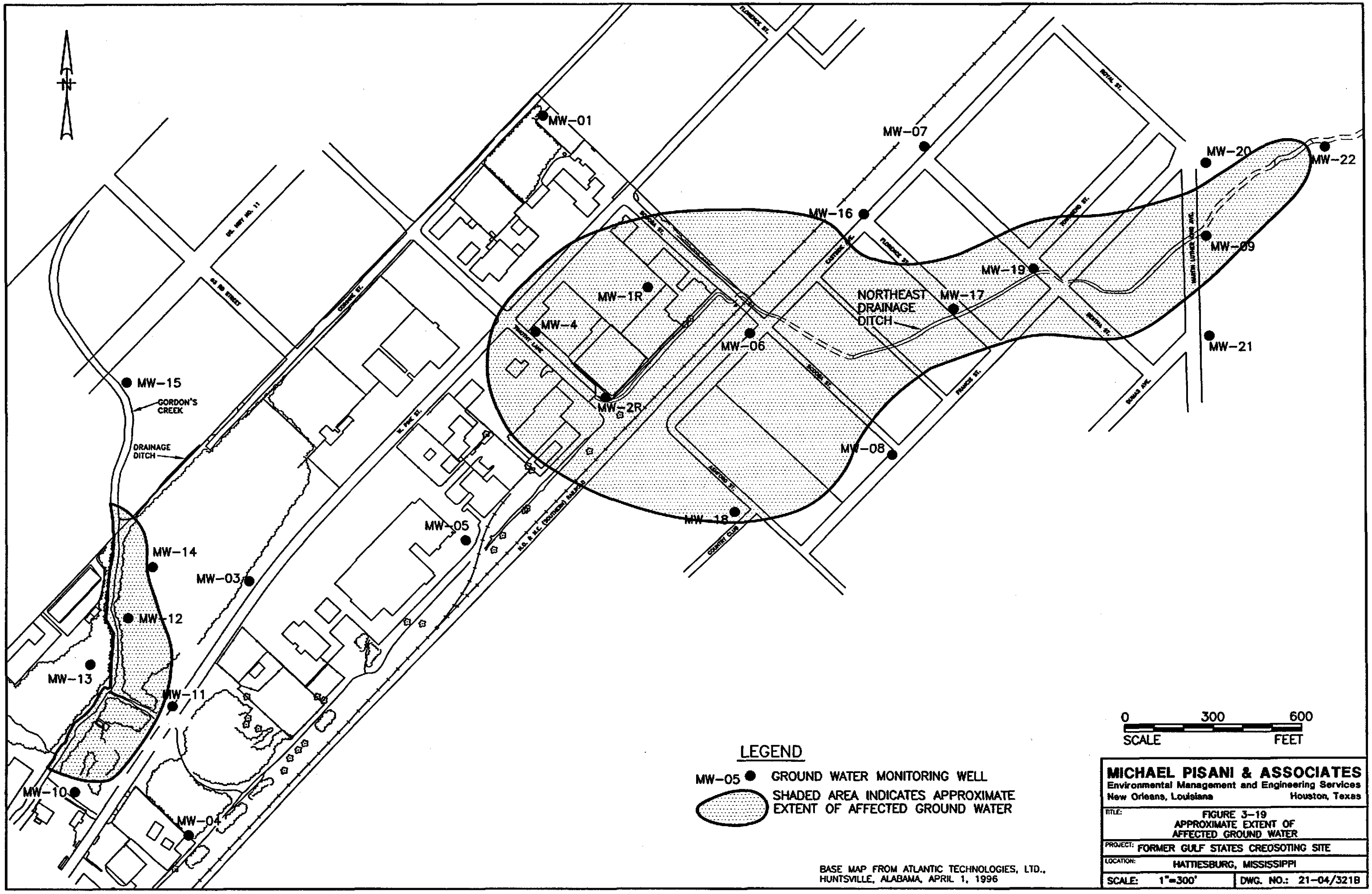

Ground Water Elevation Data
Process Area Sand Channel
Elevation (ft. amsl)
180
178
176
174
172
170
168
166
164
162
160
12/18/01
3/18/02
6/6/02
9/16/02
12/16/02
3/24/03
6/23/03
10/6/03
Date
MW-1R
MW-2R
MW-4
MW-01
MW-03
MW-05
MW-06
MW-07
MW-08
MW-09
MW-16
MW-17
MW-18
MW-19
MW-20
MW-21
MW-22

Figure 3-18

Ground Water Elevation Data
Fill Area Sand





LEGEND

MW-05 ● GROUND WATER MONITORING WELL

SHADED AREA INDICATES APPROXIMATE EXTENT OF AFFECTED GROUND WATER

BASE MAP FROM ATLANTIC TECHNOLOGIES, LTD., HUNTSVILLE, ALABAMA, APRIL 1, 1996

MICHAEL PISANI & ASSOCIATES
Environmental Management and Engineering Services
New Orleans, Louisiana — Houston, Texas

TITLE: FIGURE 3-19
APPROXIMATE EXTENT OF AFFECTED GROUND WATER

PROJECT: FORMER GULF STATES CREOSOTING SITE

LOCATION: HATTIESBURG, MISSISSIPPI

SCALE: 1"=300' | DWG. NO.: 21-04/321B

Tables

Ground Water Monitoring Report
Initial Eight Quarterly Events

Former Gulf States Creosoting Site
Hattiesburg, Mississippi

Table 2-1
Summary of Monitoring Well Completion Information

Former Gulf States Creosoting Site
Hattiesburg, Mississippi

Well	Date Installed	Borehole Diameter (inches)	Well Diameter (inches)	Construction Material	Well Depth (ft. bls)	Top of Casing Elevation (ft. msl)	Screened Interval (ft. bls)	Screened Interval Elevation (ft. msl)
MW-4	May 1994	10.25	4	PVC	34	191.42	24-34	157.42-167.42
MW-01	February 1997	8.25	2	PVC	35	186.14	17-32	154.14-169.14
MW-03	February 1997	8.25	2	PVC	37	189.24	29-34	155.24-160.24
MW-04	February 1997	8.25	2	PVC	40	191.28	27-37	154.28-164.28
MW-05	February 1997	8.25	2	PVC	42	191.59	19-39	152.59-172.59
MW-06	September 1998	8.25	2	PVC	38	185.44	18-38	147.44-167.44
MW-07	September 1998	8.25	2	PVC	38	186.45	18-38	148.45-168.45
MW-08	September 1998	8.25	2	PVC	40	188.73	20-40	148.73-168.73
MW-09	September 1998	8.25	2	PVC	28	174.99	13-28	146.99-161.99
MW-10	September 1998	8.25	2	PVC	13	186.73	8-13	173.73-178.73
MW-11	September 1998	8.25	2	PVC	14	187.76	9-14	173.76-178.76
MW-12	September 1998	8.25	2	PVC	22	183.84	17-22	161.84-166.84
MW-13	September 1998	8.25	2	PVC	19	183.98	9-19	164.98-174.98
MW-14	November 2001	8.25	2	PVC	22	185.48	17-22	163.48-168.48
MW-15	November 2001	8.25	2	PVC	16	187.17	11-16	171.17-176.17
MW-16	November 2001	8.25	2	PVC	42	188.42	20-40	148.42-168.42
MW-17	November 2001	8.25	2	PVC	34	179.94	12-32	147.94-167.94
MW-18	November 2001	8.25	2	PVC	44	191.30	27-42	149.30-164.30
MW-19	November 2001	8.25	2	PVC	34	178.50	12-32	146.50-166.50
MW-20	November 2001	8.25	2	PVC	35	179.56	13-33	146.56-166.56
MW-21	November 2001	8.25	2	PVC	38	186.15	21-36	150.15-165.15
MW-22	November 2001	8.25	2	PVC	28	167.92	6-26	141.92-161.92
MW-1R	August 2000	12/8.25	2	Stainless Steel	42	189.06	37-42	147.06-152.06
MW-2R	August 2000	12/8.25	2	Stainless Steel	44	190.45	39-44	146.45-151.45

Note:
All elevations are referenced to the North American Vertical Datum of 1988 (NAVD 88) and are reported with respect to mean sea level (msl).
bls - below land surface

Table 2-2
Analytical Parameters

Former Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons	Biogeochemical Parameters
Naphthalene	Nitrate
Acenaphthylene	Sulfate
Acenaphthene	Methane
Fluorene	Alkalinity
Phenanthrene	Chloride
Anthracene	Iron (total and dissolved)
Fluoranthene	
Pyrene	
Benzo(a)anthracene	Field Parameters
Chrysene	pH
Benzo(b)fluoranthene	Temperature
Benzo(k)fluoranthene	Specific conductance
Benzo(a)pyrene	Dissolved oxygen
Dibenzo(a,h)anthracene	Ferrous iron
Benzo(g,h,i)perylene	Oxidation-reduction potential (Eh)
Indeno(1,2,3-c,d)pyrene	

Table 3-1
Summary of Ground Water Elevation Data

Former Gulf States Creosoting Site
Hattiesburg, Mississippi

Well	Surveyed TOC Elev.	12/18/01 GW Elev.	3/18/02 GW Elev.	6/6/02 GW Elev.	9/16/02 GW Elev.	12/16/02 GW Elev.	3/24/03 GW Elev.	6/23/03 GW Elev.	10/6/03 GW Elev.
MW-1R	189.06	170.65	173.31	170.46	169.11	173.29	174.75	171.55	169.78
MW-2R	190.45	170.70	173.59	170.70	169.55	173.50	175.16	172.10	170.22
MW-4	191.42	171.07	173.71	170.92	169.62	173.71	175.54	171.89	170.27
MW-01	186.14	171.95	174.72	172.39	171.04	174.84	NM	173.50	172.09
MW-03	189.24	173.09	175.85	175.76	173.16	176.49	178.72	176.41	176.13
MW-04	191.28	178.88	178.90	177.88	177.95	179.72	179.71	178.80	179.18
MW-05	191.59	170.61	174.02	171.34	169.89	173.67	175.69	172.06	170.76
MW-06	185.44	170.59	173.13	170.24	168.86	173.14	174.53	171.38	169.49
MW-07	186.45	170.25	172.48	169.95	168.68	172.54	173.80	171.09	169.20
MW-08	188.73	170.63	171.14	169.98	168.63	173.25	174.51	171.18	169.23
MW-09	174.99	168.78	170.03	167.84	166.89	170.24	170.88	168.78	166.56
MW-10	186.73	179.82	179.69	179.31	178.83	179.87	179.89	179.47	179.17
MW-11	187.76	181.26	181.30	180.14	178.96	181.44	181.87	180.47	180.75
MW-12	183.84	176.52	177.11	175.94	174.04	176.54	178.21	176.44	175.71
MW-13	183.98	177.53	178.77	176.68	175.73	178.58	179.98	176.86	NM
MW-14	185.48	176.68	177.66	176.23	174.03	177.18	179.16	176.42	175.66
MW-15	187.17	175.52	175.79	175.27	175.03	176.05	176.46	175.87	175.43
MW-16	188.42	170.57	172.90	170.20	168.87	172.87	174.21	171.32	169.42
MW-17	179.94	170.69	172.82	169.92	168.49	172.89	174.15	171.13	169.22
MW-18	191.30	170.85	173.64	170.45	169.10	173.92	175.08	171.52	169.80
MW-19	178.50	170.23	172.24	169.55	168.28	172.25	173.40	170.85	168.74
MW-20	179.56	168.65	169.88	167.96	167.21	170.05	170.80	168.80	166.74
MW-21	186.15	169.12	170.64	168.20	167.15	170.92	171.67	169.13	167.21
MW-22	167.92	165.51	165.85	165.10	164.75	165.92	166.09	165.44	162.76
Stream Gauge	178.39	175.94	175.91	174.64	175.44	175.72	NM	NM	NM

Notes:
Elevations referenced to the North American Vertical Datum of 1988 and are reported with respect to mean sea level.
NM - Water level not measured.

Table 3-2

Summary of Ground Water Monitoring Data
First and Second Year Quarterly Events - MW-1R

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001 Result	December 2001 MDL	March 2002 Result	March 2002 MDL	June 2002 Result	June 2002 MDL	September 2002 Result	September 2002 MDL	December 2002 Result	December 2002 MDL	March 2003 Result	March 2003 MDL	June 2003 Result	June 2003 MDL	October 2003 Result	October 2003 MDL
Acenaphthene	µg/l	110j	11	10	0.8	4j	0.9	1.5j	0.8	ND(15)	2	ND(15)	2	4.2j	1.5	ND(17)	1.7
Acenaphthylene	µg/l	ND(110)	11	8	0.8	4j	0.9	0.86j	0.8	ND(15)	2	ND(15)	2	2.6j	1.5	ND(17)	1.7
Anthracene	µg/l	ND(110)	11	0.9	0.04	0.3	0.04	0.19j	0.04	0.17j	0.04	0.066j	0.04	0.3	0.038	ND(0.11)	0.022
Benz(a)anthracene	µg/l	ND(110)	11	0.06j	0.02	0.04j	0.02	0.028j	0.02	ND(0.1)	0.02	ND(0.09)	0.02	ND(0.095)	0.019	ND(0.11)	0.022
Benzo(a)pyrene	µg/l	ND(110)	11	ND(0.09)	0.02	0.03j	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.09)	0.02	ND(0.095)	0.019	ND(0.22)	0.043
Benzo(b)fluoranthene	µg/l	ND(110)	11	ND(0.2)	0.04	0.05j	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.65)	0.11
Benzo(g,h,i)perylene	µg/l	ND(110)	11	ND(0.6)	0.09	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.09	ND(0.57)	0.095	ND(0.11)	0.022
Benzo(k)fluoranthene	µg/l	ND(110)	11	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.09)	0.02	ND(0.095)	0.019	ND(2)	0.41
Chrysene	µg/l	ND(110)	11	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.076	ND(0.43)	0.087
Dibenz(a,h)anthracene	µg/l	ND(110)	11	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.22)	0.043
Fluoranthene	µg/l	ND(110)	11	5	0.2	0.3	0.04	0.27	0.04	0.21	0.04	0.12j	0.04	0.25	0.038	0.15j	0.043
Fluorene	µg/l	59j	11	0.7	0.04	2	0.2	0.93	0.4	0.68j	0.2	0.21j	0.2	2.6	0.17	0.93	0.19
Indeno(1,2,3-cd)pyrene	µg/l	ND(110)	11	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.076	ND(0.43)	0.087
Naphthalene	µg/l	4700	110	250	0.9	110	1	36	1	22	1	2.2j	1	65	1.1	46	1.3
Phenanthrene	µg/l	46j	11	6	0.08	2	0.09	1.5	0.08	1.3	0.08	0.54	0.08	2.6	0.076	1.2	0.087
Pyrene	µg/l	ND(110)	11	0.4j	0.2	ND(0.9)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.76)	0.17	ND(0.87)	0.19
Natural Attenuation Parameters																	
Alkalinity to pH 4.5	mg/l	181	0.41	98.8	0.41	38.7	0.41	27.9	0.41	26.2	0.41	12.7	0.41	12.5	0.41	9.6	0.41
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	0.14j	0.043
Chloride	mg/l	8.1	1.5	7.8	1.5	7.6	1.5	8.3	1.5	7.7	1.5	7.8	1.5	7.3	1.5	7.6	1.5
Iron (Total)	mg/l	18.1	0.038	8.89	0.038	4.06	0.0349	2	0.0349	1.4	0.0349	0.082j	0.035	1.39	0.0453	0.171j	0.0453
Iron (Dissolved)	mg/l	17.1	0.038	9.12	0.038	3.72	0.0349	2	0.0349	1.42	0.0349	ND(0.1)	0.035	1.28	0.0453	0.124j	0.0453
Methane	µg/l	2400	50	350	10	71	2	43	2	48	2	ND(5)	2	35	2	3.7j	2
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	0.61	0.4	0.7	0.4	1.1	0.4	0.81	0.4	1.4	0.4
Sulfate	mg/l	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	1.8j	1.5	1.5j	1.5
Field Parameters																	
Dissolved Oxygen	mg/l	0.54		0.34		0.76		0.27		0.32		0.29		2.14		0.22	
Ferrous Iron	mg/l	8		5.1		5		4		2.6		0		1.4		0	
Oxidation-reduction Pot.	volts	14		-20		90		116		138		327		165		122	
pH	std. units	6.71		6.17		4.62		4.93		5.47		4.91		4.96		5.24	
Specific Conductance	µS/cm	399		214		101		84		81		68		66		68	
Temperature	°C	23.1		24.26		24.8		24.74		24.23		23.92		24.75		32.46*	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
First and Second Year Quarterly Events - MW-2R

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001 Result	December 2001 MDL	March 2002 Result	March 2002 MDL	June 2002 Result	June 2002 MDL	September 2002 Result	September 2002 MDL	December 2002 Result	December 2002 MDL	March 2003 Result	March 2003 MDL	June 2003 Result	June 2003 MDL	October 2003 Result	October 2003 MDL
Acenaphthene	µg/l	44	1	60	0.8	61	0.9	85	0.8	73	2	52	2	66	1.5	58	1.6
Acenaphthylene	µg/l	8j	1	120	0.8	150	0.9	150	0.8	130	2	150	2	120	1.5	100	1.6
Anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(2)	2	0.8	0.04	0.74	0.04	0.72	0.038	0.25	0.02
Benz(a)anthracene	µg/l	ND(10)	1	0.4	0.02	0.5	0.02	0.44	0.02	0.39	0.02	0.33	0.02	0.43	0.019	ND(0.1)	0.02
Benzo(a)pyrene	µg/l	ND(10)	1	0.02j	0.02	0.05j	0.02	0.025j	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.027j	0.019	0.049j	0.041
Benzo(b)fluoranthene	µg/l	ND(10)	1	0.05j	0.04	0.1j	0.04	0.067j	0.04	0.064j	0.04	0.057j	0.04	0.09j	0.038	ND(0.61)	0.1
Benzo(g,h,i)perylene	µg/l	ND(10)	1	ND(0.6)	0.09	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.58)	0.096	0.032j	0.02
Benzo(k)fluoranthene	µg/l	ND(10)	1	0.04j	0.02	0.07j	0.02	0.045j	0.02	0.043j	0.02	0.036j	0.02	0.064j	0.019	ND(2)	0.41
Chrysene	µg/l	ND(10)	1	0.3j	0.08	0.4j	0.09	0.33j	0.08	0.35j	0.08	0.35j	0.08	0.38j	0.077	0.23j	0.081
Dibenz(a,h)anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.2)	0.041
Fluoranthene	µg/l	11	1	39	0.8	10	0.2	9.5	0.4	8.8	0.8	9.3	0.8	10	1.9	7.2	0.041
Fluorene	µg/l	35	1	10	0.2	50	1	56	2	60	3	66	3	63	8.6	51	9.1
Indeno(1,2,3-cd)pyrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.077	ND(0.41)	0.081
Naphthalene	µg/l	12000	200	8700	50	9000	50	9300	96	8900	120	11000	110	9700	58	8100	61
Phenanthrene	µg/l	140	1	110	4	140	4	150	0.8	160	2	160	2	150	3.8	120	4.1
Pyrene	µg/l	2j	1	2	0.2	2	0.2	0.87	0.2	1.4	0.2	1.1	0.2	1.6	0.17	1.1	0.18
Natural Attenuation Parameters																	
Alkalinity to pH 4.5	mg/l	22.4	0.41	22.1	0.41	22	0.41	ND(2)	0.41	22.4	0.41	21.7	0.41	21.8	0.41	21.1	0.41
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	22.6	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	0.42	0.041
Chloride	mg/l	6.5	1.5	7	1.5	6	1.5	6.3	1.5	5.8	1.5	5.7	1.5	6.1	1.5	5.8	1.5
Iron (Total)	mg/l	0.0718j	0.038	0.0398j	0.035	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.035	0.0679j	0.0453	0.0578j	0.0453
Iron (Dissolved)	mg/l	ND(0.1)	0.038	0.0481j	0.035	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.035	ND(0.2)	0.0453	ND(0.2)	0.0453
Methane	µg/l	2.8j	2	2.2j	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2
Nitrate Nitrogen	mg/l-	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4
Sulfate	mg/l	19.9	1.5	18.8	1.5	20.9	1.5	21.2	1.5	19.3	1.5	20.9	1.5	21.8	1.5	19.9	1.5
Field Parameters																	
Dissolved Oxygen	mg/l	0.42		0.41		0.48		0.26		0.33		0.25		2.04		0.5	
Ferrous Iron	mg/l	0		0		0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	409		200		421		307		237		350		268		166	
pH	std. units	5.56		5.36		4.58		4.43		5.4		5		5.08		5.31	
Specific Conductance	µS/cm	102		108		107		113		113		113		116		113	
Temperature	°C	21.8		21.53		22.6		22.68		22.23		22.04		22.18		25.41*	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
First and Second Year Quarterly Events - MW-4

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001 Result	December 2001 MDL	March 2002 Result	March 2002 MDL	June 2002 Result	June 2002 MDL	September 2002 Result	September 2002 MDL	December 2002 Result	December 2002 MDL	March 2003 Result	March 2003 MDL	June 2003 Result	June 2003 MDL	October 2003 Result	October 2003 MDL
Acenaphthene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(16)	2	ND(15)	2	ND(15)	1.5	ND(17)	1.7
Acenaphthylene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(16)	2	ND(15)	2	ND(15)	1.5	ND(17)	1.7
Anthracene	µg/l	ND(10)	1	0.08j	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.1)	0.021
Benz(a)anthracene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.096)	0.019	ND(0.1)	0.021
Benzo(a)pyrene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.096)	0.019	ND(0.21)	0.042
Benzo(b)fluoranthene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.63)	0.1
Benzo(g,h,i)perylene	µg/l	ND(10)	1	ND(0.6)	0.09	ND(0.6)	0.09	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.58)	0.096	ND(0.1)	0.021
Benzo(k)fluoranthene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.096)	0.019	ND(2)	0.41
Chrysene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.077	ND(0.42)	0.084
Dibenz(a,h)anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.21)	0.042
Fluoranthene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.21)	0.042
Fluorene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.8)	0.2	0.24j	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.77)	0.17	0.26j	0.19
Indeno(1,2,3-cd)pyrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.077	ND(0.42)	0.084
Naphthalene	µg/l	110	1	ND(8)	0.9	ND(8)	0.9	59	1	4.5j	1	ND(12)	1	ND(12)	1.2	35	1.3
Phenanthrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	0.39j	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.077	0.35j	0.084
Pyrene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.77)	0.17	ND(0.84)	0.19
Natural Attenuation Parameters																	
Alkalinity to pH 4.5	mg/l	14.6	0.41	15.3	0.41	16	0.41	ND(2)	0.41	16.6	0.41	16	0.41	15.8	0.41	15.6	0.41
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	15.6	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(0.21)	0.042
Chloride	mg/l	7.7	1.5	8.4	1.5	7.5	1.5	7.9	1.5	7.4	1.5	7.4	1.5	7.6	1.5	7.2	1.5
Iron (Total)	mg/l	0.0529j	0.038	ND(0.1)	0.035	0.333	0.0349	0.51	0.0349	0.826	0.0349	0.038j	0.035	ND(0.2)	0.0453	ND(0.2)	0.0453
Iron (Dissolved)	mg/l	ND(0.1)	0.038	ND(0.1)	0.035	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.035	ND(0.2)	0.0453	ND(0.2)	0.0453
Methane	µg/l	3.1j	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4
Sulfate	mg/l	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	1.5j	1.5	ND(5)	1.5	ND(5)	1.5	1.9j	1.5
Field Parameters																	
Dissolved Oxygen	mg/l	0.57		0.63		3.62		6.09		3.5		0.33		2.86		0.44	
Ferrous Iron	mg/l	0		0		1		0		0		0		0		0.1	
Oxidation-reduction Pot.	volts	403		268		639		221		308		402		276		141	
pH	std. units	5.67		5.44		3.94		5.43		5.54		5.05		5.11		5.38	
Specific Conductance	µS/cm	62		61		63		67		66		65		68		64	
Temperature	°C	24.2		23.24		24.7		24.94		24		24.08		24.38		32.85*	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
First and Second Year Quarterly Events - MW-03

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001 Result	December 2001 MDL	March 2002 Result	March 2002 MDL	June 2002 Result	June 2002 MDL	September 2002 Result	September 2002 MDL	December 2002 Result	December 2002 MDL	March 2003 Result	March 2003 MDL	June 2003 Result	June 2003 MDL	October 2003 Result	October 2003 MDL
Acenaphthene	µg/l	ND(11)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(16)	2	ND(15)	2	ND(16)	1.6	ND(17)	1.7
Acenaphthylene	µg/l	ND(11)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(16)	2	ND(15)	2	ND(16)	1.6	ND(17)	1.7
Anthracene	µg/l	ND(11)	1	0.1j	0.04	0.08j	0.04	0.07j	0.04	0.069j	0.04	0.086j	0.04	0.091j	0.04	ND(0.1)	0.021
Benz(a)anthracene	µg/l	ND(11)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.023j	0.02	ND(0.1)	0.02	ND(0.1)	0.021
Benzo(a)pyrene	µg/l	ND(11)	1	ND(0.09)	0.02	ND(0.1)	0.02	0.023j	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.21)	0.042
Benzo(b)fluoranthene	µg/l	ND(11)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.04	ND(0.62)	0.1
Benzo(g,h,i)perylene	µg/l	ND(11)	1	ND(0.6)	0.09	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.58)	0.1	ND(0.1)	0.021
Benzo(k)fluoranthene	µg/l	ND(11)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(2)	0.41
Chrysene	µg/l	ND(11)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	0.54	0.08	0.35j	0.08	0.24j	0.08	0.48	0.083
Dibenz(a,h)anthracene	µg/l	ND(11)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.04	ND(0.21)	0.042
Fluoranthene	µg/l	ND(11)	1	0.5j	0.2	0.2	0.04	0.24	0.04	0.19j	0.04	0.23	0.04	0.2	0.04	0.2j	0.042
Fluorene	µg/l	ND(11)	1	0.3	0.04	0.3j	0.2	0.29j	0.2	ND(0.8)	0.2	0.35j	0.2	0.31j	0.17	0.54j	0.19
Indeno(1,2,3-cd)pyrene	µg/l	ND(11)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	ND(0.42)	0.083
Naphthalene	µg/l	ND(11)	1	ND(8)	0.9	ND(8)	1	ND(8)	1	ND(12)	1	ND(11)	1	ND(12)	1.2	ND(12)	1.2
Phenanthrene	µg/l	ND(11)	1	0.9	0.08	0.6	0.08	0.59	0.08	0.46	0.08	0.63	0.08	0.53	0.08	0.5	0.083
Pyrene	µg/l	ND(11)	1	ND(0.8)	0.2	ND(0.8)	0.2	0.22j	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.78)	0.17	ND(0.83)	0.19
Natural Attenuation Parameters																	
Alkalinity to pH 4.5	mg/l	103	0.41	116	0.41	84	0.41	ND(2)	0.41	79.7	0.41	107	0.41	108	0.41	137	0.41
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	86.3	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	0.084j	0.042
Chloride	mg/l	7.9	1.5	7.5	1.5	8.2	1.5	8.6	1.5	7.9	1.5	7.6	1.5	7.8	1.5	6.9	1.5
Iron (Total)	mg/l	9.09	0.038	9.43	0.038	6.77	0.0349	7.58	0.0349	6.8	0.0349	9.8	0.035	9.63	0.0453	9.54	0.0453
Iron (Dissolved)	mg/l	8.7	0.038	8.83	0.038	6.67	0.0349	7.33	0.0349	6.9	0.0349	8.5	0.035	9.21	0.0453	13.5	0.0453
Methane	µg/l	3600	200	4700	100	2400	50	2700	100	2200	50	4400	200	5100	100	4700	100
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4
Sulfate	mg/l	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	1.5j	1.5	1.7j	1.5	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5
Field Parameters																	
Dissolved Oxygen	mg/l	0.73		0.23		1.08		0.21		0.3		0.32		2.23		0.36	
Ferrous Iron	mg/l	8		5.5		0		9		5		6.1		6.2		5.2	
Oxidation-reduction Pot.	volts	85		-69		12		-42		382		-16.2		-14.1		-407	
pH	std. units	6.85		6.34		5.35		6.3		6.04		6.5		6.03		6.36	
Specific Conductance	µS/cm	229		265		177		207		185		260		250		254	
Temperature	°C	22.3		21.66		22.1		22.46		22.49		20.87		21.91		27.08*	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
First and Second Year Quarterly Events - MW-05

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001 Result	MDL	March 2002 Result	MDL	June 2002 Result	MDL	September 2002 Result	MDL	December 2002 Result	MDL	March 2003 Result	MDL	June 2003 Result	MDL	October 2003 Result	MDL
Acenaphthene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(15)	2	ND(15)	2	ND(16)	1.6	NA	NA
Acenaphthylene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(15)	2	ND(15)	2	ND(16)	1.6	NA	NA
Anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	0.041j	0.04	NA	NA
Benz(a)anthracene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	0.094j	0.02	NA	NA
Benzo(a)pyrene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	0.25	0.02	NA	NA
Benzo(b)fluoranthene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	0.066j	0.04	NA	NA
Benzo(g,h,i)perylene	µg/l	ND(10)	1	ND(0.6)	0.09	ND(0.6)	0.09	ND(0.6)	0.09	ND(0.6)	0.09	ND(0.6)	0.1	0.11j	0.1	NA	NA
Benzo(k)fluoranthene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	0.12	0.02	NA	NA
Chrysene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	0.16j	0.08	NA	NA
Dibenz(a,h)anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	0.2j	0.04	NA	NA
Fluoranthene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	0.056j	0.04	NA	NA
Fluorene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	3	0.18	NA	NA
Indeno(1,2,3-cd)pyrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	0.097j	0.08	NA	NA
Naphthalene	µg/l	ND(10)	1	ND(8)	0.9	ND(8)	0.9	ND(8)	0.9	ND(11)	1	ND(11)	1	ND(12)	1.2	NA	NA
Phenanthrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	NA	NA
Pyrene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.79)	0.18	NA	NA
Natural Attenuation Parameters																	
Alkalinity to pH 4.5	mg/l	22	0.41	17.1	0.41	16.7	0.41	ND(2)	0.41	21.3	0.41	31.8	0.41	11.1	0.41	NA	NA
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	17.3	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	NA	NA
Chloride	mg/l	6.6	1.5	6.3	1.5	6.2	1.5	6.7	1.5	6.5	1.5	ND(2)	1.5	ND(2)	1.5	NA	NA
Iron (Total)	mg/l	0.674	0.038	0.202	0.038	0.46	0.0349	0.0615j	0.0349	0.0856j	0.0349	5.7	0.035	2.35	0.0453	NA	NA
Iron (Dissolved)	mg/l	ND(0.1)	0.038	ND(0.1)	0.038	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.0349	4.4	0.035	0.773	0.0453	NA	NA
Methane	µg/l	2.9j	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	53	2	120	2	NA	NA
Nitrate Nitrogen	mg/l	1.12	0.4	1.11	0.4	1.11	0.4	1.17	0.4	0.99	0.4	ND(0.5)	0.4	ND(0.5)	0.4	NA	NA
Sulfate	mg/l	2.2j	1.5	1.9j	1.5	2.3j	1.5	2.3j	1.5	2.4j	1.5	2.4j	1.5	3.7j	1.5	NA	NA
Field Parameters																	
Dissolved Oxygen	mg/l	0.82		0.99		1.06		0.51		0.65		0.16		1.89		0.14	
Ferrous Iron	mg/l	0		0		0		0		0		3.9		1.2		NA	
Oxidation-reduction Pot.	volts	364		237		379		239		274		-70.9		156		-119	
pH	std. units	5.74		5.43		4.75		5.02		5.47		6.05		5.74		6.31	
Specific Conductance	µS/cm	68		72		68		74		75		94		37		122	
Temperature	°C	22.87		23.65		24.21		24.52		24.5		24.21		25.01		26.54*	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
First and Second Year Quarterly Events - MW-06

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001 Result	December 2001 MDL	March 2002 Result	March 2002 MDL	June 2002 Result	June 2002 MDL	September 2002 Result	September 2002 MDL	December 2002 Result	December 2002 MDL	March 2003 Result	March 2003 MDL	June 2003 Result	June 2003 MDL	October 2003 Result	October 2003 MDL
Acenaphthene	µg/l	170	10	160	0.8	140	0.8	150	0.8	160	2	100	2	140	1.5	120	1.5
Acenaphthylene	µg/l	ND(100)	10	150	0.8	150	0.8	130	0.8	170	2	130	2	160	1.5	120	1.5
Anthracene	µg/l	ND(100)	10	7	0.2	6	0.04	6.6	0.04	8.6	0.4	5.7	0.04	8	0.77	ND(0.095)	0.019
Benz(a)anthracene	µg/l	ND(100)	10	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.096)	0.019	ND(0.095)	0.019
Benzo(a)pyrene	µg/l	ND(100)	10	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.096)	0.019	ND(0.19)	0.038
Benzo(b)fluoranthene	µg/l	ND(100)	10	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.57)	0.095
Benzo(g,h,i)perylene	µg/l	ND(100)	10	ND(0.6)	0.09	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.58)	0.096	ND(0.095)	0.019
Benzo(k)fluoranthene	µg/l	ND(100)	10	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.096)	0.019	ND(2)	0.41
Chrysene	µg/l	ND(100)	10	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.077	ND(0.38)	0.076
Dibenz(a,h)anthracene	µg/l	ND(100)	10	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.19)	0.038
Fluoranthene	µg/l	ND(100)	10	89	0.8	2	0.04	2.6	0.04	2.3	0.04	1.8	0.04	2.1	0.038	1.9	0.038
Fluorene	µg/l	120	10	2	0.04	92	1	92	0.2	120	2	94	3	110	3.5	86	8.6
Indeno(1,2,3-cd)pyrene	µg/l	ND(100)	10	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.077	ND(0.38)	0.076
Naphthalene	µg/l	9100	200	7300	50	6800	50	8200	1	8600	120	7600	57	8500	58	6400	57
Phenanthrene	µg/l	79j	10	65	0.4	67	0.4	69	0.08	83	0.8	68	2	78	1.5	65	3.8
Pyrene	µg/l	ND(100)	10	0.6j	0.2	0.7j	0.2	1.7	0.2	0.77j	0.2	0.43j	0.2	0.74j	0.17	0.67j	0.17
Natural Attenuation Parameters																	
Alkalinity to pH 4.5	mg/l	97.6	0.41	111	0.41	110	0.41	ND(2)	0.41	98.9	0.41	87.2	0.41	110	0.41	108	0.41
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	98.6	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	6.1	0.038
Chloride	mg/l	9.7	1.5	9.6	1.5	10.5	1.5	10.9	1.5	9.1	1.5	7.4	1.5	8.6	1.5	8.4	1.5
Iron (Total)	mg/l	20.6	0.038	23	0.038	21.7	0.0349	19.8	0.0349	21.4	0.0349	15.3	0.035	16.8	0.0453	18.8	0.0453
Iron (Dissolved)	mg/l	20.8	0.038	23	0.038	20.2	0.0349	18.7	0.0349	20.1	0.0349	16.2	0.035	17.9	0.0453	18.9	0.0453
Methane	µg/l	1200	50	1400	40	1400	40	1900	2	1900	50	1200	50	1900	100	1400	50
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4
Sulfate	mg/l	3j	1.5	4.9j	1.5	3.7j	1.5	4.1j	1.5	6	1.5	4.8j	1.5	2.7j	1.5	5.2	1.5
Field Parameters																	
Dissolved Oxygen	mg/l	0.35		0.26		0.41		0.17		0.33		0.11		2.68		0.3	
Ferrous Iron	mg/l	7		5		3		4.5		5		4.2		6.6		5.2	
Oxidation-reduction Pot.	volts	58		-177		-116		-87		-58		-111		-32		-98	
pH	std. units	6.19		6.18		4.92		5.46		6.03		5.81		5.37		6.08	
Specific Conductance	µS/cm	215		246		239		236		225		206		246		206	
Temperature	°C	22.1		21.58		22.5		22.74		22.67		21.2		22.74		32.19*	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
First and Second Year Quarterly Events - MW-08

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001 Result	December 2001 MDL	March 2002 Result	March 2002 MDL	June 2002 Result	June 2002 MDL	September 2002 Result	September 2002 MDL	December 2002 Result	December 2002 MDL	March 2003 Result	March 2003 MDL	June 2003 Result	June 2003 MDL	October 2003 Result	October 2003 MDL
Acenaphthene	µg/l	ND(10)	1	ND(8)	0.8	ND(9)	0.9	ND(8)	0.8	ND(16)	2	ND(15)	2	ND(16)	1.6	ND(16)	1.6
Acenaphthylene	µg/l	ND(10)	1	ND(8)	0.8	ND(9)	0.9	ND(8)	0.8	ND(16)	2	ND(15)	2	ND(16)	1.6	ND(16)	1.6
Anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.098)	0.02
Benz(a)anthracene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.098)	0.02
Benzo(a)pyrene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.2)	0.039
Benzo(b)fluoranthene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.59)	0.098
Benzo(g,h,i)perylene	µg/l	ND(10)	1	ND(0.6)	0.09	ND(0.7)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.098)	0.02
Benzo(k)fluoranthene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(2)	0.41
Chrysene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.078
Dibenz(a,h)anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.039
Fluoranthene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.039
Fluorene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.9)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.18	ND(0.78)	0.18
Indeno(1,2,3-cd)pyrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.078
Naphthalene	µg/l	ND(10)	1	ND(8)	0.9	ND(9)	1	ND(8)	1	ND(12)	1	ND(11)	1	ND(12)	1.2	ND(12)	1.2
Phenanthrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.078
Pyrene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.9)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.18	ND(0.78)	0.18
Natural Attenuation Parameters																	
Alkalinity to pH 4.5	mg/l	4.1	0.41	3	0.41	3.2	0.41	ND(2)	0.41	3.6	0.41	3.3	0.41	3.1	0.41	3	0.41
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	3.5	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(0.2)	0.039
Chloride	mg/l	15.5	1.5	22.5	1.5	24.2	1.5	21.9	1.5	18.6	1.5	25.5	1.5	28.6	1.5	35	3
Iron (Total)	mg/l	0.259	0.038	ND(0.1)	0.038	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.035	ND(0.2)	0.0453	ND(0.2)	0.0453
Iron (Dissolved)	mg/l	ND(0.1)	0.038	ND(0.1)	0.038	20.2	0.0349	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.035	ND(0.2)	0.0453	ND(0.2)	0.0453
Methane	µg/l	3.6j	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2
Nitrate Nitrogen	mg/l	1.19	0.4	1.47	0.4	1.75	0.4	1.77	0.4	1.19	0.4	1.2	0.4	1.2	0.4	1.5	0.4
Sulfate	mg/l	6.6	1.5	6.4	1.5	3.3j	1.5	3.9j	1.5	6.4	1.5	4j	1.5	3.4j	1.5	3.4j	1.5
Field Parameters																	
Dissolved Oxygen	mg/l	3.33		4.31		2.92		2.82		3.45		2.92		3.28		1.15	
Ferrous Iron	mg/l	0		0		0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	428		528		300		334		367		320		395		196	
pH	std. units	5.25		4.46		4.49		4.43		4.96		4.3		4.68		4.94	
Specific Conductance	µS/cm	88		114		105		100		95		150		126		390	
Temperature	°C	21.4		21.95		21.6		22.24		22.15		21.29		21.83		32.61*	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
First and Second Year Quarterly Events - MW-09

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001 Result	December 2001 MDL	March 2002 Result	March 2002 MDL	June 2002 Result	June 2002 MDL	September 2002 Result	September 2002 MDL	December 2002 Result	December 2002 MDL	March 2003 Result	March 2003 MDL	June 2003 Result	June 2003 MDL	October 2003 Result	October 2003 MDL
Acenaphthene	µg/l	240j	27	230	0.8	310	0.9	280	0.8	230	2	190	2	330	1.6	220	1.6
Acenaphthylene	µg/l	12	1	ND(8)	0.8	120	0.9	120	0.8	80	2	ND(55)	55	130	1.6	100	1.6
Anthracene	µg/l	12	1	9	0.4	9	0.4	9.2	0.8	9.8	0.8	7.6	0.4	9.3	0.79	0.066j	0.02
Benz(a)anthracene	µg/l	ND(11)	1	0.1	0.02	0.1	0.02	0.085j	0.02	0.078j	0.02	0.06j	0.02	0.082j	0.02	ND(0.1)	0.02
Benzo(a)pyrene	µg/l	ND(11)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.2)	0.04
Benzo(b)fluoranthene	µg/l	ND(11)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.61)	0.1
Benzo(g,h,i)perylene	µg/l	ND(11)	1	ND(0.6)	0.09	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.59)	0.1	ND(0.1)	0.02
Benzo(k)fluoranthene	µg/l	ND(11)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(2)	0.41
Chrysene	µg/l	ND(11)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.081
Dibenz(a,h)anthracene	µg/l	ND(11)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04
Fluoranthene	µg/l	14	1	110	2	12	0.4	10	0.8	10	0.8	9	0.4	11	0.79	10	0.4
Fluorene	µg/l	160j	27	10	0.4	160	2	150	3	130	3	110	2	190	3.6	140	1.8
Indeno(1,2,3-cd)pyrene	µg/l	ND(11)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.081
Naphthalene	µg/l	2600	27	1000	9	1600	10	2400	19	1000	23	1100	11	1700	24	1400	12
Phenanthrene	µg/l	110	1	97	0.8	130	0.9	120	2	130	2	100	0.8	150	1.6	130	0.81
Pyrene	µg/l	9j	1	6	0.2	6	0.2	7.6	0.2	5.2	0.2	3.3	0.2	5.1	0.18	4.2	0.18
Natural Attenuation Parameters																	
Alkalinity to pH 4.5	mg/l	85.5	0.41	80	0.41	80.9	0.41	ND(2)	0.41	73	0.41	96.6	0.41	90.1	0.41	84.9	0.41
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	80	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	7	0.04
Chloride	mg/l	5.7	1.5	6.5	1.5	7	1.5	7.6	1.5	5.8	1.5	7	1.5	6.9	1.5	6.8	1.5
Iron (Total)	mg/l	15.8	0.038	15.3	0.038	15.2	0.0349	16	0.0349	14.8	0.0349	17.3	0.035	15.8	0.0453	18	0.0453
Iron (Dissolved)	mg/l	15.5	0.038	15.5	0.038	14.8	0.0349	16.2	0.0349	15.2	0.0349	17.3	0.035	16.7	0.0453	17.6	0.0453
Methane	µg/l	590	40	380	10	480	10	340	10	230	10	750	20	580	20	450	20
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4
Sulfate	mg/l	3.4j	1.5	6.6	1.5	4j	1.5	ND(5)	1.5	5.3	1.5	9.6	1.5	6.4	1.5	13.8	1.5
Field Parameters																	
Dissolved Oxygen	mg/l	0.46		0.34		0.4		0.22		0.17		0.16		4.07		0.42	
Ferrous Iron	mg/l	6		3		7		5		5.5		3		4		4.6	
Oxidation-reduction Pot.	volts	62		-179		28		-105		-72		-34		-70.5		-166	
pH	std. units	6.25		6.23		4.73		5.09		6.2		4.77		5.68		5.96	
Specific Conductance	µS/cm	189		185		180		181		171		220		203		238	
Temperature	°C	21.6		19.18		21.5		24.27		22.17		18.95		22.03		23.73	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
First and Second Year Quarterly Events - MW-10

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001 Result	December 2001 MDL	March 2002 Result	March 2002 MDL	June 2002 Result	June 2002 MDL	September 2002 Result	September 2002 MDL	December 2002 Result	December 2002 MDL	March 2003 Result	March 2003 MDL	June 2003 Result	June 2003 MDL	October 2003 Result	October 2003 MDL
Acenaphthene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(16)	2	ND(15)	2	ND(15)	2	ND(15)	1.5
Acenaphthylene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(16)	2	ND(15)	2	ND(15)	2	ND(15)	1.5
Anthracene	µg/l	ND(10)	1	0.04j	0.04	0.04j	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.096)	0.019
Benz(a)anthracene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.096)	0.019
Benzo(a)pyrene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.19)	0.039
Benzo(b)fluoranthene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.58)	0.096
Benzo(g,h,i)perylene	µg/l	ND(10)	1	ND(0.6)	0.09	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.09	ND(0.6)	0.1	ND(0.096)	0.019
Benzo(k)fluoranthene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	ND(2)	0.41
Chrysene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.077
Dibenz(a,h)anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.039
Fluoranthene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.039
Fluorene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.77)	0.17
Indeno(1,2,3-cd)pyrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.077
Naphthalene	µg/l	ND(10)	1	ND(8)	0.9	ND(8)	1	ND(8)	1	ND(12)	1	ND(11)	1	ND(12)	1	ND(12)	1.2
Phenanthrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.077
Pyrene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.77)	0.17
Natural Attenuation Parameters																	
Alkalinity to pH 4.5	mg/l	115	0.41	174	0.41	138	0.41	ND(2)	0.41	145	0.41	126	0.41	162	0.41	126	0.41
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	110	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(0.19)	0.039
Chloride	mg/l	13.1	1.5	10	1.5	15	1.5	12	1.5	13	1.5	4.8	1.5	11.3	1.5	6.7	1.5
Iron (Total)	mg/l	8.42	0.038	10.6	0.038	10.4	0.0349	8.28	0.0349	9.18	0.0349	12.3	0.035	16.4	0.0453	10.9	0.0453
Iron (Dissolved)	mg/l	8.37	0.038	10.5	0.038	10.3	0.0349	8.3	0.0349	8.64	0.0349	11.4	0.035	15.8	0.0453	11.1	0.0453
Methane	µg/l	260	10	3000	50	1100	50	730	40	1100	40	2200	200	2800	200	910	40
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4
Sulfate	mg/l	17	1.5	13.2	1.5	17.1	1.5	3.3j	1.5	6.1	1.5	5.4	1.5	8	1.5	4.1j	1.5
Field Parameters																	
Dissolved Oxygen	mg/l	0.49		0.2		0.43		0.27		0.36		0.29		2.37		0.21	
Ferrous Iron	mg/l	7		5.5		6.5		6		4.5		8		7		3.4	
Oxidation-reduction Pot.	volts	70		-123		-51		-160		-32		-17.5		13.2		-390	
pH	std. units	6.67		5.86		6.04		6.24		6.31		5.87		5.8		6.15	
Specific Conductance	µS/cm	307		403		369		300		372		296		383		240	
Temperature	°C	21.1		17.54		22.6		25.4		19.76		17.44		23.14		40.14*	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
First and Second Year Quarterly Events - MW-11

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001 Result	December 2001 MDL	March 2002 Result	March 2002 MDL	June 2002 Result	June 2002 MDL	September 2002 Result	September 2002 MDL	December 2002 Result	December 2002 MDL	March 2003 Result	March 2003 MDL	June 2003 Result	June 2003 MDL	October 2003 Result	October 2003 MDL
Acenaphthene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(15)	2	ND(15)	2	ND(16)	1.6	ND(15)	1.5
Acenaphthylene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(15)	2	ND(15)	2	ND(16)	1.6	ND(15)	1.5
Anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.095)	0.019
Benz(a)anthracene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.095)	0.019
Benzo(a)pyrene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.19)	0.038
Benzo(b)fluoranthene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.57)	0.095
Benzo(g,h,i)perylene	µg/l	ND(10)	1	ND(0.6)	0.09	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.59)	0.1	ND(0.095)	0.019
Benzo(k)fluoranthene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(2)	0.41
Chrysene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	ND(0.38)	0.076
Dibenz(a,h)anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038
Fluoranthene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038
Fluorene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.78)	0.18	ND(0.76)	0.17
Indeno(1,2,3-cd)pyrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	ND(0.38)	0.076
Naphthalene	µg/l	ND(10)	1	ND(8)	0.9	ND(8)	1	ND(8)	1	ND(12)	1	ND(11)	1	ND(12)	1.2	ND(11)	1.1
Phenanthrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	ND(0.38)	0.076
Pyrene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.78)	0.18	ND(0.76)	0.17
Natural Attenuation Parameters																	
Alkalinity to pH 4.5	mg/l	0.68j	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	0.7j	0.41	0.56j	0.41	2.2	0.41	ND(2)	0.41
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(0.19)	0.038
Chloride	mg/l	5.8	1.5	6.2	1.5	6.9	1.5	9.7	1.5	7.6	1.5	10.1	1.5	11.6	1.5	11	1.5
Iron (Total)	mg/l	0.676	0.038	ND(0.1)	0.038	ND(0.1)	0.0349	ND(0.1)	0.0349	0.149	0.0349	ND(0.1)	0.035	ND(0.2)	0.0453	ND(0.2)	0.0453
Iron (Dissolved)	mg/l	ND(0.1)	0.038	ND(0.1)	0.038	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.035	ND(0.2)	0.0453	ND(0.2)	0.0453
Methane	µg/l	10	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2
Nitrate Nitrogen	mg/l	0.56	0.4	0.44j	0.4	0.52	0.4	0.41j	0.4	0.41j	0.4	0.4j	0.4	ND(0.5)	0.4	ND(0.5)	0.4
Sulfate	mg/l	22.2	1.5	20.8	1.5	20.1	1.5	21.4	1.5	20.3	1.5	22.3	1.5	17.8	1.5	23.1	1.5
Field Parameters																	
Dissolved Oxygen	mg/l	3.95		1.32		1.59		0.56		0.61		1.17		2		0.63	
Ferrous Iron	mg/l	0		0		0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	336		365		520		326		390		515		369		304	
pH	std. units	5.52		4.18		3.7		4.4		4.74		3.16		4.57		4.41	
Specific Conductance	µS/cm	81		86		85		97		94		98		109		112	
Temperature	°C	22.3		18.92		24.9		27.74		20.44		18.97		25.12		26.23	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
First and Second Year Quarterly Events - MW-12

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001 Result	December 2001 MDL	March 2002 Result	March 2002 MDL	June 2002 Result	June 2002 MDL	September 2002 Result	September 2002 MDL	December 2002 Result	December 2002 MDL	March 2003 Result	March 2003 MDL	June 2003 Result	June 2003 MDL	October 2003 Result	October 2003 MDL
Acenaphthene	µg/l	130	1	100	0.8	85	0.9	100	0.8	29	2	16	2	4.5j	1.6	2.6j	1.7
Acenaphthylene	µg/l	16	1	81	0.8	63	0.9	97	0.8	17	2	14j	2	2.5j	1.6	2.3j	1.7
Anthracene	µg/l	5j	1	5	0.04	4	0.04	4.4	0.04	1.7	0.04	1.4	0.04	0.08j	0.04	ND(0.11)	0.022
Benz(a)anthracene	µg/l	ND(10)	1	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.11)	0.022
Benzo(a)pyrene	µg/l	ND(10)	1	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.22)	0.043
Benzo(b)fluoranthene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.65)	0.11
Benzo(g,h,i)perylene	µg/l	ND(10)	1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.59)	0.1	ND(0.11)	0.022
Benzo(k)fluoranthene	µg/l	ND(10)	1	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(2)	0.41
Chrysene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	ND(0.43)	0.087
Dibenz(a,h)anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.22)	0.043
Fluoranthene	µg/l	1j	1	38	0.2	0.5	0.04	1.5	0.04	0.27	0.04	ND(0.2)	0.04	0.062j	0.04	0.053j	0.043
Fluorene	µg/l	64	1	0.7	0.04	29	0.2	52	3	12	0.2	6.9	0.2	ND(0.78)	0.18	2.1	0.19
Indeno(1,2,3-cd)pyrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	ND(0.43)	0.087
Naphthalene	µg/l	5600	100	2900	20	2600	20	4800	19	360	6	210	1	2.2j	1.2	12j	1.3
Phenanthrene	µg/l	41	1	28	2	25	2	34	2	7.4	0.08	3.9	0.08	0.15j	0.08	0.63	0.087
Pyrene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.9)	0.2	1.3	0.2	ND(0.8)	0.2	ND(0.8)	0.2	0.19j	0.18	ND(0.87)	0.19
Natural Attenuation Parameters																	
Alkalinity to pH 4.5	mg/l	50.8	0.41	53.5	0.41	52.8	0.41	ND(2)	0.41	49.5	0.41	51.7	0.41	50	0.41	50.9	0.41
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	49.6	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	0.47	0.043
Chloride	mg/l	3.3	1.5	3.3	1.5	3.3	1.5	3.3	1.5	3	1.5	3.4	1.5	3.1	1.5	3	1.5
Iron (Total)	mg/l	1.83	0.038	1.89	0.038	1.72	0.0349	1.78	0.0349	1.58	0.0349	1.7	0.035	1.4	0.0453	1.3	0.0453
Iron (Dissolved)	mg/l	1.62	0.038	1.85	0.038	1.66	0.0349	1.69	0.0349	1.45	0.0349	1.5	0.035	1.35	0.0453	1.18	0.0453
Methane	µg/l	400	10	360	10	370	10	400	10	240	10	210	10	170	20	140	2
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4
Sulfate	mg/l	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5	ND(5)	1.5
Field Parameters																	
Dissolved Oxygen	mg/l	0.65		0.4		1.25		0.18		0.22		0.27		2.17		0.29	
Ferrous Iron	mg/l	1.4		2.2		3.8		3		3.5		1.8		1.9		nm	
Oxidation-reduction Pot.	volts	269		-2.2		132		20.8		49.5		97.4		145		-20.6	
pH	std. units	6.43		5.86		3.81		6.02		6.28		5.7		5.47		6.19	
Specific Conductance	µS/cm	97		110		107		110		108		111		107		109	
Temperature	°C	20.1		18.19		19		20.86		20.34		18.36		20.18		26.75*	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
First and Second Year Quarterly Events - MW-13

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001 Result	December 2001 MDL	March 2002 Result	March 2002 MDL	June 2002 Result	June 2002 MDL	September 2002 Result	September 2002 MDL	December 2002 Result	December 2002 MDL	March 2003 Result	March 2003 MDL	June 2003 Result	June 2003 MDL	October 2003 Result	October 2003 MDL
Acenaphthene	µg/l	ND(11)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(15)	2	ND(15)	2	ND(16)	1.6	NA	NA
Acenaphthylene	µg/l	ND(11)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(15)	2	ND(15)	2	ND(16)	1.6	NA	NA
Anthracene	µg/l	ND(11)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	NA	NA
Benz(a)anthracene	µg/l	ND(11)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	NA	NA
Benzo(a)pyrene	µg/l	ND(11)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	NA	NA
Benzo(b)fluoranthene	µg/l	ND(11)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	NA	NA
Benzo(g,h,i)perylene	µg/l	ND(11)	1	ND(0.6)	0.09	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.09	ND(0.6)	0.09	ND(0.59)	0.1	NA	NA
Benzo(k)fluoranthene	µg/l	ND(11)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	NA	NA
Chrysene	µg/l	ND(11)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	NA	NA
Dibenz(a,h)anthracene	µg/l	ND(11)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	NA	NA
Fluoranthene	µg/l	ND(11)	1	ND(0.8)	0.2	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	NA	NA
Fluorene	µg/l	ND(11)	1	ND(0.2)	0.04	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.79)	0.18	NA	NA
Indeno(1,2,3-cd)pyrene	µg/l	ND(11)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	NA	NA
Naphthalene	µg/l	ND(11)	1	ND(8)	0.9	ND(8)	1	ND(8)	1	ND(11)	1	ND(11)	1	ND(12)	1.2	NA	NA
Phenanthrene	µg/l	ND(11)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	NA	NA
Pyrene	µg/l	ND(11)	1	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.79)	0.18	NA	NA
Natural Attenuation Parameters																	
Alkalinity to pH 4.5	mg/l	46.9	0.41	37	0.41	45.5	0.41	ND(2)	0.41	44	0.41	8.5	0.41	44.5	0.41	NA	NA
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	46.5	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	NA	NA
Chloride	mg/l	5	1.5	8.8	1.5	4.9	1.5	4.8	1.5	4.9	1.5	22.6	1.5	5.8	1.5	NA	NA
Iron (Total)	mg/l	5.48	0.038	6.07	0.038	5.53	0.0349	6.16	0.0349	5.04	0.0349	1.1	0.035	4.71	0.0453	NA	NA
Iron (Dissolved)	mg/l	5.28	0.038	5.91	0.038	5.34	0.0349	5.78	0.0349	4.78	0.0349	0.98	0.035	4.59	0.0453	NA	NA
Methane	µg/l	42	2	130	4	57	2	43	2	42	2	290	10	47	2	NA	NA
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	NA	NA
Sulfate	mg/l	3.7j	1.5	8.7	1.5	3.1j	1.5	2.7j	1.5	3.8j	1.5	22.9	1.5	4.1j	1.5	NA	NA
Field Parameters																	
Dissolved Oxygen	mg/l	0.83		0.22		0.28		0.21		0.26		0.46		2.19		NM	
Ferrous Iron	mg/l	4.8		5.1		8		4		5.5		1.2		4		NM	
Oxidation-reduction Pot.	volts	202		60.8		41.8		-76		56		228		58.8		NM	
pH	std. units	6.43		5.56		5.33		5.9		6.03		4.78		5.57		NM	
Specific Conductance	µS/cm	102		132		105		112		115		154		115		NM	
Temperature	°C	18.9		16.38		19.2		21.3		18.35		15.82		19.66		NM	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
First and Second Year Quarterly Events - MW-14

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001 Result	December 2001 MDL	March 2002 Result	March 2002 MDL	June 2002 Result	June 2002 MDL	September 2002 Result	September 2002 MDL	December 2002 Result	December 2002 MDL	March 2003 Result	March 2003 MDL	June 2003 Result	June 2003 MDL	October 2003 Result	October 2003 MDL
Acenaphthene	µg/l	8j	1	ND(8)	0.8	ND(8)	0.8	0.96j	0.8	ND(15)	2	ND(15)	2	ND(15)	2	ND(15)	1.5
Acenaphthylene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	0.83j	0.8	ND(15)	2	ND(15)	2	ND(15)	2	ND(15)	1.5
Anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.096)	0.019
Benz(a)anthracene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.09)	0.02	ND(0.096)	0.019
Benzo(a)pyrene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.09)	0.02	ND(0.19)	0.038
Benzo(b)fluoranthene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.58)	0.096
Benzo(g,h,i)perylene	µg/l	ND(10)	1	ND(0.6)	0.09	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.09	ND(0.096)	0.019
Benzo(k)fluoranthene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.09)	0.02	ND(2)	0.41
Chrysene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.077
Dibenz(a,h)anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038
Fluoranthene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038
Fluorene	µg/l	3j	1	ND(0.2)	0.04	0.2j	0.2	0.43j	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.77)	0.17
Indeno(1,2,3-cd)pyrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.077
Naphthalene	µg/l	3j	1	23	0.9	10	1	42	1	6.2j	1	ND(11)	1	ND(11)	1	ND(12)	1.2
Phenanthrene	µg/l	ND(10)	1	ND(0.4)	0.08	0.1j	0.08	0.19j	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	0.14j	0.077
Pyrene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.77)	0.17
Natural Attenuation Parameters																	
Alkalinity to pH 4.5	mg/l	28.7	0.41	13.7	0.41	18.6	0.41	ND(2)	0.41	12.7	0.41	10.8	0.41	13.7	0.41	13.8	0.41
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	23.9	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(0.19)	0.038
Chloride	mg/l	4.4	1.5	4.4	1.5	4.3	1.5	4.6	1.5	4.1	1.5	4.5	1.5	5.1	1.5	4.4	1.5
Iron (Total)	mg/l	1.56	0.038	1.36	0.038	1.42	0.0349	1.43	0.0349	1.09	0.0349	1.4	0.035	1.26	0.0453	0.796	0.0453
Iron (Dissolved)	mg/l	0.353	0.038	0.872	0.038	1.07	0.0349	1.59	0.0349	0.968	0.0349	1.1	0.035	1.23	0.0453	0.896	0.0453
Methane	µg/l	100	2	100	2	210	10	1100	40	120	2	63	2	150	10	47	2
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4
Sulfate	mg/l	4.1j	1.5	7.5	1.5	9.5	1.5	6	1.5	9.6	1.5	17.1	1.5	14.2	1.5	15.7	1.5
Field Parameters																	
Dissolved Oxygen	mg/l	1.91		0.29		0.81		0.29		0.2		0.32		3.2		0.23	
Ferrous Iron	mg/l	0.8		1.5		3		3.5		2.5		1.2		2		0.4	
Oxidation-reduction Pot.	volts	345		-90		33		-72		49.1		18.4		-29.7		17.8	
pH	std. units	6.6		5.6		4.72		5.65		5.8		5.08		5.34		5.8	
Specific Conductance	µS/cm	78		64		68		75		68		83		80		69	
Temperature	°C	19.6		18.16		18.7		20.32		19.86		18.09		18.83		34.39*	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
First and Second Year Quarterly Events - MW-15

Gulf States Creosoting Site
Hattiesburg, Mississippi

		December 2001		March 2002		June 2002		September 2002		December 2002		March 2003		June 2003		October 2003	
Polycyclic Aromatic Hydrocarbons (PAHs)	Units	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Result	MDL
Acenaphthene	µg/l	3j	1	3j	0.8	2j	0.8	ND(8)	0.8	ND(15)	2	ND(15)	2	2.1j	1.6	2.3j	1.5
Acenaphthylene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(15)	2	ND(15)	2	ND(16)	1.6	ND(15)	1.5
Anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	0.2	0.04	0.19j	0.04	0.13j	0.04	0.095j	0.04	0.13j	0.04	0.028j	0.019
Benz(a)anthracene	µg/l	ND(10)	1	0.03j	0.02	0.03j	0.02	0.037j	0.02	ND(0.1)	0.02	ND(0.09)	0.02	0.021j	0.02	ND(0.095)	0.019
Benzo(a)pyrene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.19)	0.038
Benzo(b)fluoranthene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.57)	0.095
Benzo(g,h,i)perylene	µg/l	ND(10)	1	ND(0.6)	0.09	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.09	ND(0.59)	0.1	ND(0.095)	0.019
Benzo(k)fluoranthene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	ND(2)	0.41
Chrysene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	1.1	0.08	0.63	0.08	0.45	0.08	ND(0.7)	0.7
Dibenz(a,h)anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038
Fluoranthene	µg/l	2j	1	0.7j	0.2	1	0.04	1.5	0.04	0.9	0.04	0.72	0.04	1	0.04	1.2	0.038
Fluorene	µg/l	2j	1	1	0.04	0.8	0.2	0.79j	0.2	0.56j	0.2	0.38j	0.2	0.7j	0.18	0.5j	0.17
Indeno(1,2,3-cd)pyrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	ND(0.38)	0.076
Naphthalene	µg/l	ND(10)	1	ND(8)	0.9	ND(8)	1	ND(8)	1	ND(12)	1	ND(11)	1	ND(12)	1.2	ND(11)	1.1
Phenanthrene	µg/l	2j	1	0.5	0.08	0.5	0.08	0.47	0.08	0.24j	0.08	0.17j	0.08	0.24j	0.08	0.29j	0.076
Pyrene	µg/l	1j	1	0.7j	0.2	0.9	0.2	1.1	0.2	0.65j	0.2	0.48j	0.2	0.68j	0.18	0.83	0.17
Natural Attenuation Parameters																	
Alkalinity to pH 4.5	mg/l	128	0.41	192	0.41	129	0.41	ND(2)	0.41	157	0.41	171	0.41	137	0.41	124	0.41
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	131	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	0.14j	0.038
Chloride	mg/l	4.7	1.5	4.5	1.5	4.7	1.5	4.6	1.5	4.4	1.5	3.7	1.5	4.2	1.5	4.7	1.5
Iron (Total)	mg/l	27.2	0.038	38.7	0.038	30.7	0.0349	26.2	0.0349	34.9	0.0349	38.3	0.035	30.7	0.0453	31.2	0.0453
Iron (Dissolved)	mg/l	26.2	0.038	37.8	0.038	29.8	0.0349	26.4	0.0349	33.6	0.0349	38.8	0.035	31.7	0.0453	31.1	0.0453
Methane	µg/l	1400	100	1500	40	1800	50	2200	50	1900	100	2500	200	1900	200	1800	100
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4
Sulfate	mg/l	1.6j	1.5	3j	1.5	ND(5)	1.5	ND(5)	1.5	3.3j	1.5	2j	1.5	2j	1.5	1.9j	1.5
Field Parameters																	
Dissolved Oxygen	mg/l	1.06		0.6		0.5		0.36		0.35		0.23		3.95		0.53	
Ferrous Iron	mg/l	5.8		4.5		5.8		7		7		5.1		7.1		5.8	
Oxidation-reduction Pot.	volts	89		-46		-24		-59		-39		-34.9		-52.6		-40.4	
pH	std. units	6.44		6.15		5.95		6.39		6.3		6.26		5.82		6.16	
Specific Conductance	µS/cm	304		403		320		294		392		401		369		355	
Temperature	°C	24.6		21.2		25.3		28.77		24.63		20.68		26.3		28.45	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
First and Second Year Quarterly Events - MW-16

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001 Result	December 2001 MDL	March 2002 Result	March 2002 MDL	June 2002 Result	June 2002 MDL	September 2002 Result	September 2002 MDL	December 2002 Result	December 2002 MDL	March 2003 Result	March 2003 MDL	June 2003 Result	June 2003 MDL	October 2003 Result	October 2003 MDL
Acenaphthene	µg/l	ND(10)	1	ND(8)	0.8	ND(9)	0.9	ND(8)	0.8	ND(16)	2	ND(15)	2	ND(15)	1.5	ND(15)	1.5
Acenaphthylene	µg/l	ND(10)	1	ND(8)	0.8	ND(9)	0.9	ND(8)	0.8	ND(16)	2	ND(15)	2	ND(15)	1.5	ND(15)	1.5
Anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.04	ND(0.095)	0.019
Benz(a)anthracene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.095)	0.019
Benzo(a)pyrene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.065j	0.038
Benzo(b)fluoranthene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.04	ND(0.57)	0.095
Benzo(g,h,i)perylene	µg/l	ND(10)	1	ND(0.6)	0.09	ND(0.7)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.58)	0.1	ND(0.095)	0.019
Benzo(k)fluoranthene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(2)	0.41
Chrysene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	ND(0.38)	0.076
Dibenz(a,h)anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.04	ND(0.19)	0.038
Fluoranthene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.04	ND(0.19)	0.038
Fluorene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.9)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	2.7	0.2	ND(0.77)	0.17	ND(2)	2
Indeno(1,2,3-cd)pyrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	ND(0.38)	0.076
Naphthalene	µg/l	ND(10)	1	ND(8)	0.9	ND(9)	1	ND(8)	1	ND(12)	1	ND(11)	1	ND(12)	1.2	ND(11)	1.1
Phenanthrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	ND(0.38)	0.076
Pyrene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.9)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.77)	0.17	ND(0.76)	0.17
Natural Attenuation Parameters																	
Alkalinity to pH 4.5	mg/l	12.9	0.41	7.4	0.41	8.2	0.41	ND(2)	0.41	6.8	0.41	4.9	0.41	5.3	0.41	5.3	0.41
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	7.9	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(0.19)	0.038
Chloride	mg/l	4.5	1.5	4.8	1.5	4.6	1.5	5.6	1.5	4.4	1.5	4.7	1.5	4.6	1.5	4.2	1.5
Iron (Total)	mg/l	1.3	0.038	0.0658j	0.038	ND(0.1)	0.0349	ND(0.1)	0.0349	0.0505j	0.0349	ND(0.1)	0.035	ND(0.2)	0.0453	ND(0.2)	0.0453
Iron (Dissolved)	mg/l	ND(0.1)	0.038	ND(0.1)	0.038	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.035	ND(0.2)	0.0453	ND(0.2)	0.0453
Methane	µg/l	17	2	ND(5)	2	3.3j	2	3.3j	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2
Nitrate Nitrogen	mg/l	0.42j	0.4	0.68	0.4	0.75	0.4	1.09	0.4	1.05	0.4	1.4	0.4	1.3	0.4	1.6	0.4
Sulfate	mg/l	3.1j	1.5	2.7j	1.5	3.1j	1.5	15.3	1.5	5.9	1.5	8.1	1.5	12.6	1.5	26.6	1.5
Field Parameters																	
Dissolved Oxygen	mg/l	1.99		5.33		4.64		3.03		4.93		4.83		5.61		3.49	
Ferrous Iron	mg/l	0		0		0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	484		492		613		323		405		390		603		382	
pH	std. units	5.42		4.69		4.21		4.52		5.08		5.19		4.42		5.07	
Specific Conductance	µS/cm	49		45		47		73		53		63		70		80	
Temperature	°C	20.9		21.28		21.5		21.34		21.39		20.13		21.61		27.19*	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
First and Second Year Quarterly Events - MW-17

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001 Result	December 2001 MDL	March 2002 Result	March 2002 MDL	June 2002 Result	June 2002 MDL	September 2002 Result	September 2002 MDL	December 2002 Result	December 2002 MDL	March 2003 Result	March 2003 MDL	June 2003 Result	June 2003 MDL	October 2003 Result	October 2003 MDL
Acenaphthene	µg/l	38	1	51	0.8	35	0.8	33	0.8	30	2	18	2	6.8j	1.6	13j	1.5
Acenaphthylene	µg/l	2j	1	ND(8)	0.8	14	0.8	7.7j	0.8	14j	2	6.9j	2	3j	1.6	4.4j	1.5
Anthracene	µg/l	2j	1	2	0.04	2	0.04	1.5	0.04	1.5	0.04	0.68	0.04	0.26	0.04	0.046j	0.019
Benz(a)anthracene	µg/l	ND(11)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.036j	0.02	ND(0.09)	0.02	ND(0.1)	0.02	0.035j	0.019
Benzo(a)pyrene	µg/l	ND(11)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.087j	0.02	ND(0.09)	0.02	ND(0.1)	0.02	0.04j	0.038
Benzo(b)fluoranthene	µg/l	ND(11)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.04	ND(0.57)	0.095
Benzo(g,h,i)perylene	µg/l	ND(11)	1	ND(0.6)	0.09	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.09	ND(0.58)	0.1	0.022j	0.019
Benzo(k)fluoranthene	µg/l	ND(11)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.036j	0.02	ND(0.09)	0.02	ND(0.1)	0.02	ND(2)	0.41
Chrysene	µg/l	ND(11)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	0.36j	0.08	0.17j	0.08	ND(0.39)	0.08	0.083j	0.076
Dibenz(a,h)anthracene	µg/l	ND(11)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	0.044j	0.04	ND(0.2)	0.04	ND(0.19)	0.04	ND(0.19)	0.038
Fluoranthene	µg/l	ND(11)	1	28	0.2	0.9	0.04	0.96	0.04	0.69	0.04	0.49	0.04	0.28	0.04	0.76	0.038
Fluorene	µg/l	27	1	1	0.04	23	0.2	22	0.2	21	0.2	14	0.2	8.1	0.17	6.2	0.17
Indeno(1,2,3-cd)pyrene	µg/l	ND(11)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	ND(0.38)	0.076
Naphthalene	µg/l	720	11	750	5	560	5	590	5	480	6	140	1	ND(12)	1.2	13	1.1
Phenanthrene	µg/l	14	1	16	0.4	12	0.08	14	0.08	13	0.08	3.3	0.08	1.7	0.08	0.094j	0.076
Pyrene	µg/l	ND(11)	1	0.4j	0.2	0.4j	0.2	0.62j	0.2	0.26j	0.2	ND(0.8)	0.2	ND(0.78)	0.17	0.54j	0.17
Natural Attenuation Parameters																	
Alkalinity to pH 4.5	mg/l	42.3	0.41	48	0.41	43.8	0.41	ND(2)	0.41	39.2	0.41	30.5	0.41	17.3	0.41	27.5	0.41
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	44.8	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	0.27	0.038
Chloride	mg/l	11.4	1.5	13.5	1.5	11.6	1.5	9.9	1.5	12.7	1.5	16.7	1.5	17.9	1.5	17.1	1.5
Iron (Total)	mg/l	4.13	0.038	4.49	0.038	4.73	0.0349	8.36	0.0349	5.07	0.0349	2.3	0.035	1.41	0.0453	4.6	0.0453
Iron (Dissolved)	mg/l	2.64	0.038	3.65	0.038	4.07	0.0349	4.91	0.0349	4.09	0.0349	2.3	0.035	1.04	0.0453	3.56	0.0453
Methane	µg/l	850	40	1400	40	910	20	930	40	640	20	470	10	300	20	390	20
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4
Sulfate	mg/l	2.9j	1.5	2.1j	1.5	2.7j	1.5	3.8j	1.5	3.4j	1.5	3.1j	1.5	4.4j	1.5	5.6	1.5
Field Parameters																	
Dissolved Oxygen	mg/l	0.79		0.3		0.62		0.33		0.31		0.49		2.6		0.5	
Ferrous Iron	mg/l	1.2		5		5.5		5.5		4.5		2.2		1.4		2.5	
Oxidation-reduction Pot.	volts	339		13.1		340		60.3		113		208		278		162	
pH	std. units	5.7		5.89		3.86		3.71		5.57		2.15		4.5		5.15	
Specific Conductance	µS/cm	111		147		121		126		116		107		112		129	
Temperature	°C	20.1		18.6		20.4		20.99		20.53		18.92		20.02		20.9	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
First and Second Year Quarterly Events - MW-18

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001 Result	December 2001 MDL	March 2002 Result	March 2002 MDL	June 2002 Result	June 2002 MDL	September 2002 Result	September 2002 MDL	December 2002 Result	December 2002 MDL	March 2003 Result	March 2003 MDL	June 2003 Result	June 2003 MDL	October 2003 Result	October 2003 MDL
Acenaphthene	µg/l	26	1	42	0.8	9	0.8	1.6j	0.9	12j	2	2.1j	2	ND(16)	1.6	ND(15)	1.5
Acenaphthylene	µg/l	2j	1	21	0.8	4j	0.8	ND(9)	0.9	5.6j	2	ND(15)	2	ND(16)	1.6	ND(15)	1.5
Anthracene	µg/l	ND(11)	1	ND(0.2)	0.04	0.07j	0.04	ND(0.2)	0.04	0.092j	0.04	ND(0.2)	0.04	0.08j	0.04	ND(0.095)	0.019
Benz(a)anthracene	µg/l	ND(11)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.082j	0.02	ND(0.095)	0.019
Benzo(a)pyrene	µg/l	ND(11)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.23	0.02	ND(0.19)	0.038
Benzo(b)fluoranthene	µg/l	ND(11)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	0.098j	0.04	ND(0.57)	0.095
Benzo(g,h,i)perylene	µg/l	ND(11)	1	ND(0.6)	0.09	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	0.11j	0.1	ND(0.095)	0.019
Benzo(k)fluoranthene	µg/l	ND(11)	1	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.085j	0.02	ND(2)	0.41
Chrysene	µg/l	ND(11)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	0.096j	0.08	ND(0.38)	0.076
Dibenz(a,h)anthracene	µg/l	ND(11)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	0.1j	0.04	ND(0.19)	0.038
Fluoranthene	µg/l	ND(11)	1	25	0.2	0.2	0.04	0.086j	0.04	0.28	0.04	0.087j	0.04	0.087j	0.04	ND(0.19)	0.038
Fluorene	µg/l	16	1	0.7	0.04	7	0.2	2.7	0.2	9.8	0.2	2	0.2	ND(0.78)	0.18	0.96	0.17
Indeno(1,2,3-cd)pyrene	µg/l	ND(11)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	0.1j	0.08	ND(0.38)	0.076
Naphthalene	µg/l	470	6	830	5	170	1	27	1	310	1	22	1	ND(12)	1.2	10j	1.1
Phenanthrene	µg/l	15	1	24	0.4	5	0.08	1.7	0.09	8.9	0.08	0.08j	0.08	0.3j	0.08	0.39	0.076
Pyrene	µg/l	ND(11)	1	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.9)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.78)	0.18	ND(0.76)	0.17
Natural Attenuation Parameters																	
Alkalinity to pH 4.5	mg/l	23.1	0.41	11.3	0.41	9.7	0.41	ND(2)	0.41	12.4	0.41	10.5	0.41	8.5	0.41	9.5	0.41
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	8.8	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(0.19)	0.038
Chloride	mg/l	12.1	1.5	12.8	1.5	17.3	1.5	23.5	1.5	19.8	1.5	22.1	1.5	22.5	1.5	23.3	1.5
Iron (Total)	mg/l	0.475	0.038	ND(0.1)	0.038	ND(0.1)	0.0349	0.0408j	0.0349	ND(0.1)	0.0349	0.11	0.035	ND(0.2)	0.0453	ND(0.2)	0.0453
Iron (Dissolved)	mg/l	ND(0.1)	0.038	ND(0.1)	0.038	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.035	ND(0.2)	0.0453	ND(0.2)	0.0453
Methane	µg/l	4.4j	2	4.6j	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2
Nitrate Nitrogen	mg/l	0.79	0.4	0.87	0.4	1.5	0.4	2.07	0.4	1.51	0.4	1.7	0.4	1.9	0.4	2.2	0.4
Sulfate	mg/l	10.3	1.5	9.2	1.5	9.1	1.5	7.9	1.5	9.8	1.5	8	1.5	5.6	1.5	6.9	1.5
Field Parameters																	
Dissolved Oxygen	mg/l	0.67		0.37		0.63		0.37		0.35		0.38		2.39		0.37	
Ferrous Iron	mg/l	0		0		0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	377		348		423		338		358		410		557		352	
pH	std. units	5.63		4.93		4.55		3.71		5.28		4.42		4.69		5.23	
Specific Conductance	µS/cm	104		102		109		136		135		136		132		112	
Temperature	°C	22.2		22.55		22.3		23.27		22.78		22.35		22.97		36.81*	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
First and Second Year Quarterly Events - MW-19

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001 Result	December 2001 MDL	March 2002 Result	March 2002 MDL	June 2002 Result	June 2002 MDL	September 2002 Result	September 2002 MDL	December 2002 Result	December 2002 MDL	March 2003 Result	March 2003 MDL	June 2003 Result	June 2003 MDL	October 2003 Result	October 2003 MDL
Acenaphthene	µg/l	49	1	93	0.8	83	0.8	71	0.8	91	2	88	2	83	1.6	80	1.7
Acenaphthylene	µg/l	2j	1	ND(8)	0.8	36	0.8	11	0.8	39	2	26	2	37	1.6	36	1.7
Anthracene	µg/l	2j	1	4	0.04	3	0.04	2.1	0.04	3.6	0.04	3.7	0.04	3	0.04	ND(0.1)	0.021
Benz(a)anthracene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.07j	0.02	ND(0.1)	0.021
Benzo(a)pyrene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.16	0.02	ND(0.21)	0.042
Benzo(b)fluoranthene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	0.081j	0.04	ND(0.63)	0.1
Benzo(g,h,i)perylene	µg/l	ND(10)	1	ND(0.6)	0.09	ND(0.6)	0.09	ND(0.6)	0.09	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.58)	0.1	ND(0.1)	0.021
Benzo(k)fluoranthene	µg/l	ND(10)	1	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.09)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	0.07j	0.02	ND(2)	0.41
Chrysene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	0.08j	0.08	ND(0.4)	0.08	0.11j	0.08	ND(0.42)	0.084
Dibenz(a,h)anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	0.083j	0.04	ND(0.21)	0.042
Fluoranthene	µg/l	ND(10)	1	39	2	1	0.04	1.4	0.04	1.6	0.04	2.2	0.04	1.8	0.04	1.7	0.042
Fluorene	µg/l	22	1	2	0.04	33	0.2	26	0.2	38	2	39	2	35	0.18	34	0.19
Indeno(1,2,3-cd)pyrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	0.1j	0.08	ND(0.42)	0.084
Naphthalene	µg/l	290	5	980	9	890	9	500	5	1100	11	1000	11	970	12	1000	13
Phenanthrene	µg/l	17	1	36	0.8	31	0.8	24	0.4	37	0.8	39	0.8	32	0.78	37	0.84
Pyrene	µg/l	ND(10)	1	0.8	0.2	0.7j	0.2	1.3	0.2	0.69j	0.2	0.67j	0.2	0.81	0.18	0.77j	0.19
Natural Attenuation Parameters																	
Alkalinity to pH 4.5	mg/l	68.6	0.41	82.3	0.41	78.4	0.41	ND(2)	0.41	92.2	0.41	87.5	0.41	84.9	0.41	88.6	0.41
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	78.4	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	3.1	0.042
Chloride	mg/l	10.5	1.5	10.2	1.5	10.1	1.5	1020	150	9.8	1.5	9.7	1.5	10.7	1.5	10.2	1.5
Iron (Total)	mg/l	4.69	0.038	5.71	0.038	5.75	0.0349	5.47	0.0349	6.76	0.0349	5.6	0.035	6	0.0453	5.61	0.0453
Iron (Dissolved)	mg/l	3.66	0.038	5.29	0.038	5.61	0.0349	5.48	0.0349	6.74	0.0349	5.8	0.035	6.02	0.0453	5.49	0.0453
Methane	µg/l	590	40	1400	20	1200	40	1000	40	1400	40	1400	40	1200	40	1300	50
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4
Sulfate	mg/l	6.7	1.5	4.3j	1.5	4.3j	1.5	ND(5)	1.5	3.3j	1.5	4.1j	1.5	4.7j	1.5	2.8j	1.5
Field Parameters																	
Dissolved Oxygen	mg/l	0.81		1.3		0.51		0.19		0.24		0.23		2.13		0.39	
Ferrous Iron	mg/l	4.6		6		7		5.5		5		4.8		4.8		NM	
Oxidation-reduction Pot.	volts	177		-90		178		-49		-5.7		25.4		100		-127	
pH	std. units	5.88		6.07		5.15		5.07		6.04		4.12		5.35		5.95	
Specific Conductance	µS/cm	176		193		179		192		204		198		203		234	
Temperature	°C	22.3		19.9		21.1		23.42		22.11		19.98		22.02		22.41	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
First and Second Year Quarterly Events - MW-20

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001 Result	December 2001 MDL	March 2002 Result	March 2002 MDL	June 2002 Result	June 2002 MDL	September 2002 Result	September 2002 MDL	December 2002 Result	December 2002 MDL	March 2003 Result	March 2003 MDL	June 2003 Result	June 2003 MDL	October 2003 Result	October 2003 MDL
Acenaphthene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(15)	2	ND(15)	2	ND(15)	1.5	ND(15)	1.5
Acenaphthylene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(15)	2	ND(15)	2	ND(15)	1.5	ND(15)	1.5
Anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.096)	0.019
Benz(a)anthracene	µg/l	ND(10)	1	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.096)	0.019	ND(0.096)	0.019
Benzo(a)pyrene	µg/l	ND(10)	1	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.096)	0.019	ND(0.19)	0.039
Benzo(b)fluoranthene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.58)	0.096
Benzo(g,h,i)perylene	µg/l	ND(10)	1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.58)	0.096	ND(0.096)	0.019
Benzo(k)fluoranthene	µg/l	ND(10)	1	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.096)	0.019	ND(2)	0.41
Chrysene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.077	ND(0.39)	0.077
Dibenz(a,h)anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.19)	0.039
Fluoranthene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.038	ND(0.19)	0.039
Fluorene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.77)	0.17	ND(0.77)	0.17
Indeno(1,2,3-cd)pyrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.077	ND(0.39)	0.077
Naphthalene	µg/l	ND(10)	1	ND(8)	1	ND(8)	1	ND(8)	1	ND(11)	1	ND(11)	1	ND(12)	1.2	ND(12)	1.2
Phenanthrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.38)	0.077	ND(0.39)	0.077
Pyrene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.77)	0.17	ND(0.77)	0.17
Natural Attenuation Parameters																	
Alkalinity to pH 4.5	mg/l	9.7	0.41	9.3	0.41	7.8	0.41	ND(2)	0.41	9.7	0.41	10.4	0.41	8	0.41	9.2	0.41
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	7.5	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(0.19)	0.039
Chloride	mg/l	10.2	1.5	9.2	1.5	10.4	1.5	10.6	1.5	8.8	1.5	8.9	1.5	10	1.5	9.1	1.5
Iron (Total)	mg/l	0.331	0.038	ND(0.1)	0.038	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.035	0.0473j	0.0453	ND(0.2)	0.0453
Iron (Dissolved)	mg/l	ND(0.1)	0.038	ND(0.1)	0.038	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.035	ND(0.2)	0.0453	ND(0.2)	0.0453
Methane	µg/l	3.5j	2	2.6j	2	ND(5)	2	ND(5)	2	ND(5)	2	2.7j	2	ND(5)	2	ND(5)	2
Nitrate Nitrogen	mg/l	0.58	0.4	0.41j	0.4	0.49j	0.4	0.52	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4
Sulfate	mg/l	3j	1.5	3.2j	1.5	2.2j	1.5	2.8j	1.5	3.9j	1.5	3.4j	1.5	3j	1.5	5.8	1.5
Field Parameters																	
Dissolved Oxygen	mg/l	1.27		0.89		1.84		0.64		0.6		0.58		2.93		0.45	
Ferrous Iron	mg/l	0		0		0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	478		543		591		272		417		495		286		327	
pH	std. units	5.36		4.78		3.57		4.97		5.21		4.62		4.62		5.14	
Specific Conductance	µS/cm	67		66		61		64		72		70		64		61	
Temperature	°C	22.7		21.08		22.8		24.25		23.2		20.22		23.11		34.16*	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
First and Second Year Quarterly Events - MW-21

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001 Result	MDL	March 2002 Result	MDL	June 2002 Result	MDL	September 2002 Result	MDL	December 2002 Result	MDL	March 2003 Result	MDL	June 2003 Result	MDL	October 2003 Result	MDL
Acenaphthene	µg/l	ND(10)	1	ND(8)	0.8	ND(9)	0.9	ND(8)	0.8	ND(15)	2	ND(15)	2	ND(16)	1.6	ND(16)	1.6
Acenaphthylene	µg/l	ND(10)	1	ND(8)	0.8	ND(9)	0.9	ND(8)	0.8	ND(15)	2	ND(15)	2	ND(16)	1.6	ND(16)	1.6
Anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.1)	0.02
Benz(a)anthracene	µg/l	ND(10)	1	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02
Benzo(a)pyrene	µg/l	ND(10)	1	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.2)	0.04
Benzo(b)fluoranthene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.6)	0.1
Benzo(g,h,i)perylene	µg/l	ND(10)	1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.59)	0.1	ND(0.1)	0.02
Benzo(k)fluoranthene	µg/l	ND(10)	1	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(2)	0.41
Chrysene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	ND(0.4)	0.08
Dibenz(a,h)anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04
Fluoranthene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04
Fluorene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.9)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.78)	0.18	ND(0.8)	0.18
Indeno(1,2,3-cd)pyrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	ND(0.4)	0.08
Naphthalene	µg/l	ND(10)	1	ND(8)	1	ND(9)	1	ND(8)	1	ND(11)	1	ND(11)	1	ND(12)	1.2	ND(12)	1.2
Phenanthrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.09	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	ND(0.4)	0.08
Pyrene	µg/l	ND(10)	1	ND(0.8)	0.2	ND(0.9)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.78)	0.18	ND(0.8)	0.18
Natural Attenuation Parameters																	
Alkalinity to pH 4.5	mg/l	6.5	0.41	4.1	0.41	4	0.41	ND(2)	0.41	3.8	0.41	4.2	0.41	4.5	0.41	4.6	0.41
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	4.9	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(0.2)	0.04
Chloride	mg/l	11.7	1.5	12	1.5	13	1.5	12.5	1.5	12.5	1.5	10.9	1.5	10.1	1.5	10.6	1.5
Iron (Total)	mg/l	7	0.038	0.172	0.038	ND(0.1)	0.0349	ND(0.1)	0.0349	0.233	0.0349	ND(0.1)	0.035	ND(0.2)	0.0453	0.054j	0.0453
Iron (Dissolved)	mg/l	ND(0.1)	0.038	ND(0.1)	0.038	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.0349	ND(0.1)	0.035	ND(0.2)	0.0453	ND(0.2)	0.0453
Methane	µg/l	2.8j	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2	ND(5)	2
Nitrate Nitrogen	mg/l	1.22	0.4	1.2	0.4	1.23	0.4	1.4	0.4	1.15	0.4	1	0.4	0.8	0.4	1.2	0.4
Sulfate	mg/l	3.1j	1.5	2.9j	1.5	2.7j	1.5	3j	1.5	3j	1.5	2.1j	1.5	2j	1.5	2.1j	1.5
Field Parameters																	
Dissolved Oxygen	mg/l	4.4		4.52		4.54		4.06		4.22		4.34		6.06		3.78	
Ferrous Iron	mg/l	0		0		0		0		0		0		0		0	
Oxidation-reduction Pot.	volts	507		520		516		274		405		423		571		369	
pH	std. units	5.53		4.54		4.73		5.02		5.14		3.84		4.5		5.18	
Specific Conductance	µS/cm	67		69		68		72		73		68		61		91	
Temperature	°C	22		22.08		21.6		22.8		22.71		21.33		22.2		22.14	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-2

Summary of Ground Water Monitoring Data
First and Second Year Quarterly Events - MW-22

Gulf States Creosoting Site
Hattiesburg, Mississippi

Polycyclic Aromatic Hydrocarbons (PAHs)	Units	December 2001 Result	MDL	March 2002 Result	MDL	June 2002 Result	MDL	September 2002 Result	MDL	December 2002 Result	MDL	March 2003 Result	MDL	June 2003 Result	MDL	October 2003 Result	MDL
Acenaphthene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(16)	2	ND(15)	2	ND(15)	1.5	ND(16)	1.6
Acenaphthylene	µg/l	ND(10)	1	ND(8)	0.8	ND(8)	0.8	ND(8)	0.8	ND(16)	2	ND(15)	2	ND(15)	1.5	ND(16)	1.6
Anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.04	ND(0.099)	0.02
Benz(a)anthracene	µg/l	ND(10)	1	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.099)	0.02
Benzo(a)pyrene	µg/l	ND(10)	1	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.2)	0.04
Benzo(b)fluoranthene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.04	ND(0.59)	0.099
Benzo(g,h,i)perylene	µg/l	ND(10)	1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.6)	0.1	ND(0.58)	0.1	ND(0.099)	0.02
Benzo(k)fluoranthene	µg/l	ND(10)	1	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(0.1)	0.02	ND(2)	0.41
Chrysene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	ND(0.4)	0.079
Dibenz(a,h)anthracene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.2)	0.04	ND(0.19)	0.04	ND(0.2)	0.04
Fluoranthene	µg/l	ND(10)	1	ND(0.8)	0.2	0.04j	0.04	ND(0.2)	0.04	0.17j	0.04	0.14j	0.04	0.14j	0.04	0.19j	0.04
Fluorene	µg/l	ND(10)	1	ND(0.2)	0.04	ND(0.8)	0.2	ND(0.8)	0.2	ND(0.8)	0.2	14	0.2	ND(0.77)	0.17	ND(0.79)	0.18
Indeno(1,2,3-cd)pyrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	ND(0.4)	0.079
Naphthalene	µg/l	ND(10)	1	ND(8)	1	ND(8)	1	ND(8)	1	ND(12)	1	ND(11)	1	ND(12)	1.2	ND(12)	1.2
Phenanthrene	µg/l	ND(10)	1	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.4)	0.08	ND(0.39)	0.08	ND(0.4)	0.079
Pyrene	µg/l	ND(10)	1	0.6j	0.2	0.6j	0.2	0.3j	0.2	0.84	0.2	0.83	0.2	0.76j	0.17	0.61j	0.18
Natural Attenuation Parameters																	
Alkalinity to pH 4.5	mg/l	48.4	0.41	52.1	0.41	50.6	0.41	ND(2)	0.41	54	0.41	59.9	0.41	62.3	0.41	50.6	0.41
Alkalinity to pH 8.3	mg/l	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	39.4	0.41	ND(2)	0.41	ND(2)	0.41	ND(2)	0.41	ND(0.2)	0.04
Chloride	mg/l	9.7	1.5	14.9	1.5	10	1.5	11.5	1.5	10.2	1.5	9.3	1.5	9.4	1.5	9.8	1.5
Iron (Total)	mg/l	2.54	0.038	0.0906j	0.038	ND(0.1)	0.0349	0.0368j	0.0349	0.0509j	0.0349	0.054j	0.035	0.0855j	0.0453	0.071j	0.0453
Iron (Dissolved)	mg/l	ND(0.1)	0.038	ND(0.1)	0.038	ND(0.1)	0.0349	0.0371j	0.0349	ND(0.1)	0.0349	0.042j	0.035	ND(0.2)	0.0453	ND(0.2)	0.0453
Methane	µg/l	100	2	71	2	41	2	19	2	33	2	46	2	55	2	38	2
Nitrate Nitrogen	mg/l	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	0.57	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4	ND(0.5)	0.4
Sulfate	mg/l	6.3	1.5	5j	1.5	4.9j	1.5	4.3j	1.5	5.4	1.5	5j	1.5	4.8j	1.5	4.1j	1.5
Field Parameters																	
Dissolved Oxygen	mg/l	1.63		0.3		0.16		0.43		0.4		0.21		1.74		0.3	
Ferrous Iron	mg/l	0		0		0		0		0		0		0		0.4	
Oxidation-reduction Pot.	volts	420		278		420		207		182		240		274		369	
pH	std. units	5.97		5.61		5.06		5.3		5.96		5.15		5.59		5.18	
Specific Conductance	µS/cm	131		143		134		127		149		158		161		91	
Temperature	°C	21		20.13		21.3		21.91		21.42		20.09		21.08		22.14	

Notes:
mg/l - milligrams per liter
µg/l - micrograms per liter
µS/cm - micro siemens per centimeter
°C - degrees Celsius
NA - Sample not analyzed for this constituent
ND - Constituent not detected at or above laboratory reporting limit shown in parentheses
MDL - Method detection limit
j - qualifier denotes estimated value either less than quantitation limit or due to limitations discovered by data validation effort.
* - indicates suspect measurement likely due to instrument malfunction

Table 3-3
Natural Attenuation Parameters
Comparison of Affected Wells to Background Wells

Gulf States Creosote Site
Hattiesburg, Mississippi

Indicator of Natural Attenuation[1]: Dissolved Oxygen (mg/L)

Plume Concentration < Background Concentration

	Well Type	Well I.D.	Dec-01	Mar-02	Jun-02	Sep-02	Dec-02	Mar-03	Jun-03	Sep-03
Process Area	Plume	MW-1R	0.54	0.34	0.76	0.27	0.32	0.29	2.14	0.22
	Plume	MW-2R	0.42	0.41	0.48	0.26	0.33	0.25	2.04	0.5
	Plume	MW-06	0.35	0.26	0.41	0.17	0.33	0.11	2.68	0.3
	Background*	MW-05	0.82	0.99	1.06	0.51	0.65	0.16	1.89	0.14
	Background*	MW-16	1.99	5.33	4.64	3.03	4.93	4.83	5.61	3.49
	Background*	MW-18	0.67	0.37	0.63	0.37	0.35	0.38	2.39	0.37
Northeast Drainage Ditch Area	Plume	MW-06	0.35	0.26	0.41	0.17	0.33	0.11	2.68	0.3
	Plume	MW-09	0.46	0.34	0.4	0.22	0.17	0.16	4.07	0.42
	Plume	MW-17	0.79	0.3	0.62	0.33	0.31	0.49	2.6	0.5
	Plume	MW-19	0.81	1.3	0.51	0.19	0.24	0.23	2.13	0.39
	Background*	MW-16	1.99	5.33	4.64	3.03	4.93	4.83	5.61	3.49
	Background*	MW-18	0.67	0.37	0.63	0.37	0.35	0.38	2.39	0.37
	Background*	MW-20	1.27	0.89	1.84	0.64	0.6	0.58	2.93	0.45
	Background*	MW-21	4.4	4.52	4.54	4.06	4.22	4.34	6.06	3.78
	Background*	MW-22	1.63	0.3	0.16	0.43	0.4	0.21	1.74	0.3
Fill Area	Plume	MW-12	0.65	0.4	1.25	0.18	0.22	0.27	2.17	0.29
	Background*	MW-10	0.49	0.2	0.43	0.27	0.36	0.29	2.37	0.21
	Background*	MW-13	0.83	0.22	0.28	0.21	0.26	0.46	2.19	NM
	Background*	MW-15	1.06	0.6	0.5	0.36	0.35	0.23	3.95	0.53

Notes

mg/L - miligram per liter

* background or as defined in this report "plume defining well"

(1) Geochemical indicators of occurrence of natural attenuation were derived from the EPA publication *Policy on Use of Natural Attenuation for Site Remediation*, 1997

Table 3-3
Estimated Occurrence of Natural Attenuation
Based on EPA Developed Trends

Gulf States Creosote Site
Hattiesburg, Mississippi

Indicator of Natural Attenuation[1]: Iron - Fe+2 (mg/L)

Plume Concentration > Background Concentration

	Well Type	Well I.D.	Dec-01	Mar-02	Jun-02	Sep-02	Dec-02	Mar-03	Jun-03	Sep-03
Process Area	Plume	MW-1R	8	5.1	5	4	2.6	0	1.4	0
	Plume	MW-2R	0	0	0	0	0	0	0	0
	Plume	MW-06	7	5	3	4.5	5	4.2	6.6	5.2
	Background*	MW-05	0	0	0	0	0	3.9	1.2	NA
	Background*	MW-16	0	0	0	0	0	0	0	0
	Background*	MW-18	0	0	0	0	0	0	0	0
Northeast Drainage Ditch Area	Plume	MW-06	7	5	3	4.5	5	4.2	6.6	5.2
	Plume	MW-09	6	3	7	5	5.5	3	4	4.6
	Plume	MW-17	1.2	5	5.5	5.5	4.5	2.2	1.4	2.5
	Plume	MW-19	4.6	6	7	5.5	5	4.8	4.8	NM
	Background*	MW-16	0	0	0	0	0	0	0	0
	Background*	MW-18	0	0	0	0	0	0	0	0
	Background*	MW-20	0	0	0	0	0	0	0	0
	Background*	MW-21	0	0	0	0	0	0	0	0
	Background*	MW-22	0	0	0	0	0	0	0	0.4
Fill Area	Plume	MW-12	1.4	2.2	3.8	3	3.5	1.8	1.9	nm
	Background*	MW-10	7	5.5	6.5	6	4.5	8	7	3.4
	Background*	MW-13	4.8	5.1	8	4	5.5	1.2	4	NM
	Background*	MW-15	5.8	4.5	5.8	7	7	5.1	7.1	5.8

Notes

mg/L - miligram per liter

* background or as defined in this report "plume defining well"

(1) Geochemical indicators of occurrence of natural attenuation were derived from the EPA publication *Policy on Use of Natural Attenuation for Site Remediation*, 1997

Table 3-3
Estimated Occurrence of Natural Attenuation
Based on EPA Developed Trends

Gulf States Creosote Site
Hattiesburg, Mississippi

Indicator of Natural Attenuation[1]: Methane (mg/L)

Plume Concentration > Background Concentration

	Well Type	Well I.D.	Dec-01	Mar-02	Jun-02	Sep-02	Dec-02	Mar-03	Jun-03	Sep-03
Process Area	Plume	MW-1R	2400	350	71	ND(5)	48	ND(5)	35	3.7j
	Plume	MW-2R	2.8j	2.2j	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
	Plume	MW-06	1200	1400	1400	1900	1900	1200	1900	1400
	Background*	MW-05	2.9j	ND(5)	ND(5)	ND(5)	ND(5)	53	120	NA
	Background*	MW-16	17	ND(5)	3.3j	3.3j	ND(5)	ND(5)	ND(5)	ND(5)
	Background*	MW-18	4.4j	4.6j	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
Northeast Drainage Ditch Area	Plume	MW-06	1200	1400	1400	1900	1900	1200	1900	1400
	Plume	MW-09	590	380	480	340	230	750	580	450
	Plume	MW-17	850	1400	910	930	640	470	300	390
	Plume	MW-19	590	1400	1200	1000	1400	1400	1200	1300
	Background*	MW-16	17	ND(5)	3.3j	3.3j	ND(5)	ND(5)	ND(5)	ND(5)
	Background*	MW-18	4.4j	4.6j	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
	Background*	MW-20	3.5j	2.6j	ND(5)	ND(5)	ND(5)	2.7j	ND(5)	ND(5)
	Background*	MW-21	2.8j	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
	Background*	MW-22	100	71	41	19	33	46	55	38
Fill Area	Plume	MW-12	400	360	370	400	240	210	170	140
	Background*	MW-10	260	3000	1100	730	1100	2200	2800	910
	Background*	MW-13	42	130	57	43	42	290	47	NA
	Background*	MW-15	1400	1500	1800	2200	1900	2500	1900	1800

Notes

mg/L - miligram per liter

* background or as defined in this report "plume defining well"

(1) Geochemical indicators of occurrence of natural attenuation were derived from the EPA publication *Policy on Use of Natural Attenuation for Site Remediation*, 1997

Table 3-3
Estimated Occurrence of Natural Attenuation
Based on EPA Developed Trends

Gulf States Creosote Site
Hattiesburg, Mississippi

Indicator of Natural Attenuation[1]: Sulfate (mg/L)

Plume Concentration < Background Concentration

	Well Type	Well I.D.	Dec-01	Mar-02	Jun-02	Sep-02	Dec-02	Mar-03	Jun-03	Sep-03
Process Area	Plume	MW-1R	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	1.8j	1.5j
	Plume	MW-2R	19.9	18.8	20.9	21.2	19.3	20.9	21.8	19.9
	Plume	MW-06	3j	4.9j	3.7j	4.1j	6	4.8j	2.7j	5.2
	Background*	MW-05	2.2j	1.9j	2.3j	2.3j	2.4j	2.4j	3.7j	NA
	Background*	MW-16	3.1j	2.7j	3.1j	15.3	5.9	8.1	12.6	26.6
	Background*	MW-18	10.3	9.2	9.1	7.9	9.8	8	5.6	6.9
Northeast Drainage Ditch Area	Plume	MW-06	3j	4.9j	3.7j	4.1j	6	4.8j	2.7j	5.2
	Plume	MW-09	3.4j	6.6	4j	ND(5)	5.3	9.6	6.4	13.8
	Plume	MW-17	2.9j	2.1j	2.7j	3.8j	3.4j	3.1j	4.4j	5.6
	Plume	MW-19	6.7	4.3j	4.3j	ND(5)	3.3j	4.1j	4.7j	2.8j
	Background*	MW-16	3.1j	2.7j	3.1j	15.3	5.9	8.1	12.6	26.6
	Background*	MW-18	10.3	9.2	9.1	7.9	9.8	8	5.6	6.9
	Background*	MW-20	3j	3.2j	2.2j	2.8j	3.9j	3.4j	3j	5.8
	Background*	MW-21	3.1j	2.9j	2.7j	3j	3j	2.1j	2j	2.1j
	Background*	MW-22	6.3	5j	4.9j	4.3j	5.4	5j	4.8j	4.1j
Fill Area	Plume	MW-12	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
	Background*	MW-10	17	13.2	17.1	3.3j	6.1	5.4	8	4.1j
	Background*	MW-13	3.7j	8.7	3.1j	2.7j	3.8j	22.9	4.1j	NA
	Background*	MW-15	1.6j	3j	ND(5)	ND(5)	3.3j	2j	2j	1.9j

Notes

mg/L - miligram per liter

* background or as defined in this report "plume defining well"

(1) Geochemical indicators of occurrence of natural attenuation were derived from the EPA publication *Policy on Use of Natural Attenuation for Site Remediation*, 1997

Table 3-3
Estimated Occurrence of Natural Attenuation
Based on EPA Developed Trends

Gulf States Creosote Site
Hattiesburg, Mississippi

Indicator of Natural Attenuation[1]: Nitrate(mg/L)

Plume Concentration < Background Concentration

	Well Type	Well I.D.	Dec-01	Mar-02	Jun-02	Sep-02	Dec-02	Mar-03	Jun-03	Sep-03
Process Area	Plume	MW-1R	ND(0.5)	ND(0.5)	ND(0.5)	0.61	0.7	1.1	0.81	1.4
	Plume	MW-2R	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
	Plume	MW-06	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
	Background*	MW-05	1.12	1.11	1.11	1.17	0.99	ND(0.5)	ND(0.5)	NA
	Background*	MW-16	0.42j	0.68	0.75	1.09	1.05	1.4	1.3	1.6
	Background*	MW-18	0.79	0.87	1.5	2.07	1.51	1.7	1.9	2.2
Northeast Drainage Ditch Area	Plume	MW-06	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
	Plume	MW-09	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
	Plume	MW-17	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
	Plume	MW-19	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
	Background*	MW-16	0.42j	0.68	0.75	1.09	1.05	1.4	1.3	1.6
	Background*	MW-18	0.79	0.87	1.5	2.07	1.51	1.7	1.9	2.2
	Background*	MW-20	0.58	0.41j	0.49j	0.52	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
	Background*	MW-21	1.22	1.2	1.23	1.4	1.15	1	0.8	1.2
	Background*	MW-22	ND(0.5)	ND(0.5)	ND(0.5)	0.57	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
Fill Area	Plume	MW-12	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
	Background*	MW-10	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
	Background*	MW-13	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	NA
	Background*	MW-15	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)

Notes

mg/L - miligram per liter

* background or as defined in this report "plume defining well"

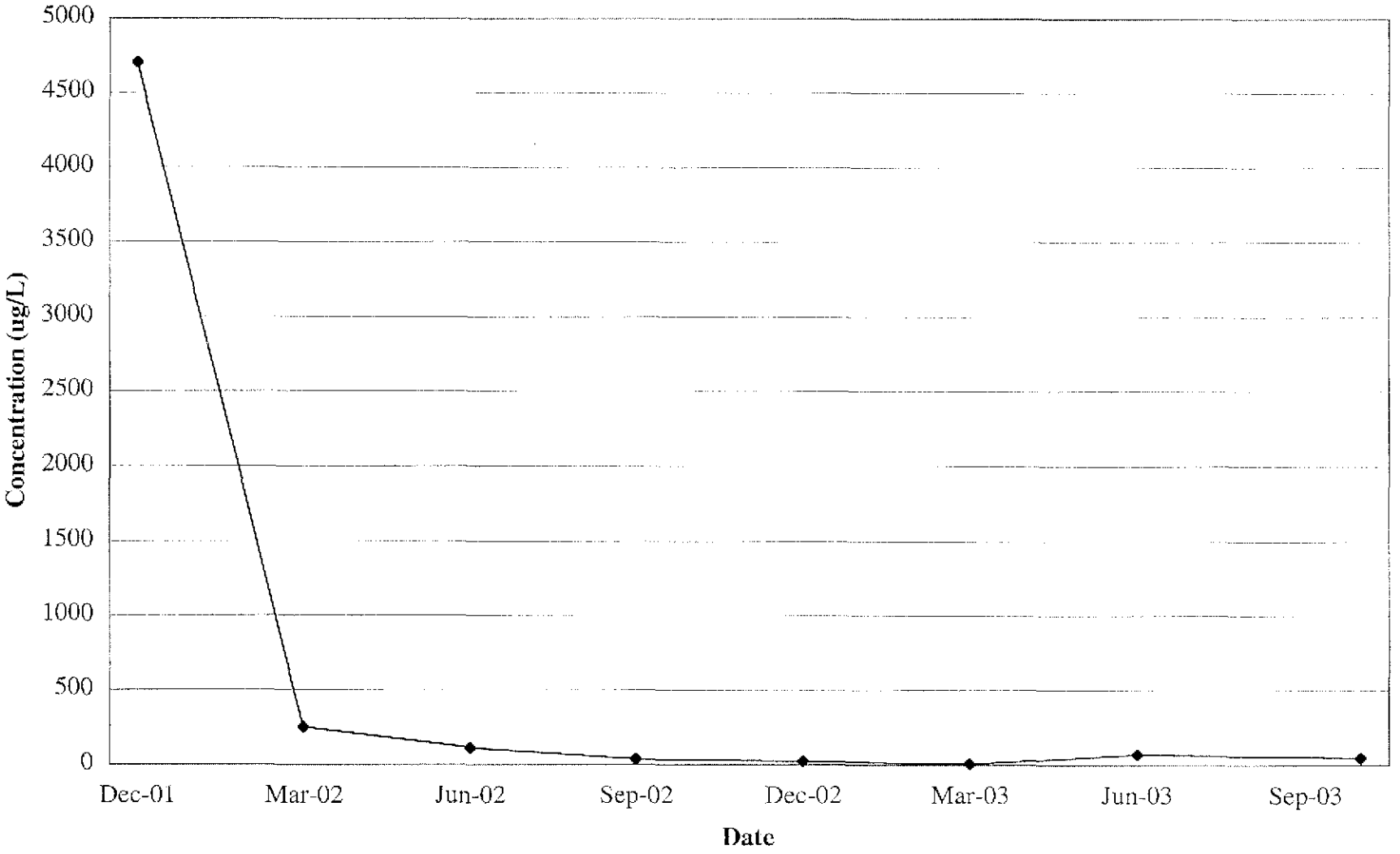
(1) Geochemical indicators of occurrence of natural attenuation were derived from the EPA publication *Policy on Use of Natural Attenuation for Site Remediation*, 1997

Appendix A

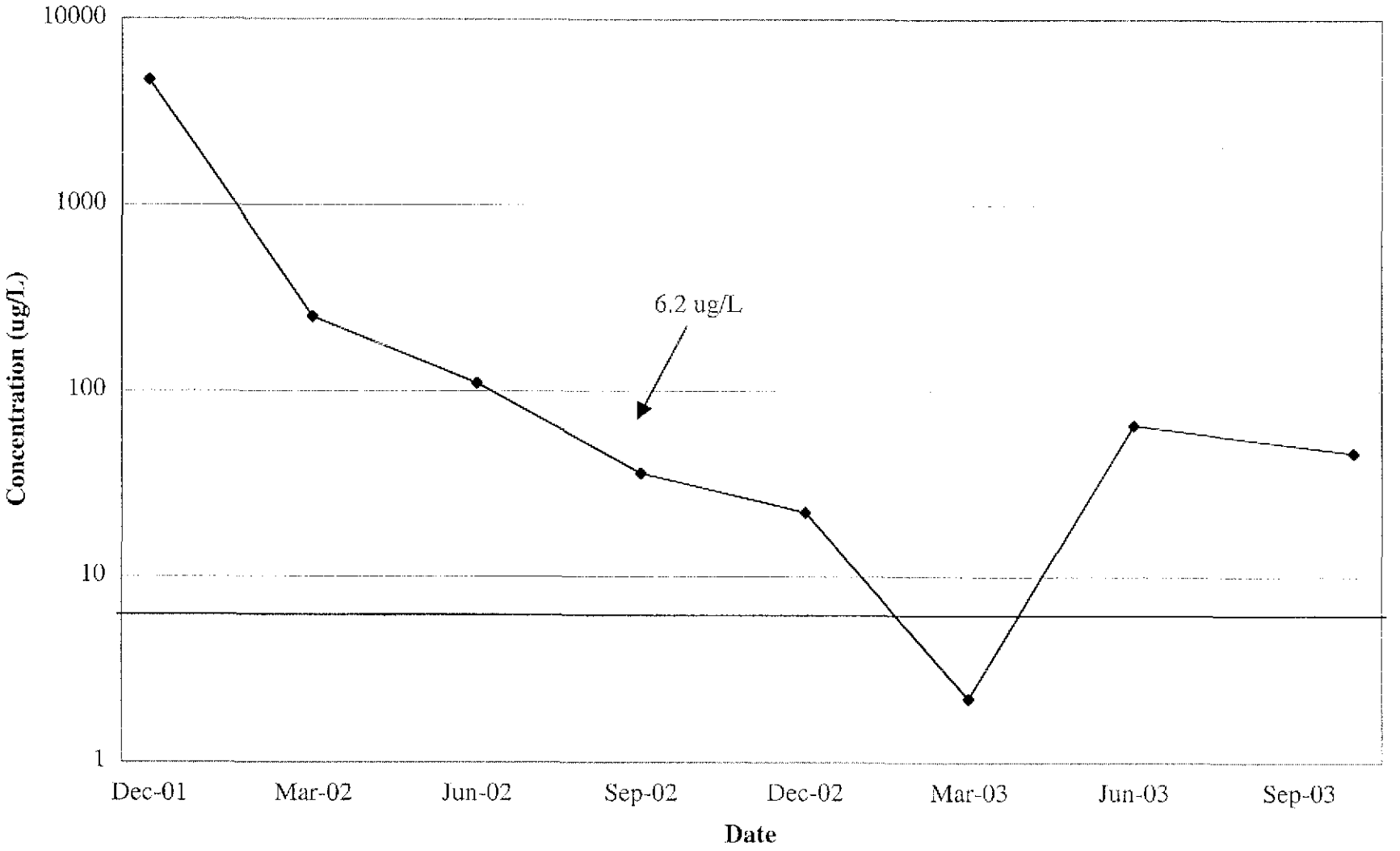
Charts Depicting Naphthalene Concentrations Versus Time

Former Gulf States Creosoting Site
Hattiesburg, Mississippi

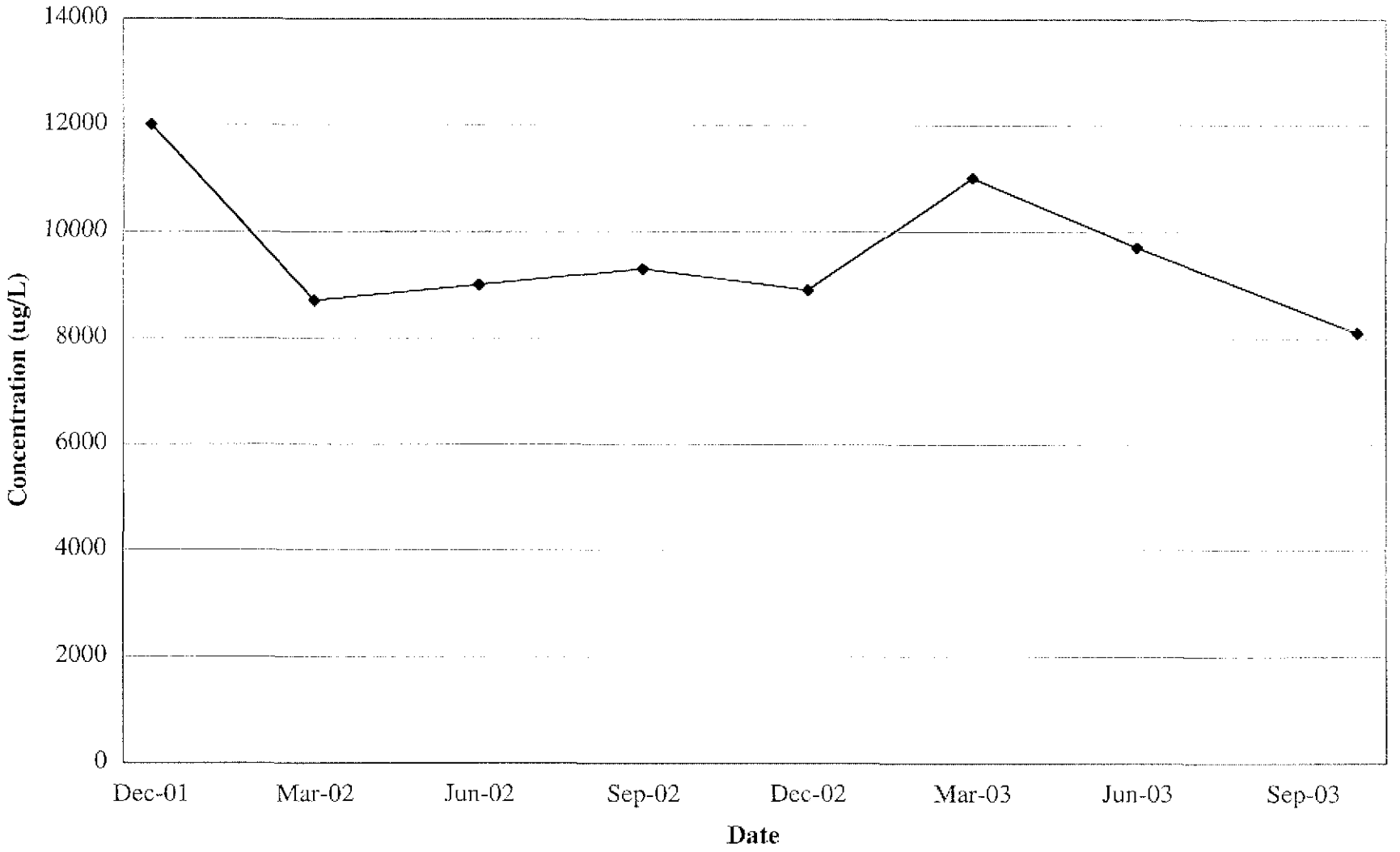
Naphthalene Concentrations in MW-1R



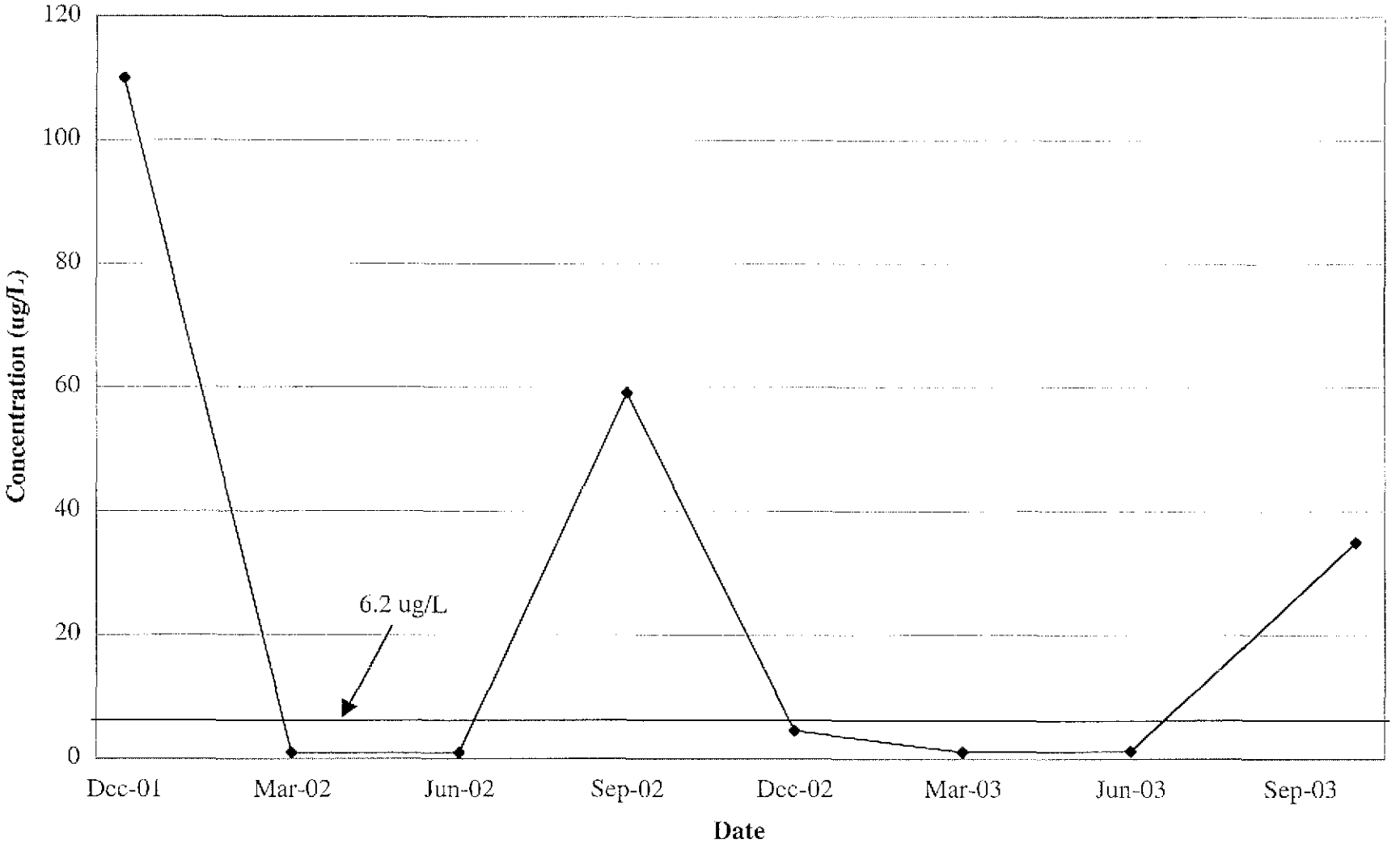
Naphthalene Concentrations in MW-1R



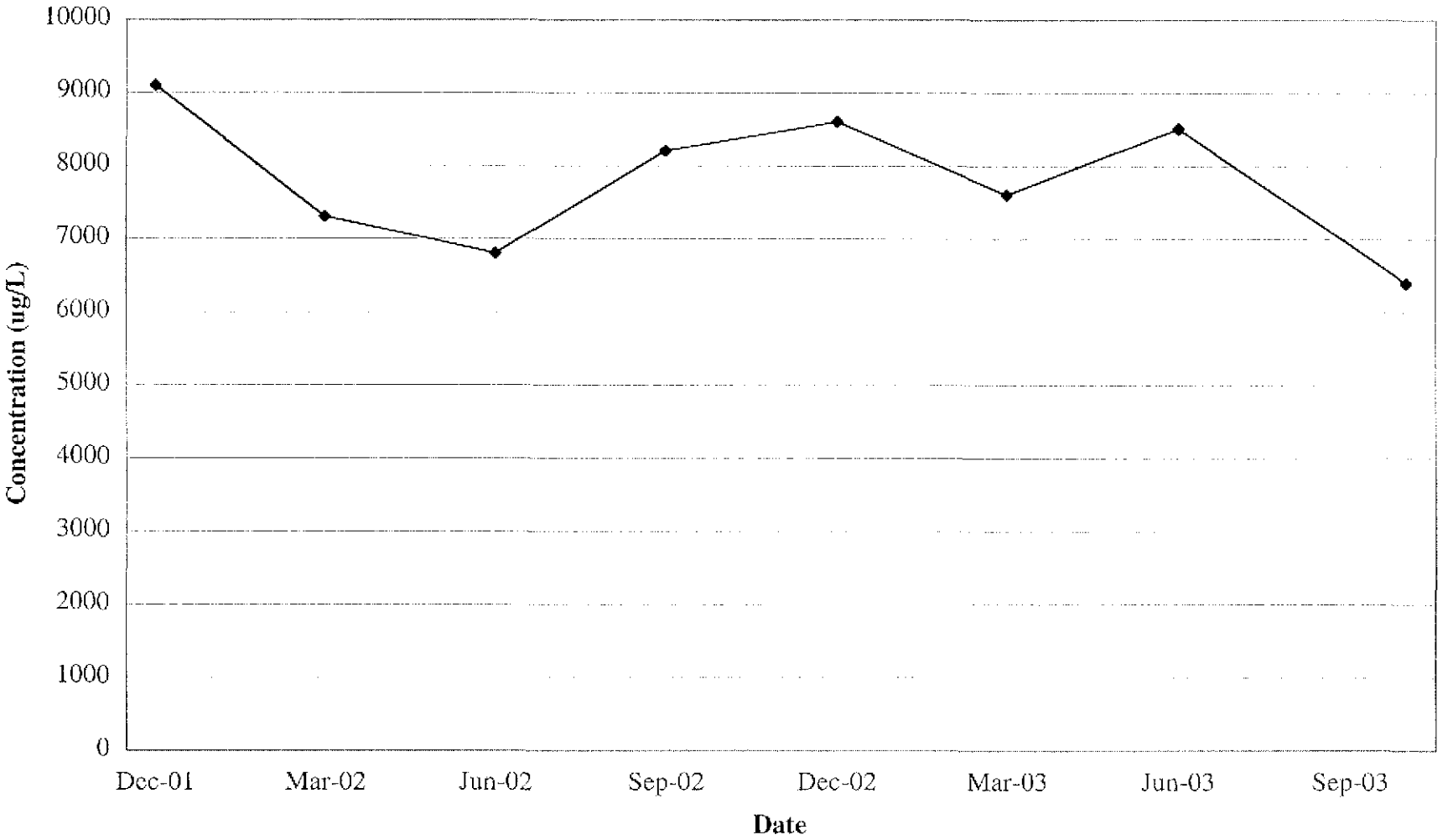
Naphthalene Concentrations in MW-2R



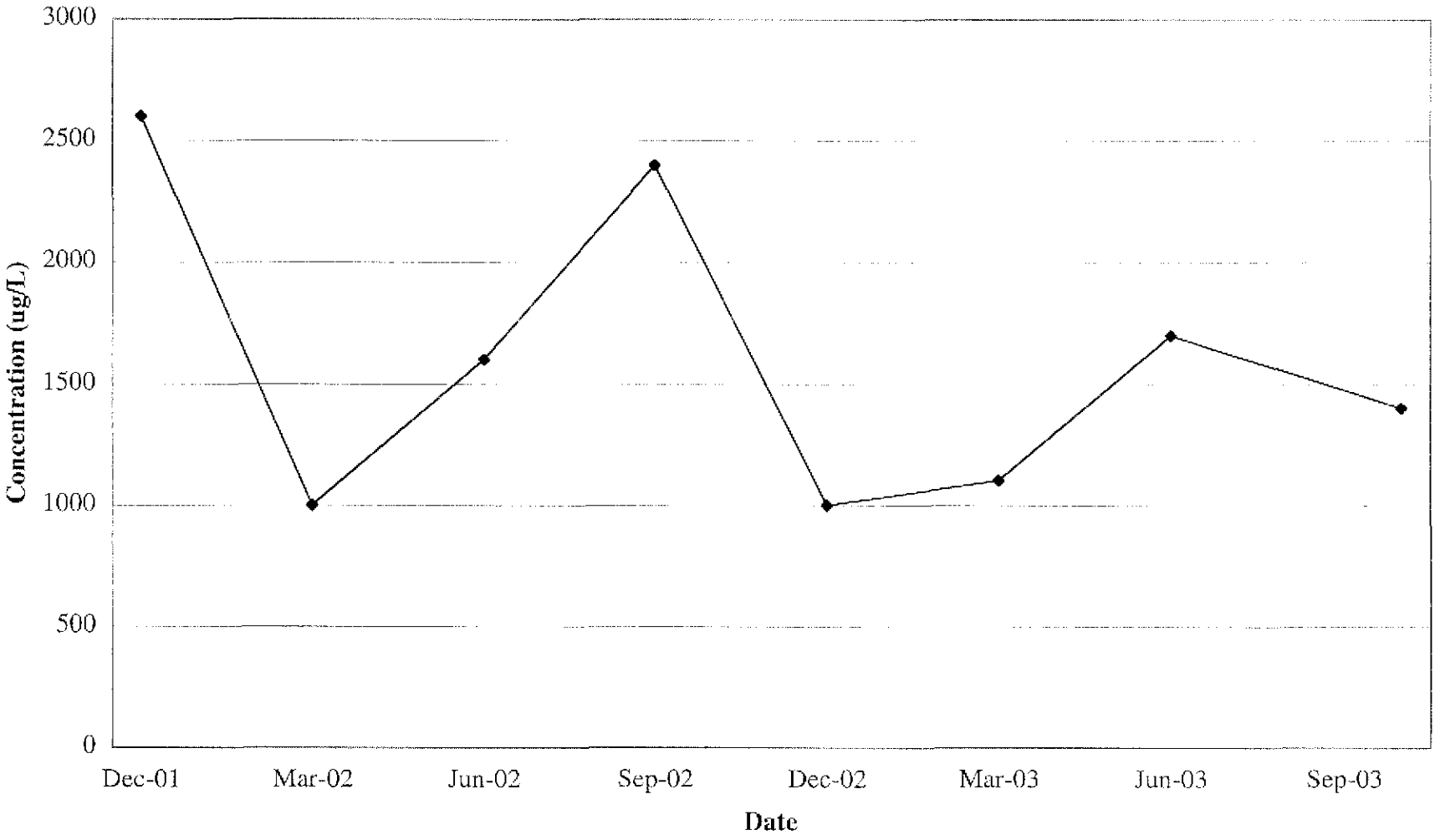
Naphthalene Concentrations in MW-4



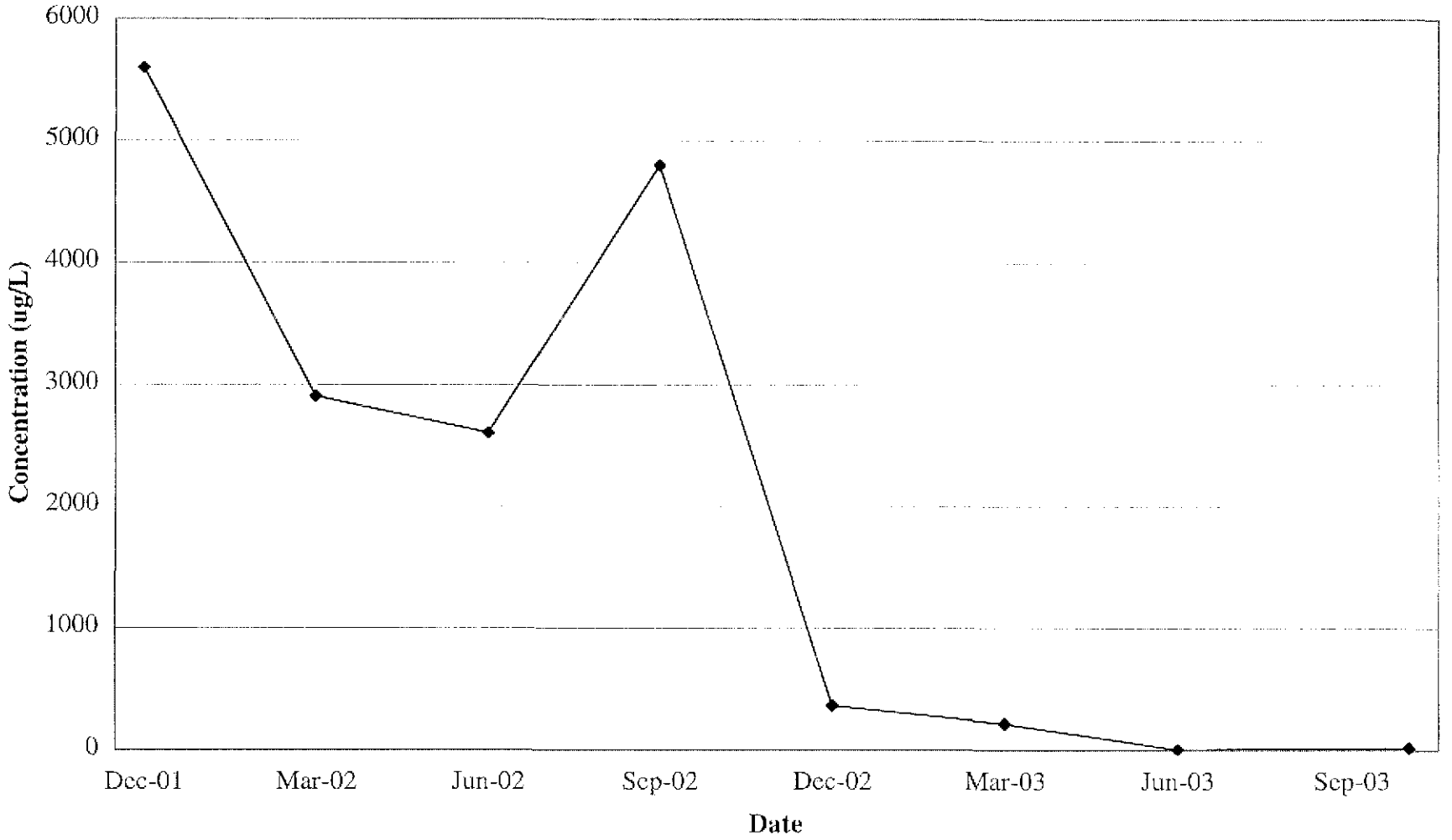
Naphthalene Concentrations in MW-06



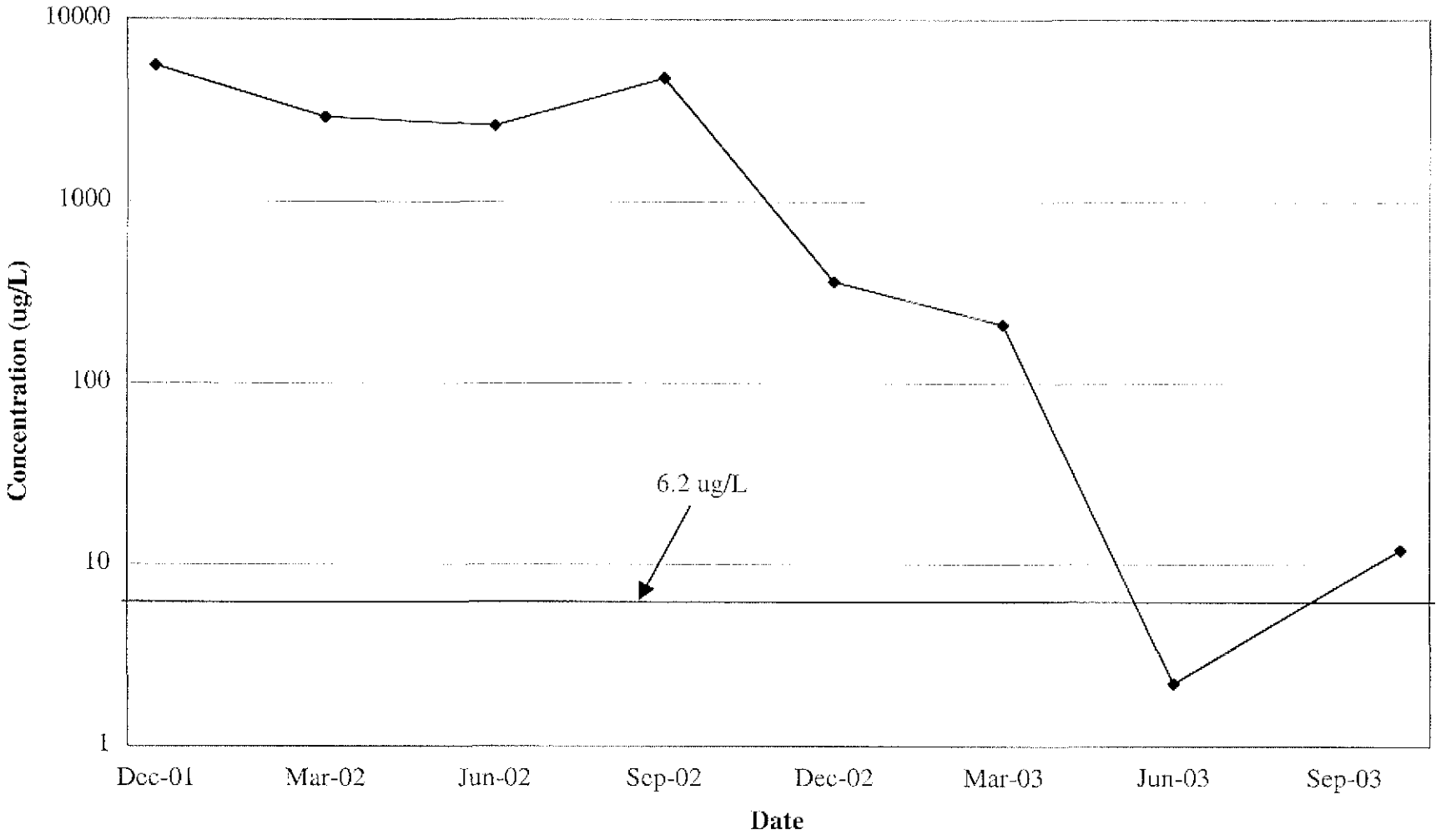
Naphthalene Concentrations in MW-09



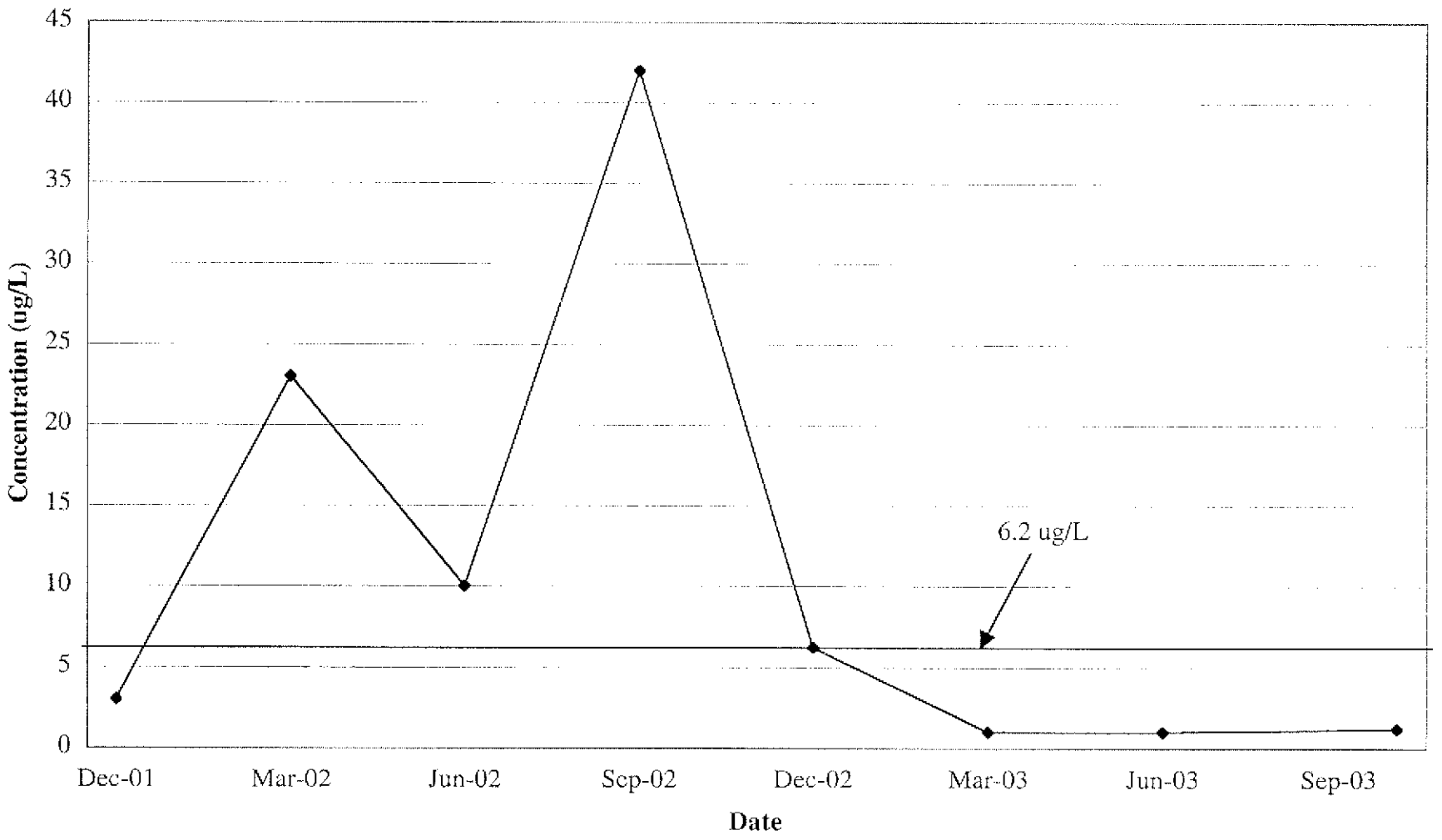
Naphthalene Concentrations in MW-12



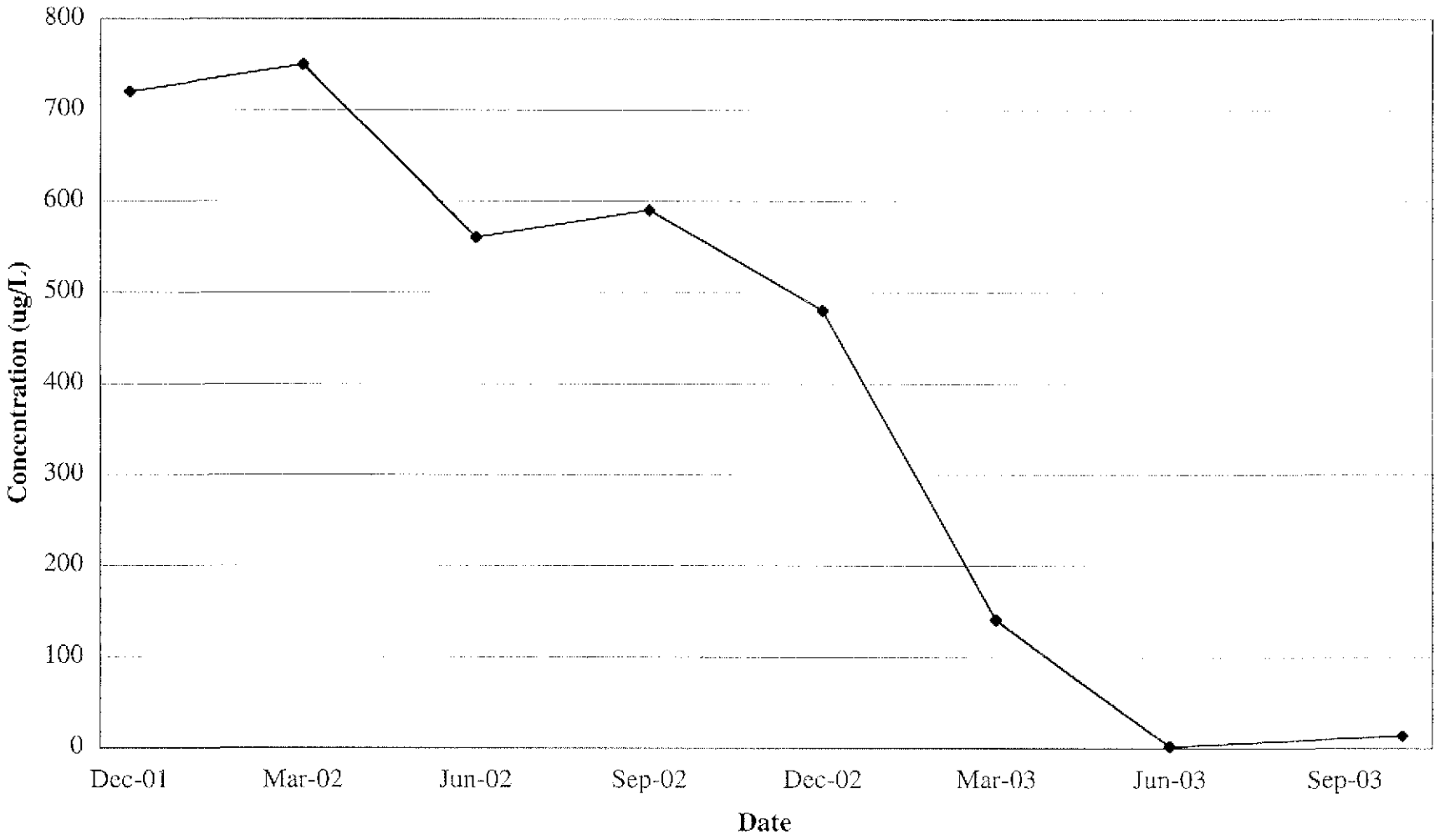
Naphthalene Concentrations in MW-12



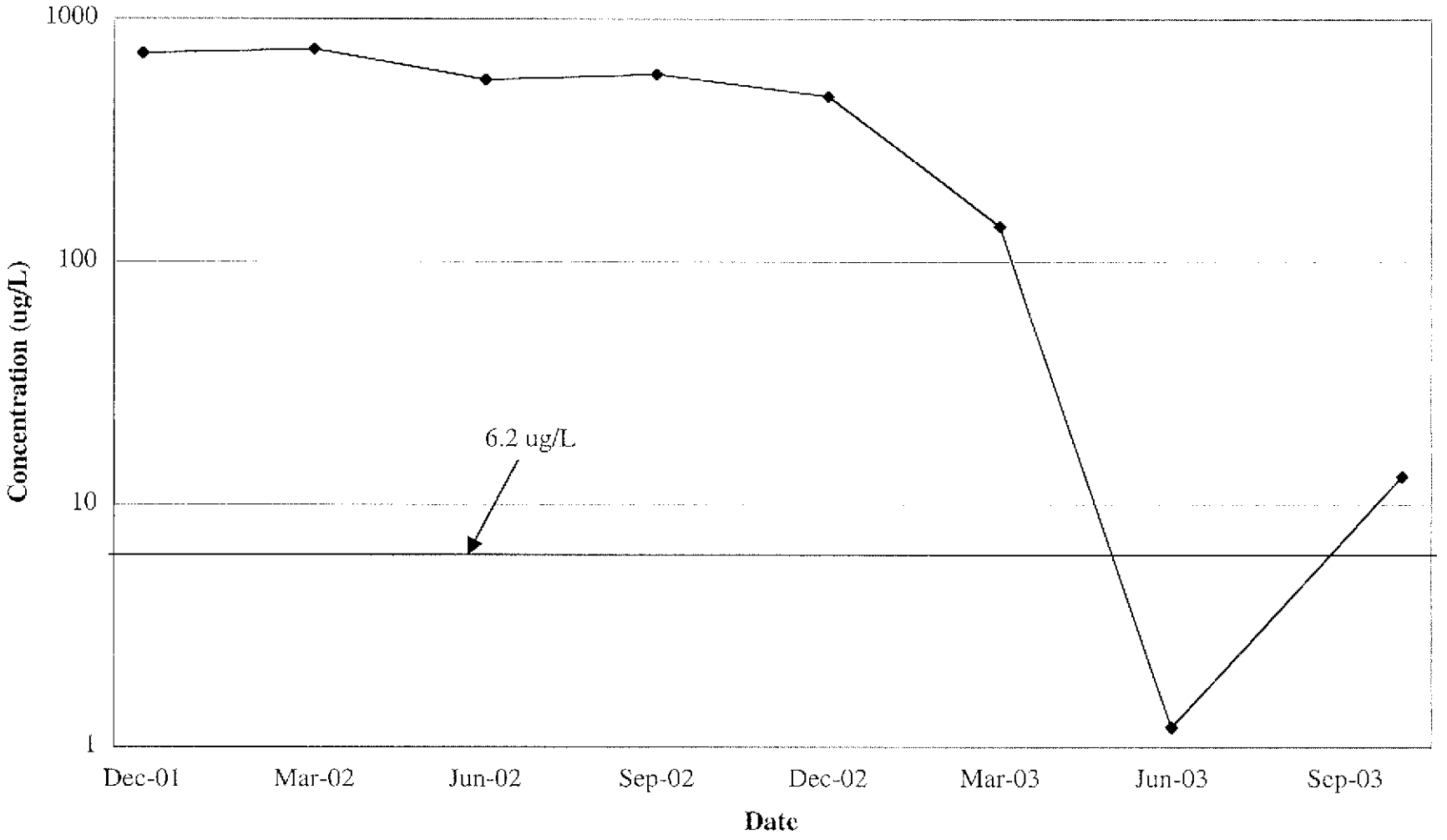
Naphthalene Concentrations in MW-14



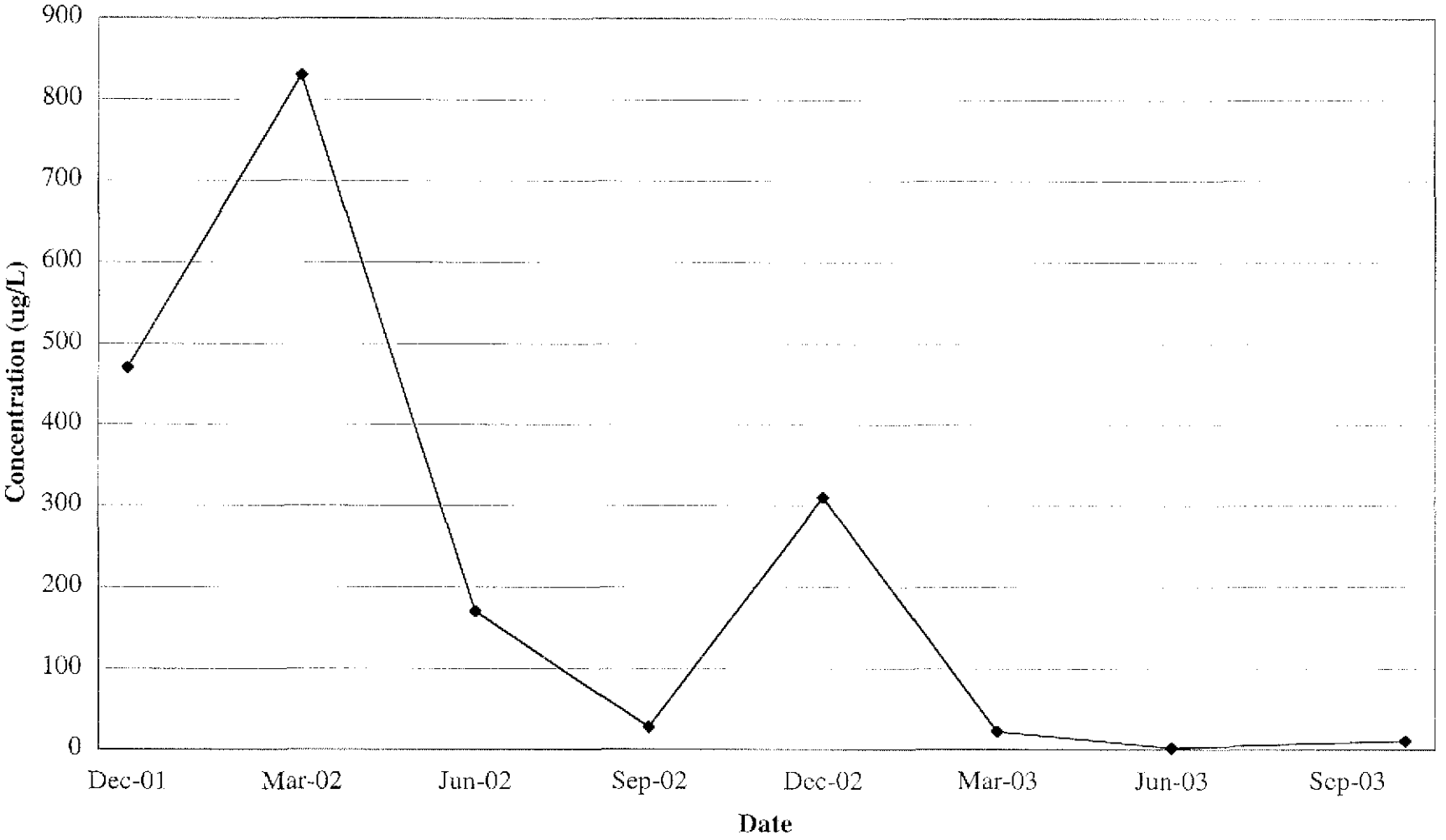
Naphthalene Concentrations in MW-17



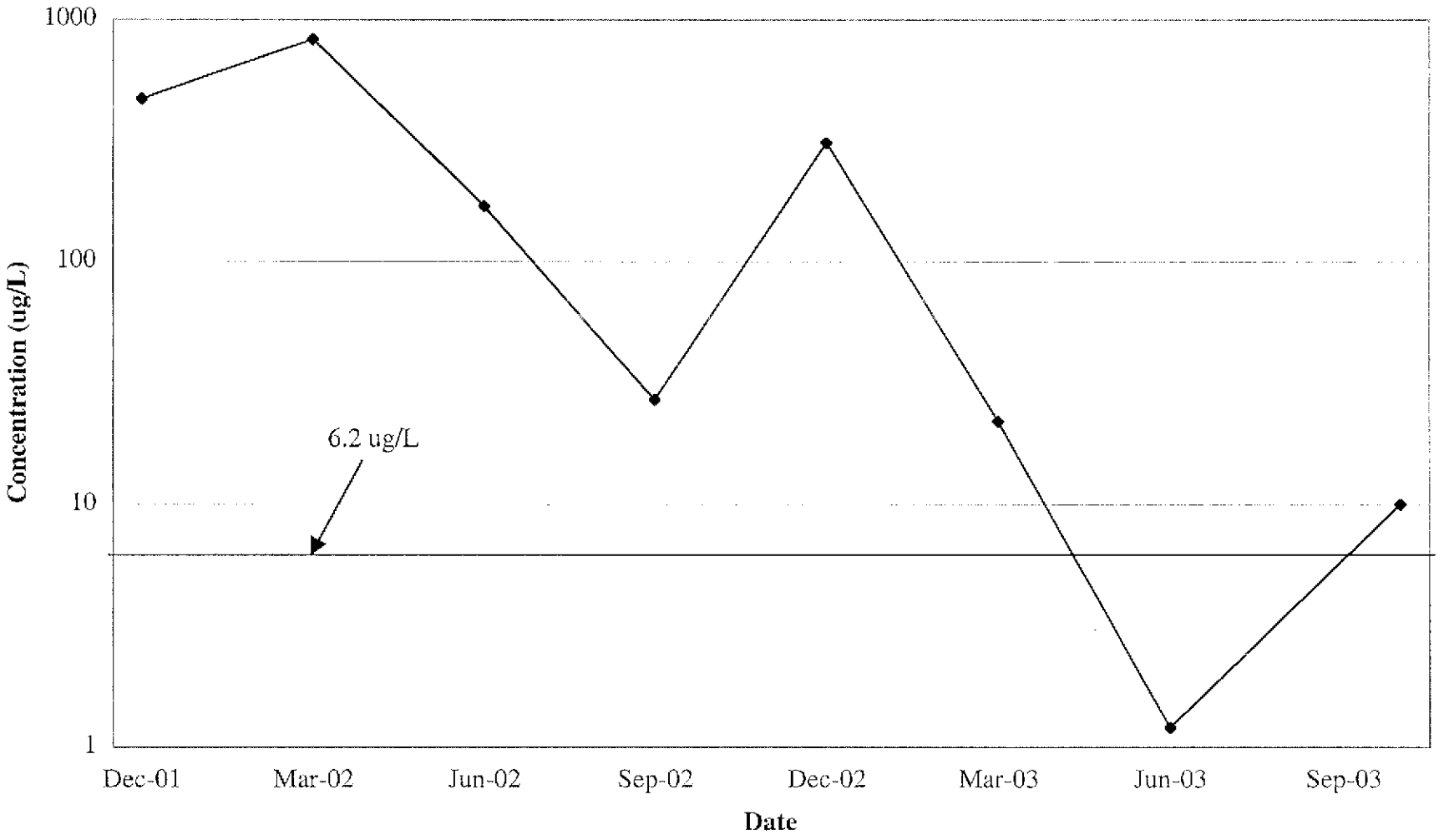
Naphthalene Concentrations in MW-17



Naphthalene Concentrations in MW-18



Naphthalene Concentrations in MW-18



Naphthalene Concentrations in MW-19