Gulf States Creosoting
Rankin Co. Ms.

TRUSTMARK NATIONAL BANK
JACKSON, MISSISSIPPI

PHASE I ENVIRONMENTAL ASSESSMENT

W.G. AVERY AND BODY COMPANY
141 ACRE PARCEL
MISSISSIPPI HIGHWAY 468

BCM PROJECT NO. 05-6176-02

JULY 1993
REVISED (AUGUST 1993)

BCM
Engineers, Planners, Scientists
and Laboratory Services

REPORT

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141 ACRE PARCEL
MISSISSIPPI HIGHWAY 468

PREPARED FOR:

TRUSTMARK NATIONAL BANK
POST OFFICE BOX 291
JACKSON, MISSISSIPPI 39205-0291

BCM PROJECT NO. 05-6176-02

JULY, 1993

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EXECUTIVE SUMMARY

INTRODUCTION

BCM Engineers Inc. (BCM) was retained on June 10, 1993, by the Trustmark National Bank to conduct a Phase I Environmental Assessment at the W.G. Avery Body Company, 141.35 acre parcel, Mississippi Highway 468, Flowood, Mississippi. BCM conducted the field investigation and research June 12, 1993, through June 30, 1993. BCM's objective of this study was to identify adverse environmental conditions, suspect activities, and potential hazardous wastes or materials on or in the vicinity of the subject property which may impact the environmental status.

Scope of Work

In summary, the scope of work consisted of the following:

- In defining the site location, BCM provided limited property ownership information, legal description, address, and narrative description. All available exhibits were reviewed and/or obtained including topographic maps, historical aerial photographs, and county tax and zoning maps.

- Identified materials or wastes present or current site activities, which may pose an environmental hazard.

- Established a limited history of site use. As full previous ownership or use was not made available, BCM attempted to delineate previous ownership and/or use based on interviews and document review.

- Reviewed available public documents including the following for subject property and properties within the designated radius of the site.

    a. Comprehensive Environmental Response compensation Liability Information System (CERCLIS) - potential hazardous waste sites within a one-mile radius.

b. National Property List (NPL) - documented hazardous waste sites within a one-mile radius.
c. Underground Storage Tank (UST) Registration within a ¼-mile radius.
d. State Leaking Underground Storage Tank (LUST) List within a ¼-mile radius.
e. Resource Conservation Recovery Act (RCRA) Notifier's List of hazardous waste generators within a ¼-mile radius.
f. County Health Department Records.

- Conducted interviews with government personnel, owners, employees, and others to obtain information concerning the environmental condition of the subject property, regulatory compliance, past waste activities, and environmental incidents.

- Conducted site investigations of the interiors and exteriors of the building to determine potentially hazardous activities or materials on site. Observed the property for past environmentally adverse activities. Identified the water source used on site and water disposal method from the site.

- Determined the presence of significant PCB-containing power equipment (excluding light ballasts, motor capacitors, etc.).

- Investigated the geologic setting, hydrogeological setting, and potential contaminant migration pathways of the area from contiguous and area properties.

- Installed seven hand auger borings for the collection of soil samples. One soil boring was converted into a temporary groundwater monitoring well. One groundwater and five soil samples were submitted for laboratory analysis.

- Provided recommendations for a prudent course of action to address potential environmental concerns.

- Provided a report of all findings, conclusions, and recommendations resulting from the Phase I Environmental Assessment.

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SITE DESCRIPTION

The W.G. Avery Body Company Parcel consists of a 141.35 acre parcel on Mississippi Highway 468, Flowood, Mississippi. The site is located in Section 1, Township 5 North, Range 1 (one) East; Section 6, Township 5 North, Range 2, East; Section 31, Township 6 North, Range 2 East; and Section 36, Township 6 North, Range 1 East in Rankin County, Mississippi as illustrated on Figure 1, Area/Vicinity map. Approximately 99.8 percent of the parcel is undeveloped or maintained as a landscaped area. The remaining portion of the site lies under building or paved surface.

The site lies in an area of mixed industrial, commercial and residential uses as well as undeveloped wooded and swamp areas. The property is bounded to the north by undeveloped wooded parcels; to the east by an undeveloped wooded parcel, Flowood Baptist Church, and Mississippi Highway 468; to the south by Smith Headley Machinery, Flowood Auctions, and Adcock and Campbell Construction Company; and to the west by undeveloped wooded and swamp areas. Elevations of the property range from 265 to 280 feet above mean sea level as indicated by the 7.5 Minute USGS, Jackson Series topographic map dated 1980. The site is relatively flat except for a levee that was constructed by the Rankin-Hinds Pearl River Flood Control District.

Two buildings are currently located on the subject property. The largest building consists of a 1250 square foot warehouse/barn which currently stores a tractor, treated and untreated wood products, and miscellaneous supplies. The second facility is utilized a shed for a United Gas Pipeline observation well. Two residential mobile homes are located near the Mississippi Highway 468 eastern property border. Figure 2, Site Map, illustrates the locations of these buildings relative to the site during the dates of inspection.

SITE HISTORY

A review of warranty deeds showed that the Gulf States Creosoting Company had ownership of portions of property as early as 1929. Further research revealed that the American Creosoting Corporation obtained portions of the property in 1955 and that W.G. Avery Body Company obtained portions of the property in 1959. A review of a historical aerial photograph obtained from the Mississippi Department of Archives and History, dated January 6, 1940, showed the site as a developed parcel with railroad tracks and commercial buildings and site improvements which may have been utilized

in the creosote operations of the Gulf States Creosoting Company located on the property. Several structures, which may have served as residences are where the current mobile homes are located are shown. The January 6, 1940 photograph showed undeveloped wooded parcels to the north and west with commercial developments and facilities to the south and east.

A review of a historical aerial photograph obtained from the Mississippi Department of Archives and History dated January 17, 1955, showed the site as developed. This coincides with the Plot of Survey conducted in October, 1956 by W.E. Johnson.

A review of the Plot of Survey - Lands of Gulf States Creosoting Company, October 1956, by WE Johnson, Jackson, Mississippi indicated the property boundaries and locations of buildings railroads and facilities utilized by the Gulf States Creosoting Company.

A review of a historical aerial photograph obtained from the Mississippi Department of Archives and History dated November 30, 1965, indicated that the site had several structures in the vicinity of the creosoting facility. Railroad tracks shown in the 1940 and 1955 photograph were apparent. Manufacturing facilities were located to the south of the property, with undeveloped wooded parcels to the west, north, and east. The levee (as constructed) appears in the photograph.

A review of a historical aerial photograph obtained from the Mississippi Department of Archives and History, dated December 17, 1972, and a property records map dated December, 1980, that was obtained from the Rankin County Tax Assessors Office show the site much as it exists during BCM's site inspection. Foundations of former buildings and the barn are shown in the area of the former creosote plant.

CURRENT LAND USE

Land use in the study area is currently characterized by industrial, commercial, and residential developments as well as undeveloped woodlands and swamps in the immediate vicinity of the survey site. Residential and associated developments including single family housing and church activities exist in the surrounding area. Contiguous properties include a church, swamp, undeveloped wooded parcels, industrial, commercial facilities, and a railroad spur.

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NPL AND CERCLIS SITES

BCM reviewed the United States Environmental Protection Agency's (USEPA) National Priorities List (NPL) and Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) List of cited and potential hazardous waste sites, respectively, located within a one-mile radius of the subject property. One NPL site and one CERCLIS site were identified within a one-mile radius of the subject property, they are listed as follows:

NPL

The Flowood Site (MS 980710941) is located approximately ¼- to ½-mile south of the W.G. Avery Body Company Parcel. The Flowood Site consists of approximately 225 acres located adjacent to the Stone Container and Rival Manufacturing Companies. Two manufacturing facilities have existed at the Flowood site since at least the 1940's. The primary contaminants of concerns in soils, sediments and surface water at the Flowood Site include lead, and several polynuclear aromatic hydrocarbons.

From 1982 to 1983, Mississippi Department of Environmental Quality (MS DEQ) officials found excessive lead contamination in sludges, lagoons, and canals associated with wastewater discharge at the Flowood Site. Total Lead contents varied from 14 mg/kg to 94,231 mg/kg in sludge and soil samples obtained at the site. The Flowood Site was added to the NPL in September 1984.

In 1992, a remedial action plan was approved and implemented under the direction of the USEPA. Remedial activities are currently being undertaken at the site. An interview with Mr. Mike Weaver, MS DEQ, revealed that remedial activities are approximately 90 percent complete. A review of files for the Flowood Site showed that contamination was limited to areas south of the W.G. Avery Body Company property. Further review of files revealed no adverse effects to groundwater.

Because remediation activities are close to completion, the surface contamination being located south of the W.G. Avery Body Company Property, a review of MS DEQ files, and the proximity of the Flowood Site to the subject property, the Flowood Site does not appear to present an environmental concern for the subject property.

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CERCLIS

The Mississippi Steel, Division of Magna Corporation (MSD 008158685) is located at the corner of Mississippi Highway 468 and Fourth Street, approximately ¼-mile to ½ -mile northeast of the subject property.

The Magna Corporation Site has been designated a lower priority site with no further remedial action planned. Mississippi Steel division of Magna Corp. produces steel reinforcing bars and other bar mill products. These bars are melted in an electric arc furnace and cast into billets. The bag house dust that is produced is hazardous waste and is currently removed and landfilled in a hazardous waste landfill. The dust, resulting in day-to-day operations which was stockpiled on the property, has been cleaned up. Monitoring wells have been installed. An on-site slag pile has been determined by the MS DEQ to be non-hazardous. The Magna Corp site has been designated as a lower priority site with no further remedial action planned. Based on BCM's review of the MS DEQ file, the Magna Corp site does not appear to present and environmental concern to the site.

ASBESTOS

No suspect asbestos containing materials were observed to have been utilized in the construction of the barn. BCM did not inspect the two mobile homes on site.

AIRPORTS AND STATE LISTED SITES

No airports or were identified with a one-mile radius of the project site. The only state listed site was the NPL site as previously discussed.

RCRA FACILITIES

BCM reviewed the MS DEQ's Resource Conservation and Recovery Act (RCRA) Notifier's List of Hazardous Waste Generators. Three RCRA regulated generators of hazardous materials were identified within a one-quarter mile radius of the subject property.

A large quantity generator is defined as a facility which generates greater than 1,000 kilograms (2200 lb) of hazardous waste per month. A small quantity generator is defined as a facility which generates between 100 kilograms to 1000 kilograms (220 lbs to 2200 lb) of hazardous waste per month. A conditionally exempt small quantity

generator is defined as a facility which generates less than 100 kilograms (220 lbs) of hazardous waste per month.

The RCRA listed facilities and classifications were as follows:

- **Birmingham Steel Corporation (MSD 008158685)**, a large quantity generator, is located at the intersection of Mississippi Highway 468 and Fourth Street approximately ¼- to ½-mile northeast of the subject property. A review of the MS DEQ files listed the facility as a large quantity generator of hazardous waste. Hazardous wastes produced at the site are transported to a hazardous waste landfill. Based on BCM's inspection on the site and information obtained from MS DEQ, this facility does not appear to present an environmental concern for the subject property.

- **Heckett (Plant 25) (MSD 981480684)**, a small quantity generator, is located ¼-mile northeast of the subject property. The MS DEQ file was not available for review. BCM's field research revealed that the Heckett Plant is currently out-of-service. The plant once produced asphalt, rip rap, and other materials associated with paving for parking lots, roads, or driveways. This facility does not appear to present an environmental concern for the subject property.

- **Cataphote Inc. (MSD 065480063)**, a conditionally exempt small quantity generator, is located at 1001 Underwood Drive, ¼-mile southeast of the subject property. A review of MS DEQ files listed no notice of violations or documented uncontrolled incidents for the facility. This facility does not appear to present an environmental concern for the subject property.

LANDFILL AND HAZARDOUS WASTE DISPOSAL SITES

No landfills or hazardous waste disposal sites were identified within a one-half mile radius of the property.

OFF-SITE UST FACILITIES

Three off-site underground storage tank (UST) facilities were identified within a one-quarter mile radius of the W.G. Avery Body Company property. These facilities

are located south of the subject property. Figure 3, Area Properties Map, shows the locations of the UST facilities relative to the site. UST registration forms are presented as Appendix B.

All three of the off-site facilities are registered with the State of MS DEQ Office of Pollution Control (OPC) UST Section. A summary of the off-site UST facilities is presented below.

Adcock and Campbell Construction Company is located, adjacent to the subject parcel at the south property border. Records indicate that a 1,000 gallon gasoline UST was removed in February 1990. Soil samples collected for laboratory analysis during the UST removal process were within state allowable limits. No further action was required by the MS DEQ for the closure of the USTs.

Smith Headley Machinery is located adjacent to the subject parcel at the south property border. Records indicated the presence of one 2,000 gallon diesel UST and one 1,000 gallon gasoline UST. These USTs are still in place but have been out-of-service since December 1988. MS DEQ records indicate that proper UST closure has not been conducted. These USTs do not appear to be in compliance with current MS DEQ UST policies.

Flowood Properties is located on Mississippi Highway 468 located ¼-mile south east of the subject parcel. Records indicate three USTs were removed form the property in December 1988. No known petroleum releases have occurred at this facility.

ON-SITE UST FACILITIES

BCM's site inspection and a review of records at the MS DEQ UST Section did not reveal any evidence of past UST usage at the subject property.

PCB-ELECTRICAL EQUIPMENT

No indoor power transformers were identified at the subject property. However, four pole-mounted transformers were identified on the property. These transformers are owned and operated by Mississippi Power & Light (MP&L). Written correspondence (see Appendix C) received from Mr. Steve Tullos, Environmental Analyst, indicated that the transformers were not identified as containing

polychlorinated biphenyls (PCBs) and utilize mineral oil as a dielectric fluid. No leaks, damage or stained soils were identified as being associated with the transformer units.

RADON

Radon screening was not conducted at the W.G. Avery Body Company parcel. A review of the U.S. EPA map of radon-producing geologic formations does not appear to indicate the presence of radon-producing formations in the Rankin County, Mississippi area. Interview remarks with Mr. Silas Anderson, Health Physicist for the Mississippi Department of Health, Division of Radiological Health, indicted that radon testing had been conducted at four locations in the vicinity of the site. The average radon reading encountered was 0.5 picoCurries/liter. One sample yielded a maximum reading of 1.0 picoCurrie/liter, below the US EPA recommended action level of 4.0 picoCurries/Liter.

ON-SITE ACTIVITIES

The two mobile homes on-site, were not inspected by BCM. The Barn/Warehouse is currently utilized for storage of a tractor, treated lumber, and miscellaneous supplies. No adverse environmental concerns are associated with current on-site activities.

OTHER NEARBY FACILITIES OF CONCERN

No other facilities of environmental concern were identified near the subject property based on visual site reconnaissance and review of available documentation from state and federal environmental regulatory agencies.

SOIL BORING ACTIVITIES

On June 18, 1993, BCM advanced seven soil borings utilizing a three inch outside diameter stainless steel hand auger in the vicinity of the former creosote plant. The borings were drilled to depths of three to eight feet below ground surface (bgs) in order to characterize soil conditions beneath the surface.

Soil samples from each soil boring were collected at the zero to two bgs interval, and the five to six bgs interval and/or the depth at which groundwater was encountered. Headspace analysis functioned as a screening tool providing relative on-site quantitative data. Headspace readings were achieved utilizing a Foxboro Organic

Vapor Analyzer (OVA) Model 108. Headspace samples were taken from soil samples obtained during soil boring activities.

The hand-augured borehole HA-3 was converted into a temporary groundwater well in order to facilitate the collection of a groundwater sample. A groundwater sample was obtained utilizing a disposable groundwater bailer. Soil and groundwater samples were analyzed for the presence of Semi-Volatile Compounds per EPA Method 8270. Soil and groundwater sampling results are presented in the Table. Laboratory analytical Results are presented as Appendix A.

The soil boring and groundwater laboratory analysis sampling activities revealed the presence of creosote compounds in both the soil and groundwater.

CONCLUSIONS

Based on the information obtained during the Phase I Environmental Assessment of the W.G. Avery Body Company property, as presented herein, environmental concerns were identified as the following:

- The NPL Flowood Site appears to have no adverse effects on the subject property.
- The USTs at Smith Headley Machinery may have impacted the subject property.
- No other significant off-site concerns were identified.
- Significant concentrations of compounds associated with wood treating using creosote were encountered in both the groundwater and soil at the W.G. Avery Body Company property. The Compound concentrations are listed in the Table, Soil and Groundwater Analytical Results.

The U.S. EPA utilizes Health Risk Based Concentrations as a benchmark reference for evaluating preliminary site investigation data. The data has no official status as either regulation or guidance and is only used as a predictor of generic single-contaminant health risk estimates. The critical criteria concentrations listed in the Table are not intended as a stand-alone decision making tool, or a source for EPA guidance for preparing site-specific cleanup levels. These values are somewhat limited

in the quality or quantity of data which would support potential adverse health effects related to exposure to the chemical compound.

The critical criteria soil and water concentrations are subject to change as additional research regarding adverse health effects become available.

Laboratory analysis of the soil sample obtained from HA-3 and the groundwater sample obtained from TW-1 revealed the presence of compounds which were below the Health Risk Based Critical Concentrations.

BCM can not conclude that samples obtained HA-3/TW-1 represent the highest concentration of creosote compounds on the W.G. Avery Body Company Property. Additional soil borings in the vicinity of HA-3/TW-1 and HA-7 would need to be placed in order to estimate the following:

1) The lateral and horizontal extent of creosote contamination in soil.

2) The maximum concentration of creosote compounds encountered in the soil or groundwater.

3) The direction of groundwater flow.

4) The lateral extent of creosote contamination in groundwater.

BCM also cannot conclude what remedial activities, if any, MS DEQ will require based on the limited amount of information gathered during the Phase I investigation.

RECOMMENDATIONS

In reference to the above conclusions BCM recommends the following activities.

- Installation of soil borings near the Smith Headley Machinery property line to determine if potential petroleum hydrocarbon contamination has impacted the subject property.

- Installation of additional soil borings in the vicinity of the former creosote plant in order to delineate the vertical and lateral extent of contamination and estimate the maximum concentrations of creosote compounds in the soil.

BCM

PROJECT INFORMATION DATA FORM

I. PROPERTY INFORMATION

Project Name:	W.G. Avery Body Company
Project Address:	Mississippi Highway 468 Flowood, Mississippi

II. CLIENT INFORMATION

Client Name:	Trustmark National Bank
Client Address:	P. O. Box 291 Jackson, Mississippi 39205
Client Contact:	Ms. Dustin Womack (601) 949-2406

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1.0 GENERAL

1.1 SURVEY DATA

(A)	**FIELD INVESTIGATOR:**	Dale Woodall
(B)	**INSPECTION DATE:**	June 12 - June 30, 1993
(C)	**USE/OPERATION:**	Currently vacant space
(D)	**PROPERTY SIZE (approx.)**	141.35 acres
(E)	**BUILDING SITE (approx.):**	Total 1250 square feet
(F)	**BUILDING CONSTRUCTION DATE:**	1950's

(G) **BUILDING CONSTRUCTION**: The site improvements include two mobile homes and a 1,250 square feet barn. The barn is sheet metal on a wood frame with concrete flooring. No air condition-system, floor tile, insulation, ceiling tile or any other materials that may be considered as suspect asbestos containing materials exist.

1.2 SITE DESCRIPTION

The subject property consists of a lightly vegetated 141.35 acre, irregular shaped parcel of land. Trees are sparse and mostly located along the south end of the site.

Creosote plant remains consist of concrete slabs, foundations, and other debris. A barn is used to store a tractor, treated lumber and miscellaneous supplies.

Two mobile homes are located at the former creosote company home locations. These mobile homes were not inspected by BCM.

1.3 WAS EXTENSIVE OFF-SITE FILL MATERIAL USED DURING THE SITE'S DEVELOPMENT?

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A levee has been constructed along the western property border. This levee was constructed prior to 1965. The levee is maintained by the Rankin-Hinds Pearl River Flood and Drainage Control District.

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1.4 SITE LOCATION

The site is located on the western side of Mississippi Highway 468 in Flowood, Mississippi. The site is identified as being in parts of Section 1 of Township 5 North, Range 1 East; Section 6 of Township 5 North, Range 2 East; Section 31 of Township 6 North, Range 2 East; and Section 36 of Township 6 North, Range 1 East. Figure 1, Area/Vicinity Map, illustrates the subject site and vicinity properties on the Jackson Series 7.5 Minute quadrangle Map.

1.5 TENANT LIST

Present tenants in the mobile homes were not identified. Past tenants include the Gulf State Creosoting Company and the American Creosoting Company.

1.6 SITE PLAN

A site plan is presented as Figure 2, Site Map.

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2.0 SITE HISTORY AND AREA LAND USE

2.1 HISTORICAL USE OF STUDY SITE

Based on the review of aerial photographs and interviews, the subject property was utilized as a creosote plant from the 1920's until the 1960's. The site was then abandoned and left in its present condition.

2.2 CURRENT AREA LAND USE

Current land use is zoned as industrial use. Residential properties are located to the east of the survey property. Commercial and other industrial facilities are located along Mississippi Highway 468 at the southern and eastern property border of the subject site.

2.3 MAJOR WATERWAYS AND/OR LAND FEATURES IN AREA

Undeveloped swampland and wooded properties bound the site to the west. A drainage ditch flows from the north to the south into an undeveloped swamp. Both Neely Creek and the Pearl River lie within one-half mile radius of the site.

2.4 IS THE SITE OF KNOWN HISTORICAL OR ARCHEOLOGICAL SIGNIFICANCE?

YES _____ NO __X__

Comment: Based on review of available documentation, no known cemeteries, Indian mounds, landmarks, or other known historical features are associated with the survey site.

2.5 ADJACENT PROPERTIES

	Name	Location	Operation
1.	Undeveloped wooded parcel	North	Undeveloped
2.	Flowood Baptist Church, Undeveloped wood parcels, Mississippi Highway 468	East	Commercial and Highway

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	Name	Location	Operation
3.	Adcock and Campbell Construction Company, Flowood Auction, Smith & Headley Machinery	South	Industrial and Commercial
4.	Undeveloped wooded & swamp parcels	West	Undeveloped

Comment: Typical activities conducted at these adjacent properties do not appear to pose potential adverse environmental impact to the study site.

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3.0 "RED FLAG" PROPERTIES

3.1 NATIONAL PRIORITIES LIST (NPL) SITES OR COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA) SITES WITHIN A ONE (1) MILE RADIUS OF THE SUBJECT SITE

NPL	CERCLIS
Flowood Site Magna (MSD 986710941)	The Mississippi Steel, Division of Corporation (MSD 008158685)

The Flowood Site (MS 980710941) is located approximately ¼- to ½-mile south of the W.G. Avery Body Company Parcel. The Flowood Site consists of approximately 225 acres located adjacent to the Stone Container and Rival Manufacturing Companies. Two manufacturing facilities have existed at the Flowood site since at least the 1940's. The primary contaminants of concerns in soils, sediments and surface water at the Flowood Site include lead, and several polynuclear aromatic hydrocarbons.

From 1982 to 1983, Mississippi Department of Environmental Quality (MS DEQ) officials found excessive lead contamination in sludges, lagoons, and canals associated with wastewater discharge at the Flowood Site. Total Lead contents varied from 14 mg/kg to 94,231 mg/kg in sludge and soil samples obtained at the site. The Flowood Site was added to the NPL in September 1984.

In 1992, a remedial action plan was approved and implemented under the direction of the USEPA. Remedial activities are currently being undertaken at the site. An interview with Mr. Mike Weaver, MS DEQ, revealed that remedial activities are approximately 90 percent complete. A review of files for the Flowood Site showed that contamination was limited to areas south of the W.G. Avery Body Company property. Further review of files revealed no adverse effects to groundwater.

Because remediation activities are close to completion, the surface contamination being located south of the W.G. Avery Body Company Property, a review of MS DEQ files, and the proximity of the Flowood Site to the subject property, the Flowood Site does not appear to present an environmental concern for the subject property.

The Mississippi Steel, Division of Magna Corporation (MSD 008158685) is located at the corner of Mississippi Highway 468 and Fourth Street, approximately ¼-mile to ½-mile northeast of the subject property.

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The Magna Corporation Site has been designated a lower priority site with no further remedial action planned. Mississippi Steel Division of Magna Corp. produces steel reinforcing bars and other bar mill products. These bars are melted in an electric arc furnace and cast into billets. The bag house dust that is produced is hazardous waste and is currently removed and landfilled in a hazardous waste landfill. The dust, resulting in day-to-day operations which was stockpiled on the property, has been cleaned. Monitoring wells have been installed. An on-site slag pile has been determined by the MS DEQ to be non-hazardous. The Magna Corp site has been designated as a lower priority site with no further remedial action planned. Based on BCM's review of the MS DEQ file, the Magna Corp site does not appear to present and environmental concern to the site.

3.2 AIRPORTS AND STATE LISTED SITES (UNDERGOING OR OTHERWISE SUBJECT TO REMEDIATION PROGRAM) WITHIN A ONE (1) MILE RADIUS:

None identified.

3.3 LANDFILLS OR HAZARDOUS WASTE DISPOSAL SITES WITHIN A ONE-HALF (½) MILE RADIUS:

None identified.

3.4 PROPERTIES WITH KNOWN OR SUSPECTED UNDERGROUND STORAGE TANKS OR LIGHT INDUSTRY WITHIN A ONE-QUARTER (¼) MILE RADIUS

	Name	Address	Distance and Direction from Project Site
1.	Smith Headley Machinery	1353 Flowood Drive	Adjacent to the south
2.	Adcock and Campbell Construction Company	1365 Flowood Drive	Adjacent to the south
3.	Flowood Properties	Highway 468	¼-mile Southeast

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Comments:

Adcock and Campbell Construction Company is located, adjacent to the subject parcel at the south property border. Records indicate that a 1,000 gallon gasoline UST was removed in February, 1990. Soil samples collected for laboratory analysis during the UST removal process were within state allowable limits. No further action was required by the MS DEQ for the closure of the USTs.

Smith Headley Machinery is located adjacent to the subject parcel at the south property border. Records indicated the presence of one 2,000 gallon diesel UST and one 1,000 gallon gasoline UST. These USTs are still in place but have been out-of-service since December 1988. MS DEQ records indicate that proper UST closure has not been conducted. These USTs do not appear to be in compliance with current MS DEQ UST policies.

Flowood Properties is located on Highway 468 located ¼-mile south east of the subject parcel. Records indicate three USTs were removed form the property in December, 1988. No known petroleum releases have occurred at this facility.

3.5 RCRA FACILITIES WITHIN A ONE-QUARTER (¼) MILE RADIUS

Cataphote (MSD 9860710941)	Birmingham Steel (MSD 008158685)	Heckett (Plant 25) (MSD 981480684)

Comments:

- **Birmingham Steel Corporation (MSD 008158685),** a large quantity generator, is located at the intersection of Mississippi Highway 468 and Fourth Street approximately ¼- to ½-mile northeast of the subject property. A review of the MS DEQ files listed the facility as a large quantity generator of hazardous waste. Hazardous wastes produced at the site are transported to a hazardous waste landfill. Based on BCM's inspection on the site and MS DEQ this facility does not appear to present an environmental concern for the subject property.

- **Heckett (Plant 25) (MSD 981480684)**, a small quantity generator, located ¼-mile northeast of the subject property has been classified effective June 2, 1993. No MS DEQ file was available for review. BCM's field search revealed that the Heckett Plant paving materials is currently out-

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of-service. This facility does not appear to present an environmental concern for the subject property.

- **Cataphote Inc. (MSD 065480063)**, a conditionally exempt small quantity generator, is located at 1001 Underwood Drive ¼-mile southeast of the subject property. A review of MS DEQ files listed no notice of violations or documented uncontrolled incidents for the facility. This facility does not appear to present an environmental concern for the subject property.

3.6 FACILITIES OF CONCERN NOT ADDRESSED ABOVE

None identified.

3.7 AREA PROPERTIES MAP

An Area Properties Map showing the relative location of referenced sites to the subject property is included as Figure 3.

BCM

4.0 POTENTIAL ENVIRONMENTAL CONTAMINANTS

4.1 POTENTIAL PCB-CONTAINING EQUIPMENT

(A) OUTDOOR POWER TRANSFORMERS? YES __X__ NO _____

1. **NUMBER OF PAD TRANSFORMERS?** 0

2. **NUMBER OF POLE TRANSFORMERS?** 4

3. **NUMBER OF VAULT TRANSFORMERS:** 0

Comment: BCM contacted Mississippi Power & Light Company (MP&L) to determine PCB-classification and ownership verification of the transformer units. Response from MP&L is included as Appendix C.

(B) INDOOR POWER TRANSFORMERS? YES _____ NO __X__

(C) OTHER POTENTIAL PCB EQUIPMENT?

None identified.

4.2 RADON

(A) TESTING CONDUCTED?

Charcoal _____ Alpha Counter _____ None __X__

(B) DOES THE BUILDING HAVE BASEMENTS OR OTHER SUBGRADE AREAS?

YES _____ NO __X__

(C) HAVE INTERVIEWS WITH RESPONSIBLE PARTIES INDICATED A CONCERN FOR RADON IN THE PROJECT AREA?

YES _____ NO __X__

Comment: Interview remarks by Mr. Silas Anderson, Health Physicist for the State Board of Health, indicated that City of Flowood is rated as having low probability for radon screening greater than 4.0 pCi/L.

BCM

(D) IS THE SITE IN THE PROXIMITY OF A RADON-PRODUCING FORMATION?

YES _____ NO __X__

COMMENT:

Review of the USEPA Map of Radon-Producing Geologic Formations did not indicate obvious radon producing formations in the Rankin County Area.

4.3 ASBESTOS-CONTAINING MATERIALS SURVEY

Number of building materials taken 0

Was asbestos present in samples? NA

Comment:

No suspect asbestos containing building materials were observed in barn.

4.4 AIR QUALITY

INDOOR EMISSIONS

(A) ARE AIR EMISSIONS GENERATED AT THIS SITE?

YES ____ NO __X__

(B) DOES THE BUILDING HAVE SPRAYED OR FOAM INSULATION?

YES ____ NO __X__

(C) WHAT PROCESSES OR ACTIVITIES ARE PRESENT IN THE BUILDING THAT MAY SERVE AS CONTAMINANT SOURCES?

None Identified.

(D) WHAT TYPE OF HEATING SYSTEM IS USED?

BCM

None identified.

BCM

(E) WHAT TYPE OF COOLING SYSTEM IS USED?

None identified.

BCM

5.0 SURFACE AND SUBSURFACE INVESTIGATION

5.1	CURRENT UNDERGROUND STORAGE TANKS?	YES ____	NO X
	PREVIOUS UNDERGROUND STORAGE TANKS?	YES ____	NO X
5.2	ABOVEGROUND STORAGE TANKS?	YES ____	NO X
5.3	DOES THE FACILITY HAVE AN EMERGENCY GENERATOR?	YES ____	NO X

BCM

6.0 SPECIAL CONSIDERATIONS

(A)	IS THIS A MANUFACTURING FACILITY?	No
(B)	IS THIS A WAREHOUSE?	No
(C)	DOES THIS FACILITY HAVE A HAZARD COMMUNICATION PROGRAM IN PLACE?	N/A
(D)	MATERIAL SAFETY DATA SHEETS (MSDS) ON FILE?	N/A
(E)	SPILL PREVENTION, CONTROL AND COUNTERMEASURE PLAN (SPCC) ON FILE?	N/A
(F)	IS THERE A STORMWATER DISCHARGE FROM INDUSTRIAL OPERATIONS THAT REQUIRES A NPDES OTHER PERMIT:	No
(G)	DOES THIS FACILITY HAVE AN INDUSTRIAL OR A NON-DOMESTIC WASTE DISCHARGE?	No
(H)	WASTE LAGOONS/PONDS?	No
(I)	WASTE TANKS?	No
(J)	SUMPS?	No
(K)	FILTERS/SEPARATORS?	No
(L)	CONTAINED WASTES?	No
(M)	MEDICAL WASTES?	No
(N)	LIST OF DISPOSAL METHODS, TRANSPORTERS FOR HAZARDOUS WASTES?	N/A

(O) TYPE OF FLOORING?

(P) LIST OF ANY ON-SITE SPILLS OF HAZARDOUS MATERIALS

None identified.

BCM

(Q) **IS THERE ANY EVIDENCE OF ON-SITE ILLEGAL DUMPING OF HAZARDOUS MATERIALS, DEBRIS, OR CONSTRUCTION MATERIALS?**

None identified.

(R) **IS ANY ON-SITE RECYCLING CONDUCTED?** No

(S) **ARE THERE ANY GROUNDWATER MONITORING WELLS ON SITE?** No

(T) **WHAT ARE THE POTENTIAL CONTAMINATION MIGRATION PATHWAYS OF THE AREA FROM CONTIGUOUS AND AREA PROPERTIES?**

Stormwater runoff or contamination resulting from a leak or a spill would flow into ditches located adjacent to Mississippi Highway 468 and flow into a tributary of the Pearl River.

(U) **IS THERE ANY STANDING WATER ON SITE?** Yes

Comment:

A drainage ditch that drains stormwater runoff is located near the southwest property border. Second ditch runs parallel to the levee on the western side of the property border. Both ditches drain into swamplands west of the subject property.

(V) **WHAT IS THE WATER SOURCE FOR THE SUBJECT PROPERTY?**

There is no water source for the subject property. Water supplied to the mobile homes is supplied by the City of Flowood.

BCM

7.0 DOCUMENTS REVIEWED

7.1 AERIAL PHOTOGRAPHS AND MAPS

	Title	Location	Source	Date of Photo/Map
1.	Aerial Photograph	Jackson, Mississippi	Mississippi Dept. of Archives & History	1940
2.	Aerial Photograph	Jackson, Mississippi	Mississippi Dept. of Archives & History	1955
3.	Plat of Survey-Gulf States Creosoting Plant	Flowood, Mississippi	WE Johnson	1956
4.	Aerial Photograph	Jackson, Mississippi	Mississippi Dept. of Archives & History	1965
5.	Aerial Photograph	Jackson, Mississippi	Mississippi Dept. of Archives & History	1972
6.	Aerial Photograph	Brandon, Mississippi	Rankin County Tax Assessor	1980
7.	7.5 Minute Series Topographical Map Jackson Quadrangle	Jackson, Mississippi	U.S. Geological Survey	1980

Comments:

1. The subject property is shown as developed with structures. Wooded parcels lies to the northeast and west, and industrial facilities to the south.

2. The subject property is shown as developed with structures. Wooded parcels lies to the northeast and west, and industrial facilities to the south.

3. The survey plat identifies the location of buildings and other facilities on the property.

BCM

4. The subject property is shown as developed with some structures remaining.
5. The subject property is shown as abandoned with some structures remaining.
6. The subject property is shown as abandoned with some structures remaining.
7. The subject property is shown to be located at an elevation of 260 to 280 feet above mean sea level.

7.2 DOCUMENTS REVIEWED

	Title	Location	Source	Date Of Information
1.	CERCLIS List	Atlanta, GA	USEPA Region IV	1993
2.	National Priorities List	Atlanta, GA	USEPA Region IV	1993
3.	RCRA List of Hazardous Waste Generators	Jackson, MS	MS Office of Pollution Control	1993
4.	Underground Storage Tank Registry	Jackson, MS	MS Office of Pollution Control	1993
5.	Leaking UST (LUST) List	Jackson, MS	MS Office of Pollution Control	1993

Comments:

1. One CERCLIS site was identified within a one-mile radius of the subject property. Information about this facility facilities is presented in Section 3.1.
2. One NPL site was identified within a one-mile radius of the subject property. Information about this facility is presented in Section 3.1.

BCM

3. Three RCRA sites were identified within a one-quarter mile radius of the subject property. Information about these facilities is presented in Section 3.5.

4. Three UST facilities were identified within a one-quarter mile radius of the subject property. Information about these facilities is presented in Section 3.4.

5. No facilities were identified as Leaking Tank Sites according to this document within a one-quarter mile radius of the project site.

7.3 LIST ALL PERMITS/LICENSES (PERTAINING TO HANDLING, STORAGE, USE, OR DISPOSAL OF ALL CHEMICALS, HAZARDOUS MATERIALS, AIR EMISSIONS, SOLID WASTE, OR WASTEWATER DISCHARGES ON THE PROPERTY.)

None required.

7.4 PREVIOUS ENVIRONMENTAL REPORTS?

YES _____ NO __X__

7.5 SOIL REPORTS/GEOTECHNICAL EVALUATIONS?

YES __X__ NO _____

Comment: Soil Boring activities were conducted at the site.

On June 15, 1993, BCM advanced seven soil borings utilizing a three inch outside diameter stainless steel hand auger to depths of three to eight feet below ground surface (bgs).

Soil samples were screened for the presence of volatile organic vapors to document their relative absorbed hydrocarbon concentrations. Utilizing the hand auger, soil samples were collected and placed in quart jars. the containers were sealed after being half-filed with the sample material. The headspace of the sample container was analyzed for volatile hydrocarbons using a Century Foxboro OVA Model 108. The headspace reading was achieved by placing the OVA probe half-way down the headspace of the jar after being sealed for approximately fifteen minutes.

BCM

The OVA was calibrated prior to testing in accordance with the manufacturer's specifications. Calibration consisted of placing the OVA in normal operation for a calibration gas (100 ppm and 10,000 ppm) in order to adjust the electronic controls to the proper setting.

To maintain sample integrity during soil boring activities, the following QA/QC procedures were followed:

- The hand auger sampler was decontaminated prior to sampling intervals by thoroughly washing in an Alconox® detergent solution, followed by a alcohol rinse, and a final rinse with distilled water.

- Disposable gloves were worn when handling each sample and replaced at each sampling interval.

- Soil samples were placed in clean, glass containers, preserved on ice, and shipped to Wells Laboratories Jackson, Mississippi, for laboratory analysis.

- Proper chain-of-custody documentation was maintained from sampling event to laboratory.

Figure 3, Site map show the approximate soil boring locations.

Soil samples obtained from HA-1 at five to six feet bgs interval, HA-6 at five to six ft bgs interval and HA-7 at zero to two feet bgs interval were submitted for laboratory analysis. Soil samples were analyzed for Semi-Volatile Organic Compounds (EPA Method 8270).

Upon completion of auguring activities, HA-3 was converted into a temporary groundwater well in order to facilitate to collection of a groundwater sample. Installation of temporary well TW-1 consisted of placing a sufficient length of casing and screen with end cap into an open borehole and when allowing groundwater to infiltrate the well in order to obtain a sample. Temporary groundwater well TW-1 was sampled for Semi-Volatile Organic Compounds (per EPA Method 8270).

The groundwater sample was obtained using a clean disposable groundwater bailer to ensure sample integrity and to avoid cross contamination. The temporary well was purged dry at 1.5 well volumes. After sufficient recharge, the sample was transferred from the bailer into appropriate clean glass containers and immediately preserved on ice. The sample was appropriately labeled and shipped with chain of custody form for laboratory analysis. All soil and groundwater samples collected for laboratory analysis were placed in glass

BCM

containers, stored on ice, and shipped to Wells Laboratories, Jackson, Mississippi for analysis of Semi-Volatile Organic Compounds EPA Method 8270. Following sample acquisition, the temporary well was removed and all soil borings were subsequently grouted to the surface.

Soil and groundwater analytical results are presented in the Table. Laboratory analytical results are presented in Appendix A. Regional Geology is summarized as Appendix F.

SOIL BORING LOG SUMMARY

Station	Depth	OVA	Description
HA-1	0-2	12	Surface soils consist of sand mixed with brown silty clay.
	5-6	13	Tan and orange clayey sand, slightly moist.
	7-8	---	Saturated tan sand. Boring terminated at 8 ft.
HA-2	0-2	12	Surface soil consisted of a tan sandy clay.
	5-6	10	Tan and orange clay mixed with tan sand - saturated at 6 ft. Boring terminated at 6 ft.
HA-3	0-1	----	Surface soil consisted of a dark brown sandy clay and pea gravel mix.
	1-2	80	Tan and black silty clay, moist, strong odor.
	5-6	100	Gray/tan clayey sand, wet, strong odor.
	8	200	Gray saturated sand, strong odor. Boring terminated at 8 ft.
HA-4	0-2	14	Surface soil consisted of a tan sandy clay.
	5-6	14	Wet tannish brown clayey sand. Boring terminated at 6 ft.

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SOIL BORING LOG SUMMARY
(CONTINUED)

Station	Depth	OVA	Description
HA-5	0-2	12	Tan/orange sandy clay.
	3	----	Auger refusal at 3 ft. Boring terminated.
HA-6	0-2	12	Tan/brown clayey sand.
	5-6	16	Tan brown sand, saturated. Boring terminated at 6 ft.
HA-7	0-2	140	Brown sandy clay with black stains, slight odor.
	5-6	50	Gray with orange specks sandy clay slightly moist.
	8	7	Saturated white/gray sand. Boring terminated at 8 ft.

BCM

8.0 INTERVIEW

INTERVIEWER: R. Dale Woodall

DATE OF INTERVIEW: June 28, 1993

NAME: Mr. Silas Anderson

TITLE/JOB: Health Physicist

AFFILIATION: Mississippi State Department of Health
Division of Radiological Health

ADDRESS: P. O. Box 1700
Jackson, Mississippi 39215

PHONE: (601) 354-6657

REMARKS: Mr. Anderson indicated that radon testing had been conducted at 4 locations in Flowood, Mississippi. The radon testing yielded the following results.

1. The highest radon reading encountered in the site vicinity was 1.0 picoCurrie/liter.

2. The average radon reading encountered in the vicinity of the subject property was 0.5 picoCurrie/liter.

BCM

9.0 STUDY PHILOSOPHY AND LIMITATIONS

The W.G. Avery Body Company environmental site assessment was performed in accordance with generally accepted methods and practices of the profession. All conclusions are based on available and obtainable information and are not to be considered scientific certainties. The intent of this study was to identify environmental concerns which would be obvious to a professional and is not intended to represent an exhaustive research of all potential hazards which may exist, however small.

This report does not purport to be representative of future site conditions or events. Situations or activities which transpire subsequent to this report which result in adverse environmental impacts are not to be construed as relevant to this study.

BCM

TABLE
SOIL AND GROUNDWATER ANALYTICAL RESULTS

TABLE

SOIL AND GROUNDWATER ANALYTICAL RESULTS
W.G. AVERY BODY COMPANY
MISSISSIPPI HIGHWAY 468
FLOWOOD, MISSISSIPPI
SAMPLE DATE: 06/18/93
BCM PROJECT NO. 05-6176-02

Analytical Parameter	Sample Location/Depth						Critical Critiria Concentration in Soil	Critical Criteria Concentration in Water
	HA-1 5-6 ft	HA-3 5-6 ft	HA-4 5-6 ft	HA-6 5-6 ft	HA-7 0-2 ft	TW-1 -------		
Napthalene	BDL	603.96	BDL	BDL	BDL	1.2793	3100 (192 / 346)	1.4 .006
2-MethylNapthalene	BDL	24.826	BDL	BDL	BDL	BDL	NE 1560/40900	NE .122
Dibenzofuran	BDL	96.215	BDL	BDL	BDL	0.13435	NE 313/8130	NE .02
Flourene	BDL	88.970	BDL	BDL	BDL	0.11885	3100 3130/81700	1.4 .2
Phenanthrene	BDL	342.15	BDL	BDL	BDL	0.10552	NE 2350/61300	NE 1.1
Fluoranthene	BDL	149.99	BDL	BDL	0.90450	0.09857	3100 3130/84900	1.4 1.46
Pyrene	BDL	83.456	BDL	BDL	0.92483	0.07929	2300 2350/61300	1.05 .183
2-4 Dimethylphenol	BDL	BDL	BDL	BDL	BDL	0.25742	1600 7930/10900	0.7 .4
All Other EPA Method 8270 Semi-Volatiles	BDL	BDL	BDL	BDL	BDL	BDL	-------	------- (ppm)

Notes: *All values are in part per million (ppm)*
NE - No standard exists
1 ppm - 1 mg/kg in soil
1 ppm - 1 mg/liter in water
BDL - Below detection limits
Refence: Wells Laboratories, Laboratory Number 92-0273 per EPA Method 8270 Semi-Volatile Compounds

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FIGURES

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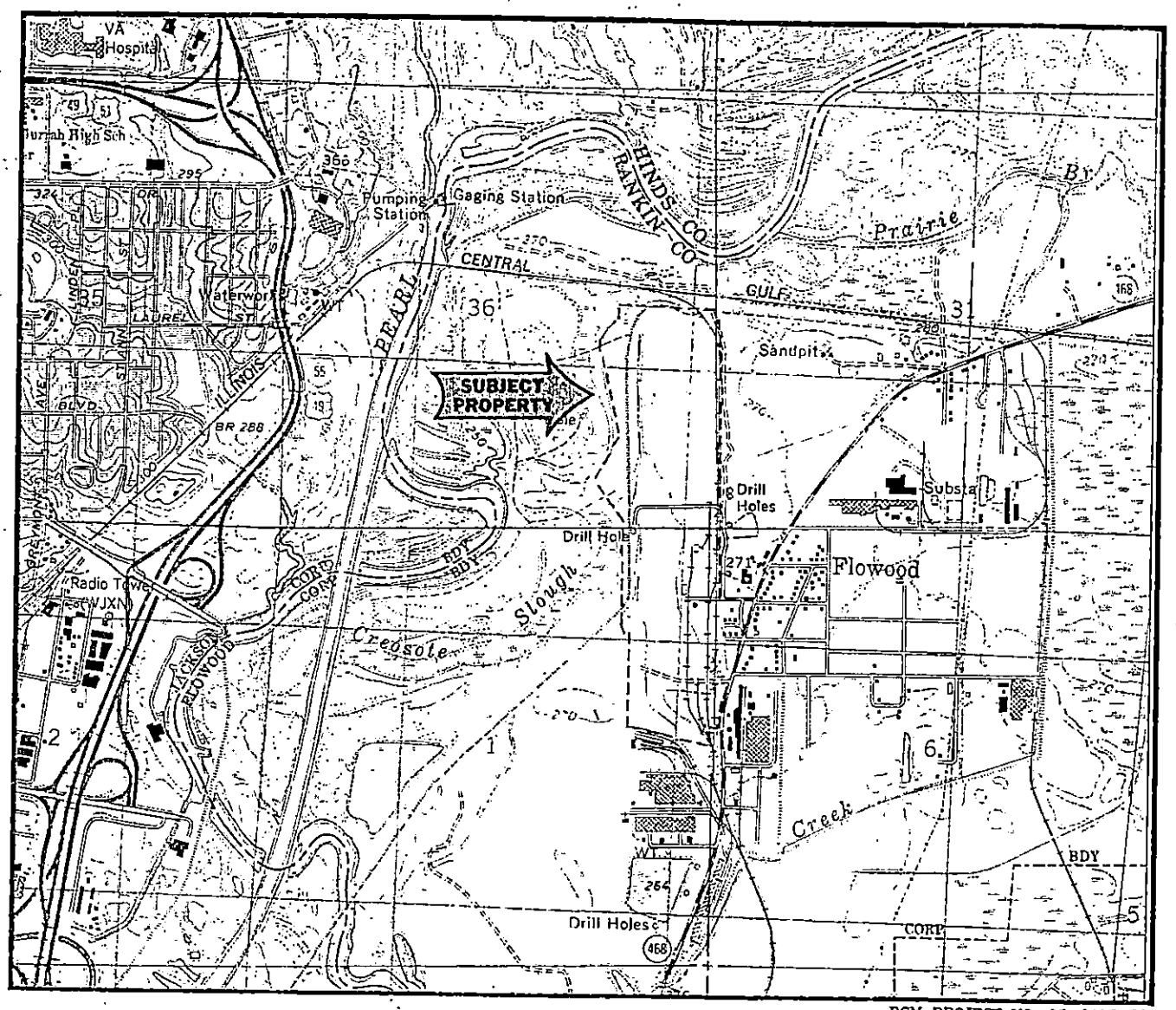
FIGURE 1

AREA/VICINITY MAP



BCM PROJECT NO. 05-8176-02

Area/Vicinity Map

W.G. Avery Body Company
Mississippi Highway 468
Flowood, Mississippi

SCALE 1:24 000

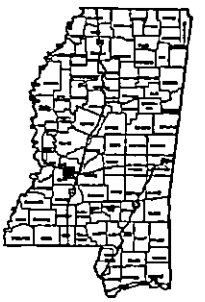
1 .5 0 1 MILES

1000 1000 2000 3000 4000 5000 6000 7000 8000 9000 10 000 FEET

1 0 KILOMETER 1 2

1000 0 METER 1000 2000

CONTOUR INTERVAL 10 FEET



QUADRANGLE LOCATION

JACKSON, MISS.

BCM

FIGURE 2

SITE MAP

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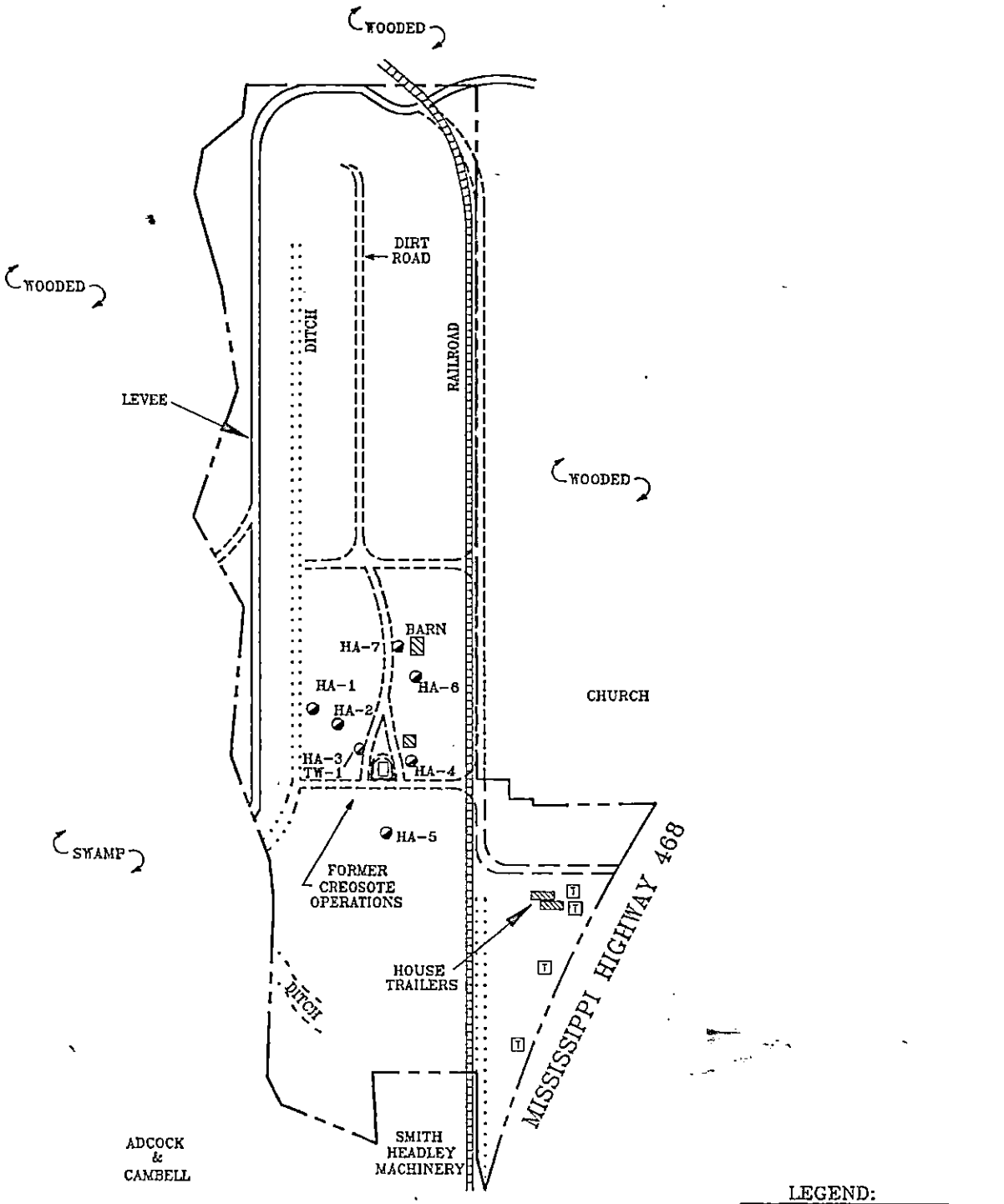
Trustmark National Bank

Figure 2



NOT TO SCALE

Site Map

W.G. Avery Body Company
Mississippi Highway 468
Flowood, Mississippi

BCM

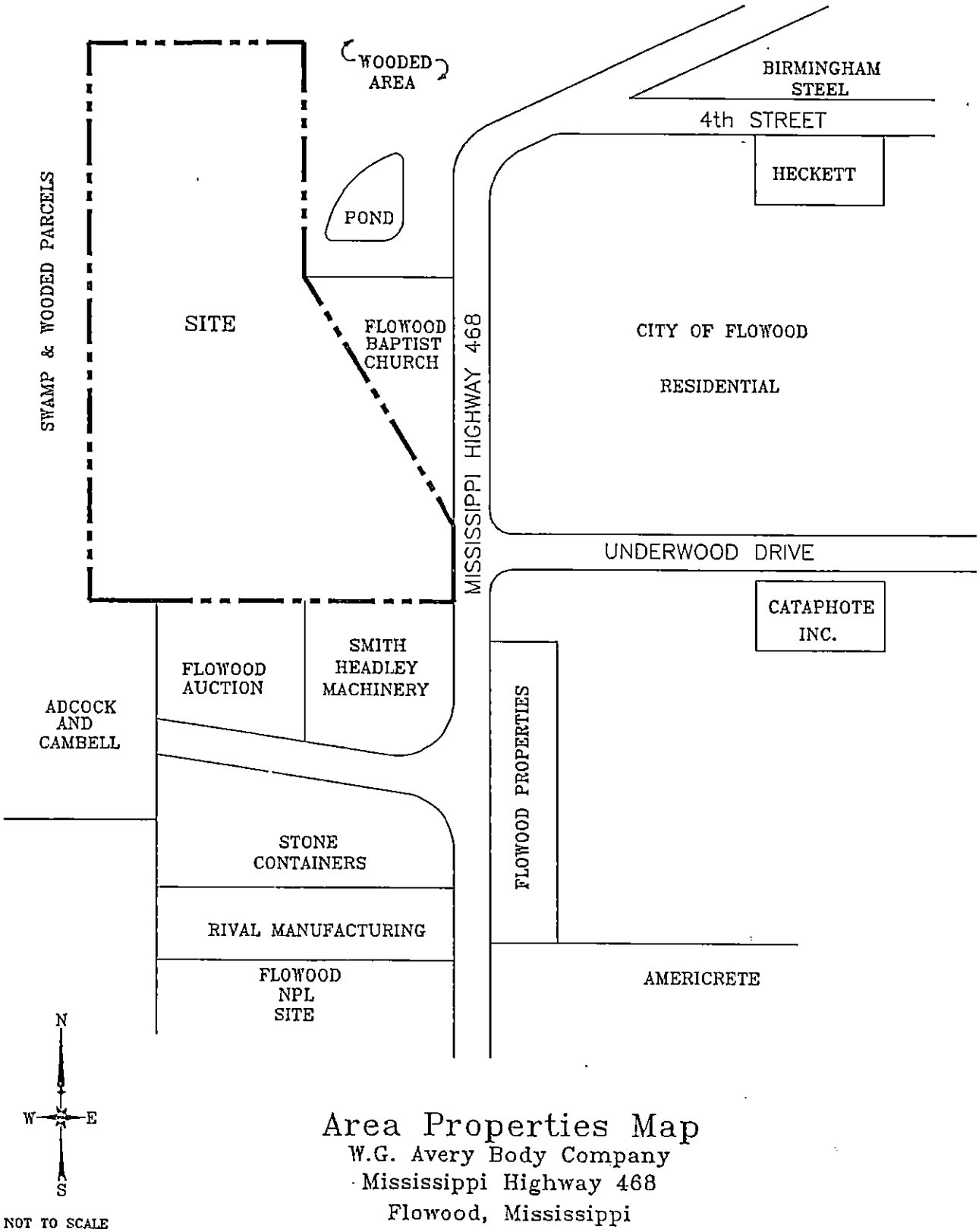
FIGURE 3

AREA PROPERTIES MAP

BCM

Trustmark National Bank

Figure 3



Area Properties Map

W.G. Avery Body Company
Mississippi Highway 468
Flowood, Mississippi

BCM PROJECT NO. 05-6176-02

BCM

APPENDICES

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APPENDIX A

SOIL AND GROUNDWATER LABORATORY DATA SHEETS

EPORT DATE: 07/01/93

ANALYST: DMC
A/QC: DMC

WELLS LABORATORIES
P.O. BOX 1436
RIDGELAND, MS 39158

LABORATORY REPORT

ROJECT DESCRIPTION: Project # 05-6176-02. Samples collected from W C Avery Co., Flowood, MS.
LABORATORY NUMBER: 93-0273

AMPLE ID:	HA1	HA3	HA4
..ATRIX:	Soil	Soil	Soil
OLLECTION DATE:	06/18/93	06/18/93	06/18/93
ECEIPT DATE:	06/18/93	06/18/93	06/18/93
EXTRACTION DATE:	06/22/93	06/21/93	06/21/93
NALYSIS DATE:	06/23/93	06/21/93	06/23/93

LABORATORY RESULTS

SEMI-VOLATILES BY METHOD: SW846-8270
RESULTS GIVEN IN mg/Kg

2-Picoline	< 0.050 mg/Kg	< 7.500 mg/Kg	< 0.050 mg/Kg
Methyl methanesulfonate	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
Ethyl methanesulfonate	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
Aniline	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
Phenol	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
Bis(2-chloroethyl)ether	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
2-Chlorophenol	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
1,2-Dichlorobenzene	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
1,3-Dichlorobenzene	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
1,4-Dichlorobenzene	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
N-Nitrosodimethylamine	< 0.050 mg/Kg	< 7.500 mg/Kg	< 0.050 mg/Kg
Benzyl Alcohol	< 0.020 mg/Kg	< 3.000 mg/Kg	< 0.020 mg/Kg
1,2-Dichlorobenzene	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
2-Methylphenol	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
Bis(2-Chloroisopropyl)ether	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
N-Nitroso-di-n-propylamine	< 0.020 mg/Kg	< 3.000 mg/Kg	< 0.020 mg/Kg
4-Methylphenol	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
Hexachloroethane	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
Nitrobenzene	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
Acetophenone	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
Isophorone	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
2-Nitrophenol	< 0.020 mg/Kg	< 3.000 mg/Kg	< 0.020 mg/Kg
2,4-Dimethylphenol	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
Bis(chloroethoxy)methane	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
Benzoic Acid	< 0.050 mg/Kg	< 7.500 mg/Kg	< 0.050 mg/Kg

CONTINUED ON PAGE 2

EPORT DATE: 07/01/93

WELLS LABORATORIES
P.O. BOX 1436
RIDGELAND, MS 39158

ANALYST: DMC
A/QC: DMC

LABORATORY REPORT

ROJECT DESCRIPTION: Project # 05-6176-02. Samples collected from W C Avery Co., Flowood, MS.
ABORATORY NUMBER: 93-0273

AMPLE ID:	HA1	HA3	HA4
ATRIX:	Soil	Soil	Soil

LABORATORY RESULTS

SEMI-VOLATILES BY METHOD: SW846-8270
RESULTS GIVEN IN mg/Kg

2,4-Dichlorophenol	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
a-,a-Dimethylphenethylamine	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
1,2,4-Trichlorobenzene	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
Napthalene	< 0.010 mg/Kg	603.96 mg/Kg ✓	< 0.010 mg/Kg
2,6-Dichlorophenol	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
4-Chloroaniline	< 0.020 mg/Kg	< 3.000 mg/Kg	< 0.020 mg/Kg
Hexchlorobutadiene	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
N-Nitrosopiperidine	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
N-Nitroso-di-n-butylamine	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
4-Chloro-3-Methylphenol	< 0.029 mg/Kg	< 3.000 mg/Kg	< 0.020 mg/Kg
2-Methylnapthalene	< 0.010 mg/Kg	24.826 mg/Kg ✓	< 0.010 mg/Kg
Hexachlorocyclopentadiene	< 0.020 mg/Kg	< 3.000 mg/Kg	< 0.020 mg/Kg
2,4,6-Trichlorophenol	< 0.020 mg/Kg	< 3.000 mg/Kg	< 0.020 mg/Kg
2,4,5-Trichlorophenol	< 0.020 mg/Kg	< 3.000 mg/Kg	< 0.020 mg/Kg
2-Chloronapthalene	< 0.020 mg/Kg	< 3.000 mg/Kg	< 0.020 mg/Kg
1,2,4,5-Tetrachlorobenzene	< 0.020 mg/Kg	< 3.000 mg/Kg	< 0.020 mg/Kg
1-Chloronapthaline	< 0.020 mg/Kg	< 3.000 mg/Kg	< 0.020 mg/Kg
2-Nitroaniline	< 0.050 mg/Kg	< 7.500 mg/Kg	< 0.050 mg/Kg
Acenapthylene	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
2,6-Dinitrotoluene	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
3-Nitroaniline	< 0.050 mg/Kg	< 7.500 mg/Kg	< 0.050 mg/Kg
Acenapthene	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
2,4-Dinitrophenol	< 0.050 mg/Kg	< 7.500 mg/Kg	< 0.050 mg/Kg
Dibenzofuran	< 0.010 mg/Kg	96.215 mg/Kg ✓	< 0.010 mg/Kg
Pentachlorophenol	< 0.050 mg/Kg	< 7.500 mg/Kg	< 0.050 mg/Kg
1-Napthylamine	< 0.050 mg/Kg	< 7.500 mg/Kg	< 0.050 mg/Kg
4-Nitrophenol	< 0.050 mg/Kg	< 7.500 mg/Kg	< 0.050 mg/Kg
2,4-Dinitrotoluene	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg

CONTINUED ON PAGE 3

WELLS LABORATORIES
P.O. BOX 1436
RIDGELAND, MS 39158

REPORT DATE: 07/01/93

ANALYST: DLL
QA/QC: DLL

LABORATORY REPORT

PROJECT DESCRIPTION: Project # 05-6176-02. Samples collected from W C Avery Co., Flowood, MS.
LABORATORY NUMBER: 93-0273

SAMPLE ID:	HA1	HA3	HA4
MATRIX:	Soil	Soil	Soil

LABORATORY RESULTS

SEMI-VOLATILES BY METHOD: SW846-8270
RESULTS GIVEN IN mg/Kg

Fluorene	< 0.010 mg/Kg	88.970 mg/Kg ✓	< 0.010 mg/Kg
2-Napthylamine	< 0.050 mg/Kg	< 7.500 mg/Kg	< 0.050 mg/Kg
2,3,4,6-Tetrachlorophenol	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
Dimethylphthalate	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
Diethylphthalate	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
4-Chlorophenyl-phenylether	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
4-Nitroaniline	< 0.050 mg/Kg	< 7.500 mg/Kg	< 0.050 mg/Kg
4,6-Dinitro-2-methylphenol	< 0.050 mg/Kg	< 7.500 mg/Kg	< 0.050 mg/Kg
N-Nitrosodiphenylamine	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
1,2-Diphenylhydrazine	< 0.020 mg/Kg	< 3.000 mg/Kg	< 0.020 mg/Kg
Diphenylamine	< 0.020 mg/Kg	< 3.000 mg/Kg	< 0.020 mg/Kg
4-Bromophenyl-phenylether	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
Phenacetin	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
Hexachlorobenzene	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
4-Aminobiphenyl	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
Pentachloronitrobenzene	< 0.050 mg/Kg	< 7.500 mg/Kg	< 0.050 mg/Kg
Pronamide	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
Phenanthrene	< 0.010 mg/Kg	342.15 mg/Kg ✓	< 0.010 mg/Kg
Anthracene	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
Di-N-Butylphthalate	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
Fluoranthene	< 0.010 mg/Kg	149.99 mg/Kg ✓	< 0.010 mg/Kg
Benzidene	< 0.050 mg/Kg	< 7.500 mg/Kg	< 0.050 mg/Kg
Pyrene	< 0.010 mg/Kg	85.456 mg/Kg ✓	< 0.010 mg/Kg
p-Dimethylaminoazobenzene	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
Butylbenzylphthalate	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg

CONTINUED ON PAGE 4

EPORT DATE: 07/01/93

WELLS LABORATORIES
P.O. BOX 1436
RIDGELAND, MS 39158

ANALYST:
A/QC:

LABORATORY REPORT

ROJECT DESCRIPTION: Project # 05-6176-02. Samples collected from W C Avery Co., Flowood, MS.
ABORATORY NUMBER: 93-0273

AMPLE ID:	HA1	HA3	HA4
ATRIX:	Soil	Soil	Soil

LABORATORY RESULTS

SEMI-VOLATILES BY METHOD: SW846-8270
RESULTS GIVEN IN mg/Kg

Benzo(a)Anthracene	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
,3'-Dichlorobenzidine	< 0.020 mg/Kg	< 3.000 mg/Kg	< 0.020 mg/Kg
hrysene	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
bis-2-(ethylhexyl)Pthalate	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
,12-Dimethylbenz(a)anthracene	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
i-n-octylpthalate	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
-methylcholanthrene	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
Benzo(b)fluoranthene	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
enzo(k)fluoranthene	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
ibenz(a,j)acridine	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
Benzo(a)pyrene	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
ndeno(1,2,3-cd)pyrene	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
ibenzo(a,h)anthracene	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg
Benzo(g,h,i)perylene	< 0.010 mg/Kg	< 1.500 mg/Kg	< 0.010 mg/Kg

ND OF REPORT

EPORT DATE: 07/01/93

ANALYST: DMC
A/QC: DMC

WELLS LABORATORIES
P.O. BOX 1436
RIDGELAND, MS 39158

LABORATORY REPORT

ROJECT DESCRIPTION: Project # 05-6176-02. Samples collected from W C Avery Co., Flowood, MS.
ABORATORY NUMBER: 93-0273

AMPLE ID:	HA6	HA7	TW1
ATRIX:	Soil	Soil	Water
OLLECTION DATE:	06/18/93	06/18/93	06/18/93
ECEIPT DATE:	06/18/93	06/18/93	06/18/93
XTRACTION DATE:	06/23/93	06/23/93	06/21/93
NALYSIS DATE:	06/24/93	06/24/93	06/24/93

LABORATORY RESULTS

SEMI-VOLATILES BY METHOD: SW846-8270
RESULTS GIVEN IN mg/Kg : mg/L

-Picoline	< 0.050 mg/Kg	< 0.125 mg/Kg	< 0.050 mg/L
ethyl methanesulfonate	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
thyl methanesulfonate	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
Aniline	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
henol	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
is(2-chloroethyl)ether	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
2-Chlorophenol	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
1,2-Dichlorobenzene	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
1,3-Dichlorobenzene	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
1,4-Dichlorobenzene	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
N-Nitrosodimethylamine	< 0.050 mg/Kg	< 0.125 mg/Kg	< 0.050 mg/L
enzyl Alcohol	< 0.020 mg/Kg	< 0.050 mg/Kg	< 0.020 mg/L
,2-Dichlorobenzene	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
2-Methylphenol	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
is(2-Chloroisopropyl)ether	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
N-Nitroso-di-n-propylamine	< 0.020 mg/Kg	< 0.050 mg/Kg	< 0.020 mg/L
4-Methylphenol	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
exachloroethane	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
itrobenzene	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
Acetophenone	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
sophorone	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
2-Nitrophenol	< 0.020 mg/Kg	< 0.050 mg/Kg	< 0.020 mg/L
2,4-Dimethylphenol	< 0.010 mg/Kg	< 0.025 mg/Kg	0.25742 mg/L ✓
Bis(chloroethoxy)methane	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
enzoic Acid	< 0.050 mg/Kg	< 0.125 mg/Kg	< 0.050 mg/L

CONTINUED ON PAGE 2

WELLS LABORATORIES
P.O. BOX 1436
RIDGELAND, MS 39158

EPORT DATE: 07/01/93

ANALYST: DMC
QA/QC: DMC

LABORATORY REPORT

ROJECT DESCRIPTION: Project # 05-6176-02. Samples collected from W C Avery Co., Flowood, MS.
ABORATORY NUMBER: 93-0273

AMPLE ID:	HA6	HA7	TWI
ATRIX:	Soil	Soil	Water

LABORATORY RESULTS

SEMI-VOLATILES BY METHOD: SW846-8270
RESULTS GIVEN IN mg/Kg : mg/L

2,4-Dichlorophenol	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
-,a-Dimethylphenethylamine	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
1,2,4-Trichlorobenzene	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
Napthalene	< 0.010 mg/Kg	< 0.025 mg/Kg	1.2793 mg/L ✓
2,6-Dichlorophenol	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
4-Chloroaniline	< 0.020 mg/Kg	< 0.050 mg/Kg	< 0.020 mg/L
exchlorobutadiene	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
N-Nitrosopiperidine	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
N-Nitroso-di-n-butylamine	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
4-Chloro-3-Methylphenol	< 0.020 mg/Kg	< 0.050 mg/Kg	< 0.020 mg/L
2-Methylnapthalene	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
Hexachlorocyclopentadiene	< 0.020 mg/Kg	< 0.050 mg/Kg	< 0.020 mg/L
2,4,6-Trichlorophenol	< 0.020 mg/Kg	< 0.050 mg/Kg	< 0.020 mg/L
2,4,5-Trichlorophenol	< 0.020 mg/Kg	< 0.050 mg/Kg	< 0.020 mg/L
2-Chloronapthalene	< 0.020 mg/Kg	< 0.050 mg/Kg	< 0.020 mg/L
1,2,4,5-Tetrachlorobenzene	< 0.020 mg/Kg	< 0.050 mg/Kg	< 0.020 mg/L
1-Chloronapthaline	< 0.020 mg/Kg	< 0.050 mg/Kg	< 0.020 mg/L
2-Nitroaniline	< 0.050 mg/Kg	< 0.125 mg/Kg	< 0.050 mg/L
Acenapthylene	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
2,6-Dinitrotoluene	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
3-Nitroaniline	< 0.050 mg/Kg	< 0.125 mg/Kg	< 0.050 mg/L
Acenapthene	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
2,4-Dinitrophenol	< 0.050 mg/Kg	< 0.125 mg/Kg	< 0.050 mg/L
Dibenzofuran	< 0.010 mg/Kg	< 0.025 mg/Kg	0.13435 mg/L ✓
Pentachlorophenol	< 0.050 mg/Kg	< 0.125 mg/Kg	< 0.050 mg/L
1-Napthylamine	< 0.050 mg/Kg	< 0.125 mg/Kg	< 0.050 mg/L
4-Nitrophenol	< 0.050 mg/Kg	< 0.125 mg/Kg	< 0.050 mg/L
2,4-Dinitrotoluene	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L

CONTINUED ON PAGE 3

WELLS LABORATORIES
P.O. BOX 1436
RIDGELAND, MS 39158

EPORT DATE: 07/01/93

ANALYST: DLL
A/QC: DLL

LABORATORY REPORT

ROJECT DESCRIPTION: Project # 05-6176-02. Samples collected from W C Avery Co., Flowood, MS.
ABORATORY NUMBER: 93-0273

AMPLE ID:	HA6	HA7	TW1
ATRIX:	Soil	Soil	Water

LABORATORY RESULTS

SEMI-VOLATILES BY METHOD: SW846-8270
RESULTS GIVEN IN mg/Kg : mg/L

Fluorene	< 0.010 mg/Kg	< 0.025 mg/Kg	0.11885 mg/L ✓
-Napthylamine	< 0.050 mg/Kg	< 0.125 mg/Kg	< 0.050 mg/L
,3,4,6-Tetrachlorophenol	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
Dimethylphthalate	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
Diethylphthalate	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
-Chlorophenyl-phenylether	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
-Nitroaniline	< 0.050 mg/Kg	< 0.125 mg/Kg	< 0.050 mg/L
4,6-Dinitro-2-methylphenol	< 0.050 mg/Kg	< 0.125 mg/Kg	< 0.050 mg/L
-Nitrosodiphenylamine	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
,2-Diphenylhydrazine	< 0.020 mg/Kg	< 0.050 mg/Kg	< 0.020 mg/L
Diphenylamine	< 0.020 mg/Kg	< 0.050 mg/Kg	< 0.020 mg/L
-Bromophenyl-phenylether	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
Phenacetin	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
Hexachlorobenzene	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
-Aminobiphenyl	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
Pentachloronitrobenzene	< 0.050 mg/Kg	< 0.125 mg/Kg	< 0.050 mg/L
Pronamide	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
Phenanthrene	< 0.010 mg/Kg	< 0.025 mg/Kg	0.10552 mg/L ✓
nthracene	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
Di-N-Butylphthalate	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
Fluoranthene	< 0.010 mg/Kg	0.90450 mg/Kg ✓	0.09857 mg/L ✓
Benzidene	< 0.050 mg/Kg	< 0.125 mg/Kg	< 0.050 mg/L
Pyrene	< 0.010 mg/Kg	0.92483 mg/Kg ✓	0.07929 mg/L ✓
p-Dimethylaminoazobenzene	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
Butylbenzylphthalate	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L

CONTINUED ON PAGE 4

WELLS LABORATORIES
P.O. BOX 1436
RIDGELAND, MS 39158

EPORT DATE: 07/01/93

ANALYST:
A/QC:

LABORATORY REPORT

ROJECT DESCRIPTION: Project # 05-6176-02. Samples collected from W C Avery Co., Flowood, MS.
ABORATORY NUMBER: 93-0273

AMPLE ID:	HA6	HA7	TW1
ATRIX:	Soil	Soil	Water

LABORATORY RESULTS

SEMI-VOLATILES BY METHOD: SW846-8270
RESULTS GIVEN IN mg/Kg : mg/L

Benzo(a)Anthracene	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
3,3'-Dichlorobenzidine	< 0.020 mg/Kg	< 0.050 mg/Kg	< 0.020 mg/L
Chrysene	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
bis-2-(ethylhexyl)Pthalate	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
7,12-Dimethylbenz(a)anthracene	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
Di-n-octylpthalate	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
3-methylcholanthrene	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
Benzo(b)fluoranthene	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
Benzo(k)fluoranthene	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
Dibenz(a,j)acridine	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
Benzo(a)pyrene	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
Indeno(1,2,3-cd)pyrene	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
Dibenzo(a,h)anthracene	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L
Benzo(g,h,i)perylene	< 0.010 mg/Kg	< 0.025 mg/Kg	< 0.010 mg/L

END OF REPORT

BCM

CHAIN OF CUSTODY RECORD

PROJ. NO. 05-6176-02 | PROJECT NAME: Avery Co.; Flowood

SAMPLERS. (Signature): Dale Woodall

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	8270 AND *	TYPE
HA-1	6-18-93	0825		X	HA1 @ 5-6 ft	1	✓	Soil
HA-3	"	0950		X	HA3 @ 5-6 ft	1	✓	"
HA4	"	1230		X	HA4 @ 5-6	1	✓	"
HA6	"	1045		X	HA6 @ 5-6	1	✓	"
HA7	"	1300		X	HA7 @ 0-2	1	✓	"
TW1	"	1330		X	TEMP WELL 1	2	✓	Groundwater

SAMPLE TYPE KEY
AQ — Aqueous
S — Solid
A — Air
L — Liquid
O — Other

SAMPLING REMARKS

Please Analyze for Method 8270 AND:
* (p)chloro(m)cresol
* trichlorolophenol
* tetrachorophenol
* creosote
* (dibenz(G)anthracene) if Not Included in 8270

Empties dispatched by: Dale Woodall	Date/Time 6-18-93 0700	Received by: (Signature) Dale Woodall	Relinquished by: (Signature) Dale Woodall; Date/Time 6-18-93 3:30; Received by: (Signature) Brad Wm
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature); Date/Time; Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received for (Signature) Laboratory by:	Date/Time; (Shipping/Receiving) Remarks

CUSTODY SEALS INTACT (Y,N,NA)

Distribution Original Accompanies Shipment, Copy to Coordinator
QA Files, Copy to Project Manager

BCM

APPENDIX B

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
UNDERGROUND STORAGE TANK FILE REVIEW

Notification for Underground Storage Tanks

FORM APPROVED
OMB NO. 2050-0049
APPROVAL EXPIRES 6-30-88

FOR TANKS IN **MS**

RETURN COMPLETED FORM TO: Department of Natural Resources, Bureau of Pollution Control, P.O. Box 10385, Jackson, MS 39209

I.D. Number — STATE USE ONLY: 3619

Date Received: APR 22 1986

GENERAL INFORMATION

Notification is required by Federal law for all underground tanks that have been used to store regulated substances since January 1, 1974, that are in the ground as of May 8, 1986, or that are brought into use after May 8, 1986. The information requested is required by Section 9002 of the Resource Conservation and Recovery Act, (RCRA), as amended.

The primary purpose of this notification program is to locate and evaluate underground tanks that store or have stored petroleum or hazardous substances. It is expected that the information you provide will be based on reasonably available records, or, in the absence of such records, your knowledge, belief, or recollection.

Who Must Notify? Section 9002 of RCRA, as amended, requires that, unless exempted, owners of underground tanks that store regulated substances must notify designated State or local agencies of the existence of their tanks. Owner means—
(a) in the case of an underground storage tank in use on November 8, 1984, or brought into use after that date, any person who owns an underground storage tank used for the storage, use, or dispensing of regulated substances, and
(b) in the case of any underground storage tank in use before November 8, 1984, but no longer in use on that date, any person who owned such tank immediately before the discontinuation of its use.

What Tanks Are Included? Underground storage tank is defined as any one or combination of tanks that (1) is used to contain an accumulation of "regulated substances," and (2) whose volume (including connected underground piping) is 10% or more beneath the ground. Some examples are underground tanks storing: 1, gasoline, used oil, or diesel fuel, and 2, industrial solvents, pesticides, herbicides or fumigants.

What Tanks Are Excluded? Tanks removed from the ground are not subject to notification. Other tanks excluded from notification are:
1. farm or residential tanks of 1,100 gallons or less capacity used for storing motor fuel for noncommercial purposes;
2. tanks used for storing heating oil for consumptive use on the premises where stored;
3. septic tanks;
4. pipeline facilities (including gathering lines) regulated under the Natural Gas Pipeline Safety Act of 1968, or the Hazardous Liquid Pipeline Safety Act of 1979, or which is an intrastate pipeline facility regulated under State laws;
5. surface impoundments, pits, ponds, or lagoons;
6. storm water or waste water collection systems;
7. flow-through process tanks;
8. liquid traps or associated gathering lines directly related to oil or gas production and gathering operations;
9. storage tanks situated in an underground area (such as a basement, cellar, mineworking, drift, shaft, or tunnel) if the storage tank is situated upon or above the surface of the floor.

What Substances Are Covered? The notification requirements apply to underground storage tanks that contain regulated substances. This includes any substance defined as hazardous in section 101 (14) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), with the exception of those substances regulated as hazardous waste under Subtitle C of RCRA. It also includes petroleum, e.g., crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute).

Where To Notify? Completed notification forms should be sent to the address given at the top of this page.

When To Notify? 1. Owners of underground storage tanks in use or that have been taken out of operation after January 1, 1974, but still in the ground, must notify by May 8, 1986. 2. Owners who bring underground storage tanks into use after May 8, 1986, must notify within 30 days of bringing the tanks into use.

Penalties: Any owner who knowingly fails to notify or submits false information shall be subject to a civil penalty not to exceed $10,000 for each tank for which notification is not given or for which false information is submitted.

INSTRUCTIONS

Please type or print in ink all items except "signature" in Section V. This form must by completed for each location containing underground storage tanks. If more than 5 tanks are owned at this location, photocopy the reverse side, and staple continuation sheets to this form.

Indicate number of continuation sheets attached: 0.

I. OWNERSHIP OF TANK(S)

Owner Name (Corporation, Individual, Public Agency, or Other Entity): ~~Adcock & Campbell, Inc.~~ AdCamp, INC

Street Address: 175 E. Industrial Dr. P.O. Box 54246

County: ~~Rankin~~ Hinds

City: ~~Jackson~~ Flowood — State: Ms. — ZIP Code: ~~39208~~ 39288-4246

Area Code: 601 — Phone Number: 939-4493

Type of Owner (Mark all that apply ☒)

- ☒ Current
- ☐ Former
- ☐ State or Local Gov't
- ☐ Federal Gov't (GSA facility I.D. no. _____)
- ☒ Private or Corporate
- ☐ Ownership uncertain

II. LOCATION OF TANK(S)

(If same as Section 1, mark box here ☒)

Facility Name or Company Site Identifier, as applicable: Adcock & Campbell

Street Address or State Road, as applicable: 175 E Industrial Dr

County: Rankin

City (nearest): Flowood — State: Ms. — ZIP Code: 39208

Indicate number of tanks at this location: ~~X~~0

Mark box here if tank(s) are located on land within an Indian reservation or on other Indian trust lands ☐

III. CONTACT PERSON AT TANK LOCATION

Name (If same as Section 1, mark box here ☐): Bryan Campbell — Job Title: Vice President — Area Code: 601 — Phone Number: 939-4493

IV. TYPE OF NOTIFICATION

☐ Mark box here only if this is an amended or subsequent notification for this location.

V. CERTIFICATION (Read and sign after completing Section VI.)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete.

Name and official title of owner or owner's authorized representative: Wayne B. Lewis - office Mgr. — Signature: Wayne B. Lewis — Date Signed: 4-21-86

CONTINUE ON REVERSE SIDE

Campbell, Inc. Location (from Section II) Flowood, Ms. Page No. 1 of 2

VI. DESCRIPTION OF UNDERGROUND STORAGE TANKS (Complete for each tank at this location.)

Tank Identification No. (e.g., ABC-123), or Arbitrarily Assigned Sequential Number (e.g., 1,2,3...)	Tank No. RW 1.	Tank No.	Tank No.	Tank No.	Tank No.
1. Status of Tank *(Mark all that apply ☒)*					
Currently in Use	☑	☐	☐	☐	☐
Temporarily Out of Use	☐	☐	☐	☐	☐
Permanently Out of Use	☐	☐	☐	☐	☐
Brought into Use after 5/8/86	☑	☐	☐	☐	☐
2. Estimated Age (Years)	25 yrs.				
3. Estimated Total Capacity (Gallons)	1,000				
4. Material of Construction *(Mark one ☒)*					
Steel	☑	☐	☐	☐	☐
Concrete	☐	☐	☐	☐	☐
Fiberglass Reinforced Plastic	☐	☐	☐	☐	☐
Unknown	☐	☐	☐	☐	☐
Other, Please Specify					
5. Internal Protection *(Mark all that apply ☒)*					
Cathodic Protection	☐	☐	☐	☐	☐
Interior Lining (e.g., epoxy resins)	☐	☐	☐	☐	☐
None	☑	☐	☐	☐	☐
Unknown	☐	☐	☐	☐	☐
Other, Please Specify					
6. External Protection *(Mark all that apply ☒)*					
Cathodic Protection	☐	☐	☐	☐	☐
Painted (e.g., asphaltic)	☑	☐	☐	☐	☐
Fiberglass Reinforced Plastic Coated	☐	☐	☐	☐	☐
None	☐	☐	☐	☐	☐
Unknown	☑	☐	☐	☐	☐
Other, Please Specify					
7. Piping *(Mark all that apply ☒)*					
Bare Steel	☐	☐	☐	☐	☐
Galvanized Steel	☑	☐	☐	☐	☐
Fiberglass Reinforced Plastic	☐	☐	☐	☐	☐
Cathodically Protected	☐	☐	☐	☐	☐
Unknown	☐	☐	☐	☐	☐
Other, Please Specify					
8. Substance Currently or Last Stored In Greatest Quantity by Volume *(Mark all that apply ☒)*					
a. Empty	☐	☐	☐	☐	☐
b. Petroleum					
Diesel	☐	☐	☐	☐	☐
Kerosene	☐	☐	☐	☐	☐
Gasoline (including alcohol blends)	☑	☐	☐	☐	☐
Used Oil	☐	☐	☐	☐	☐
Other, Please Specify					
c. Hazardous Substance	☐	☐	☐	☐	☐
Please Indicate Name of Principal CERCLA Substance					
OR Chemical Abstract Service (CAS) No.					
Mark box ☒ if tank stores a mixture of substances	☐	☐	☐	☐	☐
d. Unknown	☐	☐	☐	☐	☐
9. Additional Information (for tanks permanently taken out of service)					
a. Estimated date last used (mo/yr)	2/90	/	/	/	/
b. Estimated quantity of substance remaining (gal.)					
c. Mark box ☒ if tank was filled with inert material (e.g., sand, concrete)	☐	☐	☐	☐	☐
	sanded 2/5/90				

EPA Form 7530-1 (11-85) Reverse

FLOWOOD, MISS.

ADCAMP INC.
D/B/A
ADCOCK & CAMPBELL
ASPHALT CONSTRUCTION
P. O. BOX 54246
JACKSON, MISSISSIPPI 39288-4246

TELEPHONE 939-449

February 5, 1990

Mrs. Deanna Jones
Mississippi Department Of Natural Resources
Bureau of Pollution Control
P.O. Box 10385
Jackson, Ms. 39209

Re: Adcamp, Inc.
Flowood, Ms.
Facility I.D. #3619

Dear Mrs. Jones:

I have enclosee a copy of our laboratory analysis, which is within the allowable tolerance of 100 ppm at the above referenced location.

We have also completed the closure of this facility, and will mail the amended nofication of tanks as soon as we locate a new tank at this facility.

If you need any additional information, please let us know.

Yours very truly,

Adcamp, Inc.

Ralph Barnes
President

2/7/90

SOUTHERN TECHNICAL SERVICES, INC.
1627 Westhaven Blvd.
Jackson, MS 39209
601-922-8652

ADCOCK & CAMPBELL, INC.
P.O. BOX 54246
JACKSON, MS 39288
ATTN: MR. RALPH BARNES

REPORT OF TESTS ON SOIL SAMPLE RECEIVED FROM YOU 02-05-90.

SAMPLE ID: GASOLINE TANK STS LOG NO: 9002028

BENZENE	0.27 ppm
TOLUENE	0.57 ppm
ETHYLBENZENE	0.41 ppm
XYLENES	1.61 ppm
TOTAL (BTEX)	2.86 ppm
TOTAL PETROLEUM HYDROCARBON	ND

< = LESS THAN.

ALLOWABLE LIMITS: TOTAL OF 100 ppm.

Test procedure(s): SW-846 METHODS 8020, 5030, 8240 (7.4.3), 9071

Gene M. Coxwell
GENE M. COXWELL

FILE COPY

March 5, 1990

Mr. Ralph Barnes
Adcock & Campbell Asphalt Construction
P. O. Box 54246
Jackson, Mississippi 39288-4246

Dear Mr. Barnes:

Re: Adcamp, Inc.
Flowood, Mississippi
Facility I.D. #3619

The Bureau has reviewed the attached results of soil samples taken on February 5, 1990, during the closure at the underground storage tank(s) at the above referenced location.

Since the benzene, toluene, ethylbenzene, and xylene (BTEX) contamination fall below limits as set by the State of Mississippi, no further action is required at this time to comply with present regulatory requirements.

Should you have any further questions, please call me at (601) 961-5171.

Sincerely,

Deanna Jones
Underground Storage Tank Section

DJ:sae
Attachments

Notification for Underground Storage Tanks

FORM APPROVED
OMB NO. 2050-0049
EXPIRES 8-30-88

FOR TANKS IN **MS**

RETURN COMPLETED FORM TO

Department of Natural Resources
Bureau of Pollution Control
P.O. Box 10385
Jackson, MS 39209

STATE USE ONLY

I.D. Number 0075

Date Received 2-12-85

GENERAL INFORMATION

Notification is required by Federal law for all underground tanks that have been used to store regulated substances since January 1, 1974, that are in the ground as of May 8, 1986, or that are brought into use after May 8, 1986. The information requested is required by Section 9002 of the Resource Conservation and Recovery Act, (RCRA), as amended.

The primary purpose of this notification program is to locate and evaluate underground tanks that store or have stored petroleum or hazardous substances. It is expected that the information you provide will be based on reasonably available records, or, in the absence of such records, your knowledge, belief, or recollection.

Who Must Notify? Section 9002 of RCRA, as amended, requires that, unless exempted, owners of underground tanks that store regulated substances must notify designated State or local agencies of the existence of their tanks. Owner means—

(a) in the case of an underground storage tank in use on November 8, 1984, or brought into use after that date, any person who owns an underground storage tank used for the storage, use, or dispensing of regulated substances, and

(b) in the case of any underground storage tank in use before November 8, 1984, but no longer in use on that date, any person who owned such tank immediately before the discontinuation of its use.

What Tanks Are Included? Underground storage tank is defined as any one or combination of tanks that (1) is used to contain an accumulation of "regulated substances," and (2) whose volume (including connected underground piping) is 10% or more beneath the ground. Some examples are underground tanks storing: 1. gasoline, used oil, or diesel fuel, and 2. industrial solvents, pesticides, herbicides or fumigants.

What Tanks Are Excluded? Tanks removed from the ground are not subject to notification. Other tanks excluded from notification are:

1. farm or residential tanks of 1,100 gallons or less capacity used for storing motor fuel for noncommercial purposes;
2. tanks used for storing heating oil for consumptive use on the premises where stored;
3. septic tanks;
4. pipeline facilities (including gathering lines regulated under the Natural Gas Pipeline Safety Act of 1968, or the Hazardous Liquid Pipeline Safety Act of 1979, or which is an intrastate pipeline facility regulated under State laws;
5. surface impoundments, pits, ponds, or lagoons;
6. storm water or waste water collection systems;
7. flow-through process tanks;
8. liquid traps or associated gathering lines directly related to oil or gas production and gathering operations;
9. storage tanks situated in an underground area (such as a basement, cellar, mineworking, drift, shaft, or tunnel) if the storage tank is situated upon or above the surface of the floor.

What Substances Are Covered? The notification requirements apply to underground storage tanks that contain regulated substances. This includes any substance defined as hazardous in section 101 (14) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), with the exception of those substances regulated as hazardous waste under Subtitle C of RCRA. It also includes petroleum, e.g., crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute).

Where To Notify? Completed notification forms should be sent to the address given at the top of this page.

When To Notify? 1. Owners of underground storage tanks in use or that have been taken out of operation after January 1, 1974, but still in the ground, must notify by May 8, 1986. 2. Owners who bring underground storage tanks into use after May 8, 1986, must notify within 30 days of bringing the tanks into use.

Penalties: Any owner who knowingly fails to notify or submits false information shall be subject to a civil penalty not to exceed $10,000 for each tank for which notification is not given or for which false information is submitted.

INSTRUCTIONS

Please type or print in ink all items except "signature" in Section V. This form must by completed for each location containing underground storage tanks. If more than 5 tanks are owned at this location, photocopy the reverse side, and staple continuation sheets to this form.

Indicate number of continuation sheets attached: ☐

I. OWNERSHIP OF TANK(S)

Owner Name (Corporation, Individual, Public Agency, or Other Entity)

SWAIN BUILDING MATERIALS COMPANY OF JACKSON, INC.

Street Address

P. O. DRAWER 5510

County

WASHINGTON

City | State | ZIP Code

FLOWOOD | MS. | 39208

Area Code | Phone Number

(601) | 932-1591

Type of Owner *(Mark all that apply.)*

- ☐ Current
- ☐ Former
- ☐ State or Local Gov't
- ☐ Federal Gov't (GSA facility I.D. no. _____)
- ☐ Private or Corporate
- ☒ Ownership uncertain

II. LOCATION OF TANK(S)

(If same as Section 1, mark box here ☐)

Facility Name or Company Site Identifier, as applicable

Smith - Tractor Parts
SWAIN BUILDING MATERIALS COMPANY OF JACKSON, INC.

Street Address or State Road, as applicable

1353 FLOWOOD DRIVE

County

WASHINGTON

City (nearest) | State | ZIP Code

FLOWOOD | MS. | 39208

Indicate number of tanks at this location: 2

2T Perm out of use

Mark box here if tank(s) are located on land within an Indian reservation or on other Indian trust lands: ☐

III. CONTACT PERSON AT TANK LOCATION

Name (If same as Section I, mark box here ☐) | Job Title | Area Code | Phone Number

DAVID IVY | ASST. MANAGER | (601) | 932-1591

IV. TYPE OF NOTIFICATION

☐ Mark box here only if this is an amended or subsequent notification for this location.

V. CERTIFICATION (Read and sign after completing Section VI.)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete.

Name and official title of owner or owner's authorized representative | Signature | Date Signed

WILLAIM D. SWAIN, JR. | William D. Swain Jr | 2-9-85

CONTINUE ON REVERSE SIDE

Owner Name (from Section I) SWAIN OF JACKSON Location (from Section II) 1353 FLOWOOD DRIVE Page No. 2 of 2

VI. DESCRIPTION OF UNDERGROUND STORAGE TANKS (Complete for each tank at this location.)

Tank Identification No. (e.g., ABC-123), or Arbitrarily Assigned Sequential Number (e.g., 1,2,3...)	Tank No. 1	Tank No. 2	Tank No.	Tank No.	Tank No.
1. Status of Tank (Mark all that apply ☒) as per letter attached mmi. 6-19-91					
Currently in Use	X	X			
Temporarily Out of Use					
Permanently Out of Use					
Brought into Use after 5/8/86					
2. Estimated Age (Years)	15	10			
3. Estimated Total Capacity (Gallons)	1000	2000			
4. Material of Construction (Mark one ☒)					
Steel	X	X			
Concrete					
Fiberglass Reinforced Plastic					
Unknown					
Other, Please Specify					
5. Internal Protection (Mark all that apply ☒)					
Cathodic Protection					
Interior Lining (e.g., epoxy resins)					
None					
Unknown	X	X			
Other, Please Specify					
6. External Protection (Mark all that apply ☒)					
Cathodic Protection	X	X			
Painted (e.g., asphaltic)					
Fiberglass Reinforced Plastic Coated					
None					
Unknown					
Other, Please Specify					
7. Piping (Mark all that apply ☒)					
Bare Steel					
Galvanized Steel	X	X			
Fiberglass Reinforced Plastic					
Cathodically Protected					
Unknown					
Other, Please Specify					
8. Substance Currently or Last Stored In Greatest Quantity by Volume (Mark all that apply ☒)					
a. Empty					
b. Petroleum					
Diesel		X			
Kerosene					
Gasoline (including alcohol blends)	X				
Used Oil					
Other, Please Specify					
c. Hazardous Substance					
Please Indicate Name of Principal CERCLA Substance OR Chemical Abstract Service (CAS) No.					
Mark box ☒ if tank stores a mixture of substances					
d. Unknown					
9. Additional Information (for tanks permanently taken out of service)					
a. Estimated date last used (mo/yr)	12/88	12/88	/	/	/
b. Estimated quantity of substance remaining (gal.)					
c. Mark box ☒ if tank was filled with inert material (e.g., sand, concrete)					

June 18, 1991

Mr. Billy Joe Smith
Smith Tractor Parts
1353 Flowood Drive
Flowood, Mississippi 39208

Dear Mr. Smith:

Re: Underground Storage Tanks
Formerly Swain Building Materials
Facility I.D. #0075

Thank you for your cooperation during our telephone conversation on June 18, 1991. This letter is being sent in response to update your records and ours. Let it be understood that:

(1) You are the owner of the underground storage tanks, and ownership is no longer uncertain.

(2) The underground storage tanks are previously closed as they have not been in service prior to December, 1988, and were properly closed according to industry standards at that time.

Once again, thank you for your cooperation in this matter, and should you have any questions or comments, please feel free to contact us at (601) 961-5171.

Sincerely,

Eric S. Dear
Underground Storage Tank Section

ESD:sae
cc: John Harper
Tammie Gadson

BCM

APPENDIX C

CORRESPONDENCE FROM MISSISSIPPI POWER AND LIGHT

MP&L

Mississippi Power & Light Company
308 East Pearl Street
P.O. Box 1640
Jackson, MS 39215-1640

June 25, 1993

Mr. R. Dale Woodall
BCM Engineers Inc.
265 Highpoint Drive
Jackson, MS 39213

Dear Mr. Woodall:

In response to your request on June 22, 1993, requesting information on the transformers located at W. G. Avery Body Company's property, Mississippi Highway 468 North, Flowood, Mississippi, that are owned by Mississippi Power & Light Company (MP&L), the MP&L owned transformers at this location contain mineral oil as the dielectric fluid. In November, 1985, MP&L notified building owners of PCB transformers that were owned by MP&L and in use located in or near commercial buildings. No PCB transformers were identified by MP&L at the above-mentioned location. MP&L has taken appropriate action for the management of transformers to comply with the regulations promulgated by the Environmental Protection Agency in Part 761 of Title 40 of the Code of Federal Regulations.

If we can be of any further assistance, please let us know.

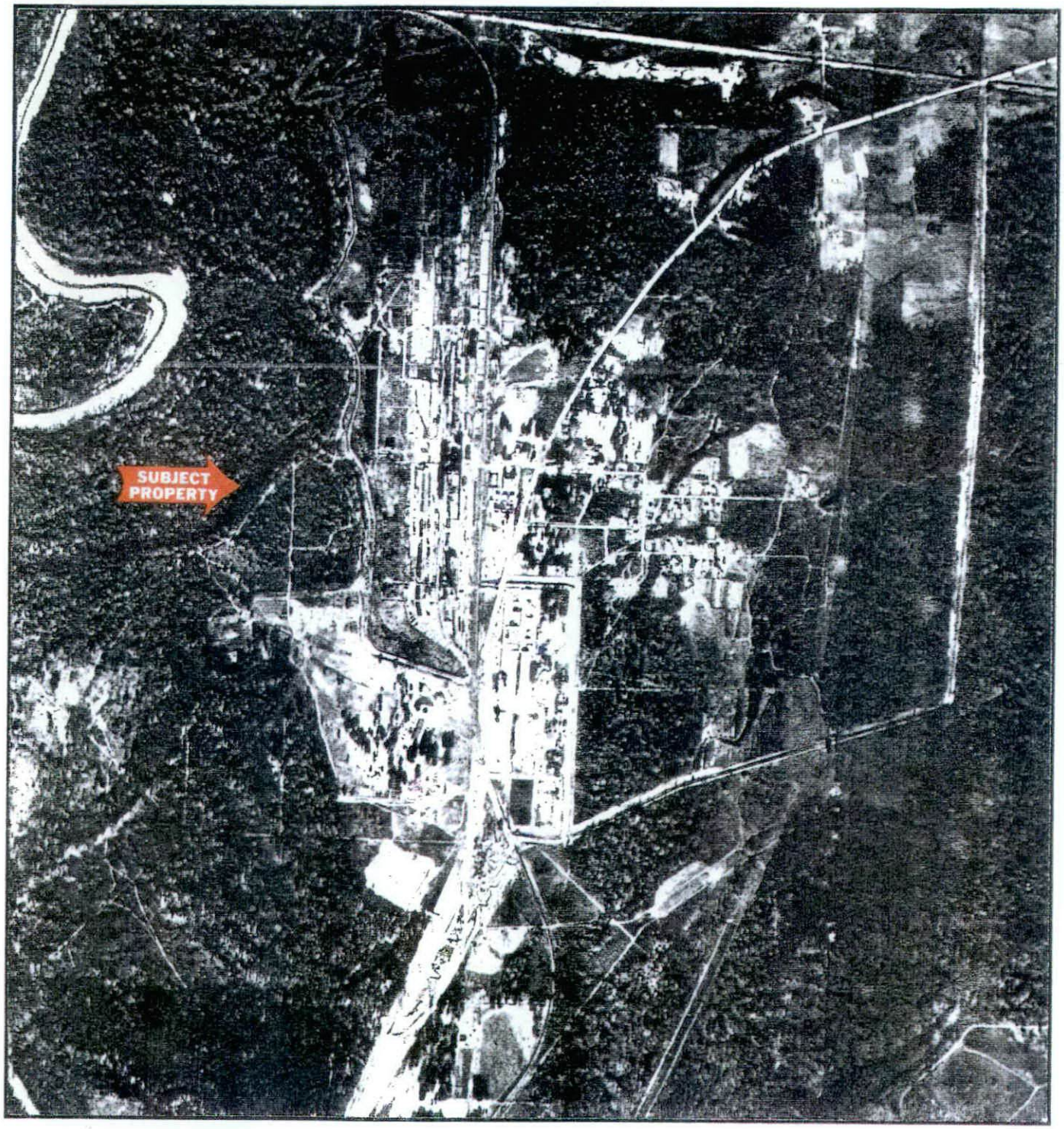
Sincerely,

Steve Tullos
Environmental Analyst

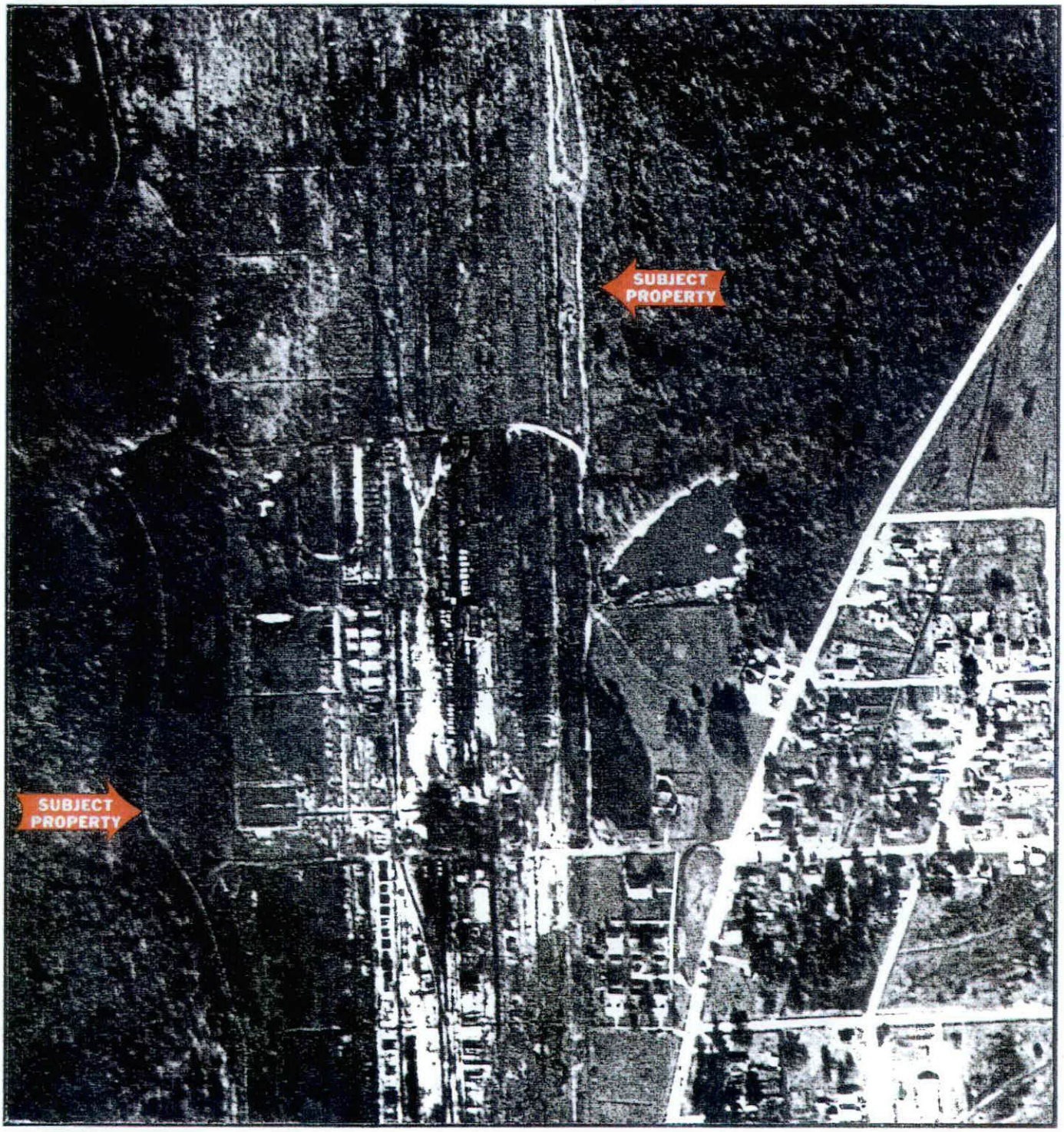
BCM

APPENDIX D

AERIAL PHOTOGRAPHS

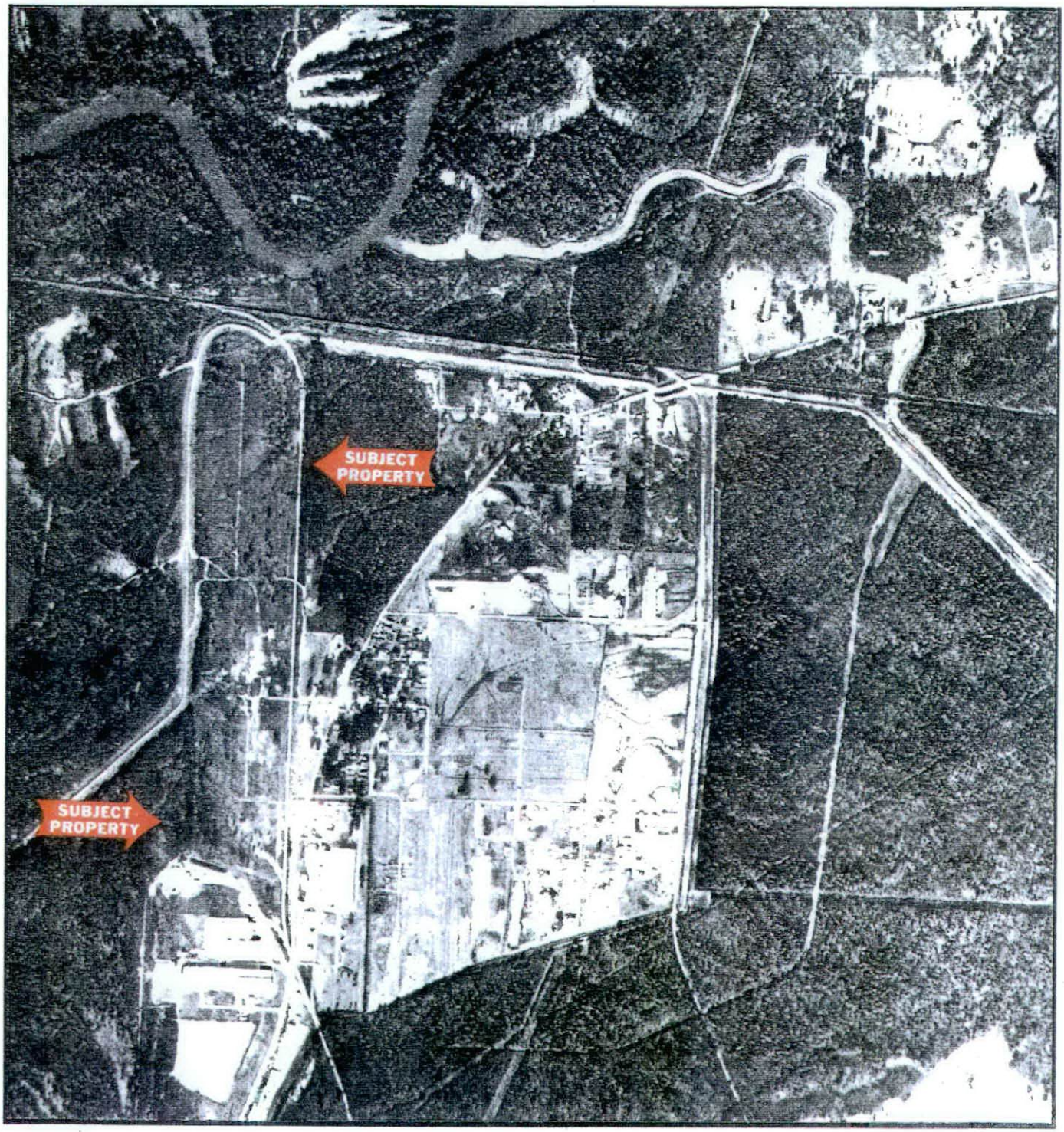


Aerial Photograph
January 1940
W.G. Avery Body Company

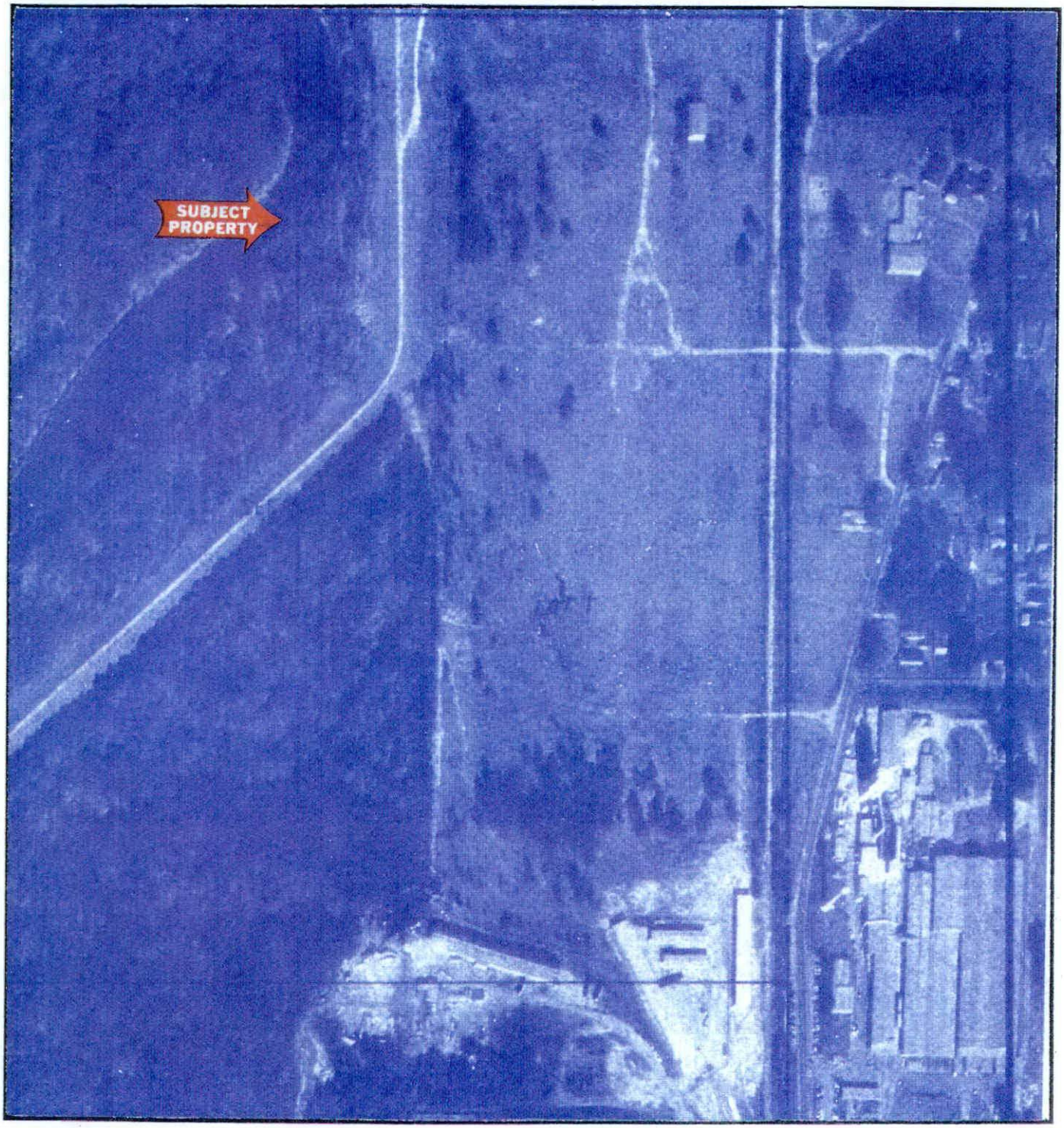


Aerial Photograph
January 1955
W.G. Avery Body Company

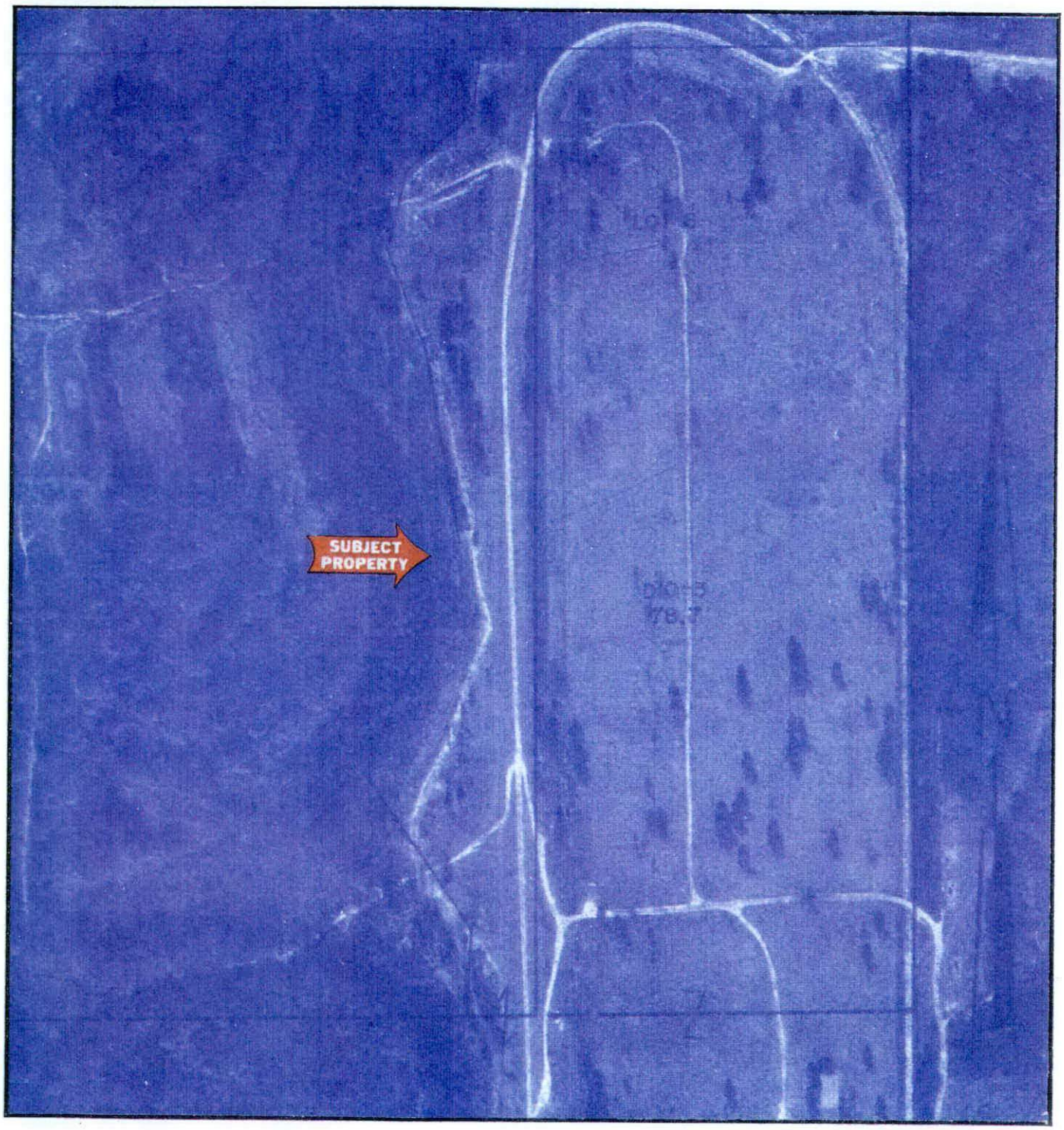
Aerial Photograph
November 1965
W.G. Avery Body Company



Aerial Photograph
December 1972
W.G. Avery Body Company



Aerial Photograph
December 1980
W.G. Avery Body Company



Aerial Photograph
December 1980
W.G. Avery Body Company

BCM

APPENDIX E

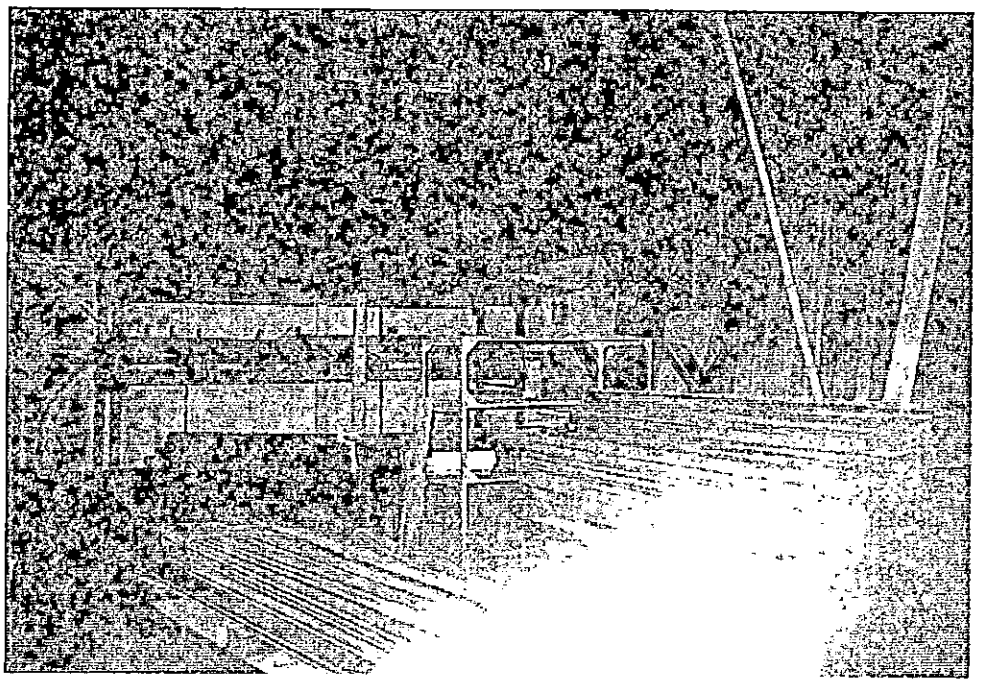
SITE PHOTOGRAPHS

BCM

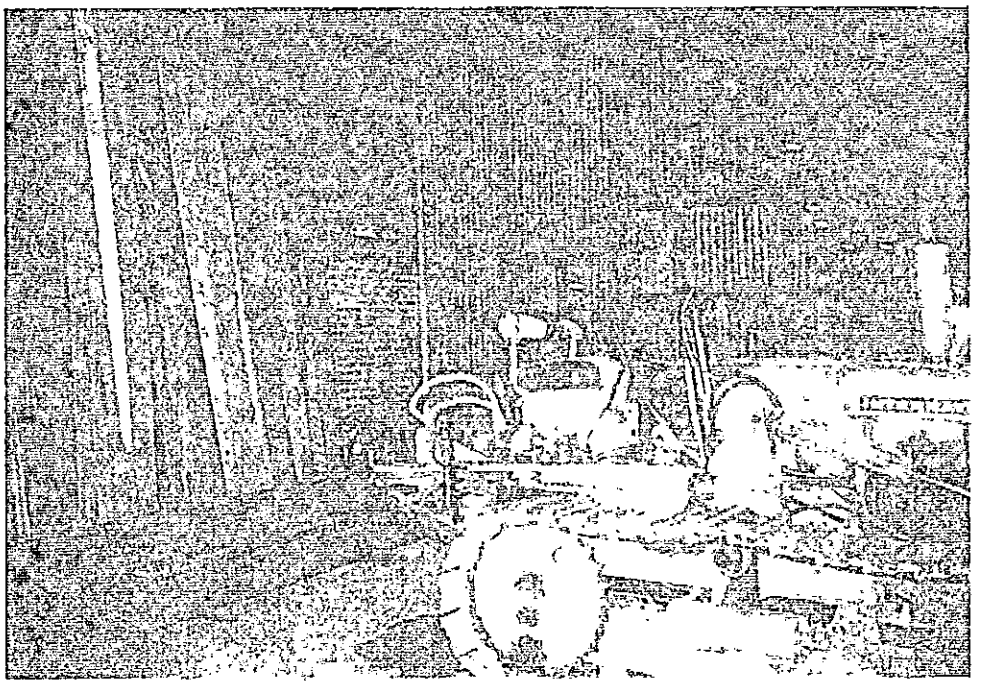
Swampland West of Subject Property

Drainage Ditch on Subject Property

BCM



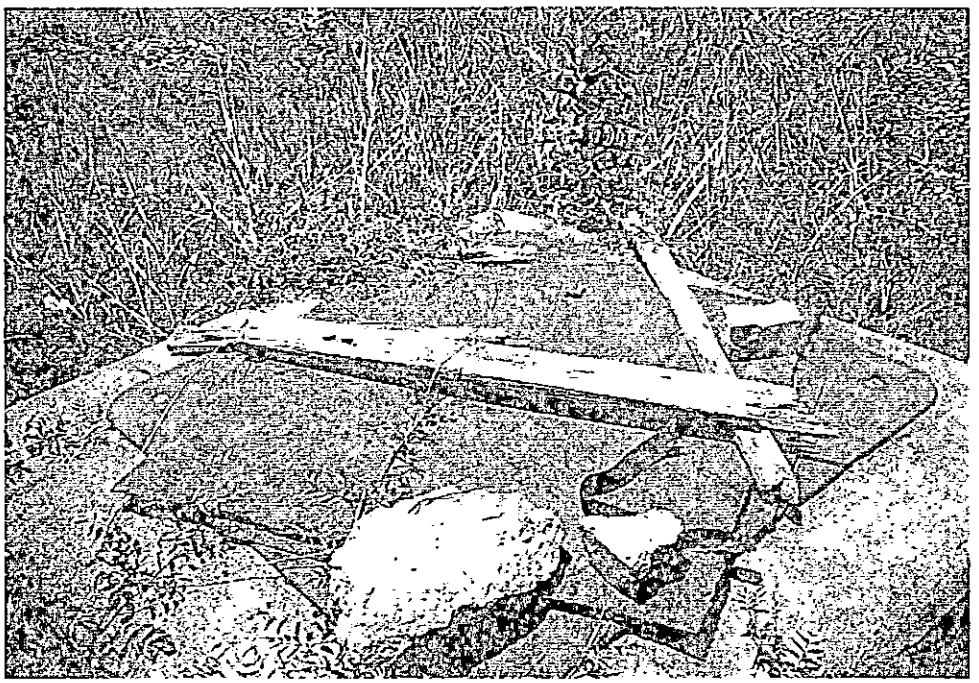
Interior View of Barn



Interior View of Barn

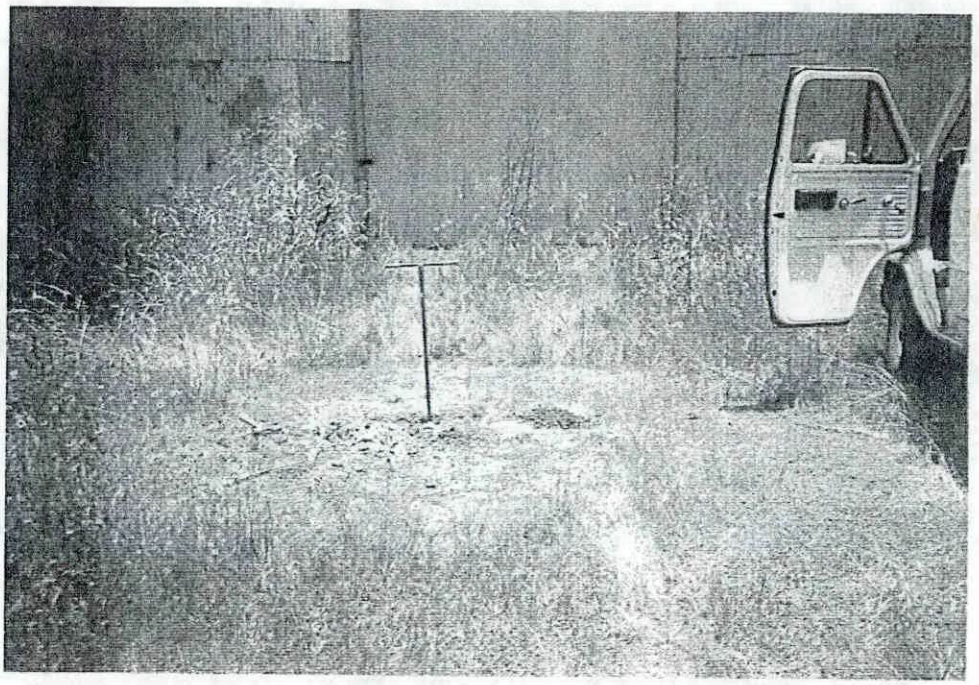
BCM

Creosote Plant Debris South of Barn

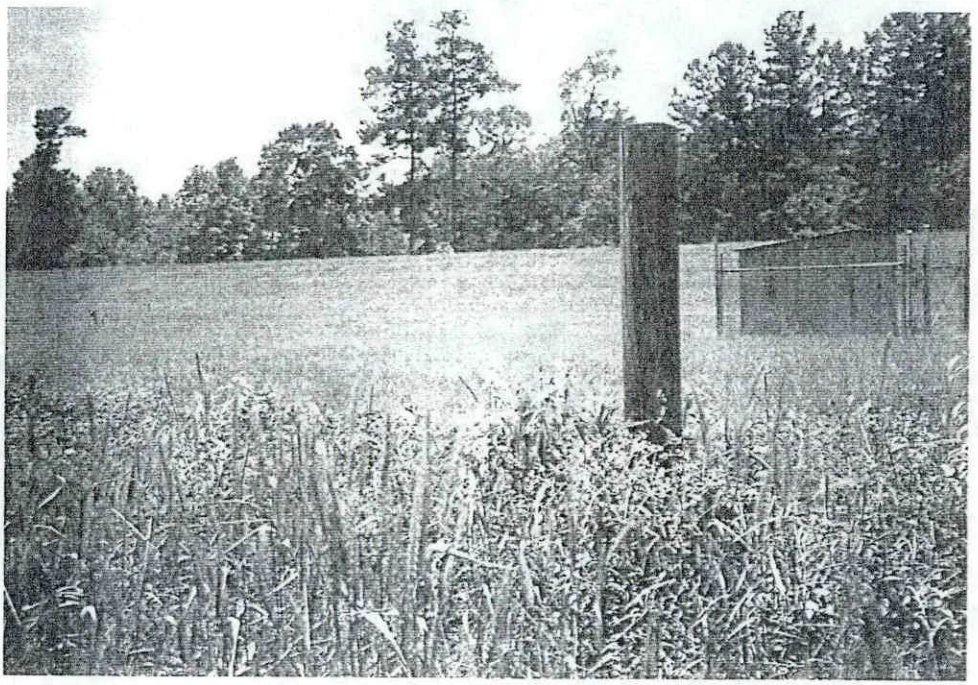


Creosote Plant Debris South of Barn

BCM

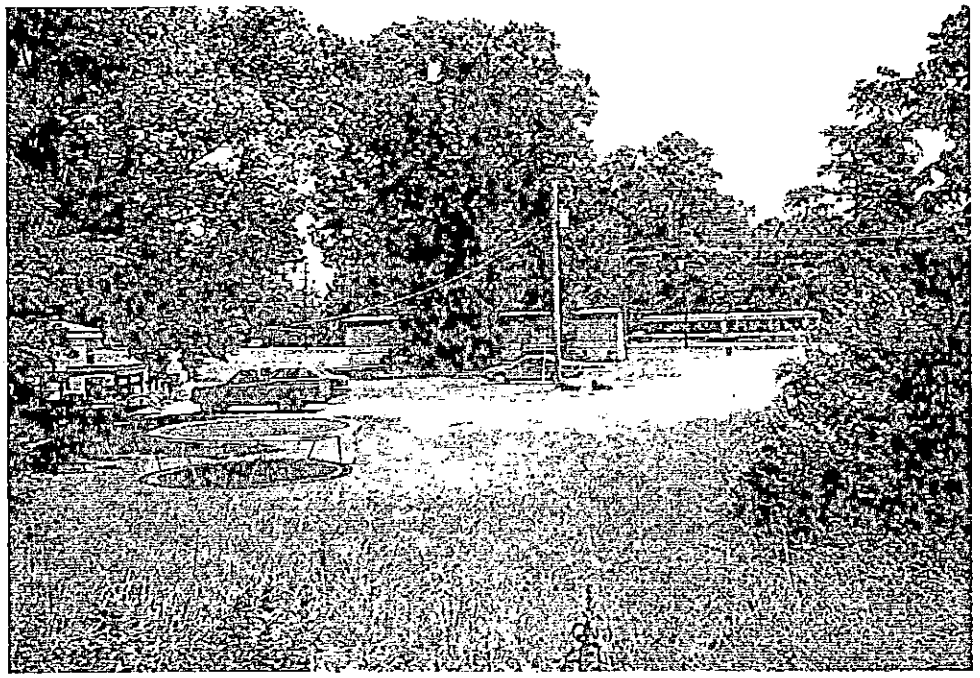


Location of HA-7 West of Barn

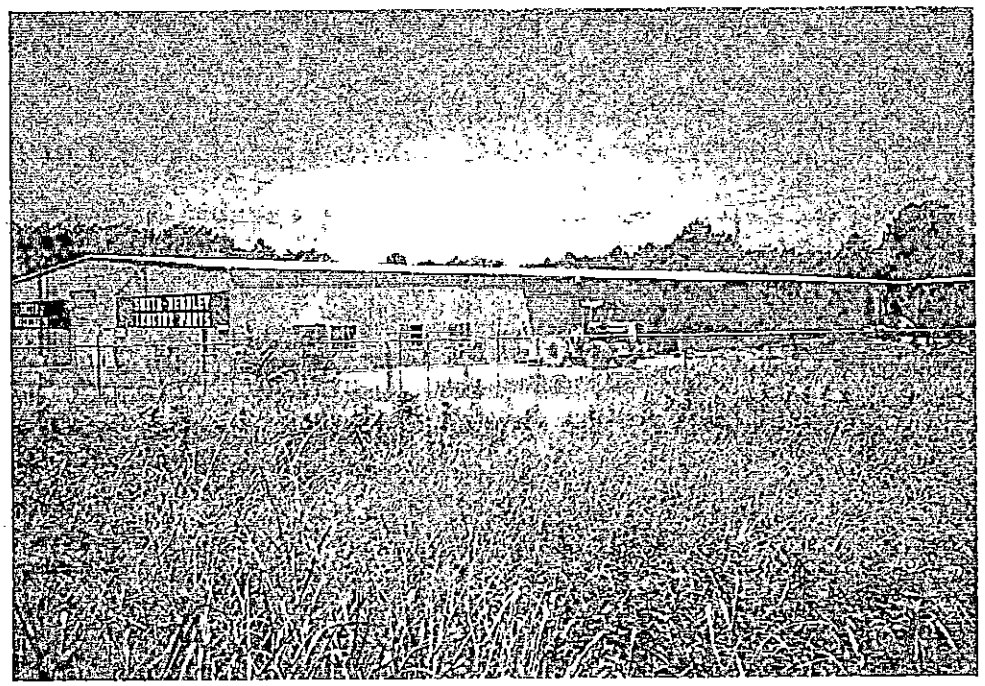


United Gas Pipeline Observation Well Shed

BCM



Location of Trailers at Mississippi Highway 468 on Property



Location of Smith Headley Machinery USTs

BCM

APPENDIX F

REGIONAL GEOLOGY

BCM

REGIONAL GEOLOGY

The W.G. Avery Body Company property lies in the Jackson Prairie physiographic district of the Gulf Coastal Plain. The Jackson Prairie underlain by the Yazoo Clay, consists of gently rolling hills with elevations not exceeding 400 ft. above National Geodetic Vertical Datum (NGVD). The study area lies within the southeast central part of the Mississippi embayment, a northward extension of the Gulf coastal Plain. The sedimentary rocks filling the embayment consist mostly of clay, shale, silt, sand, and loess. Exposed stratigraphic units are Cook Mountain Formation, which is the oldest, to the alluvial deposits, which are the youngest.

The regional dip of Tertiary sedimentary rocks is interrupted by the Jackson Dome, where strata are arched upward several hundred feet. The strike of the formations is northwest except in the vicinity of the dome. Influence of the Jackson Dome has caused the formation of concentric rings of outcrop around the City of Jackson. Also, the dome has caused the Cockfield Formation to be exposed along the Pearl River east of Jackson. The dome also has had an effect on the regional geothermal gradient.

All exposed sandy units serve as recharge areas for the aquifers. The units also serve as discharge areas, in some places, to sustain stream flow during dry periods. Clay beds such as those of the Jackson Group serve as confining units for major aquifers. During dry periods little to no flow in streams is associated with outcrop areas of thick and impermeable clays of the Jackson Group. Formations that include water-bearing sand beds, or aquifers, range from Paleocene to Holocene. The principal water-bearing units are the Meridian Sand Member of the Tallahatta Formation, the Sparta Sand, the Cockfield Formation, and the Catahoula Sandstone. Other water-bearing units of less importance are the lower Wilcox aquifer, the Vicksburg Group, the Citronelle Formation, and the alluvium.

Location of a regional geology section is found in the attached Figure, Regional Geology Map. Regional geology Section A-A' show the lower Wilcox aquifer as the deepest aquifer while the Catahoula Sandstone is the shallowest. The formations have been uplifted by the Jackson Dome and by their closer proximity to land surface are more accessible to water wells.

The average daily water use in the study area for 1976 was 51 million gallons per day (Mgal/d). Surface-water sources furnished about on-half of this amount and groundwater aquifers furnished the other half. Since 1960, groundwater use has increased from 10 to nearly 25 Mgal/d. and surface-water use from 13 to more than 26 Mgal/d.

BCM

The Pearl River is the principal source of water for Jackson with wells serving as supplemental sources. The Ross Barnett Reservoir serves as a water supply for the City of Jackson and sustains the Pearl River during dry periods.

All major water supplies other than the municipal supply for the City of Jackson are from wells. Wells produced 70 percent of the total groundwater used from the Sparta Sand, 27 percent are form the Cockfield Formation, and 3 percent are from the Catahoula Sandstone, Forest Hill Sand, and the Meridian-upper Wilcox aquifers.

Major water users in the study area, with the exception of the City of Jackson, utilize only groundwater, and most of the water problems are related to the development of groundwater supplies. Some shallow aquifers do not yield enough water for major industrial users. Many of the problems with water supply result from poor chemical quality of the available groundwater. High iron concentrations (greater than 0.3 mg/L) are found especially near the outcrop area of the Cockfield Formation. Down dip in the Cockfield and Sparta aquifers, excessive color in water is the result of water in the aquifer coming in contact with organic substances such as lignite. The Jackson Dome may have an influence on the distribution and occurrence of colored water in these deposits. The occurrence of saline water is a problem in deeper aquifers such as the lower Wilcox and Meridian upper Wilcox.

Surface-water problems include inadequate flow, flooding, and poor quality in places. Many small streams, particularly those draining the Jackson Prairie physiographic district go dry, resulting in water supply deficiency during periods of high demand and contributing to waste assimilation problems. Flooding is frequently a problem, causing extensive problems in some streams. Sediment is a problem in the Big Black River while water pollution is a problem in the Pearl River below Jackson.

Regional Geology Map

Table 1. – Geologic formations and their water-bearing properties.

System	Series	Group	Formation	Thickness in feet	Physical character	Water-bearing properties
Quaternary	Holocene		Alluvium	0-50	Gravel, sand, and silt.	Furnishes some small domestic water supplies along Pearl River. Thicker deposits along Big Black River may yield up to 50 gal/min (gallons per minute) to wells.
	Pleistocene		Loess	0-30	Weathered brown loam.	Not an aquifer in this area.
Tertiary	Pliocene		Citronelle Formation		Gravel, sand and clay.	[illegible]
	Miocene		Catahoula Sandstone	0-450	White sandstone, siltstone, clay, and sand.	Yields as much as 200 gal/min to wells in southern Hinds and Rankin Counties.
	Oligocene	Vicksburg Group	Byram Formation, Marianna Limestone (Mint Spring Marl Member)	0-175	Limestone, marl, with some clay, and sand.	Mint Spring Marl Member yields small supplies to rural wells southeast of Jackson.
			Forest Hill Sand	0-200	Lignitic clay, lignite, and thin beds of sand.	Supplies water to many rural water systems in southern Hinds and Rankin Counties. Yields up to 100 gal/min.
	Eocene	Jackson Group	Yazoo Clay	0-500	Fossiliferous clay.	Confining unit.
			Moodys Branch Formation	0-40	Glauconitic, fossiliferous marl and sand.	Yields small supplies to a few rural wells.
		Claiborne Group	Cockfield Formation	0-330	Sand, clay, and lignite.	Yields as much as 600 gal/min to wells in the three counties but little used in Jackson.
			Cook Mountain Formation	100-200	Clay and glauconitic, fossiliferous sandstone and sandy limestone.	Confining unit.
			Sparta Sand	400-1000	Beds of medium-grained sand as much as 100 feet thick interbedded with clay and lignite.	Yields as much as 1,000 gal/min to wells in Jackson and Clinton. Water may be saline southwest of Jackson.
			Zilpha Clay	100-400	Dark-gray to brown fossiliferous clay.	Confining unit in this area.
			Winona Sand and Tallahatta Formation	50-300	Light-gray to green glauconitic sand, shale, and clay.	Not an aquifer in this area.
			Meridian Sand Member of Tallahatta Formation	300-450	Fine-to-coarse sand and lignite.	Potential source of water for Madison and northeastern Rankin Counties.
		Wilcox Group	Upper part	1100-2100	Sand and shale, with some lignite	Yields over 100 gal/min to a public-supply well in Madison County.
	Paleocene		Middle part			Not an aquifer in this area.
			Lower part			Potential aquifer in Madison and northeastern Rankin Counties. Not used as an aquifer because of considerable depth.

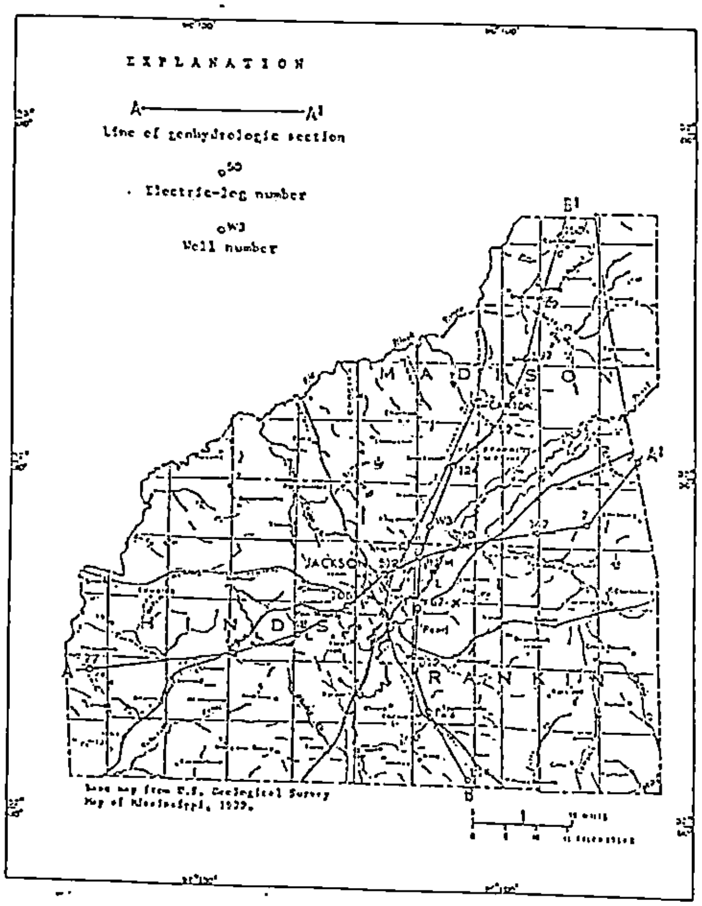


Figure 6. – Locations of geohydrologic sections.

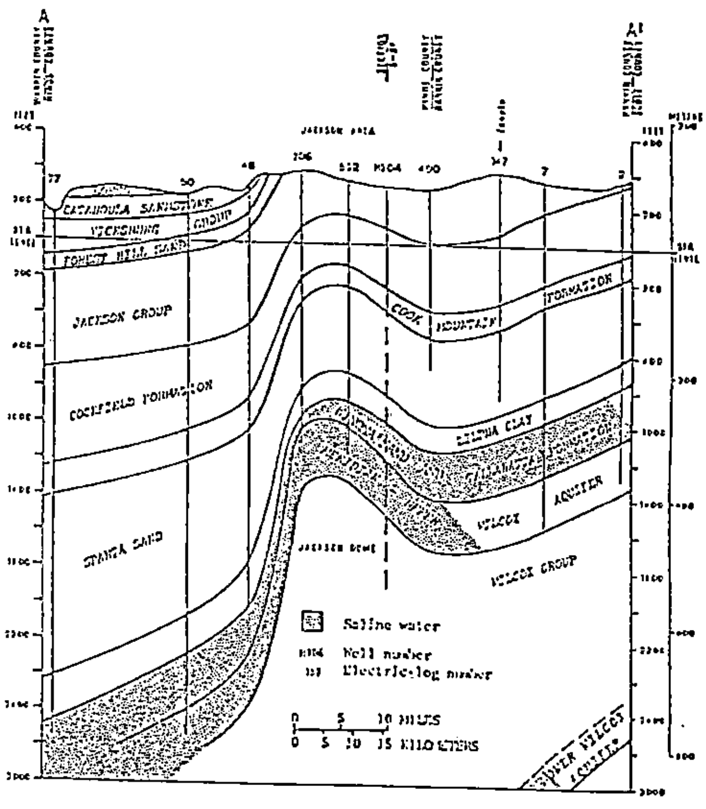


Figure 7. – Geohydrologic section A-A' through Hinds and Rankin Counties.

SOURCE: US Geological Survey

BCM

APPENDIX G

OTHER DOCUMENTATION

Health Assessment for

FLOWOOD SITE

JACKSON, RANKIN COUNTY, MISSISSIPPI

AUGUST 11, 1988

Agency for Toxic Substances and Disease Registry
U.S. Public Health Service

SUMMARY

The Flowood Site is located in Rankin County, approximately one mile east of Jackson, Mississippi, and one-half mile southwest of Flowood. The site lies in a rural area with scattered residents, cattle grazing areas, and industrial operations. The primary contaminants of concern in soils, sediments, and groundwater include lead, and several polynuclear aromatic hydrocarbons (PAHs). Several water supply wells, including those which provide water for the Flowood municipal water system, are located within three thousand feet of the site. Primary environmental pathways of contaminant migration include groundwater, soil, sediment, air, and foodchain bioaccumulation. Available information was inadequate to determine the significance of the human exposure pathways of ingestion of contaminated groundwater and contaminated plants and animals. Contaminant levels are sufficiently high that ingestion of on-site groundwater, soils, and sediments, and off-site surface water could adversely impact human health. Plants and animals from the Flowood site may bioaccumulate site contaminants and pose a health threat to those consuming them.

BACKGROUND

The Flowood site consists of approximately 2 acres and lies approximately one mile southwest of Flowood, Mississippi within one-half mile of the Pearl River. The site consists of the drainage ditch, located approximately 500 feet behind two industrial manufacturing facilities, which drains into Neely Creek (See Appendix A). Neely Creek, a tributary of the Pearl River, flows through an agricultural area and is used by local farmers as a source of water for cattle. Neely Creek also receives surface drainage from Mississippi Steel and other industrial facilities.

The two industrial facilities located directly east of the site include Stone Container, a manufacturer of corrugated boxes, and Rival Manufacturing Company, a manufacturer of ceramic tiles and stoneware cooking pots. Waste water from these industrial operations was discharged into the ditch from the 1950's until 1972.

Inks and glues used in the manufacture of printed boxes prior to 1956 may have contained metals including lead, chromium, and barium. The Rival Manufacturing facility's prior owner manufactured glazed tile and probably generated wastes containing a number of metals including barium, chromium, cadmium, lead, copper, and zinc. Wastes generated by Rival Manufacturing may contain cadmium, barium, strontium, and compounds with the following metals, magnesium, manganese, iron, aluminum, and lead.

ENVIRONMENTAL CONTAMINATION AND PHYSICAL HAZARDS

Maximum Value-Groundwater 1986

Contaminant	On-Site Shallow Aquifer	Off-Site Shallow Aquifer	Off-Site Deep Aquifer-
Sodium	71900 ppb		80200 ppb
Total Lead	11000 ppb*	34 ppb	46 ppb
Soluble Lead	4000 ppb*	81 ppb^	14 ppb

*Values found in areas with elevated lead levels in surface sediments.
^Level of soluble lead reported as exceeding total lead level.
-Results from deep aquifer groundwater samples were provided for only one monitoring well.
ppb=parts per billion

Sediments/Wastes 1986

	On-Site	Off-Site
Benzo(a)Anthracene	2700 ppb	ND
Benzo(d)Fluoranthene	4200 ppb	ND
Lead	141000 ppm*	51600 ppm
Fluoranthene	3800 ppb	ND

ND-Not Detected
ppm=parts per million

Soils 1986

	On-Site Soil	Off-Site Soil
Lead	5960 ppm (0-2 Feet)	1540 ppm (0-2 Feet)

Surface Water 1986

	On-Site Drainage Canal	Off-Site Drainage Canal	Off-Site Neely Creek
Total Lead	3000 ppb	580 ppb	124 ppb
Soluble Lead	1100 ppb	140 ppb	65 ppb

C. PHYSICAL HAZARDS

Available information was inadequate to determine whether or not any physical hazards are associated with the Flowood site.

DEMOGRAPHICS

The site lies in an area of mixed industrial, agricultural, commercial, and residential uses as well as undeveloped swamp and forest areas. According to the 1980 U.S. Geological Survey Map for the site area, approximately 30 residences are located within one-half mile of the site. Two thousand feet northeast of the site lies the town of Flowood. Residents of Flowood obtain their drinking water from a municipal system which draws water from the deep aquifer at locations hydraulically upgradient and one-half mile from the site. The site is surrounded on its northern and eastern boundaries by various industrial and commercial uses while forested areas are located west of the site. Cattle grazing areas and automotive scrap yards are also located within one mile of the southern site boundary.

EVALUATION

A. SITE CHARACTERIZATION (DATA NEEDS AND EVALUATION)

1. Environmental Media

Groundwater at the Flowood Site has been monitored through a series of four permanent and six temporary monitoring wells. Only two sets of samples have been collected from the permanent wells, the first of which were analyzed for total and soluble lead, the second for Hazardous Substance List (HSL) organic and inorganic chemicals. Groundwater samples were collected on only two occasions, within a week of each other, were not collected from all wells on both occasions, and were analyzed in the first sampling round for total and soluble lead only. Samples were collected and analyzed from potable supply wells located around the Flowood site, however, samples were not collected from the potable supply well located 500 feet from the site and used by the Stone Container facility. Groundwater data was insufficient to adequately characterize groundwater contamination.

The soil sampling program was adequate to determine the presence and extent of soil contamination in both on-site and off-site areas. Surface water was sampled in an adequate number of on-site and off-site areas. However, surface water samples were tested for lead only. Air monitoring was not conducted during site investigations nor was it felt necessary since site contaminants are not volatile and the release of contaminants through the generation of dust is unlikely because the water table lies very near or above the soil surface for the ditch/drainage area.

Plant and animal samples were not collected from areas adjacent to the site. Data was not available on the whether cattle raising in the area immediately south of the site is for dairy or beef production.

2. Demographics and Land Use

Demographic and land use data available in the Draft Remedial Investigation of the Flowood Site were deficient in several areas. Although the data indicated the residents of Flowood were served by a municipal water system it did not indicate whether all residents living south of the site were served by a municipal system or rely on private wells. Information was not provided on the number of employees at Rival Manufacturing or the Stone Container Facility, the two industrial operations located immediately east of the site and within the contaminated area.

3. Quality Control and Quality Assurance

Documentation on QA/QC procedures for sample collection and analyses was not provided to ATSDR for review. The conclusions contained in this report are based on the data package supplied to ATSDR. The accuracy of these conclusions is based on the reliability and availability of the data contained in the materials reviewed.

B. ENVIRONMENTAL PATHWAYS

The environmental pathways for the migration of contaminants at the Flowood site include groundwater, surface water, soil, sediments, and contaminated biota. Several potable supply water wells are located in the site area, two are located approximately 3000 feet northeast of the site, in Flowood, one is located on-site, and one is a residential well located approximately 4000 feet south of the site and downgradient with respect to the groundwater flow. Preliminary data were insufficient to determine the extent of groundwater contamination and whether or not potable wells in the area have been impacted by the contaminant plume.

Surface water in the vicinity of the site exhibited lead contamination and may contain other contaminants, however, samples were not analyzed to determine the presence or level of other contaminants. Surface water flows south of the site through an area used as cattle pasture land. Cattle ingest water from Neely Creek and other surface runoff sources. Levels of lead in surface water from Neely Creek were in excess of the EPA's recommended level of 100 ppb for livestock. Although data indicates that Neely Creek and the Pearl River in the immediate site area are not used for potable supply, industrial, or recreational purposes, Neely Creek is used as a source of water for cattle.

Soil and sediments collected at depth of 0-2 feet from on-site areas had extremely high levels of lead and also contained a number of other contaminants. Sediments from Lake Marie, a small lake located immediately

east of the site and south of the Rival Manufacturing facility, also exhibited elevated lead levels in sediments (See appendix A). The site lies close to the Pearl River and Neely Creek which may flood and serve to transport contaminated soil and sediments to downstream areas, including pasture lands. Grazing cattle may ingest contaminated plants, water, sediments, or soil and bioaccumulate contaminants. Soil and sediments may serve as reservoirs of contaminants which may leach out into the local groundwater and surface water.

C. HUMAN EXPOSURE PATHWAYS

There are a number of potential pathways of human exposure to contaminants from the Flowood Site. The ingestion or absorption of contaminated groundwater, surface water, soil, sediments, or food chain entities may result in sufficient intake of contaminants to affect human health. The inhalation of contaminated fugitive dusts is also a potential pathway of human exposure.

Groundwater sampling from on-site and off-site areas indicate contamination with lead, however, there is currently no documented exposure. Although elevated levels of sodium were detected in groundwater samples this chemical is not attributable to the Flowood site and is likely to be from natural sources. Drinking water wells in the site area were sampled and found not to be contaminated.

There are no surface water intakes located near the Flowood site. The closest surface water intake is located five miles downstream on the Pearl River. Dilution of lead and sodium contamination from the site should keep concentrations below detection limits. Direct contact exposure to surface water is a pathway for human exposure, however, absorption of lead across the skin is poor.

A number of contaminants were detected in on-site and off-site soil and sediments. Levels of these contaminants are sufficiently high that ingestion of soil or sediments may be of public health concern.

Human exposure may result from the ingestion of food chain entities such as animal meat or dairy products. Cattle raised in areas adjacent to the site may ingest contaminated soil, sediments, or surface water and bioconcentrate lead. Data provided to ATSDR was insufficient to determine if meat or dairy products from cattle grazing adjacent to the site area where contaminated. In the absence of conclusive data we assume that the ingestion of contaminated food chain entities is a completed pathway of human exposure.

Air monitoring has not been conducted at the Flowood site therefore, it is not possible to evaluate this pathway based on information provided to ATDSR. Contaminant levels are sufficiently high in soil and sediments that the inhalation of contaminated fugitive dusts may pose a public health problem to site workers and nearby residents. However, the

likelihood of this pathway of human exposure is very low because the site lies in an area with abundant rainfall, dense vegetation, and a high water table.

PUBLIC HEALTH EVALUATION

The Flowood site may pose a threat to public health as a result of chronic exposure via the ingestion of lead-contaminated surface soil and surface water. A public health threat may also occur as a result of chronic direct contact with lead and PAHs contaminated sediments and the ingestion of potentially contaminated foodstuff entities.

It is not clear whether access to the Flowood site is restricted. The site lies adjacent to two active industrial facilities, the grounds of which also exhibited elevated levels of lead in surface soil. Contaminant concentrations are such that adults or children entering the site or adjacent areas may receive ingestion or direct contact exposures that, over a period of time, would result in adverse effects.

Cattle or other animals grazing in pastureland adjacent to the site may ingest sufficient quantities of lead-contaminated soil, sediments, and surface water to produce dairy products or meat with elevated levels of lead. If local farm animals are being significantly exposed to site contaminants, humans ingesting meat or milk products from these cattle may be at risk. Additional information on the potential exposure of these animals to lead is necessary to determine the current public health threat and need for additional follow-up by ATSDR.

There are several subpopulations which are particularly sensitive to lead exposure. Children's nervous systems appear to be more sensitive to lead than those of adults. Central nervous impairment may result in learning and behavioral difficulties which may be present without overt signs of lead poisoning. Individuals with hepatic or renal disorders are also sensitive to lead exposure (Baghurst et al., 1987).

CONCLUSIONS AND RECOMMENDATIONS

High levels of lead and PAHs at the Flowood site pose a potential health threat to anyone coming in frequent contact with the contaminated soils or sediments. Cattle or other animals grazing in areas of contaminated soils, sediments, or surface water may ingest sufficient quantities of contaminants to have meat or dairy products unsuitable for human consumption. Therefore, corrective actions are necessary to reduce the long term health threat posed direct contact and ingestion of lead and PAHs contaminating the site. The extent of ingestion of contaminated groundwater and foodchain entities have not been completely evaluated.

This site is of potential health concern because of human health resulting from possible exposure to hazardous substances at concentrations that may result in adverse health effects. As noted in the Public Health Section above, human exposure to lead may be occurring or have occurred in the past via groundwater.

In accordance with CERCLA as amended, the Flowood Site has been evaluated for appropriate follow-up with respect to health effects studies. Although there are indications that human exposure to on-site/off-site contaminants may be occurring and may have occurred in the past, this site is not being considered for follow-up health studies at this time because no potentially exposed population can be defined and the potential for exposure is slight and infrequent.

The following recommendations are made to protect human health:

1) Collect and analyze samples from potable supply wells located in and around the Flowood site. Install additional groundwater monitoring wells on-site and off-site areas to properly characterize the degree and extent of groundwater contamination.

2) Insure access to the Flowood site, adjacent industrial facilities, and Lake Marie, and associated drainage ways is restricted.

3) Prevent cattle or other animals serving as human food sources from grazing or drinking water from the site, Lake Marie, or drainage ways from the site.

4) Provide all remedial workers protection from exposure to site contaminants in accordance with 29 CFR Section 1910.120.

5) Implement institutional controls to prohibit installation of water supply wells on-site and in impacted areas down gradient of the site.

PREPARERS OF REPORT:

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Various studies have estimated the average daily intake of Lead for adults to be from 178 - 274 ug/day. The Environmental Protection Agency uses the average daily consumption of fish and shellfish to be 6.5 g/day. If the catfish is the only source of fish/shellfish, the average contribution from these fish would be 2.4 ug/day. Based on the levels of contamination the levels found in the catfish do not pose a significant health threat. Tracking of contaminants by on-site workers is another possible exposure pathway. Workers could potentially come in contact with high levels of contamination. Shoes and other clothing would retain some portions of the soil and contaminants and exposure could possibly result from ingestion of these contaminants if workers touched contaminated clothing and then ate, dranked or smoked. Exposure point concentration via tracking are assumed to be ten percent of the concentration for the areas near the plant facilities.

5.0 Clean-up criteria

5.1 Soil/Sediment Remediation

In order to preclude potential risk to public health through contact with contaminated soils or sediments the removal criterion could be health based. Since the public health risk analysis indicated a low risk to public health via pathways evaluated, an objective for clean-up can be based on the potential for extractability using the results of EP toxicity testing conducted during the Remedial Investigation. Extractions that exceed the 5mg/l limit occurs in samples containing greater that 500 mg/kg total Lead. A value by 500 mg/kg would therefore represent a reasonable target level for clean-up.

5.2 Surface-Water Remediation

Sampling of the surface water receiving stream showed minimal impacts from site run-off. The remediation of the contaminated soils will alleviate any future impacts to the surface water.

5.3 Ground-Water Remediation

Ground-water sampling did not show impacts to ground water from the waste material. Remediation of contaminated soils will eliminate future migration pathways.

6.0 Alternatives Evaluation

The purpose of the remedial action at the Flowood site is to mitigate and minimize contamination in the soils and sediments, and to reduce current and future potential risks to human health and the environment. The following cleanup objectives were determined based on regulatory requirements and levels of contamination found at the site:

TABLE 2
LIST OF APPLICABLE OR RELEVANT AND APPROPRIATE
REQUIREMENTS (ARARS) FOR THE FLOWOOD SITE

ARAR Category	Criteria/Comments
Chemical Specific	
Safe Drinking Water Act (SDWA) Maximum Contaminant Levels (MCL)	May be applicable for following criteria: - Barium 1,000 ug/L - Cadmium 10 ug/L - Lead 50 ug/L
Federal Water Quality Criteria (FWQC) (freshwater)	- Cadmium 0.4 ug/L - Lead 0.6 ug/L
Mississippi Ambient Water Quality Criteria	Probably not applicable since federal criteria are more stringent.
Action Specific	
Resource Conservation and Recovery Act (RCRA) and the Hazardous and Solid Waste Amendments of 1984 (HSWA)	Potentially relevant and appropriate - To cap design and on-site landfill design for RCRA hazardous wastes. - To ground-water monitoring and post closure care for all alternatives leaving wastes on-site. - To chemical fixation technologies with regard to decharacterization of wastes. - To disposal of the hazardous wastes at an off site RCRA landfill.
Comprehensive Environemntal Response and Liability Act (CERCLA) (1980) and Superfund Amendments and Reauthorization Act (SARA) (1986)	Applicable to the Flowood site for selection of remedy as well as all other activities associated with the remedial investigation and feasibility study. Requires reassessment of the site every five years for remedies selected that retain hazardous wastes on site.
U.S. Department of Transportation and Mississippi Public Service Commission Regulations (40 CFR263, 45 FR12743, 45 FR33151, 45 FR85022, 45 FR86908, 45 FR86973 and 48 FR14153)	Potentially applicable for transportation of hazardous materials for disposal at an off-site facility.

TABLE 2 --Continued
LIST OF APPLICABLE OR RELEVANT AND APPROPRIATE
REQUIREMENTS (ARARS) FOR THE FLOWOOD SITE

ARAR Category	Criteria/Comments
Action Specific continued	
Mississippi Pollution Control Permit Board Regulations on Landfills	Potentially relevant and appropriate for siting of landfill under Alternative Nos. 4 and 5.
Pretreatment of Discharges to Publicly Owned Treatment Works (Clean Water Act)	Potentially applicable to wastewater discharges from dredging and decontamination activities.
Location Specific	
FEMA Regulations and RCRA Floodplain Criterion [44 CFR Parts 59-77 and 40 CFR 264.18(b)]	Potentially relevant and appropriate for consideration in on-site landfill and capping alternatives.

TABLE 3

PRELIMINARY SCREENING OF TREATMENT AND DISPOSAL TECHNOLOGIES

Technology	Description	Remarks	Possibly Applicable	Not Applicable
Excavation	Physical removal of contaminated materials for disposal or treatment.	May create temporary disturbance to the area. Proven technology for source control	X	
Capping	Barrier placed on top of exposed waste materials. Usually constructed of clay.	Requires limitation on land usage. Generally requires flow control. Provides for separation of contaminated material from contact with transport mechanisms. Requires long term monitoring and maintenance.	X	
Fixation				
- Resin Encapsulation	The waste is incorporated in solid form by resin coating to reduce leachate generation and to make it more suitable for landfilling or long-term storage.	Most practical for small quantities of highly toxic waste due to cost. The characteristics of the site waste sediments and environmental setting do not justify this approach.		X
- Chemical Encapsulation	Process to mix chemical wastes with inert materials (e.g., lime and fly ash or cement sodium silicate) to fix the waste solubilty and leachability in a dry aggregate or solid material for landfilling.	Primarily applicable to acid-type wastes, scrubber sludges, and inorganic wastes.	X	

TABLE 3 Continued
PRELIMINARY SCREENING OF TREATMENT AND DISPOSAL TECHNOLOGIES

Technology	Description	Remarks	Possibly Applicable	Not Applicable
Waste Piles	Surface storage of waste materials.	Requires monitoring and maintenance. Generally not a long-term solution. No areas on-site compatible for storage of large volumes with adequate source control.		X
Incineration	Combustion/oxidation of contaminated materials at very high temperatures.	Not applicable to these inorganic wastes. Waste destruction applicable mostly to organic compounds.		X
Insitu Vitrification	Method of melting waste soils to form a glass material in situ by using inductive heating with high energy electrodes	Technology unproven in field applications. Vitrified material has significantly reduced toxicity. Costs would be high for widespread contamination and high moisture/ shallow groundwater level.		X
Solvent Flushing	Percolation of solvent through contaminated soils which can achieve two purposes: waste recovery for surface treatment or solubilization of adsorbed compounds to enhance in-situ treatment. Recovery of solvent is accomplished through a well point system.	May work for removal of organic contamination but consideration must be given to potential pollution from the solvent. Not applicable to inorganic wastes.		X

TABLE 3 Continued

PRELIMINARY SCREENING OF TREATMENT AND DISPOSAL TECHNOLOGIES

Technology	Description	Remarks	Possibly Applicable	Not Applicable
Soil Wash	Stripping of metals from soils by use of nitric acid or complexation solvents.	Possible reduction in waste sediment volume or reduction in toxicity. Requires treatment and disposal of washing fluid.	X	
Biodegradation	In-situ treatment using biological methods (e.g., microorganisms) for oily sludges and some organic wastes.	Not applicable to inorganic wastes.		X
Landfill	Waste materials are buried in an area designed to receive hazardous waste. Materials may be drummed or disposed of in bulk.	Primarily for disposal of solid materials such as contaminated soils. Requires long-term management, monitoring and liability. May be on-site or off-site.	X	
Chemical Treatment	Represents various oxidation, reduction or pH adjustment methods to effect the removal of soluble metals from water through precipitation.	Effective for removal of some soluble metals. Bench scale/ pilot testing required. May be used in conjunction with disposal of remediation generated waste water.	X	
Coagulation/ Flocculation	Used to bring small insoluble suspended particles together and allow agglomeration for enhanced settling. Usually requires the use of coagulant and/or flocculant aids.	Useful for removal of suspended solids, such as fine colloidal clay particles, from water. May be useful for removal of suspended components from generated wastewater.	X	

TABLE 3 Continued
PRELIMINARY SCREENING OF TREATMENT AND DISPOSAL TECHNOLOGIES

Technology	Description	Remarks	Possibly Applicable	Not Applicable
Sedimentation	Removal of suspended components from aqueous solution by gravity settling. Typically follows precipitation or coagulation and flocculation.	Applicable to waste streams with suspended solids.	X	
Filtration	Used to remove suspended solids from solution by forcing the liquid through a porous media (filter).	May be used following sedimentation, in conjunction with coagulation and flocculation or used alone.	X	
Activated Carbon Adsorption	Process where contaminants accumulate on an adsorbent surface due to physical or chemical forces.	Used primarily to remove organic compounds from aqueous waste. Not applicable to soluble metals.		X
Dissolved Air Flotation	Utilizes one of various methods to introduce minute bubbles which aid in flotation of insoluble contaminants. Floating waste is then removed from the surface and disposed.	Generally provides little advantage over pretreatment and sedimentation for suspended inorganic solids.		X
Ion Exchange	Process to replace unwanted ions (primarily inorganics) with innocuous resin ions.	Most commonly used for removal of metals from aqueous solutions. No significant advantage over filtration/sedimentation in large volume application considering cost.		X

TABLE 3 Continued

PRELIMINARY SCREENING OF TREATMENT AND DISPOSAL TECHNOLOGIES

Technology	Description	Remarks	Possibly Applicable	Not Applicable
Air Stripping	Removes volatile organic and some inorganic contaminants from an aqueous waste stream. Dissolved gases are transferred to air streams and are then typically treated by carbon adsorption or thermal oxidation.	Not applicable to non-volatile inorganic contaminants.		X
Steam Stripping	Similar to air stripping except steam is used as the stripping gas.	Not applicable to non-volatile inorganic contaminants.		X
Reverse Osmosis	Concentrates inorganic salts and some organics by forcing the solvent through a semi-permeable membrane which acts as a filter to remove TDS.	Primary uses have been a pretreatment step prior to ion-exchange or in recovery of reusable impurities. No advantages over sedimentation/filtration for large volume application.		X
Electrodialysis	An electrophoresis method of separating charged ions from an aqueous solution under action of an electric field.	Can effect removal of metals but is energy intensive and does not produce waste streams with very low concentrations.		X
Surface Impoundment	Waste liquids and sludges are disposed of in a lagoon type facility designed to receive hazardous waste.	Requires long-term management, monitoring, liability and high cost. Generally, not a long-term solution.		X

TABLE 3 Continued

PRELIMINARY SCREENING OF TREATMENT AND DISPOSAL TECHNOLOGIES

Technology	Description	Remarks	Possibly Applicable	Not Applicable
Flow Diversion	Typically a channel, dike, berm etc. to intercept run-off, reduce slope length, and isolate wastes from surface water impacts.	Aims at eliminating run-on and maximizing runoff to avoid leachate generation and migration. Could be implemented for control of erosional induced contaminant transport.	X	

* To protect the public health and environment from exposure to contaminated soils through inhalation, direct contact, and surface run-off.

* To prevent the spread of contaminants to other soils.

* To prevent contamination of groundwater.

* Cleanup goals were developed for the contaminated soil at the Flowood site based on applicable or relevant and appropriate requirements (ARARs) of federal and state statutes or other guidelines (table 2).

An initial screening of possible technologies was performed to identify those which best meet the criteria of Section 300.68 of the National Contingency Plan (NCP) (table 3). Following the initial screening of technologies, potential remedial action alternatives were identified and analyzed. These alternatives were screened and those which best satisfied the cleanup objectives, while also being cost effective and technically feasible were developed further.

Table 4 summarizes the results of the screening process. Each of the remaining alternatives for soils and sediment remediation were evaluated based upon cost, technical feasibility, institutional requirements, and degree of protection of public health and the environment.

6.1 Alternatives

Alternative 1: No Action

The risk analysis conducted as part of the remedial investigation showed low risk to public health from the site conditions presently existing. Contaminant toxicity is not reduced in the absence of treatment. Given the contaminant concentrations at the site, no action does not provide permanent source control.

Alternative 2: Excavation, solidification
(if necessary for landfilling)
Backfill/regrade with clean soil,
Landfill (off-site permitted)

This alternative addresses excavation and off-site disposal of contaminated materials. The volume of material to excavate from each area was estimated using aerial photographs, ground observations and measurements and sampling results from the Remedial Investigation and from other investigations previously conducted at the site. The criteria used to estimate the soil and sediments to be removed was a total Lead concentration of 500 ppm or greater based on EP toxicity levels. The volume of material to be removed is approximately 6,000 cubic yards.

The excavated areas would be backfilled with clean soil. The filled areas will be graded to control drainage. The drainage west of the inner levee will be redirected around the slough and lagoon as part of the dewatering controls for excavation.

Offsite disposal will be conducted through transport to a secure landfill.

Alternative 3: Excavation (except Lake Marie sediments)
Cap corner of Lake
Backfill/regrade with clean soil
Landfill (off-site permitted)
Site Monitoring

This alternative incorporates the same excavation and disposal considerations discussed for alternative 2, except for sediments in Lake Marie. The sediments in Lake Marie will be left in place and capped. The surface water and groundwater will be monitored to assess any potential migration from the capped sediments. Monitoring will be conducted quarterly for the first year and annually until the point of reevaluation in five years.

Alternative 4: Excavation (sediments/soils from all impated areas)
Solidification (if necessary for landfilling)
Backfill/regrade with clean soil
Landfill (on-site, designed)
Monitor Landfill

This alternative will incorporate all of the considerations in alternative 2 with the exception of transport for disposal offsite. In this alternative, an on-site landfill will be constructed for disposal of the wastes.

The on-site landfill will be constructed mostly above ground because of the relatively shallow water table. Construction will include relatively impermeable layers of clay and synthetic liners. Leachate will be pumped to the nearest sewer line from a collection sump.

This alternative will require long term maintenance of the landfill and ground water monitoring.

Alternative 5: Excavation (except Lake Marie sediments)
Cap corner of lake
Backfill/regrade with clean soil
Landfill (on-site, designed)
Monitor Landfill and Surface/Groundwater around Lake Marie

This alternative would have the same considerations as alternative 4 except for the sediments in Lake Marie will be left in place and capped. Site monitoring for the capped sediments would be conducted as described in alternative 3.

TABLE 4
REMEDIAL ACTION ALTERNATIVES AND COST

Alternative No.	Description	Summary of Impacts to Environment, Public Health and Welfare	Adequacy for Protection of Environment, Public Health and Welfare	Cost Range (thousand $)
1	No action except long term monitoring.	No significant impacts identified in the remedial investigation for this baseline condition. Monitoring would be implemented to ensure potential future variations would be detected.	Adequate for protection of public health and welfare based on remedial investigation risk assessment. Potential may exist for impacts to ambient water quality.	200-300
2	Excavation (sediments/soils from all impacted areas). Solidification (if necessary for landfilling). Backfill/regrade with clean soil. Landfill (off-site permitted).	Some disruption of biota in vicinity of excavation due to access clearing and transportation of materials. Clearing of about 2 acres of forested area for excavation of slough. Additional disruption for redirection of drainage (about 3,000 to 5,000 feet). Temporary resuspension of contaminated sediments from dredging in Lake Marie may occur but will be mitigated by silt curtains or sheet piling. No impacts to public health and welfare.	Removes potential for off-site impacts from contaminated surface runoff and leachate generation. Adequate protection will be provided.	3,000-4,000
3	Excavation (except Lake Marie sediments). Cap corner of Lake Marie. Backfill/regrade with clean soil. Landfill (off-site, permitted). Site Monitoring	Same as for Alternative 2 without potential impacts to Lake Marie.	Same adequacy for protection of potential off-site receptors as Alternative 2.	2,000-4,000
4	Excavation (sediments/soils from all impacted areas). Solidification (if necessary for landfilling). Backfill/regrade with clean soil. Landfill (on-site, designed). Monitor landfill.	Same general impacts as for Alternative 2. Would have additional impacts from clearing of area for landfill construction. No impacts to public health and welfare.	Same adequacy for protection as Alternative 3.	2,000-4,000
5	Excavation (except Lake Marie sediments). Cap corner of Lake Marie. Backfill/regrade with clean soil. Landfill (on-site, designed). Monitor landfill and Surface/ Ground Water around Lake Marie.	Same as for Alternative 4 without potential impacts to Lake Marie.	Same adquacy for protection as Alternative 2.	1,000-2,000

TABLE 4 cont.

REMEDIAL ACTION ALTERNATIVES AND COST

Alternative No.	Description	Summary of Impacts to Environment, Public Health and Welfare	Adequacy for Protection of Environment, Public Health and Welfare	Cost Range (thousand $)
6	Excavation (cow pasture, wash area & drainage ditches to Lake Marie & behind Stone Container). Relocate excavated sediments to slough. Capping (Lagoon & slough, Lake Marie corner) Backfill/regrade as necessary. Flow Diversion/Run-on Control. Site monitoring.	Some disruption for access as for Alternative 2. Minimal disruption to the area for placement of cap. Will require redirection of drainage patterns for run-on/run-off control. No impacts to public health and welfare.	Isolates potential source of contaminated surface runoff and reduces potential for leachate generation from disposal areas. Adequate protection will be provided.	500-1,000
7	Excavation (sediments/soils from all impacted areas). Chemical fixation. Backfill with fixed sediments (into slough/lagoon area) Cap as necessary with clean soils. Site Monitoring.	Same as for Alternative 2.	Reduces toxicity and mobility of hazardous waste sediments and constituents. Provides adequate protection.	2,000-4,000
8	Excavation (sediments/soils from all impacted areas). Soil washing. On-site backfill of non-hazardous washed sediments into excavated areas. Landfill of hazardous washed sediments (off-site permitted).	Same as for Alternative 2.	Procedure increases the solubility of any contaminants remaining in the washed soils. Copious amounts of wash water with soluble, complexed metals must be treated and disposed. Risks of increasing mobility may outweigh benefits of reduced volume and/or toxicity.	2,000-4,000

Alternative 6: Excavation (cow pasture, wash area and drainage ditches to Lake Marie and behind Stone Container)
Relocate excavated sediments to slough
Capping (Lagoon and slough, Lake Marie corner)
Backfill/regrade as necessary
Flow Diversion/Run on Control
Site Monitoring

This alternative would provide source control through a combination of excavation, on-site relocation of wastes and capping.

The slough and lagoon waste materials are situated in a fairly stable environment. These materials do not show evidence of leaching contaminants to ground water. The slough and lagoon (with relocated materials) would be covered by a cap composed of a synthetic membrane, clay layer and sandy soil top soil layer.

The contaminated sediments remaining in the northwest corner of Lake Marie will be covered by placement of two to three feet of clayey soils on top of the sediments. Control of run on into that corner of the lake will be effected by grading the backfill in the ditch and surrounding area.

Groundwater will be monitored in the vicinity of the capped slough and lake corner and surface water will be monitored in drainages from Lake Marie and Neeley Creek.

Alternative 7 Excavation (sediments/soils from all impacted areas)
Chemical Fixation
Backfill with fixed Sediments (into slough/lagoon area)
Cap as necessary with clean soil
Site Monitoring

Materials from the various locations will be excavated as described in alternative 2 and subjected to the solidification and stabilization process. This process has the ability to stabilize materials containing high concentrations of heavy metals. Most processes use two inorganic chemical agents which react with polyvalent metal ions to form a chemically and mechanically stable solid. The process is based on reations between soluble silicates and silicate setting agents under controlled conditions to produce a solid matrix. Reagents commonly used include Sodium silicate, Fly ash, Kiln dust and Portland cement (as they setting agent).

The resulting solid will be redeposited in the slough/lagoon area, covered with a soil cap with drainage being redirected to prevent run on and erosion.

7.0 Recommended Alternative

7.1 Description of Recommended Remedy

The recommended alternative for remediation of soil and sediment contamination at the Flowood site includes solidification/stabilization and backfilling of stabilized material on the site.

Contaminated soil will undergo the stabilization/solidification process. Following stabilization, the soil/sediment will be placed into the excavated slough area, be covered with six inches of top soil and then seeded to provide vegetative cover. At selected intervals, during excavation, soil samples will be collected and analyzed to determine the limits of excavation based on the clean-up level in section 5.1. It should be noted that the action level is a preliminary goal and is subject to refinement during remedial design.

This recommended alternative meets the requirements of the National Oil and Hazardous Substances Contingency Plan (NCP), 40 CFR, 300.69(j) and the Superfund Amendments and Reauthorization Act 1986 (SARA). This alternative permanently and significantly reduces the mobility of hazardous contaminants in the soil and sediments.

The alternative is cost-effective when compared with other applicable alternatives. The technology has been proven and the alternative is implementable at the site. It is estimated this alternative could be implemented within twelve months.

7.2 Operation and Maintenance

No long-term operation and maintenance requirements are expected for this alternative.

Air monitoring during construction would be necessary to ensure that a safe working environment is maintained and that no threat to the public health or the environment is created by air emissions during construction.

7.3 Cost of Recommended Alternative

Solidification/stabilization is expected to have a total present worth cost of approximately 2,000,000. This estimate assumes a cost of $80 per cubic yard for solidification/stabilization bringing the total cost to approximately 1,975,000. Monitoring cost of 25,000 will be incurred for the first year.

7.4 Preliminary Schedule of Activities

The schedule of this alternative must provide for the immediate vegetation of the topsoil. Seeding is usually most successful in the late summer or early fall. Also it is preferable for excavation to be performed during a time of year when the groundwater table is low. Allowing six months for design and contractor selection, it is anticipated that this alternative could be completed in approximately thirteen months. Two months would be required to prepare the site (excavation of contaminated soil/sediment

(s/s) and to mobilize the solidification/stabilization equipment. One additional month would be necessary for the s/s of the soil and three months to complete backfilling of the lagoon and vegetation of the topsoil. This schedule assumes that weather does not cause extreme delays.

7.5 Consistency with other Environmental Laws

Remedial actions performed under CERCLA must comply with all applicable Federal and State regulations. All alternatives considered for the Flowood site were evaluated on the basis of the degree to which they complied with these regulations. The recommended alternatives were found to meet or exceed all applicable environmental laws, as discussed below:

* Resource Conservation and Recovery Act (RCRA)
  The recommended remedy for soil/sediment contamination is not regulated under RCRA, therefore it does not apply.

* Clean Water Act
  One area exhibited a trace amount of contamination in the groundwater. The soil remediation will result in an end to the water contamination.

* Flood Plan Management Executive Order 11988
  The CERCLA area lies within the Pearl River flood plain and the stabilization process will be designed to meet the requirements of E. O. 11988.

* Department of Transportation
  Transportation of hazardous substances is regulated by the Department of Transportation (DOT). No off-site disposal is anticipated at this site, therefore no DOT regulations will apply.

* Occupational Safety and Health Administration
  A health and safety plan will be developed during remedial design and will be followed during field activities to assure that regulations of the Occupational Safety and Health Administration are followed.

* Safe Drinking Water Act
  Maximum Contaminant Levels (MCLs) established under the Safe Drinking Water Act were found to be relevant and appropriate. Although contamination was not found in the groundwater The site will be monitored to assure compliance during the remedial action.

* National Pollutant Discharge Elimination System
  The chosen alternative does not include any discharges, therefore this does not apply.

* Endangered Species Act
  The recommended remedial alternative is protective of species listed as endangered or threatened under the Endangered Species Act. Requirements of the Interagency Section 7 Consultation Process, 50 CFR, Part 402, will be meet. The Department of the Interior, Fish and

Wildlife Service, will be consulted during remedial design to assure that any endangered or threatened species, if identified, are not adversely impacted by implementation of this remedy.

* Ambient Air Quality Standards
The soil/sediment treatment system will be designed and monitored to assure that air emissions meet all State and Federal standards.

* State Drinking Water Standards
Maximum contaminant levels established by the State of Mississippi regulations are adopted from those of the Federal Safe Drinking Water Act and will be met.

8.0 Community Relations

The following community relations activities were performed at the Flowood site.

*Community Relations Plan finalized June 1985.

*An information repository was established in June at:
Pearl Public Library (601) 932-2562
3470 Highway 80 East
Pearl, Mississippi 39208

Contact: Ms. Janice Byrd, Librarian

*A press release providing an opportunity for a public meeting and information on the opening of the public comment period was issued May 11, 1988.

*Public notice providing the same information ran in the May 18, 1988 and the June 22, 1988 edition of the Rankin County News, a weekly newspaper.

*Information on the opening of the public comment period and opportunity for a public meeting was also sent to the interested parties on the mailing list.

8.1 Key Community Concerns

The primary concern expressed by the local environmental interest groups during the development of the Flowood site Community Relations Plan was the possibility of contamination of the area groundwater.

The public did not show an interest in a public meeting. Opposition form the public is not expected if the recommended remedial alternative is implemented.

A Responsiveness Summary has been prepared to summarize community concerns and EPA's community relations activities.

FLOWOOD SITE, FLOWOOD, MISSISSIPPI

RESPONSIVENESS SUMMARY

This community relations responsiveness summary is divided into the following sections:

Section I. Overview. This section discusses EPA's preferred alternative for remedial action and likely public reaction to this alternative.

Section II. Background on Community Involvement and Concerns. This section provides a brief history of community interest and concerns raised during remedial planning activities at the Flowood site.

Section III. Summary of Major Comments Received During the Public Comment Period and the EPA Responses to the Comments. Both the comment and EPA's response are provided.

I. Overview

At the beginning of the public comment period, EPA announced its preferred alternative to the public. This alternative addresses the soil/sediment contamination problem a the site. the preferred alternative specified in the Record of Decision (ROD) is the solidification/stabilization of the Lead contaminated areas.

The community favors remediation at the site.

II. Background on Community Involvement and Concerns

Key Issues and Potential Community Concerns

The nearest single residence to the Flowood site is more than a half mile south of the site, and the closest group of residences is on the opposite side of Highway 468, almost a mile south of the site. State officials have concluded that because the Flowood site is somewhat isolated from the public, greater citizen involvement is not likely without a major catalyst for increased community concern. Continued coverage of site activities in the Jackson press, however, could provide the impetus for citizen involvement, particularly if significant contamination is discovered beyond the immediate site area. Moreover, the proximity of the site to Jackson and the presence of a second Superfund site in Flowood raises the possibility that regional environmental groups and/or area residents may become more concerned about hazardous waste problems in the Rankin County area.

These issues and other specific concerns regarding the Flowood site are discussed in detail below.

a) **Soil and surface water contamination.** Even though there are no residential properties adjacent to the Flowood site, the discovery of significant additional soil contamination at the site could create significant community concern. This concern is particularly likely because the Flowood site is in an area that floods frequently, increasing the possibility that contaminants may have been carried a significant distance off-site. Similarly, any findings affecting area surface water, especially the Pearl River, are likely to be a major concern to area residents. MDNR officials contacted during development of this community relations plan stated that any contamination of the Pearl River because of activities at the Flowood site would create only limited concern because the site is downstream of Jackson. Nevertheless, environmental groups in the area would probably be greatly concerned because the Pearl River is heavily used for recreational purposes, even in marshy areas like those surrounding the Flowood site.

b) **Ground water contamination.** No ground water contamination has been discovered at the Flowood site at present. EPA and MDNR officials, however, are concerned that leaching of contaminants may affect area ground water, particularly given that the disposal activities at the site responsible for the soil contamination have occurred for such a long time Currently, EPA plans to sample private industrial and residential wells within a one mile radius of the site during the remedial investigation. Any sampling results revealing that ground water contamination has occurred would be a cause of concern to area residents and local officials, suggesting that the contamination problem at the Flowood site may be more extensive than originally was thought. Area environmental groups have already expressed particular concern about the human health threats of ground water contamination due to activities at the Flowood site.

c) **Hazardous waste problems in Flowood.** The Flowood site is one of two hazardous waste sites in the town of Flowood currently undergoing Superfund response activities. While no connection exists between activities at the two sites, it is possible that overall community concern regarding hazardous waste problems in the area will increase because of this situation. In particular, area environmental groups may choose to monitor activities more closely at the Flowood and Sonford sites, thus increasing EPA's visibility at both sites. These conditions increase the importance of EPA providing accurate and timely information to the local community throughout the remedial investigation and feasibility study at the Flowood site. In additions, efforts to maintain the credibility the Agency currently enjoys in the Flowood community will be important to the success of the community relations program.

III. Summary of Public Comments Received During Public Comment Period and Agency Responses.

1. Comments raised during the Flowood public comment period are summarized briefly below. The comment period was held from May 18 to June 29, 1988 to receive comments from the public on the

draft feasibility study. The only set of comments received were from the Potential Responsible Party.

A. Alternative 7 in the Feasibility Study does not represent the recommended alternative presented by Region IV personnel or the language in the Public Notice.
EPA Response: EPA followed up this concern by telephone explaining the presentation was to give them a visual idea of what was involved and the exact mixture would be decided on a site by site basis. Alternative 7 in the Feasibility Study states a process similar to a Chemfix process will be used in which the materials are chemically bonded in a cement and silicate type matrix. It was never suggested that a mixture of cement alone was the only method accepted.

B. The alternative selected must be protective of public health and cost effective. In that regard, the Feasibility Study included Risk Assessment of each alternative studied, was approved and accepted by the USEPA. The results showed no public health risk for any alternative, including No Action.

EPA Response: The Feasibility Study and Risk Assessment showed a potential Environmental threat based on the high concentrations of Lead contaminated soil/sediment areas.

2. Remaining Public Concerns

No remaining concerns have been identified. The local public did not submitt comments, oral or written, nor did they request a public meeting.

3. Community Relations activities to date are listed in the ROD.

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

EPA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
MS	0008158685

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
MS STEEL DIVISION OF MAGNA CORP.	FOURTH STREET

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
FLOWOOD	MS	39208	RANKIN	61	03

09 COORDINATES LATITUDE	LONGITUDE
32 18 48.0	090 06 52.5

10 DIRECTIONS TO SITE (Starting from nearest public road)
U.S. HIGHWAY 80 TO STATE HWY. 468 NORTH 2.5 MILES TO FOURTH STREET. 468 BECOMES FLOWOOD DRIVE. SITE IS AT CORNER OF FOURTH STREET & FLOWOOD DRIVE.

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, mailing, residential)
MS STEEL DIVISION OF MAGNA CORP.	P.O. BOX 5780

03 CITY	04 STATE	05 ZIP CODE	06 TELEPHONE NUMBER
JACKSON	MS	39208	(601) 939-1623

07 OPERATOR (If known and different from owner)	08 STREET (Business, mailing, residential)
SAME	

09 CITY	10 STATE	11 ZIP CODE	12 TELEPHONE NUMBER
			( )

13 TYPE OF OWNERSHIP (Check one)
☑ A. PRIVATE ☐ B. FEDERAL: _____ (Agency name) ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL
☐ F. OTHER: _____ (Specify) ☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)
☑ A. RCRA 3001 DATE RECEIVED: 11 / 19 / 80 (MONTH DAY YEAR) ☐ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: / / (MONTH DAY YEAR) ☐ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION
☑ YES DATE 8 / 28 / 81 (MONTH DAY YEAR)
☐ NO

BY (Check all that apply)
☐ A. EPA ☐ B. EPA CONTRACTOR ☑ C. STATE ☐ D. OTHER CONTRACTOR
☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: _____ (Specify)
CONTRACTOR NAME(S): _____

02 SITE STATUS (Check one)	03 YEARS OF OPERATION
☑ A. ACTIVE ☐ B. INACTIVE ☐ C. UNKNOWN	1957 (BEGINNING YEAR) / _____ (ENDING YEAR) ☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED
BAG HOUSE DUST ~~(EP TOXIC)~~ (D008)

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION
THERE WAS A WASTE PILE OF BAG HOUSE DUST. WAS EP TOXIC. HAS BEEN CLEANED UP AND SOIL UNDER PILE TESTED. NOT CONTAMINATED. SLAG HAS ALSO BEEN FOUND TO NOT BE TOXIC. DUST IS REMOVED AS GENERATED. HAVE WITHDRAWN INTERIM STATUS. MONITORING WELLS HAVE ALSO BEEN INSTALLED.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)
☐ A. HIGH (Inspection required promptly) ☐ B. MEDIUM (Inspection required) ☐ C. LOW (Inspect on the available basis) ☑ D. NONE (No further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NUMBER
JIM HARDAGE	MS BOPC	(601) 961-5171

04 PERSON RESPONSIBLE FOR ASSESSMENT	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NUMBER	08 DATE
STEVEN M. HORNUNG		EPS	(601) 922-8242	3 / 27 / 84 (MONTH DAY YEAR)

EPA FORM 2070-12 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
MS	0608158685

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☐ A. GROUNDWATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ B. SURFACE WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ C. CONTAMINATION OF AIR — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ E. DIRECT CONTACT — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ F. CONTAMINATION OF SOIL — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: _____ (Acres) 04 NARRATIVE DESCRIPTION

01 ☐ G. DRINKING WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ H. WORKER EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ I. POPULATION EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

BUREAU OF POLLUTION CONTRO

SAMPLE REQUEST FORM

Lab Bench No. 1311

GENERAL INFORMATION: Facility Name Mississippi Steel Company

County Code Rankin NPDES Permit No.

Discharge No. Date Requested

Sample Point Identification Holding pond discharge

Requested By Steve Spengler Data To Steve Spengler

Type of Sample: Grab ( ) Composite (Flow) (Time) Other ( )

II. SAMPLE IDENTIFICATION:

Environment Condition Cool and clear Collected By Mitch Walker

Where Taken

	Type	Parameters	Preservative	Date	Time
1.	Grab	Oil & Grease	5 ml H_2SO_4	11-10-82	920
2.	Grab	T. Metals	5 ml HNO_3	11-10-82	920
3.	Grab	TSS		11-10-82	920
4.	Grab	Hex. Chromium		11-10-82	920
5.					

I. FIELD:

Analysis	Computer Code	Request	Results	Analyst	Date
pH	(000400)	(X)	7.65	MW	11-10-82
D.O.	(000300)	( )			
Temperature	(000010)	(X)	NOT TAKEN	MW	11-10-82
Residual Chlorine	(050060)	( )			
Flow	(074060)	( )			

V. TRANSPORTATION OF SAMPLE: Bus ( ) RO Vehicle ( ) Other ( )

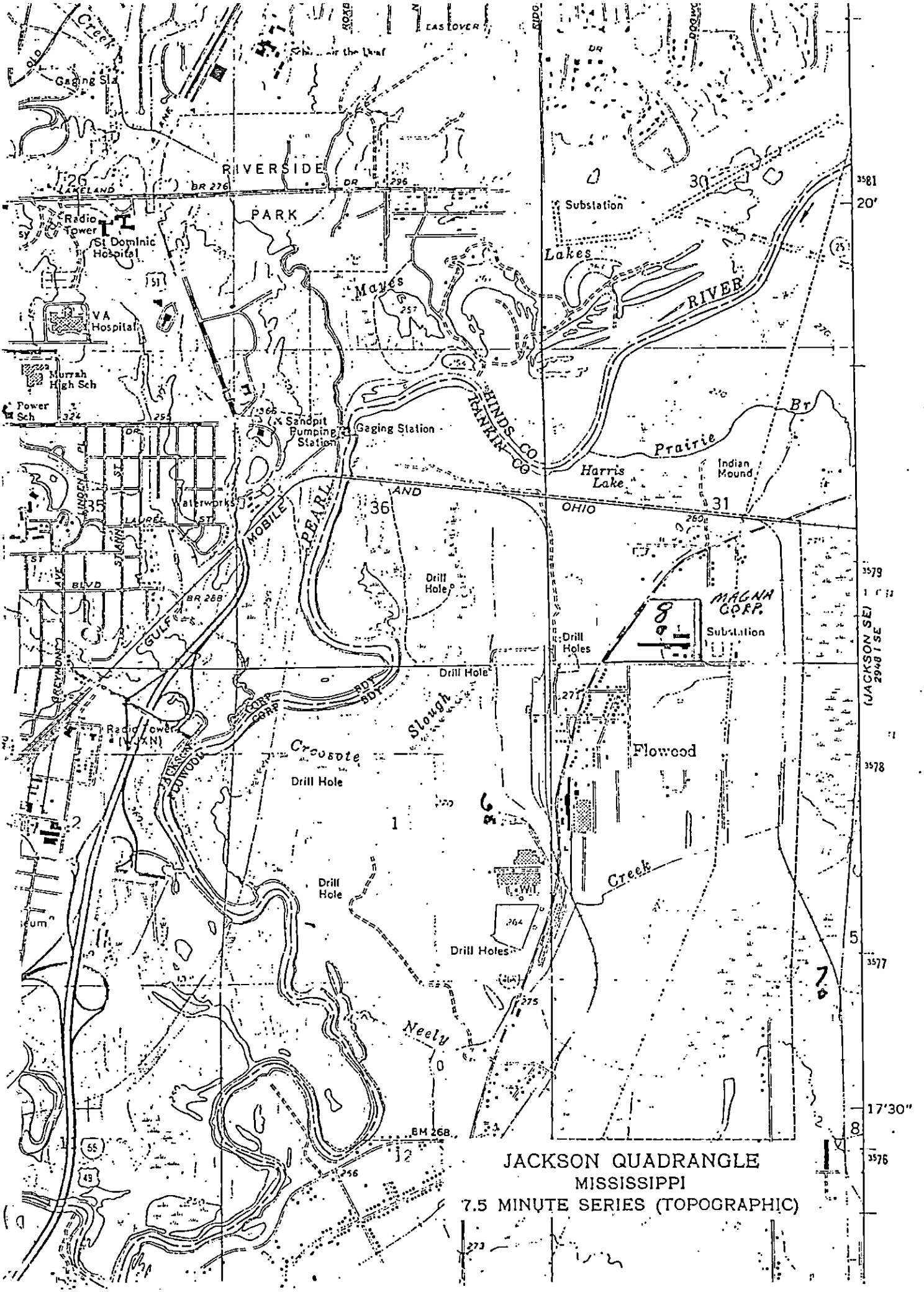
V. LABORATORY: Received By Gloria Tatum Date 11-10-82 Time 0952

Recorded By Dorothy Lewis Date Sent to State Office 12-21-82

Analysis	Computer Code	Request	Result		Analyst	Date Measured
BOD_5	(000310)	( )		mg/l		*
COD	(000340)	( )		mg/l		
TOC	(000680)	( )		mg/l		
Suspended Solids	(099000)	(X)	27	mg/l	DK	11-16-82
TKN	(000625)	( )		mg/l		
Ammonia-N	(000610)	( )		mg/l		
Fecal Coliform(1)	(074055)	( )		colonies/100 ml		*
Fecal Coliform(2)	(074055)	( )		colonies/100 ml		*
Total Phosphorus	(000665)	( )		mg/l		
Oil and Grease(1)	(000550)	(X)	6.8	mg/l	GT	12-8-82
Oil and Grease(2)	(000550)	( )		mg/l		
Chlorides	(099016)	( )		mg/l		
Phenol	(032730)	( )		mg/l		
Total Chromium	(001034)	(X)	<0.02	mg/l	MDP	12-16-82
Hex. Chromium	(001032)	(X)	NONE DETECTED	mg/l		
Zinc	(001092)	(X)	0.03	mg/l	MDP	12-14-82
Copper	(001042)	(X)	0.10	mg/l	MDP	12-14-82
Lead	(017501)	(X)	<0.10	mg/l	MDP	12-13-82
Cyanide	(000722)	( )		mg/l		
Cadmium		(X)	<0.01	mg/l	MDP	12-14-82
Nickel		(X)	0.04	mg/l	MDP	12-16-82
		( )				
		( )				
		( )				
		( )				
		( )				
		( )				
		( )				
		( )				

Remarks

*Date of Test Initiation


RIVERSIDE
PARK
Radio Tower
St Dominic Hospital
VA Hospital
Murrah High Sch
Power Sch
Gaging Sta
Substation
Lakes
Mayes
RIVER
Sandpit Pumping Station
Gaging Station
HINDS CO
RANKIN CO
Prairie
Harris Lake
Indian Mound
OHIO
PEARL
MOBILE
GULF
Drill Hole
Drill Holes
MAGNA CORP.
Substation
Slough
Crossote
Flowood
Creek
Neely
BM 268
JACKSON QUADRANGLE
MISSISSIPPI
7.5 MINUTE SERIES (TOPOGRAPHIC)
(JACKSON SE)
2948 I SE
17'30"

2. PROJECT MANAGEMENT SUM

Site Name: MSD008158685

Site Number: MS STEEL DIVISION OF MAGNA CORP

Owner: MS STEEL DIVISION OF MAGNA CORP

Operator:

Site Status: [X] Active [ ] Inactive [ ] Unknown

Priority: [ ] High [ ] Medium [ ] Low [X] None

3. FINAL DISPOSITION

I. EPS Final Review - Date: 3/30/84
Comments:

Site Inspection Required [ ] Yes [X] No

II. MS BOPC Review - Date:
Comments: 5/3/84 J. Handley
5/31/84 Reviewed for quad map

Follow-up Action Required [ ] Yes [ ] No

III. Final Disposition:
Review & revise Date:
Edited & correct Date:
Transmitted Date:
File close-out Date:
Initiate site inspection Date:

4. ADDITIONAL COMMENTS (ONGOING & FINAL)

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
EPS FORM 3012-III

INDUSTRIAL NARRATIVE SHEET

1. Site Identification:

Site number: MSD008158685

Site name: MS Steel Division of Magna Corp.

Site county: Rankin

. Industrial Narrative Summary:

Company Name: MS Steel Division of Magna Corp.

Address: P. O. Box 4780
Jackson, MS 39208

Telephone No.: 601-939-1623

Contact: Mr. Norman Wantland

Discussion: MS Steel Division of Magna Corp. in Flowood, MS, produces steel reinforcing bars and other bar mill products in the low carbon range. Steel to produce these bars is melted in their electric arc FCE and cast into billets. The bag house dust that is produced is hazardous and is currently removed as generated and is landfilled in a hazardus waste landfill. Chemical Waste Management was being used, now BFI in Louisiana is used. The dust was piled on the property. This has been cleaned up and monitoring wells have been installed. Their slag pile has been determined to be non-hazardous. The facility has withdrawn interim status. No other disposal sites on property. Site has two settling ponds for waste water. Have applied for an NPDES permit. Did have a no discharge permit.

3. Disposition:

No further action needed. Are being regulated.

1. Comments:

POTENTIAL HAZARDOUS WASTE
PRELIMINARY ASSESSMENT
EPS FORM 3012-1
EPS ANALYST/REVIEWER CHECKLIST

Site No. MSD008158685
Site Name MS STEEL DIVISION OF MAGNA CORP.

Instructions: To be used in conjunction with EPA Form 2070-12 (7-81). Attach on inside front site folder. Initial and date for all assessment entries under appropriate part/subpart as completed. initial/date in black for final assessment; in red higher level (additional) assessment is in order. Follow same procedure for review process.

Review Codes: 1-Toxicology Review; 2-Chemical Review; 3-Ecology Review; 4-Chemical Engineer Review; 5-Geotechnical Review; 6-Project Manager Review; 7-Final Review

1. ANALYST/REVIEW STATUS

Form 2070 Part Number	Analyst/ Date	Review Code 1	Review Code 2	Review Code 3	Review Code 4	Review Code 5	Review Code 6	Review Code 7
I.-VI.								
	SH/3/27/84						JW 3/30	JW 3/30
2.I.								
2.II.								
2.III.								
2.IV.								
2.V.								
2.VI.								
3.I.								
3.II.A								
3.II.B								
3.II.C								
3.II.D								
3.II.E								
3.II.F								
3.II.G								
3.II.H								
3.II.I								
3.II.J								
3.II.K								
3.II.L								
3.II.M								
3.II.N								
3.II.O								
3.II.P								
3.III.								
3.IV.								
3.V.								

*No further assessment/review required, enter NA

POTENTIAL HAZARDOUS WASTE SIT
PRELIMINARY ASSESSMENT
EPS FORM 3012-II

TELEPHONE LOG SHEET

1. Site Identification:
   Site number: MSD008158685
   Site name: MS STEEL DIVISION OF MAGNA CORP.

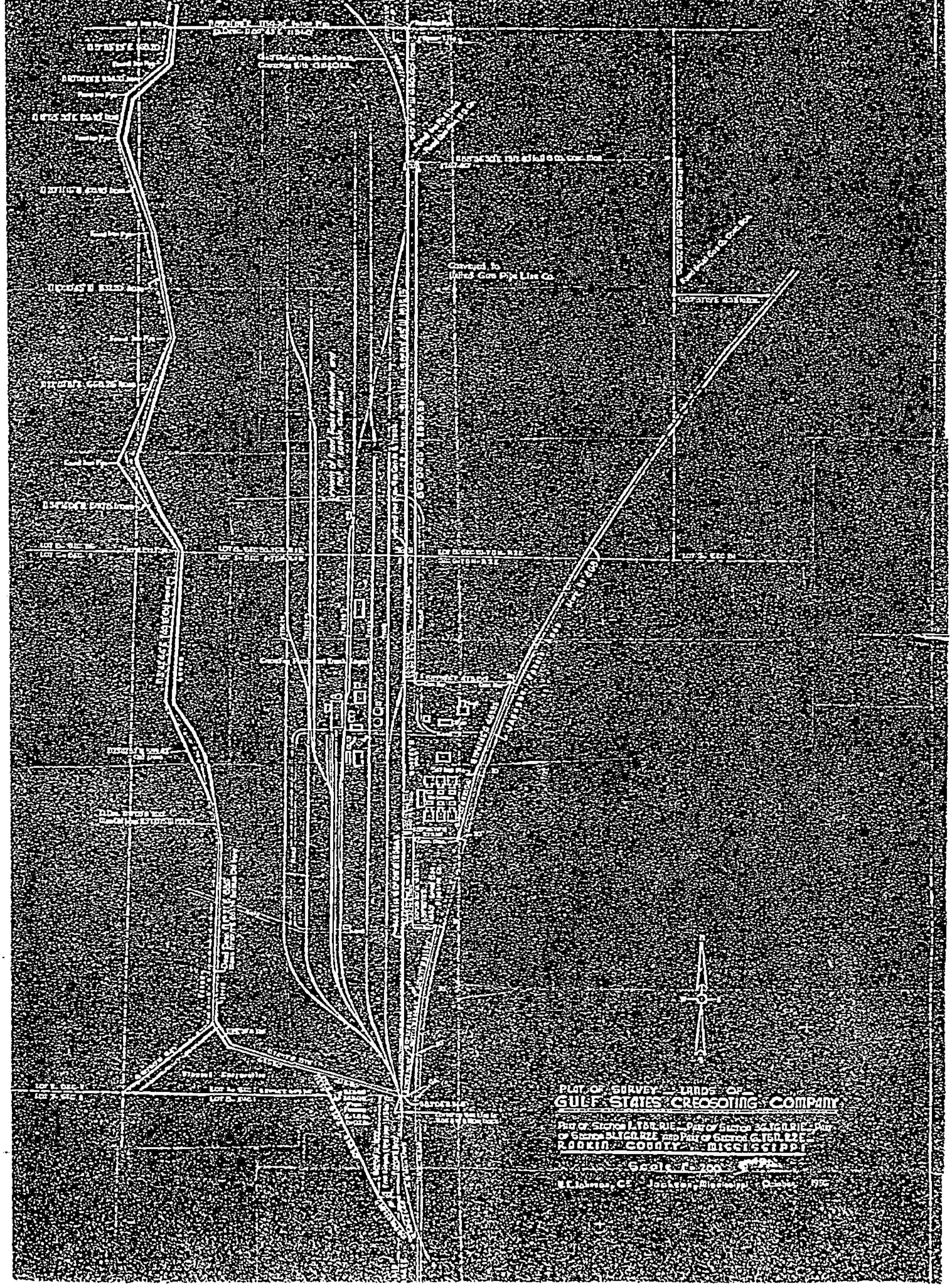
2. Interview Data: (Party called)
   Name: NORMAN WANTLAND
   Position: PLANT ENGINEER
   Firm: MS STEEL DIVISION MAGNA CORPORATION
   Address: P.O. BOX 5780
   JACKSON, MS 39208
   Telephone No.: 601 939-1623

3. EPS Analyst Data:
   Name: STEVE HORNUNG
   Purpose of call: CONFIRM P.A.
   Form 2070-12 (7-81) P.N. PART 1
   Date of call: WED. MARCH 28, 1984

4. Interview Narrative Summary: CONFIRMED INFO. ON P.A. THEIR SLAG IS NOT HAZARDOUS AND THE BAG HOUSE DUST IS REMOVED AS GENERATED. THEY HAVE WITHDRAWN INTERIM STATUS. THE DUST PILE THAT WAS CLEANED UP WAS THEIR ONLY DISPOSAL SITE.

5. Disposition/Comments:
   NO FURTHER ACTION NEEDED.

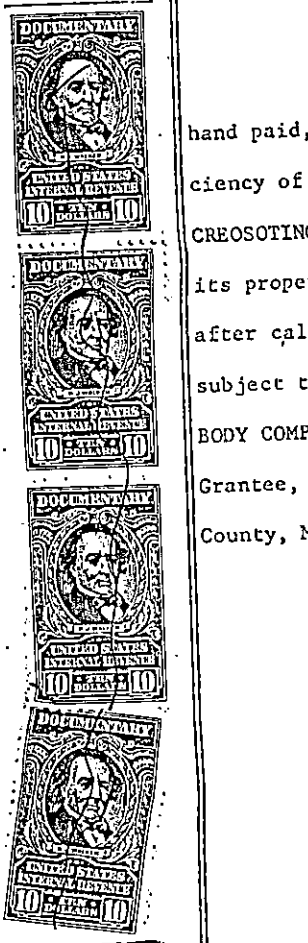
6. Comments: Any additional sites used by this company?
   Location:
   Dates of use:
   Description of waste:
   Comments:



PLAT OF SURVEY — LANDS OF
GULF STATES CREOSOTING COMPANY
RANKIN COUNTY MISSISSIPPI
Conveyed to United Gas Pipe Line Co.

400

WARRANTY DEED



For and in consideration of the sum of One Dollar ($1.00) cash in hand paid, and other good and valuable considerations, the receipt and sufficiency of all of which is hereby acknowledged, the undersigned, AMERICAN CREOSOTING CORPORATION, a Delaware corporation, acting herein by and through its proper officers hereunto duly and fully authorized and empowered, hereinafter called the Grantor, does hereby grant, bargain, sell, convey and warrant, subject to the stipulations and conditions hereinafter recited, unto W. G. AVERY BODY COMPANY, INCORPORATED, a Mississippi corporation, hereinafter called the Grantee, the following described real property lying and situated in Rankin County, Mississippi, to-wit:

Part of Section 1, T5N, R1E; Part of Section 36, T6N, R1E; Part of Section 31, T6N, R2E; and Part of Section 6, T5N, R2E, Rankin County, Mississippi, and being more particularly described by metes and bounds as follows, to-wit:

1. Description of Main Tract - Beginning at an iron pin marking the southeast corner of Lot 1 and/or the Southeast corner of the East 1/2 of the Northeast Quarter of Section 1, T5N, R1E, Rankin County, Mississippi, and run thence North 74° 12' West 875 feet to an old iron pipe; run thence North 32° 39' West 139 feet to an old iron pipe; run thence North 1° 20' 17" East 887.74 feet to an old iron pipe; run thence North 9° 09' 15" West 199.70 feet to an old iron pipe; run thence North 23° 42' 52" West 539.42 feet to an old iron pipe; run thence North 3° 42' 44" East 740.16 feet to an old iron pipe; run thence North 34° 14' 04" West 519.78 feet to an old iron pipe; run thence North 22° 02' 31" East 668.26 feet to an old iron pipe; run thence North 10° 10' 45" West 532.20 feet to an old iron pipe; run thence North 20° 11' 15" West 499.90 feet to an old iron pipe; run thence North 12° 58' 30" East 216.30 feet to an old iron pipe; run thence North 50° 04' 23" East 254.20 feet to an old iron pipe; run thence North 5° 35' 23" East 168.20 feet to an iron pin, which iron pin is on the east and west centerline of Section 36, T6N, R1E; run thence North 89° 31' 33" East and along the east and west centerline of aforesaid Section 36 for a distance of 1,156.20 feet to an old iron pipe which marks the southeast corner of the Northeast Quarter of aforesaid Section 36; run thence South 0° 03' 45" West and along the east boundary line of aforesaid Section 36 for a distance of 660.60 feet to an iron pin in the centerline of a railroad track; run thence North 88° 34' 30" East for a distance of 50 feet to a concrete monument; run thence South 0° 03' 45" West and parallel with the centerline of the Gulf States Creosoting Company main track for a distance of 2,550.59 feet to a concrete monument; run thence South 89° 56' 15" East for a distance of 473.00 feet to a concrete Monument which concrete monument is a distance of 30 feet measured northwesterly from and at right angle to the centerline of the Jackson-Fannin Road; run thence South 19° 41' 45" West for a distance of 489.95 feet to an iron pin, which iron pin is a distance of 30 feet measured northwesterly from and at right angle to the centerline of the Jackson-Fannin Road; run thence South 15° 00' 00" West for a distance of 330.64 feet to a concrete monument, which concrete monument is a distance of 30 feet measured northwesterly from and at right angle to the centerline of the Jackson-Fannin Road;

run thence North 89° 56' 15" West for a distance of 223.18 feet to a concrete monument, which concrete monument is a distance of 50 feet easterly from and measured at right angle to the centerline of the Gulf States Creosoting Company main track; run thence South 0° 06' 30" West and parallel with the centerline of the aforesaid main track for a distance of 432.77 feet to a concrete monument; run thence South 89° 56' 15" East for a distance of 118.50 feet to a concrete monument, which concrete monument is a distance of 30 feet measured northwesterly from and at right angle to the centerline of the Jackson-Fannin Road; run thence South 12° 41' 15" West for a distance of 355.20 feet to an iron pin, which iron pin is a distance of 30 feet measured northwesterly from and at right angle to the centerline of the Jackson-Fannin Road; run thence South 6° 21' 15" West 288.85 feet to an iron pin, which iron pin is a distance of 30 feet measured westerly from and at right angle to the centerline of the Jackson-Fannin Road; run thence South 12° 33' West 11.95 feet to an iron pin; run thence South 7° 36' West for a distance of 196.10 feet to an iron pin; run thence South 89° 04' West for a distance of 34.6 feet to the point of beginning, and containing an area of 145.72 acres, more or less.

2. Description of Parcel formerly conveyed by Ridgway and McGehee - A strip of land 100 feet wide on the west side of the section line, starting at the northeast corner of Lot 8 of Section 1, T5N, R1E, being also the northeast corner of the SE¼ of said Section 1, and extending south along said Section line for a distance of 500 feet, and containing an area of 1.15 acres, more or less.

Being the same property that was conveyed by Ridgway & McGehee, Inc., to Gulf States Creosoting Company by warranty deed dated March 14, 1928, and recorded in Book 96 at page 43 of the records in the office of the Chancery Clerk of Rankin County, Mississippi.

3. Description of the property formerly conveyed by Flowood Corporation -

PARCEL A: A parcel of land lying in the East 1/2 of Section 1, T5N, R1E, and more particularly described as follows: Beginning at the Southeast corner of Lot 1 of Section 1, T5N, R1E, being also the southeast corner of the NE¼ of said Section 1, Rankin County, Mississippi, and run thence North 74° 12" West for a distance of 415.50 feet to an iron pin; run thence South 26° 00' East for a distance of 681.23 feet to an iron pin, which iron pin is the southwestern corner of a parcel of land 100 feet wide and 500 feet long heretofore conveyed by Ridgway and McGehee to the Gulf States Creosoting Company by warranty deed dated March 14, 1928, and recorded in Deed Book 96 at page 43 of the records in the office of the Chancery Clerk of Rankin County, Mississippi; run thence North 0° 09' East and along the western boundary of said parcel of land heretofore conveyed by Ridgway and McGehee to Gulf States Creosoting Company for a distance of 500 feet to an iron pin, said iron pin being on the southern line of Lot 1 (NE¼) of aforesaid Section 1, T5N, R1E; run thence South 89° 35' East and along the southern line of Lot 1 (NE¼) of said Section 1 for a distance of 100 feet to the point of beginning, and containing an area of 1.8 acres, more or less.

PARCEL B: A parcel of land lying in Lot 8 (SE¼) of Section 1, T5N, R1E, and in the Southwest Quarter of Section 6, T5N, R2E, Rankin County, Mississippi, and more particularly described as follows: Starting at the northeast corner of Lot 8 (SE¼) of aforesaid Section 1, T5N, R1E; run thence South 0° 09' West along the eastern line of said Lot 8 (SE¼) for a distance of 500 feet to the Southeast corner of a parcel of land 100 feet wide and 500 feet long heretofore conveyed by Ridgway and McGehee to the Gulf States Creosoting Company, recorded as aforesaid, which southeast corner is the point of beginning; run thence North 89° 35' West and along the south line of the said parcel of land heretofore conveyed by Ridgway and McGehee to Gulf States Creosoting Company for a distance of 100 feet to the southwest corner of the aforesaid parcel conveyed by Ridgway and McGehee to Gulf States Creosoting Company; run thence South 38° 22' East for a distance of 264.50 feet to an iron pin, which is on the westerly right-of-way line of the Gulf States Creosoting Company Railroad and 50 feet from the centerline of the track measured at right angle to the tangent of the track at this point; thence in a northwesterly direction along the curve of said right-of-way line to a point being on the eastern line of aforesaid Lot 8 (SE¼) of said Section 1, T5N, R1E; run thence North 0° 09' East and along the said eastern line of the said Lot 8 (SE¼) of aforesaid Section 1 to the point of beginning, and containing an area of 0.2 acres, more or less.

Parcels 3-A and -B above being the same lands conveyed by warranty deed from The Elowood Corporation to Gulf States Creosoting Company, dated September 22, 1941, and recorded in Book 112 at page 1.

The aforesaid Parcels No. 1, 2, and 3-A and -B are the same property that was conveyed by Gulf States Creosoting Company, a Delaware Corporation, to American Creosoting Corporation, a Delaware Corporation, dated July 31, 1958, and recorded in Book 162 at page 511.

Wherever in the descriptions of the above described land reference is made to "Gulf States Creosoting Company's main track", or "Gulf States Creosoting Company Railroad", the same refers to the railroad formerly owned by the Gulf States Creosoting Company, and now owned by the American Creosoting Corporation, a Delaware Corporation.

There is excepted from the warranty hereunder all easements and rights of way over and across the premises, any restrictions of record, zoning ordinances pertaining to the premises, and any state of facts and any discrepancy or conflict in boundary lines or shortage in area or encroachment which a correct survey or an inspection of the premises would show, and in addition thereto but without limiting the generality of the foregoing, the following:

1. Taxes for the year 1959 and subsequent years which the Grantee assumes and agrees to pay.

2. All of the oil, gas and other minerals in, on and under the above described property.

3. Gas storage agreement entered into by the Gulf States Creosoting

Company with the United Gas Pipe Line Company by instrument dated May 13, 1954 recorded in Book 142 at page 503; reference to said instrument is hereby made for full context thereof.

4. Right of way granted by Gulf States Creosoting Company to the United Gas Pipe Line Company, dated April 5, 1955, recorded in Book 146 at page 487 for the construction, maintenance, operation, repair and replacement of pipe line and appurtenances.

5. Right of way conveyance by Gulf States Creosoting Company to the Board of Supervisors of Rankin County, Mississippi, dated February 19, 1947, recorded in Book 120 at page 222 covering the following described property:

> "A strip of land lying in the SW¼ of Section 31, Township 6 North, Range 2 East, and in the NW¼ of Section 6, Township 5 North, Range 2 East, and more particularly described as follows: A strip of land 30 feet wide, the Eastern boundary of which is the Center line of the present Jackson-Fannin Public Road, extending from a point 200 feet North of the Southern boundary of the NW¼ of Section 6, Township 5 North, Range 2 East, approximately 4,196 feet along the Center line of said road to a point, which is the intersection of the North boundary line of property, belonging to the grantor, with the center line of the present Jackson-Fannin Public Road."

Restriction contained in said right of way conveyance as follows, to-wit:

> "It is further understood that the undersigned will place no buildings, improvements or obstructions within 40 feet of the center line of the present Jackson-Fannin Public Road."

6. Right of way conveyance from Gulf States Creosoting Company to United Gas Public Service Company by instrument dated July 6, 1932, and recorde in Book 101 at page 138 covering a right of way for pipe line and appurtenances over and across the property.

7. Rights and privileges granted and restrictions contained in the deed from The Flowood Corporation to Gulf States Creosoting Company, dated September 22, 1941, and recorded in Book 112 at page 1 as follows, to-wit:

> "1. The grantor, its successors or assigns, is by the acceptance of this deed granted the right and privilege to connect and maintain its levee at the point where said levee is now constructed on or near the west boundary line of the property owned by the grantor and situated south of the property owned by grantee, to the levee owned and maintained by grantee and being situated along the south boundary line of grantee's property.
>
> "2. It is understood between grantor and grantee that grantor intends to use the land owned by it lying south of Grantee's land and lying west of grantee's railroad and the

Fannin public highway for residential development and similar purposes and to that end it is understood and agreed that grantee, its successors and assigns will not use any part of the parcel of land above conveyed for permanent storage purposes or any other storage which will affect the value and desirability of grantor's land for residential purposes."

8. Rights of adjoining owner on the west in and to those portions of premises enclosed by fence appurtenant to said adjoining property as shown on survey of W. E. Johnson, C.E. dated October 1956.

9. Possible easement for power lines crossing the northeast corner of Lot 6, Section 36 as shown on the aforementioned survey by W. E. Johnson.

10. Possible rights of others for passage over roads shown by the aforementioned survey by W. E. Johnson as passing through the premises or entering the premises from adjacent lands.

11. Terms and provisions of any unrecorded agreements concerning the ownership, maintenance and use of any lines of railroad tracks or other railroad equipment situated on premises.

12. Well drilling agreement (supplementary to said Gas Storage Agreement of 5-4-54) entered into by Gulf States Creosoting Company with the United Gas Pipe Line Company by instrument dated October 9, 1956, recorded in Oil & Gas Record Book 48 (L-48) at page 161 of the Records of Rankin County, Mississippi.

13. Easement for electric line (supplementary to said Gas Storage Agreement of 5-4-54) entered into by Gulf States Creosoting Company with the United Gas Pipe Line Company by instrument dated January 20, 1958, recorded in Oil & Gas Record Book 52 (L-52) at page 1.

There is located on the above described property a creosoting plant consisting of buildings, structures, tanks, boilers, machinery and equipment, and this conveyance embraces and includes not only the above described lands, but any and all buildings, improvements, tanks, machinery and equipment going to and making up the said creosoting plant, except those items of personalty consisting of equipment and facilities reserved by Grantor in accordance with the terms of the purchase and sale contract heretofore entered into by the parties.

The Grantor has simultaneously herewith conveyed to the Grantee, in addition to the properties hereinabove specifically described, that certain railroad owned by the Grantor and the lands on which said railroad is now located lying between and connecting the Yazoo and Mississippi Valley Railroad Company and the Gulf Mobile & Ohio Railroad Company, and known as the Gulf States Creosoting Company Railroad, and it is the purpose and intention of the Grantor to convey to the Grantee, regardless of whether the same is included in the specific description in the above and foregoing descriptions, or in the aforesaid conveyance to said railroad, all of its right, title and interest of every kind and character in, on, over and under all lands in the hereinafter designated sections, townships, and ranges; and for the same consideration above recited, the Grantor does hereby convey and quitclaim to the Grantee all of its right, title and interest of every kind and character in, on, over and under any lands in Sections 1, 12, 13, and 14, Township 5 North, Range 1 East; Sections 6 and 7, Township 5 North, Range 2 East; Section 36, Township 6 North, Range 1 East; and Section 31, Township 6 North, Range 2 East, all located in Rankin County, Mississippi. It being the further intention of the Grantor herein that on the execution and delivery of this conveyance by the Grantor to the Grantee, the Grantor will own no interest whatsoever in any of the lands located in the aforesaid sections, townships and ranges, and all of its interest therein will be owned by the Grantee.

WITNESS the signature and corporate seal of the American Creosoting Corporation hereunto affixed by its duly authorized and constituted officers on this the 4th day of June, 1959.

AMERICAN CREOSOTING CORPORATION

By _____
Executive Vice President

ATTEST:

_____
Secretary

STATE OF KENTUCKY

COUNTY OF JEFFERSON

Personally appeared before me, the undersigned authority in and for

the jurisdiction aforesaid, H. C. Lucas and R. J. Rubsch, known to me to be the Executive Vice President and Secretary, respectively, of American Creosoting Company, a Delaware corporation, who acknowledged that as such officers, they signed, sealed and delivered the within and foregoing instrument on the day and year therein mentioned as the act and deed of said corporation, being fully authorized so to do.

Given under my hand and official seal of office, this the 11th day of June, 1959.

Notary Public

My Commission Expires: My commission expires Sep. 21, 1959.

STATE OF MISSISSIPPI, County of Rankin:

I, Henry Laird, Clerk of the Chancery Court of said County, certify that the within instrument was filed for record in my office on this the 6 day of June, 1959, at 1:50 o'clock P M., and that the State documentary stamps in the amount of $ 2.50 as shown on said instrument were duly cancelled, and said instrument was duly recorded on the 12th day of June, 1959, in Book No. 166, Page No. 400 in my office.

Witness my hand and seal of office, this the 12th day of June, 1959.

HENRY LAIRD, Chancery Clerk

By

#2

397

DEED

STATE OF MISSISSIPPI

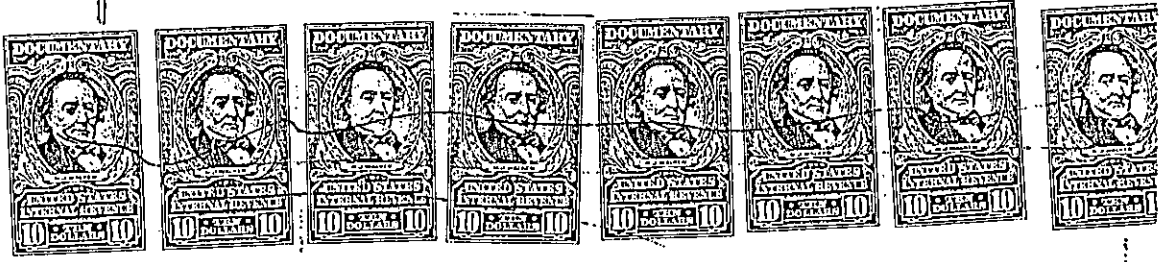
COUNTY OF RANKIN

For and in consideration of the sum of One Dollar ($1.00) cash in hand paid, and other good and valuable considerations, the receipt and sufficiency of all of which is hereby acknowledged, AMERICAN CREOSOTING CORPORATION, a Delaware corporation, acting herein by and through its proper officers hereunto duly and fully authorized and empowered, does hereby sell, convey and quit claim unto W. G. AVERY BODY COMPANY, INCORPORATED, a Mississippi corporation, the following tracts of land, together with the railroad track located thereon, said lands being situated in Rankin County, Mississippi, and described as follows, to-wit:

1. A strip of land one hundred (100) feet wide, commencing at the Northwest corner of the Southwest Quarter (SW¼) of Section Six (6), Township 5 North, Range 2 East, and going approximately South 25 degrees East across the Northwest Quarter (NW¼) of the Southwest Quarter (SW¼) of Section Six (6), Township 5 North, Range 2 East.

2. A strip of land one hundred (100) feet wide, extending across the Southwest Quarter (SW¼) of the Southwest Quarter (SW¼) of Section Six (6), Township 5 North, Range 2 East, bearing approximately South 25 degrees East.

3. A strip of land one hundred (100) feet wide, running through the Northwest Quarter (NW¼) of the Northwest Quarter (NW¼) of Section Seven (7), Township 5 North, Range 2 East, described as follows: Beginning at the Southwest corner of the Northwest Quarter (NW¼) of the Northwest Quarter (NW¼) of Section Seven (7), Township 5, North, Range 2 East, and going on a bearing of approximately North 35 degrees 17 minutes East for a distance of approximately 1000 feet along the old Jackson and Eastern right of way; thence curve northerly on a 6 degree curve to a point on the north line of the Northwest Quarter (NW¼) of the Northwest Quarter (NW¼) of Section Seven (7), Township 5 North, Range 2 East, approximately 800 feet East of the Northwest corner of Section Seven (7), Township 5 North, Range 2 East.



HENRY CLAIRD, Chancery Clerk

4. A strip of land 100 feet in width, which begins on the North line of the Jackson & Brandon public road and extends in a northeasterly direction to the line between the North Half (N½) and South Half (S½) of Section Twelve (12), Township 5 North, Range 1 East, and designated on Map or Plat of East Jackson Place, First Addition, a subdivision in Rankin County, Mississippi, a map or plat of which is of record in Plat Book 1, on page 7 thereof, in the office of the Chancery Clerk of Rankin County, Mississippi, said strip being designated on said map by the word "reserved" appearing twice and words "100' wide" appearing twice, and the word "Strip" appearing at the South end thereof.

5. A strip of land 100 feet wide extending across the Northwest Quarter (NW¼) of the Northwest Quarter (NW¼) of Section Thirteen (13), Township 5 North, Range 1 East. It being intended that the 100 foot strip of land hereby conveyed includes and follows the railroad dump which was partially constructed by the Jackson and Eastern Railroad Company and is 50 feet on each side of the center of said dump.

Said Parcels 1 through 5 above are further described as those certain 100 foot wide strips of land in the sections, townships and ranges above referred to on which there is now located what is known as the "Gulf States Creosoting Company Railroad."

The Grantor also hereby transfers, conveys and assigns to the said W. G. Avery Body Company, Incorporated, all of the right, title and interest held by the Grantor under and by virtue of that certain contract entered into by and between the Gulf Mobile & Northern Railroad Company and the Gulf States Creosoting Company, a Mississippi corporation, under date of May 31, 1928, said contract having been conveyed to the Grantor by the Gulf States Creosoting Company under deed dated July 31, 1958, said contract providing for the construction of a railroad track between the following points, to-wit:

A point of intersection with the railroad of the Gulf Mobile & Northern Railroad near the Southwest corner of Section thirty-one (31), Township 6 North, Range 2 East, and the point of intersection with the track of

the Yazoo & Mississippi Valley Railroad Company near the Northeast corner of Northwest Quarter (NW¼) of Section Fourteen (14), Township 5 North, Range 1 East, all in Rankin County, Mississippi.

The Grantor also transfers, conveys and assigns unto W. G. Avery Body Company, Incorporated, all of its right, title, interest and privileges vested in and held by the Grantor under and by virtue of the contract made and entered into between the Gulf Mobile & Northern Railroad Company and the Gulf States Creosoting Company, a Mississippi corporation, dated July 17, 1929, which said contract having been assigned to the Grantor herein by the Gulf States Creosoting Company under deed dated July 31, 1958, and recorded in Book 162 at page 516 of the records in the Chancery Clerk's office of Rankin County, Mississippi.

WITNESS the signature and corporate seal of the American Creosoting Corporation hereunto affixed by its duly authorized and constituted officers on this the 4th day of June, 1959.

ATTEST:

R. J. Rubsch
Secretary

AMERICAN CREOSOTING CORPORATION

By H. C. Lucas
Executive Vice President

STATE OF KENTUCKY
COUNTY OF JEFFERSON

Personally appeared before me, the undersigned authority in and for the jurisdiction aforesaid, H. C. Lucas and R. J. Rubsch, known to me to be the Executive Vice President and Secretary, respectively, of American Creosoting Company, a Delaware corporation, who acknowledged that as such officers, they signed, sealed and delivered the within and foregoing instrument on the day and year therein mentioned as the act and deed of said corporation, being fully authorized so to do.

Given under my hand and official seal of office, this the 4th day of June, 1959.

Gertrude J. Morrison
Notary Public

My Commission Expires: My commission expires Oct. 21, 1959

STATE OF MISSISSIPPI

I, Henry Laird, Clerk of the Chancery Court of said County, certify that the within instrument was filed for record in my office on this the 5 day of June, 1959, at 1:45 o'clock P. M., and that the State documentary stamps in the amount of $125.00, shown on said instrument were duly attached and cancelled, and said instrument was duly recorded on the 12th day of June, 1959, in Book No. 166, Page No. 397 in my office.

Witness my hand and seal of office, this the 12th day of June, 1959

HENRY LAIRD, Chancery Clerk

#3

DEED

WHEREAS, heretofore on the 31st day of July, 1958, Gulf States Creosoting Company, a Delaware corporation, did execute and deliver unto the American Creosoting Corporation, a Delaware corporation, those certain two conveyances now recorded in Book 162 at pages 511 and 516 of the records in the office of the Chancery Clerk of Rankin County, Mississippi, reference to said conveyances and the recording thereof being made for all purposes; and

WHEREAS, it was the purpose and intent of the Gulf States Creosoting Company to convey to the American Creosoting Corporation all of its right, title and interest of every kind and character in, on, over and under all lands in the sections, townships and ranges mentioned in the aforesaid conveyances above referred to;

NOW, THEREFORE, in consideration of the premises and the sum of One Dollar ($1.00) cash in hand paid, the receipt of which is hereby acknowledged, Gulf States Creosoting Company, a Delaware corporation, does hereby convey and quitclaim unto American Creosoting Corporation, a Delaware corporation, all of its right, title and interest of every kind and character, in, on, over and under all lands in Sections 1, 12, 13, and 14, Township 5 North, Range 1 East; Sections 6 and 7, Township 5 North, Range 2 East; Section 36, Township 6 North, Range 1 East; and Section 31, Township 6 North, Range 2 East, all located in Rankin County, Mississippi.

WITNESS the signature and corporate seal of the Gulf States Creosoting Company, acting by and through its duly authorized officers, on this the 4th day of March 1959.

ATTEST:

GULF STATES CREOSOTING COMPANY

R. J. Rubsch
Secretary

By H. C. Lucas
Executive Vice President

STATE OF KENTUCKY
COUNTY OF JEFFERSON

Personally appeared before me, the undersigned authority in and for the jurisdiction aforesaid, H. C. Lucas and R. J. Rubsch, known to me to be the

Executive Vice President and Secretary, respectively, of Gulf States Creosoting Company, a Delaware corporation, who acknowledged that as such officers, they signed, sealed and delivered the within and foregoing instrument on the day and year therein mentioned as the act and deed of said corporation, being fully authorized so to do.

Given under my hand and official seal of office, this the 4th day of June, 1959.

Gertrude Herrington
Notary Public

My Commission Expires: My commission expires Sept. 13, 1959

STATE OF MISSISSIPPI, County of Rankin:

I, Henry Laird, Clerk of the Chancery Court of said County, certify that the within instrument was filed for record in my office on this the 5 day of June, 1959, at 1:00 o'clock P. M., and that the State documentary stamps in the amount of $ None, shown on said instrument were duly attached and cancelled, and said instrument was duly recorded on the 12th day of June, 1959, in Book No. 166, Page No. 395 in my office.

Witness my hand and seal of office, this the 12th day of June, 1959.

HENRY LAIRD, Chancery Clerk

By Henry Laird D. C.

REFERENCES

Angle, C.R. and M.S. McIntire. 1978. Low level lead and inhibition of erythrocyte pyrimidine nucleotidase. Environ. Res. 17:296-302.

Baghurst, B. A., E. F. Robertson, and A. J. McMichael. 1987. The Port Pirie cohort study: Lead effects on pregnancy outcome and early childhood development. Neurotoxicology. 8(3):395-402.

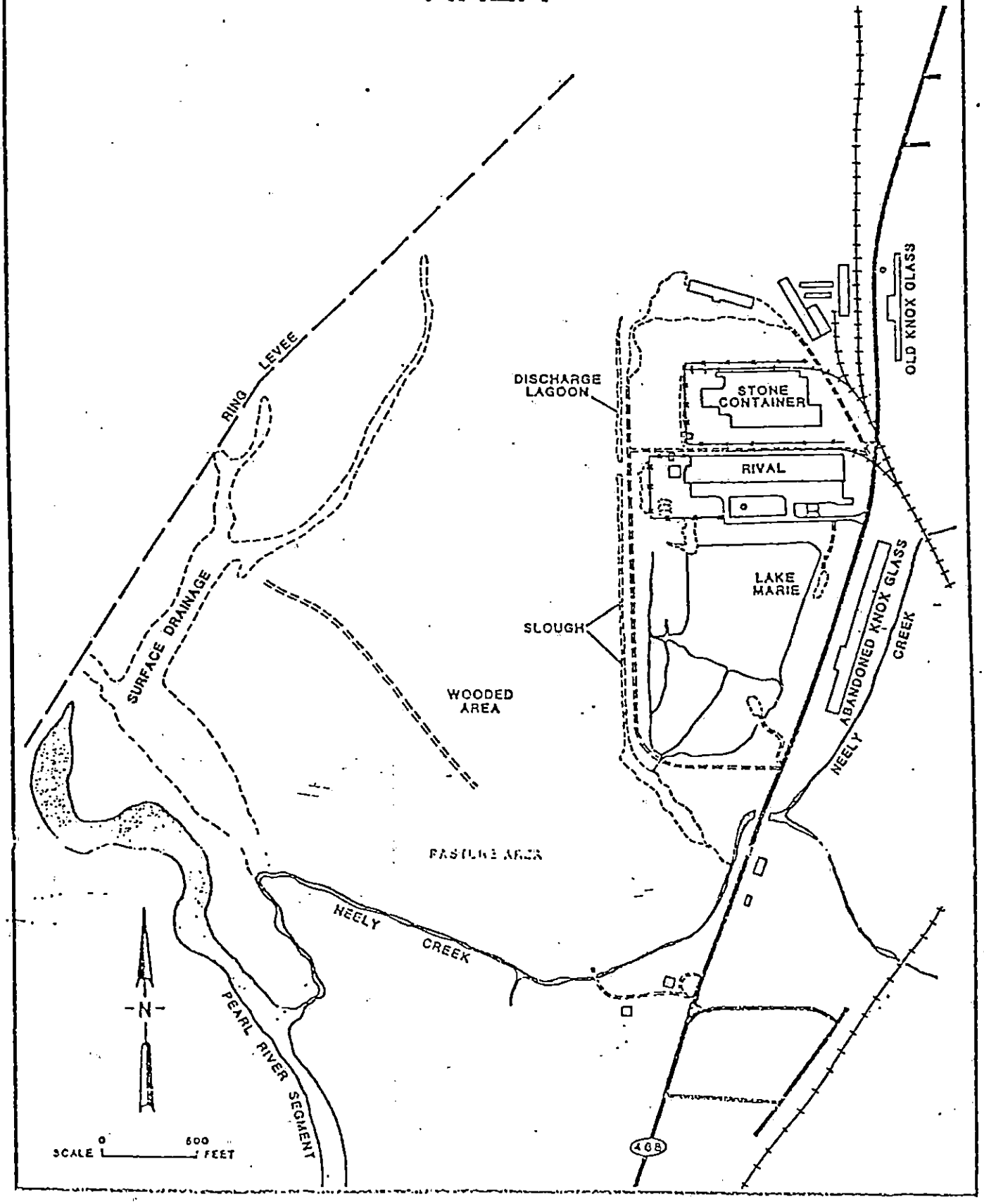
Klassen, Curtis D., Mary O. Amdur, and John Coull, Editors. 1986. Casarett and Doull's Toxicology: The Basic Science of Poisons, 3rd Edition. New York, New York, 1986.

"Draft Remedial Investigation-Flowood Site, Flowood Mississippi," Engineering-Science, November 1986.

Sitig, Marshall. 1985. Handbook of Toxic and Hazardous Chemicals and Carcinogens, 2nd Edition. Park Ridge, New Jersey, 1985.

Appendix

FLOWOOD SITE AREA



Source: Draft Remedial Investigation Report, November 1986

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

AUG 8 1988

RECEIVED
AUG - 9 1988
Dept. of Natural Resources
Bureau of Pollution Control

REF: 4WD-SFB

Mr. Trey Fleming
Bureau of Pollution Control
P.O. Box 10385
Jackson, Mississippi 39209

RE: Record of Decision - Flowood, MS NPL Site

Dear Mr. Fleming:

Enclosed is the Record of Decision (ROD) for the Flowood site for your review and comments. Please return comments to me no later than August 19, 1988. I can be reached at (404) 347-2643.

Sincerely,

Gena D. Townsend

Gena D. Townsend
Site Project Manager
Superfund Branch

Enclosed

2/17/89
ROD signed
end of Sept / Oct 88
PRP - 60 day notice not out yet
cost recovery hold up
pub. notice when RA starts.

SUMMARY OF REMEDIAL ALTERNATIVE SELECTION

FLOWOOD SITE

FLOWOOD, RANKIN COUNTY, MISSISSIPPI

PREPARED BY:

U. S. ENVIRONMENTAL PROTECTION AGENCY

REGION IV

ATLANTA GEORGIA

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FLOWOOD SITE
FLOWOOD, RANKIN COUNTY, MISSISSIPPI

1.0 Introduction

The Flowood site was proposed for inclusion on the National Priorities List (NPL) in June, 1983 and formally added to the NPL in September 1984. The site is listed as No. 97 on the NPL in group two and is the highest priority site for the state of Mississippi. The Flowood site has been the subject of a Remedial Investigation (RI) and Feasibility Study (FS) performed by one of the responsible parties, Marmon Group, Inc., under an administrative order by consent dated January 3, 1986. The RI report which examines sediments, soil, surface water and groundwater contamination at the site was delivered in draft in November 1986. Following review of the results, a determination was made by the Agency of the need for additional field investigation in order to more fully characterize the site. The RI was (completed including a addendum report) in August 1987. The FS which develops and examines alternatives for remediation of the site, was issued in draft form to the public on May 16, 1988.

This Record of Decision has been prepared to summarize the remedial alternative selection process and to present the selected remedial alternative.

1.1 Site Location and Description

The Flowood site is located in the town of Flowood, Rankin County, Mississippi along Highway 468 on the east side of the Pearl River, east of Jackson, Mississippi (figure 1.1). The site encompasses approximately 225 acres and consists of mostly wetlands and lowlands of the alluvial plain of the Pearl River. It is separated from the river by one or both of two levees, the inner levee immediately adjacent to the manufacturing facility area and the ring levee to the west.

The site consist of wastewater discharge areas and downstream areas adjacent to two industrial manufacturing facilities. The immediate area of the site includes a borrow-pit (Lake Marie), a slough or canal used as a discharge area and other land areas contiguous to the plant sites, and the cow pasture pond (figure 1.2).

Flowood is an incorporated town with a population of 943 in the 1980 census and an area of approximately nineteen square miles within the city limits. The nearest single residence is more than a half mile south of

the site, and the closest group of residence is on the opposite side of Highway 468, almost a mile south of the site. The site is surrounded on its northern and eastern boundaries by various industrial and commercial uses while forested areas are located west of the site. Cattle grazing areas and automobile scrap yards are also located within one mile of the southern site boundary.

1.2 Site History

Two manufacturing facilities have existed at the Flowood site at least back in the 1940's. The northernmost facility has been operated as a corrugated box company from the 1950's to present (figure 1.2 area 1). The Continental Forest Company owned the property from 1956 to 1983 when the facility was purchased by the present owner the Stone Container Corporation. The facility to the south, currently the Rival Manufacturing Company, (figure 1.3, area 2) was operated for the manufacturing of ceramic tiles from the 1950's through the early 1970's (past owner - The Marmon Group (figure 1.3, area 2) followed by the manufacture of stoneware cooking pots from the mid 1970's to the present.

In late 1955, an easement was granted by United Gas Pipe Line Company to discharge wastewater through the inner levee to the canal on the west side. The United Gas Pipe Line Company are property owners of Area 3 (figure 1.3)

State officials first became aware of the presence of hazardous substances in the canal during a routine industrial wastewater inspection in the fall of 1982. At that time, Mississippi Department of Natural Resources (MDNR) Industrial Wastewater Section discovered an unpermitted discharge Leading from a pumping station operated by Continental Forest Products to the canal. Subsequent sampling of water and sediment from the canal revealed high levels of Lead contamination, prompting (MDNR) to issue an emergency permit for treatment and eventual removal of the contaminated wastewater from the canal in November 1982. This treatment and removal process was discontinued by MDNR when higher levels of Lead were found in the canal near the Rival facility.

In January 1983, the site was reported to the U. S. Environmental Protection Agency (USEPA) by the State of Mississippi as being a hazardous waste site that might require federal assistance. A preliminary site visit was conducted by a USEPA contractor (NUS) early in 1983 followed by a geophysical survey and borehole sampling study in mid to late 1983. Lead was found in sludges located in the lagoon or canal to the west of the inner levee, in the slough south of the lagoon and at locations within the inner levee west of the Rival facility. Lead was subsequently found in Lake Marie's water and sediments and surface soils outside and south of the inner levee. The total Lead content of the samples taken varied from 94,231 mg/kg in the canal adjacent to the industries point of discharge to 14 and 23 mg/kg in the downstream Neely Creek.

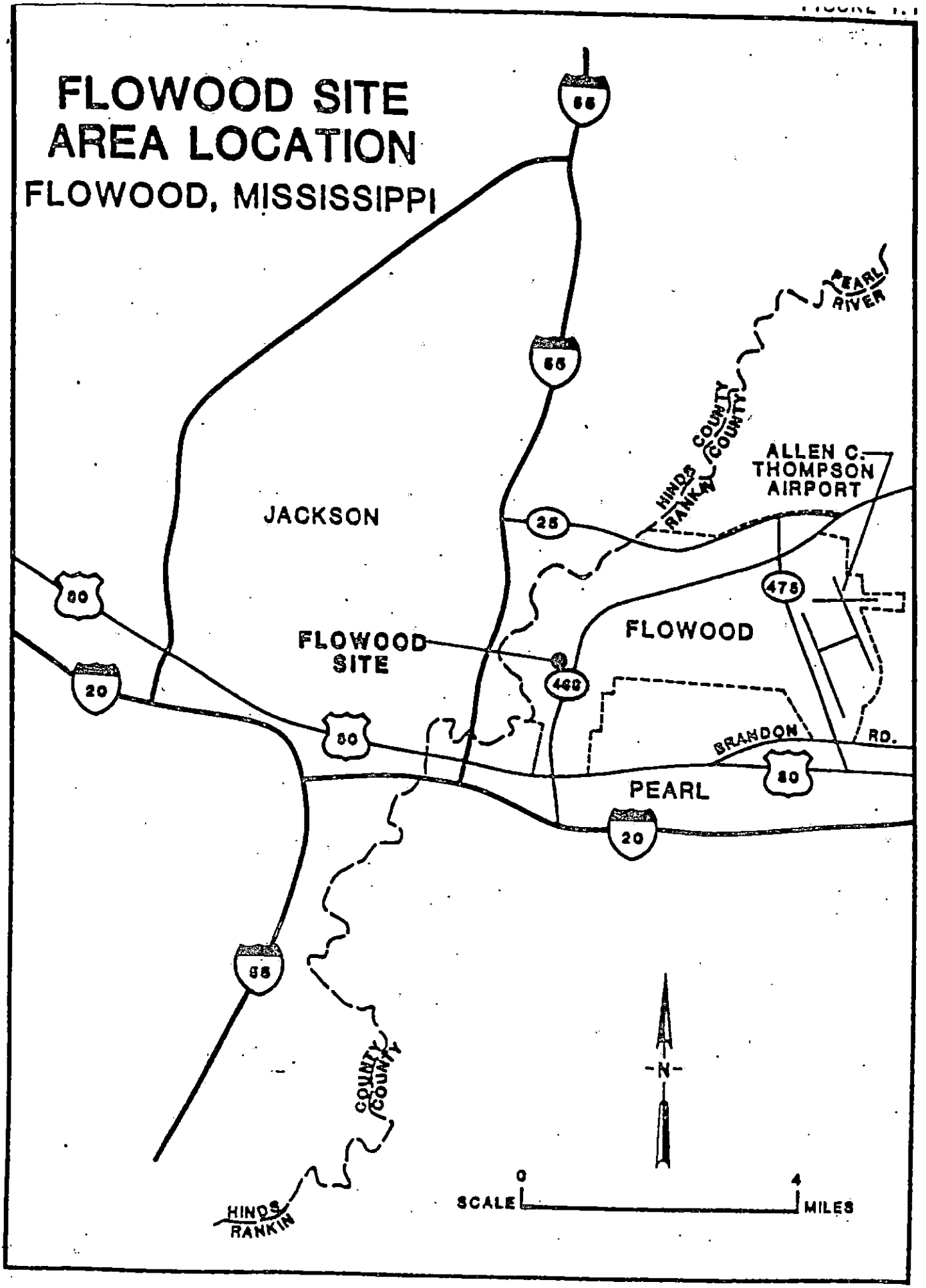
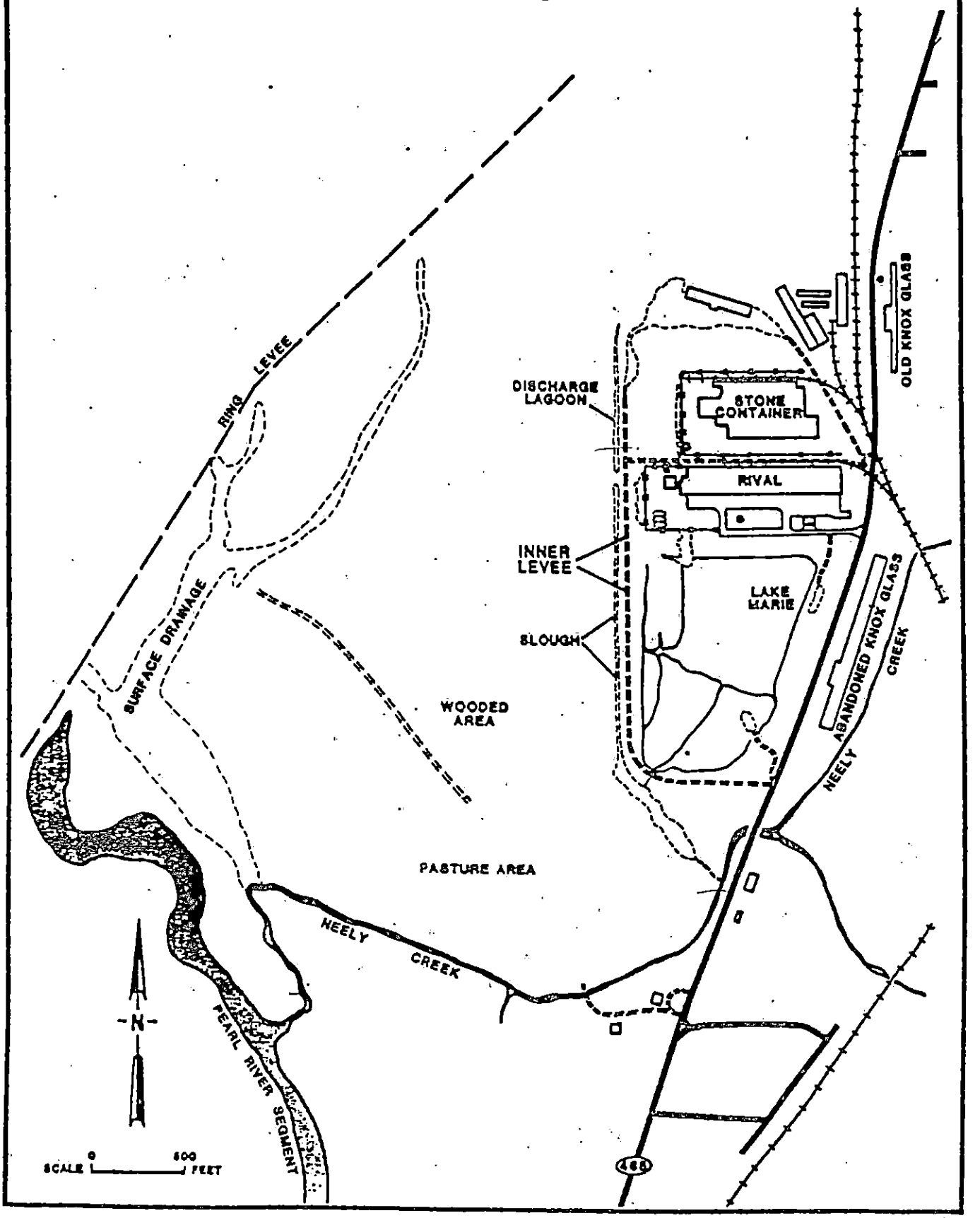

FLOWOOD SITE
AREA LOCATION
FLOWOOD, MISSISSIPPI
55
55
JACKSON
HINDS COUNTY
RANKIN COUNTY
PEARL RIVER
ALLEN C. THOMPSON AIRPORT
25
80
20
FLOWOOD SITE
FLOWOOD
475
468
80
BRANDON RD.
PEARL
20
55
HINDS COUNTY
RANKIN COUNTY
N
0
4
SCALE
MILES

FIGURE 1.2

FLOWOOD SITE AREA



The site was evaluated using the CERCLA Hazard Ranking System (Mitre Model), and received a score of 8.27. This site was added as a "Superfund" project pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980 at the request of the State of Mississippi. EPA and the Marmon Group signed a RI/FS Consent Agreement on January 1986. The final RI report was issued August 1987 and the draft FS was released to the public May 1988.
The objective of the site investigation was to further characterize the site features and contaminates present in order to evaluate potential impacts to the environment or public health and welfare and provide a basis for determination of remediation under the feasibility study.

The purpose of the feasibility study was to develop and examine remedial alternatives for the site and to screen these alternatives on the basis of protection of human health and the environment, cost effectiveness and technical implementability. In accordance with CERCLA, as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), alternatives in which treatment would permanently and significantly reduce the volume, toxicity, or mobility of the hazardous substances of the site were preferred over those alternatives not involving such treatment.

2.0 Enforcement Analysis

The Flowood site was added to the NPL in September 1984 at the request of the State of Mississippi, and EPA assumed Lead responsibility for the site at that time. Previous investigations conducted by the state had identified the Potential Responsible Parties (PRP): Continental Group, Rival Manufacturing and The Marmon Group, therefore a PRP search was not conducted. Notice Letters were issued to the PRP's in October 1984 to conduct the RI/FS. United Gas Pipeline Company was added as a PRP and notified in June 1985 after receipt of information requested by a Section 104 CERCLA Information Request letter. It was determined that the United Gas Pipeline Company owned a large portion of the surrounding contaminated property. Negotiations for the RI/FS Consent Agreement were concluded with the signing of the document by EPA and The Marmon Group (one of the PRPs) on January 3, 1986.

The Remedial Design and Remedial Action (RD/RA) is presently under negotiations with the PRPs.

3.0 Current Site Status

3.1 Hydrogeologic Setting

The Pearl River alluvial sand, silts and clays are directly beneath the Flowood site and have a thickness of about 35 feet, followed by the Cockfield Formation (Eocene). The Cockfield Formation has a total thickness of about 200 feet and is generally a dark gray, sandy to silty, lignite and micaceous clay.

The shallowest water-bearing zone present at the Flowood site is composed of alluvial sands, found at depths from 5 to 10 feet below ground surface. The gradient is estimated to be 3.4 X 10^{-3} ft/ft with a groundwater flow direction to the southwest.

Lake Marie is believed to be a mostly perched water body. It is situated partially in clayey or silty soils that may serve to confine much of the lake boundaries. Portions of the lake bottom, however, appear to be in direct communication with the course grained, sandy soils of the alluvial aquifer.

Neely Creek to the south of the site is in direct communication with the alluvial aquifer. Stream flow measurements taken at locations along the creek and its tributaries averages 1.2 cubic feet per second.

3.2 Site Contamination

The immediate area of the site includes a borrow pit, called Lake Marie, various surface drainages, a flood levee (inner levee) and cow pasture (figure 3.1). Soil, groundwater, surface-water and sediment samples have been collected in and around each area and analyzed. All samples were analyzed for inorganic compounds with a selected number of samples analyzed for organic compounds.

The results of the investigation show that waste sediments containing Lead are deposited at four areas around the site. While some of these sediments exhibit Lead extractability under the EP Toxicity test, analytical results from soil samples obtained below the deposited materials indicated little Lead migration in the soil.

3.2.1 Soil Data

Soil sample composites were obtained at various depths at each of the boring locations around the Flowood site. The primary analyses run on each of the soil composites were total Lead, EP toxicity Lead and ph. Selected samples were analyzed for additional inorganic as well as organic pollutant parameters, including volatile and semivolatiles organic, extractable organics and pesticides. Samples were collected at three different intervals, two feet below ground surface (sediment surface), two to six feet below ground surface and six to ten feet below ground surface. Figures 3.2, 3.3 and 3.4 depicts the total Lead concentrations in the soil.

3.2.2 Sediment Data

Wastes are known to have been discharged to the slough or canal on the west side of the inner levee to Lake Marie, and to the wash area behind the Rival Manufacturing Company facility (figure 3.5).

In the slough, the waste material itself is underlain by clay or silty clay. In the southern end of the discharge lagoon, which is north of the ceramic wastewater discharge point, the white deposit thin out rapidly and are overlain by layers of black sludge. It is estimated that 2,000 cubic yards of waste sediments are deposited in the slough.

FIGURE 3.1

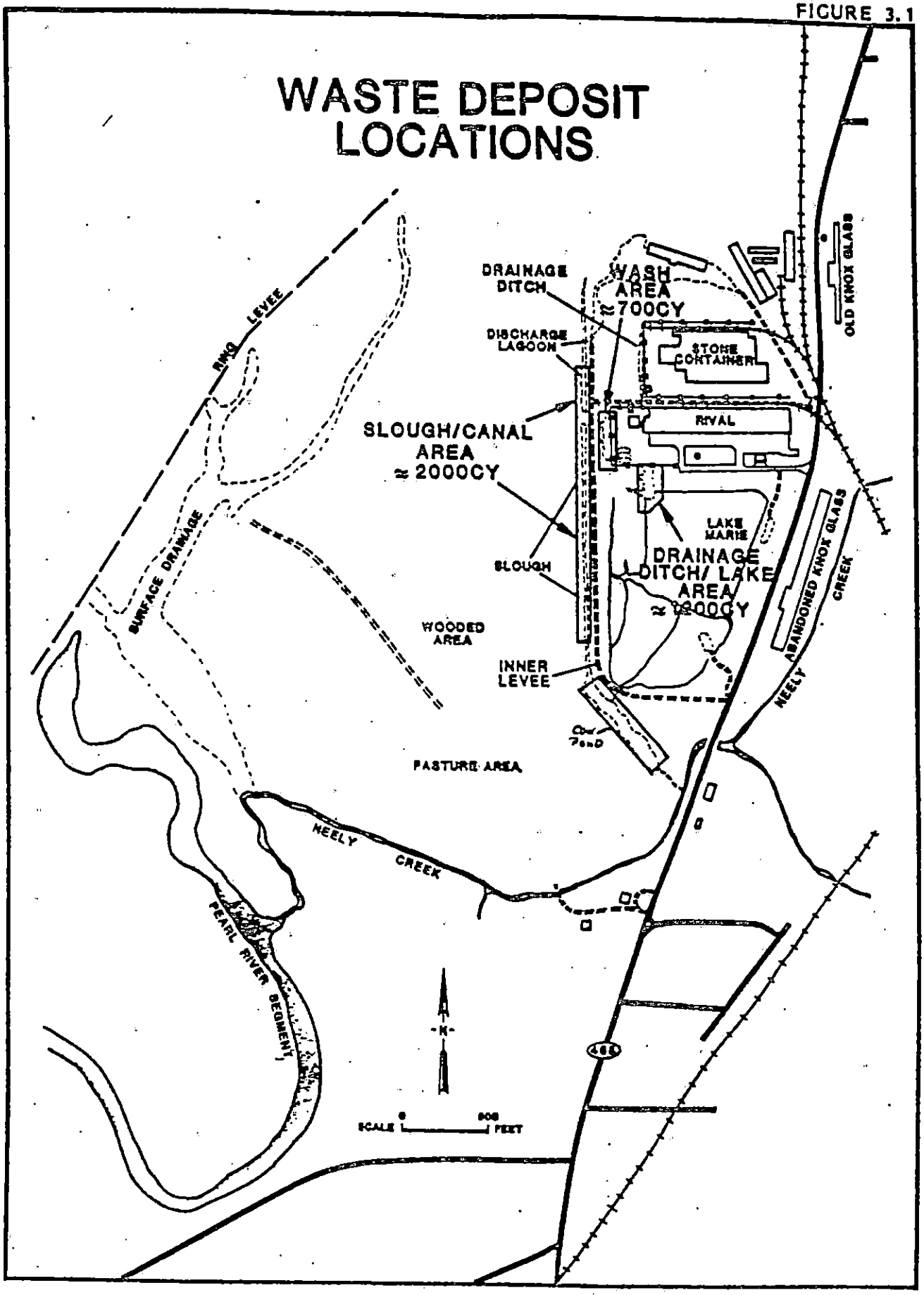

WASTE DEPOSIT LOCATIONS
DRAINAGE DITCH
WASH AREA ≈ 700CY
DISCHARGE LAGOON
STONE CONTAINER
OLD KNOX GLASS
RIVAL
SLOUGH/CANAL AREA ≈ 2000CY
RING LEVEE
SURFACE DRAINAGE
LAKE MARIE
DRAINAGE DITCH/ LAKE AREA ≈ 3000CY
SLOUGH
ABANDONED KNOX GLASS
NEELY CREEK
WOODED AREA
INNER LEVEE
POND
PASTURE AREA
NEELY CREEK
PEARL RIVER SEGMENT
N
SCALE
FEET

FIGURE 3.2

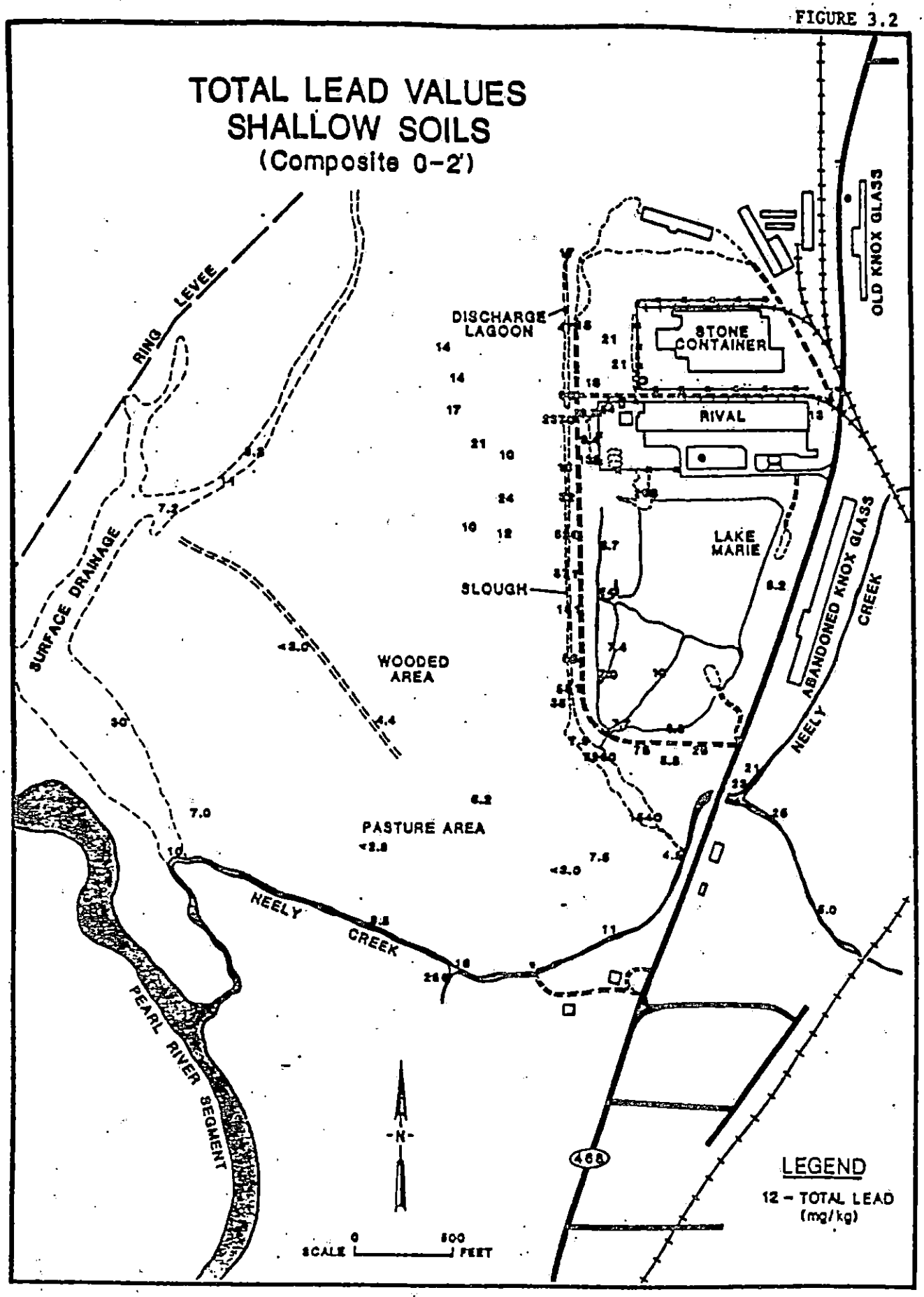

TOTAL LEAD VALUES
SHALLOW SOILS
(Composite 0-2')
RING LEVEE
SURFACE DRAINAGE
DISCHARGE LAGOON
STONE CONTAINER
RIVAL
OLD KNOX GLASS
LAKE MARIE
SLOUGH
ABANDONED KNOX GLASS
NEELY CREEK
WOODED AREA
PASTURE AREA
NEELY CREEK
PEARL RIVER SEGMENT
N
SCALE 0 500 FEET
LEGEND
12 - TOTAL LEAD (mg/kg)

FIGURE 3.3

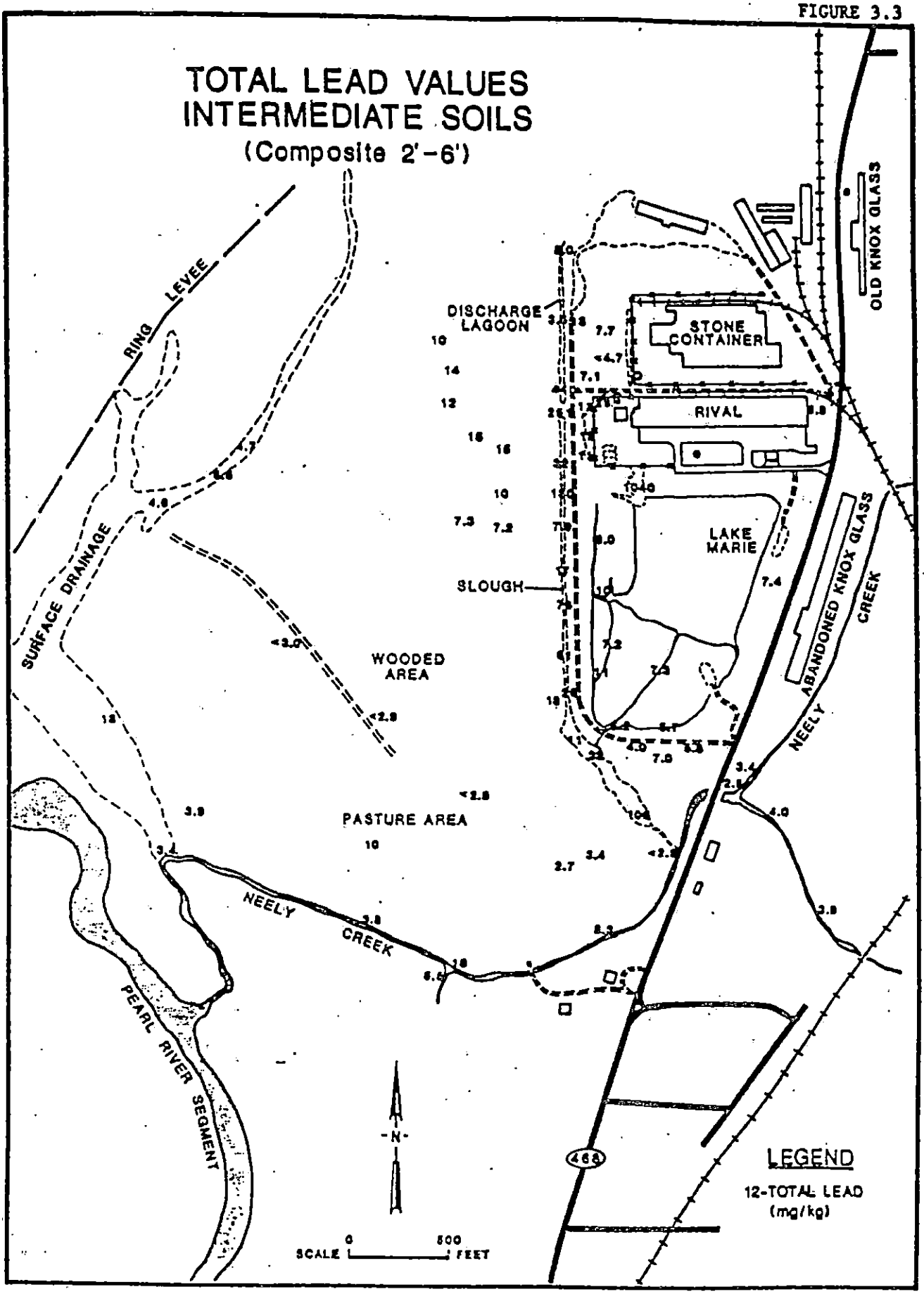

TOTAL LEAD VALUES
INTERMEDIATE SOILS
(Composite 2'-6')
RING LEVEE
SURFACE DRAINAGE
DISCHARGE LAGOON
STONE CONTAINER
RIVAL
OLD KNOX GLASS
LAKE MARIE
SLOUGH
ABANDONED KNOX GLASS
NEELY CREEK
WOODED AREA
PASTURE AREA
NEELY CREEK
PEARL RIVER SEGMENT
-N-
SCALE 0 500 FEET
468
LEGEND
12-TOTAL LEAD (mg/kg)

FIGURE 3.4

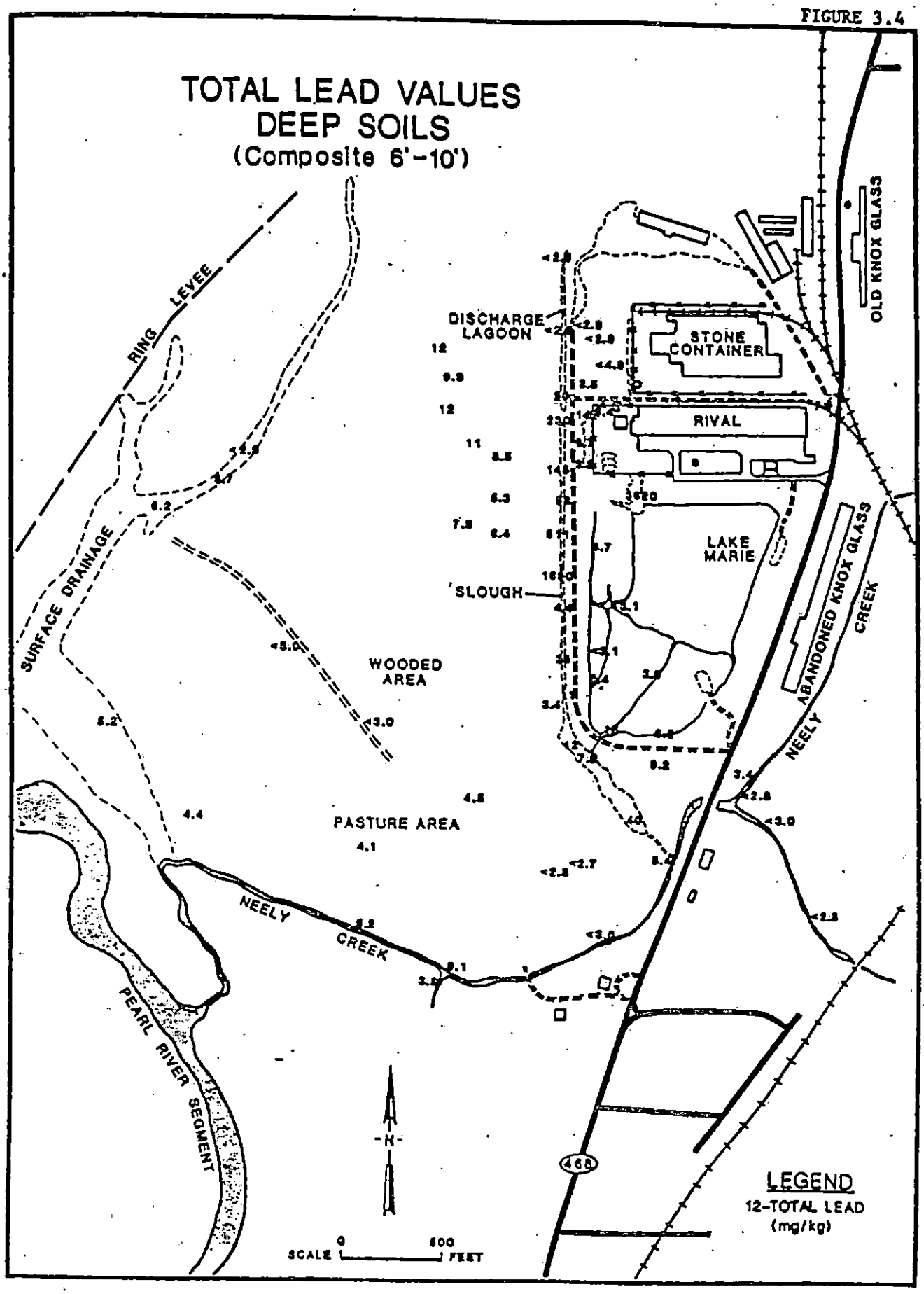
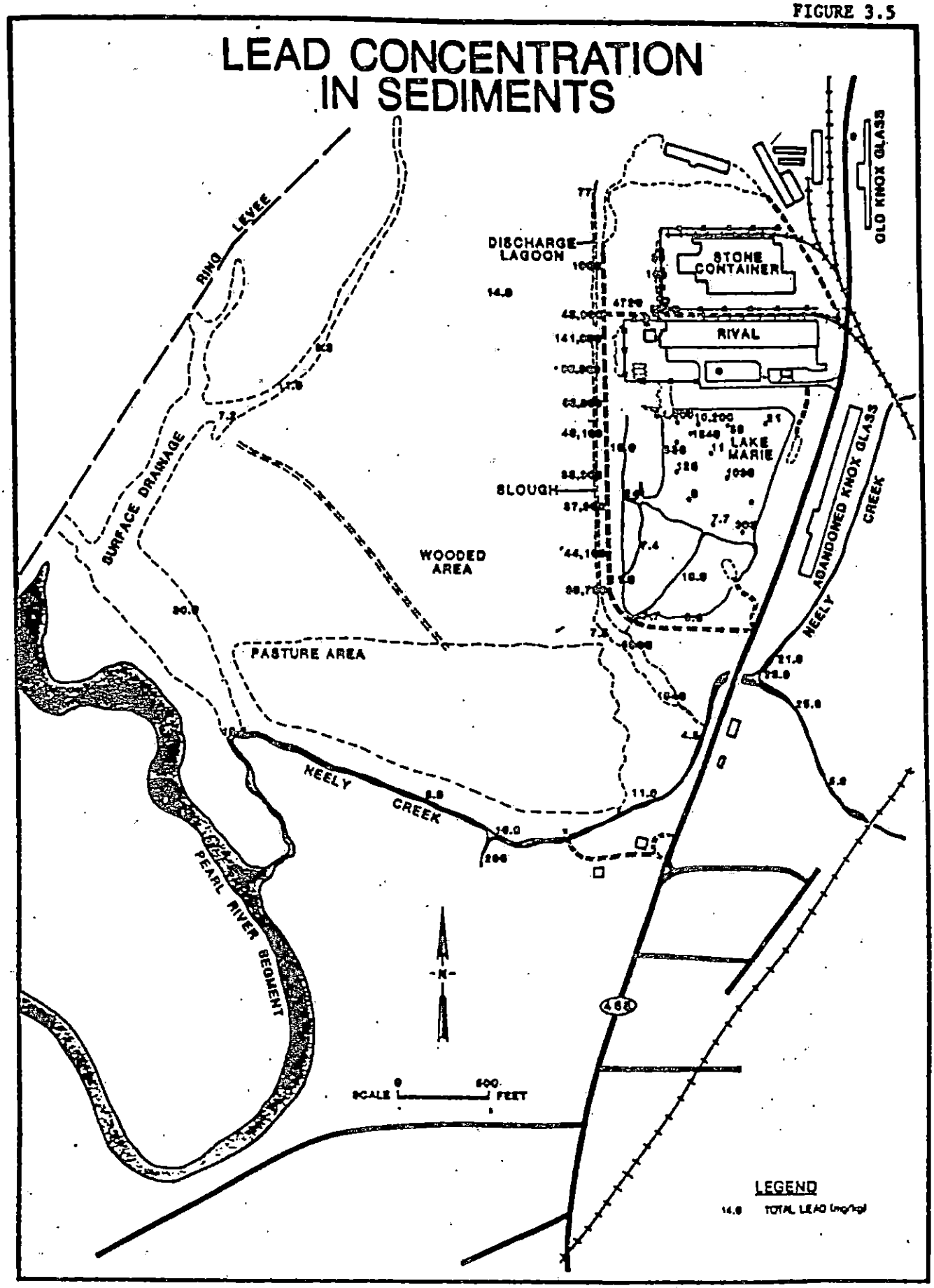

TOTAL LEAD VALUES
DEEP SOILS
(Composite 6'-10')
RING LEVEE
SURFACE DRAINAGE
DISCHARGE LAGOON
STONE CONTAINER
RIVAL
LAKE MARIE
SLOUGH
WOODED AREA
PASTURE AREA
NEELY CREEK
ABANDONED KNOX GLASS
OLD KNOX GLASS
PEARL RIVER SEGMENT
468
N
SCALE 0 600 FEET
LEGEND
12-TOTAL LEAD
(mg/kg)

FIGURE 3.5


LEAD CONCENTRATION IN SEDIMENTS
RING LEVEE
SURFACE DRAINAGE
DISCHARGE LAGOON
STONE CONTAINER
RIVAL
OLD KNOX GLASS
ABANDONED KNOX GLASS
LAKE MARIE
SLOUGH
WOODED AREA
PASTURE AREA
NEELY CREEK
PEARL RIVER SEGMENT
468
N
SCALE 0 500 FEET
LEGEND
TOTAL LEAD (mg/kg)

The slough drains into the cow pasture pond area before reaching Neely Creek. Samples taken from the pond and Neely Creek show Lead contamination only in the pond area.

Another area of waste disposal was by a drainage ditch to the northwest corner of Lake Marie. In the ditch, waste sediments are evident to a depth of about two feet. In the lake, the waste sediments are observed to fan out from the northwest corner of the lake, a distance of approximately 250 feet thinning rapidly from a thickness of about two feet to two tenths of a foot. It is estimated that 400 cubic yards of waste material is deposited in and around the ditch leading to the lake and 800 cubic yards of waste material is located in the northwest corner of Lake Marie.

The area located on the west side of the back property line of the Rival facility is less defined in area but is estimated to range in thickness from one to two feet in the north end down to one feet or less in the south end of this surface wash area. It is estimated that the volume of waste material in this area is 700 cubic yards.

3.2.3 Surface Water

The Flowood site includes three surface water bodies (figure 3.6) The first, Lake Marie, and the second, the discharge lagoon are located within the immediate site area. The third, Neely Creek, is a receiving stream for drainage from the site.

Lake Marie is a borrow pit, proportionated nine acres in surface area and about eight feet deep. This water body receives local runoff and has, in the past, received direct discharge of process waste water.

The discharge lagoon was formed from part of a canal that ran along the inner levee. It is approximately 1 - 2 feet deep and extends 700 feet northward from a point approximately even with the northern boundary of the Rival facility.

Neely Creek flows from east to west across the southern portion of the site and empties into a Pearl River basin segment. The cutoff river segments have been created from the construction of a large ring levee and straightening of the Pearl River channel in the 1960's.
Surface water at thirty-six stream and drainage locations and thirteen locations on Lake Marie were sampled for analysis of total and soluble Lead and measurements were made of ph and specific conductivity. The results of these analysis are presented in Table 1. Figure 3.7 depicts the levels of total Lead determined at surface water sampling locations around the site area.

Lake Marie surface water samples show elevated levels of total Lead in the northwest corner. Surface water quality in the slough and lagoon followed the general trends of sediment Lead levels in these areas. To the south of the slough the drainage passes through a low ponded area in the cow pasture. Surface water samples obtained, also showed elevated levels of total Lead.

FIGURE 3.6

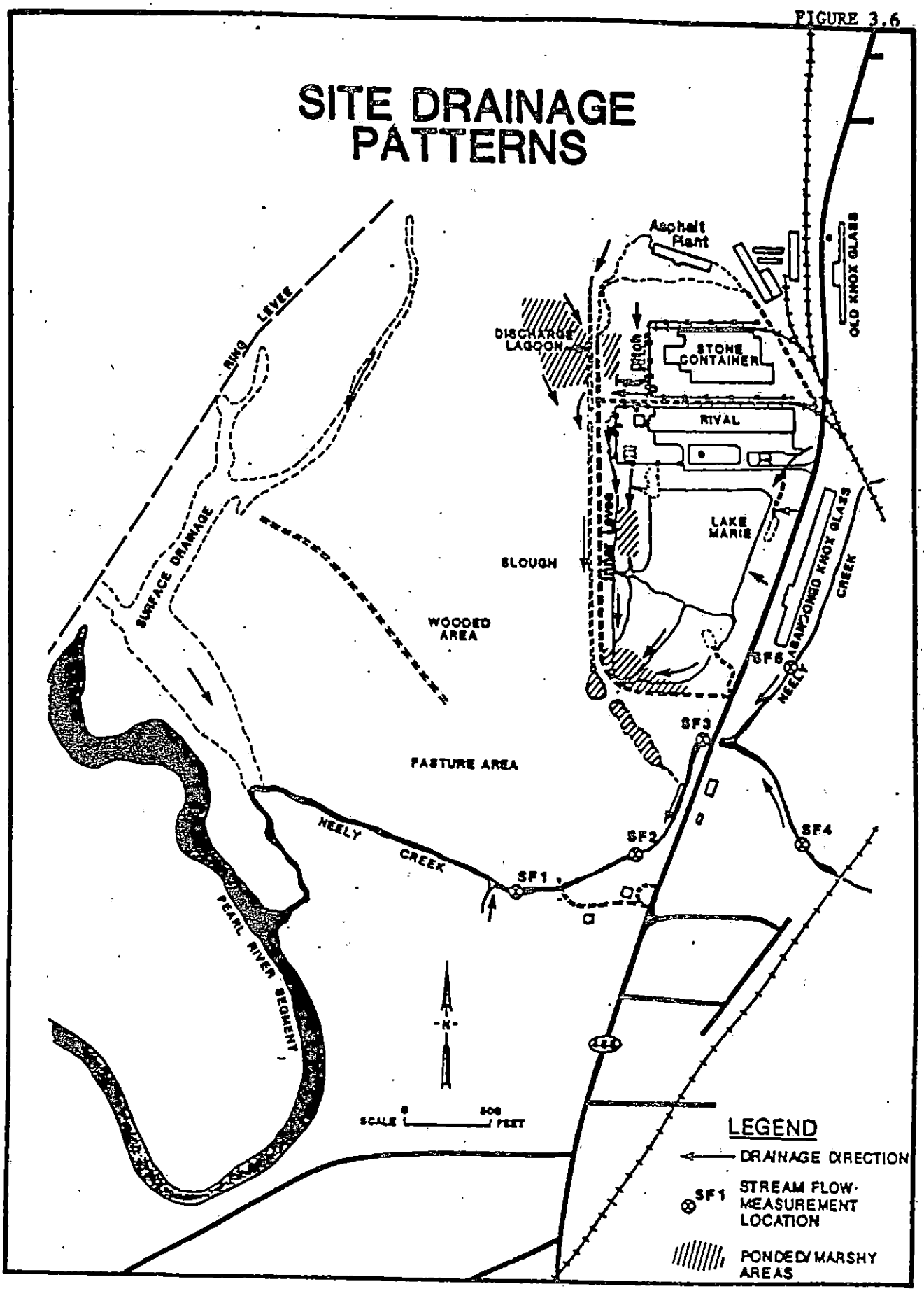

SITE DRAINAGE PATTERNS
Asphalt Plant
OLD KNOX GLASS
DISCHARGE LAGOON
STONE CONTAINER
RIVAL
RING LEVEE
SURFACE DRAINAGE
LAKE MARIE
SLOUGH
WOODED AREA
ABANDONED KNOX GLASS CREEK
SF6
HEELY CREEK
SF3
PASTURE AREA
SF2
SF4
HEELY CREEK
SF1
PEARL RIVER SEGMENT
N
SCALE 0 500 FEET
LEGEND
DRAINAGE DIRECTION
SF1 STREAM FLOW MEASUREMENT LOCATION
PONDED/MARSHY AREAS

TABLE 1
SURFACE WATER ANALYTICAL RESULTS

Location	Date	Total Lead (mg/l)	Soluble Lead (mg/l)	Hardness (mg/l as $CaCO_3$)	pH	Specific Conductivity (umhos/cm)	Temp. °C
A2	7/19/86	0.051	0.026	--	6.7	122	22
A4	7/19/86	0.12	0.042	--	5.8	58	22
A5	7/13/86	0.14	0.020	26.5	7.4	450	26
A6	7/13/86	0.035	0.127	29.6	6.5	510	25
A7	7/13/86	0.044	0.038	--	6.9	250	25
A8	7/13/86	0.024	0.026	28.6	6.8	525	26
A9	7/13/86	0.027	0.020	--	6.6	400	--
A10	7/13/86	0.007	0.033	--	6.4	120	--
A11	7/13/86	0.023	0.012	24.5	6.6	110	
A12	7/13/86	0.037	0.024	--	7.5	540	--
A13	7/13/86	0.124	0.065	26.1	7.3	525	--
A14	7/13/86	0.021	0.052	25.9	7.4	400	30
A15	7/20/86	0.58	0.14	--	7.3	325	--
A16	7/10/86	0.35	0.019	--	6.8	380	31
A17	7/20/86	0.055	0.036	--	7.3	315	--
A18	7/13/86	0.61	0.19	--	7.5	290	28
A19	7/13/86	0.108	0.031	--	7.2	310	26
A20	7/13/86	0.28	0.027	--	7.3	330	26
A21	7/13/86	0.17	0.006	--	7.3	420	28
A22	7/13/86	1.80	0.37	--	7.8	470	30
A23	7/13/86	2.50	1.50	--	8.2	620	28
A24	7/13/86	3.00	1.10	--	9.4	730	27
A26	7/20/86	0.21	0.028	--	8.6	760	--
A27	7/20/86	0.14	0.051	--	8.2	650	--
A28	7/20/86	0.039	0.016	--	7.5	610	--
A29	7/24/86	0.064	0.065	--	6.2	550	32
A31	7/24/86	0.013	0.010	--	6.8	675	34
A32	7/24/86	0.036	0.039	--	7.8	475	35
A33	7/24/86	0.024	0.027	--	7.3	330	35
A34	7/20/86	0.71	0.12	--	7.1	350	--
A35	7/14/86	0.083	0.009	--	7.1	270	28
A36	7/20/86	0.027	0.158	--	7.1	300	--
A37	7/20/86	0.098	0.032	--	7.3	300	--
A38	8/7/86	0.063	0.016	--	6.4	450	22
A39	8/7/86	0.063	0.048	--	6.6	250	22
A40	8/7/86	0.063	0.028	--	6.8	300	20
L1	7/15/86	0.15	0.09	28.6	8.5	310	
L2	7/18/86	0.17	0.014	--	8.0	300	
L3	7/17/86	0.32	0.065	--	8.3	300	
L4	7/18/86	0.051	0.022	--	8.1	290	
L5	7/18/86	0.049	0.011	--	8.2	300	
L6	7/16/86	0.091	0.011	--	8.4	300	
L7	7/17/86	0.069	0.006	--	8.1	310	
L8	7/18/86	0.041	0.027	--	8.3	280	

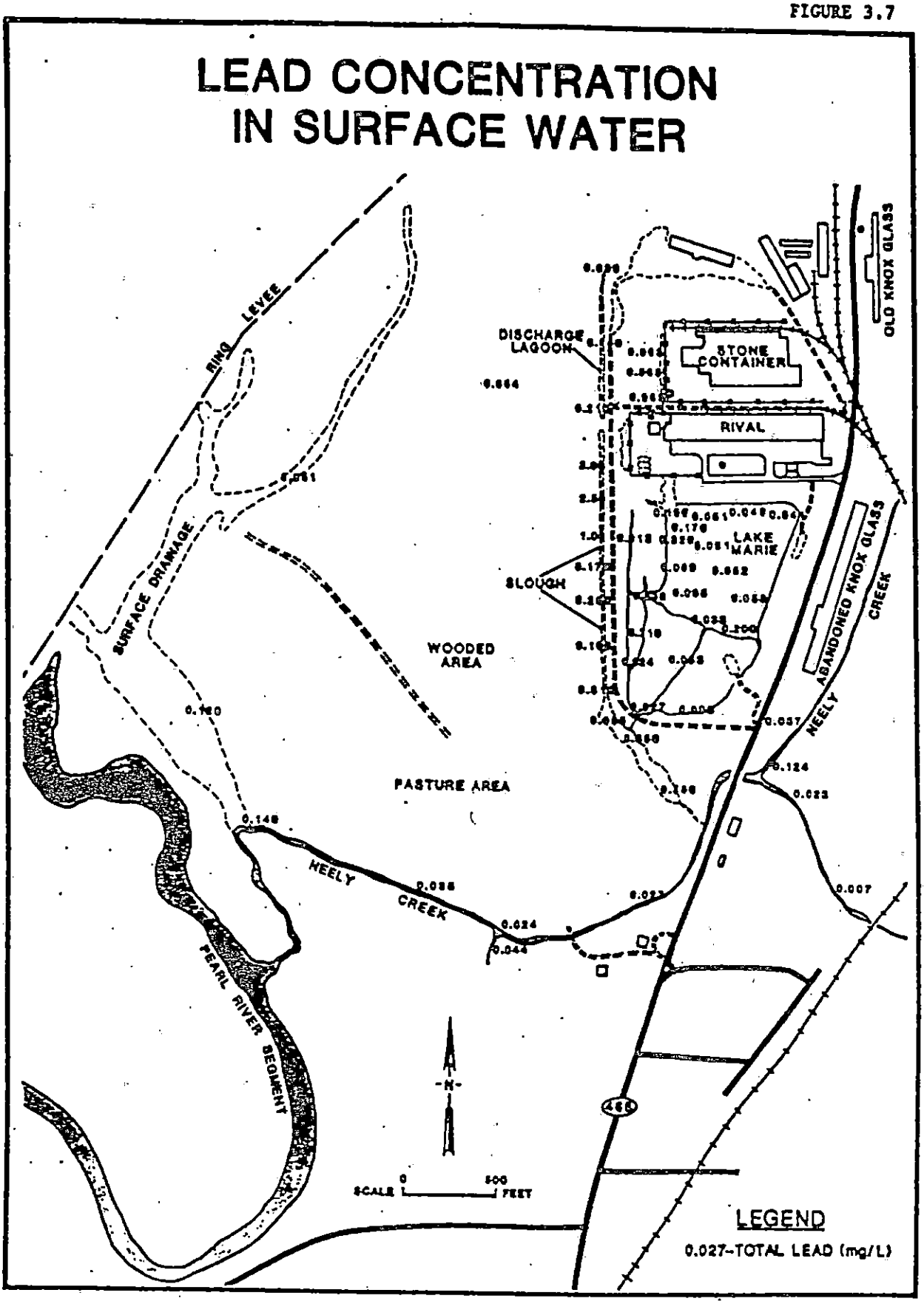
0.6 ug/l

~ 120 ug/l av. in lake.

TABLE 1
SURFACE WATER ANALYTICAL RESULTS
(continued)

Location	Date	Total Lead (mg/l)	Soluble Lead (mg/l)	Hardness (mg/l as $CaCo_3$)	pH	Specific Conductivity (umhos/cm)	Temp. °C
L9	7/17/86	0.052	0.045	29.6	8.1	310	
L10	7/16/86	0.095	0.023	--	8.3	310	
L11	7/17/86	0.058	0.007	--	7.9	310	
L12	7/16/86	0.033	0.013	--	8.4	310	
L13	7/17/86	0.200	0.397	28.6	8.2	310	

FIGURE 3.7


LEAD CONCENTRATION
IN SURFACE WATER
RING LEVEE
SURFACE DRAINAGE
DISCHARGE LAGOON
STONE CONTAINER
RIVAL
OLD KNOX GLASS
LAKE MARIE
SLOUGH
WOODED AREA
ABANDONED KNOX GLASS
CREEK
NEELY
PASTURE AREA
HEELY CREEK
PEARL RIVER SEGMENT
460
N
SCALE 0 500 FEET
LEGEND
0.027-TOTAL LEAD (mg/L)

3.2.4 GroundWater

An assessment of the water quality in the alluvial aquifer was made with the four monitoring wells installed. Results from the monitoring wells show limited impact from waste disposal operations on the site. Additional wells were added in the shallow aquifer and were analyzed for total Barium, Cadmium, Lead, Manganese, and Zinc. These parameters were chosen for analysis based on the levels of these metals found in some soil and sediment samples during the remedial investigation. Field measurements were also made of ph, specific conductive and temperature (table 1).

Maximum contaminant levels for metals were generally not exceeded in the shallow ground water at this site. Only one well exhibited concentration of Lead slightly above the drinking water standard. This well is located in the immediate vicinity of Lake Marie and the water disposal areas. Impacts to the ground water are limited to the immediate vicinity of the disposal areas.

3.2.5 Biota Data

The Mississippi Bureau of Pollution Control collected fish samples from Crystal Lake. The drainage from the Flowood site enters into Neely Creek and continues to Crystal Lake. Bass and catfish were collected and sampled for Lead and PCB's.

A composite sample of five Largemouth bass was analyzed. The mean length was 433 mm and the mean weight was 1390 grams. The bass contained 0.07 mg/kg of Lead which is considered to be at background levels. PCB's were not detected.

The catfish was collected in trammel nets and a two fish composite of channel and blue catfish was analyzed. The mean length was 562 mm and the mean weight was 2324 grams. The Lead content was slightly elevated at .37 mg/kg, however, there are no known health risks associated with the level. PCB's were not detected.

4.0 Public Health

4.1 Exposure Pathway

An exposure pathway analysis was performed to identify possible complete pathways for exposure. The first step in this analysis was to determine the potential source and mechanisms for chemical releases at the site.

Releases to air via volatilization are expected to be non-existent. The indicator chemicals (Barium, Cadmium, Lead, Manganese, and Zinc) all exert very low vapor pressure. However, releases to air via fugitive dust generation may be a mechanism. This may be germane at the Flowood site due to the nature of the site contamination (open surface disposal) and marshy areas. It is unlikely that fugitive dust levels reaching exposure points will be significant.

Surface waters may be threatened by release from the deposited waste through surface runoff and groundwater seepage. Ground water may be threatened by release from the deposited wastes through leachate generation. However, data from installed monitoring wells show little impact from the disposed waste and if contaminant did impact the shallow ground water, attenuation would occur over the distance from the site to the receiving bodies of water after source containment.
The release sources may affect local soils through leaching, surface runoff, fugitive dust generation and tracking. Leaching and runoff may be occurring and could affect local soils to small degree. Due to the nature of the site, tracking is a natural release mechanism.

4.2 Human Exposure

Exposure via air to fugitive dust emissions may occur. Two residential communities exist within one half mile of the site, one to the northeast and one to the south. Residents to the south are somewhat protected by dense vegetation between their community and the source. Residents to the north are separated from the source by the industrial buildings in the vicinity and some vegetation at a somewhat higher risk are workers in the vicinity of the source.

Surface waters may receive contamination via surface runoff. The area southwest of the inner levee is being used for grazing of beef cattle. These cattle often drink from low ponded areas south of the slough and from Neely Creek. The concentration of Lead in Neely Creek ranges up to about 150 ug/L. The ingestion of meat from cattle that had been drinking surface water containing 150 parts per billion or less of Lead is not a concern for human health. Lead absorption in the gut of animals has been demonstrated to range from 1 to 15 percent of the total ingested dose. The remaining portion of Lead accumulates in the animals bones and not in the flesh portions.

Some elevated levels of indication chemicals were seen in the on site monitoring wells. Due to their close proximity to the concentrated waste, the expected rate of groundwater flow, and the length of time elapsed it is assumed that these levels could represent worst case levels of the contaminates. No active potable ground water wells were identified in the shallow aquifer downgradient of the site. Numerous deep wells were noted in the general vicinity but sampling indicated no contamination.

A potential exist for human consumption of fish that may be exposed to levels of Lead found in Neely Creek, although an edible fish population in Neely Creek is not in evidence, assuming that these soluble Lead levels may impact fish caught downstream, the Mississippi Bureau of Pollution Control collected fish samples from Crystal Lake. Two species of fish were analyzed, Largemouth Bass and Catfish.

The catfish analysis showed elevated levels of Lead at 0.37 mg/kg. Data from Mississippi Ambient Air Monitoring Program indicated background levels of Lead in Mississippi to be around .07 - .15 mg/kg in whole fish.