



CITY OF JACKSON – J. H. FEWEL INTAKE

JACKSON, MISSISSIPPI

SOURCE WATER ASSESSMENT

Prepared by

**Tennessee Valley Authority
Chattanooga, Tennessee
June 2004**



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- Attachment 1. Source Water Protection Area for Jackson Water Supply Intake
Map
- Attachment 2. Area of the Middle Pearl-Strong Watershed Upstream of the
Jackson Water Intake Map
- Attachment 3. Jackson Source Water Assessment Arcview CD

INTRODUCTION

This document and accompanying maps, compact disc, and supporting report were prepared by the Tennessee Valley Authority (TVA) in support of the Mississippi Department of Environmental Quality (MDEQ), Source Water Assessment Program. This source water assessment package was prepared to comply with the U.S. Safe Drinking Water Act Amendments of 1996 (P.L. 104-182) and the subsequent guidance document prepared by the U.S. Environmental Protection Agency (EPA).

The information and data used in the preparation of this source water assessment package for the City of Jackson J. H. Fewell surface water intake on the Pearl River approximately 11 miles south of the Ross R. Barnett Reservoir were obtained from existing sources and databases, relying heavily on EPA's Envirofacts website, Office of Management and Budget (OMB) and the Center for Public Data Access' Right-to-Know website, MDEQ's databases, TVA's databases, and the U.S. Department of Agriculture's electronic information system. A complete listing of these information sources is presented at the end of this document.

This source water assessment package consists of five components: 1) this document, the purpose of which is to integrate all of the components; 2) a geographic information system (GIS) produced 7.5 minute topographic map of the source water protection area (SWPA); 3) a map delineating the area of concern on the Pearl River watershed; 4) a compact disc containing the GIS ArcView project file used to produce the SWPA map; and 5) a report on the methodology used to determine the hydraulic time of water travel for the area of concern on the Pearl River. The specifics on and instructions for use of each of these components are presented later in this document.

THE PEARL RIVER BASIN

The Pearl River Basin is located in east-central and southwest Mississippi and in the southeastern part of Louisiana. The river is approximately 490 miles long and drains an area of 8,760 square miles. The basin covers all or part of 24 counties in east central and southern Mississippi. The river extends from its headwaters in Neshoba County through the Jackson metropolitan area and empties into the Mississippi Sound. Significant tributaries to the Pearl River include the Yockanookany River, Bogue Chitto River and Strong River.

The Pearl River is formed by the confluence of Nanawya and Tallahaga Creeks in Neshoba County, MS. The river flows in a southwest direction for about 146 miles past Jackson, MS to Byram, MS. Then it flows southwardly to the head of its outlet channels, which are the Pearl and West Pearl Rivers. These channels continue in the same general direction for 48 and 44 miles, respectively, and empty in Lake Borgne and the Mississippi Sound. The West Pearl River lies entirely within the State of Louisiana. The lower 61 miles of the Pearl River form part of the boundary between Mississippi and Louisiana.

Hydrologic Overview

The Pearl River Basin is located in a relatively wet region in the United States. The Gulf of Mexico, located only a short distance to the south is a major source of moisture. As there is no significant barrier between the Basin and the Gulf, prevailing winds from the south and west bring this moisture across the Basin. The Basin is also subject to heavy rainfall from dissipating hurricanes moving across the southeastern United States.

The seventy year (1931-2000) average annual precipitation for the Basin is 58 inches. The heaviest rainfall concentrations occur in the southern area nearest the coast, where annual precipitation has exceeded 65 inches for the past 30 years. Approximately half of the annual rainfall is received in winter and early

spring (December-April). March is typically the wettest month, while the driest month is normally October. Monthly average rainfall ranges from 2.8 to 7.3 inches.

Flood Potential

The major flood season in the Pearl River Basin is December through April, with the highest frequency of storms occurring in March. Widespread cyclonic storms with heavy, persistent rainfall occur more frequently during the winter season through early spring. The worst winter storms can cover the area for several days. It is not unusual for one large winter storm to be followed by another even larger storm three to five days later. Conversely, the worst summer storms tend to be short, intense, and relatively localized, resulting from thunderstorms or decadent tropical storms that have moved inland. These summer storms generally affect the majority of the basin.

Pearl River Basin Uses

According to the *State of Mississippi Water Quality Criteria for Intrastate, Interstate, and Coastal Waters*, the majority of the waters in the Pearl River Basin are classified as Fish and Wildlife streams. Waters in this classification are intended for fishing, the propagation of fish, aquatic life and wildlife, and are secondary contact recreation (e.g. incidental contact with the water, including wading and occasional swimming). Two lakes in the basin (Lake Dixie Springs and Lake Columbia), along with portions of the Pearl, Strong, and Bogue Chitto Rivers and the Ross Barnett Reservoir, are classified for Recreation in addition to the Fish and Wildlife Classification. Waters in the Recreation classification are intended for such water contact activities as swimming and water skiing. Portions of the Pearl River and the Ross Barnett Reservoir are also classified as Public Water Supplies and are intended for use as a source of raw water supply for drinking and food processing purposes. The classifications for each portion of the Pearl River can be seen in Figure 1.

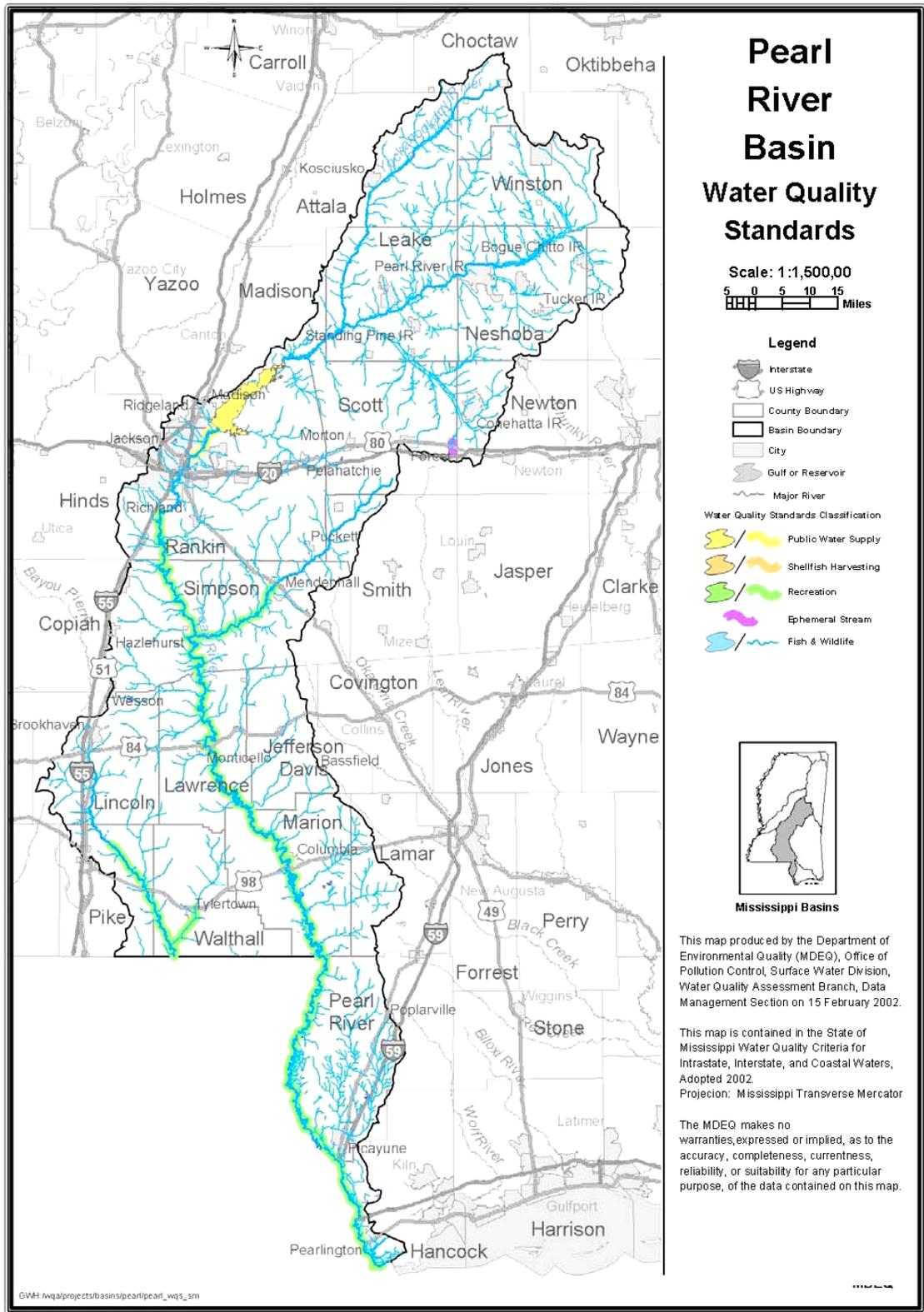


Figure 1. Pearl River Basin Water Quality Standards

Water Quality

The Mississippi Department of Environmental Quality's Office of Pollution Control conducts a surface water monitoring program in order to develop and maintain an understanding of water quality in the State, to gather the data needed to accurately describe the State's water quality and determine the causes and effects of any changes in the water quality, to support the State's regulatory water quality programs, and to measure how well the State's water pollution control programs are working. Mississippi's Surface Water Monitoring Program includes fixed monitoring stations, special studies, regulatory compliance monitoring, volunteer collections, laboratory support, quality assurance/quality control measures, and data sharing, management and reporting.

The water quality in the Pearl River was evaluated in detail in the "Pearl River Basin Status Report – 2000," produced by the Mississippi Department of Environmental Quality (MDEQ). The Pearl River Basin plays an important role in maintaining the health and diversity of the Mississippi Sound. The Mississippi Sound is largely a product of the rivers that feed it. The Pearl River Basin, along with the Pascagoula River Basin, supplies a large portion of the fresh water entering the Mississippi Sound. The basin replenishes nutrients and sediments that play a critical role in maintaining the productivity of the coastal waters. Sediment that the fresh water carries maintains marsh habitats that regulate the discharge of nutrients to coastal waters. Wetlands can absorb these nutrients as well as return some of the nitrogen back to the atmosphere. Wetlands also recharge aquifers, reduce flooding and help to control erosion. In addition to their ability to enhance water quality, wetlands are among Mississippi's most productive habitats, providing diverse habitats for a variety of mammals, birds, reptiles, amphibians and fish. Nearly one-third of the nation's endangered and threatened species live in or are dependent upon wetland habitats. Millions of waterfowl use wetlands for breeding and wintering grounds every year.

Physiography

Physiography concerns the structure and type of underlying geologic formations, as well as the local geologic and climatic forces that shape the landscape. Along with several other factors, an area's physiography determines the natural water quality conditions of local streams, rivers, and lakes. Mississippi has two main land regions: the Mississippi Alluvial Plain and the East Gulf Coastal Plain. The East Gulf Coastal Plain (Figure 2) has 8 physiographic sections (shown in Figure 3): Tombigbee Hills, Black Prairie, North Central Hills, Loess Hills, Jackson Prairie, South Central Hills, Pine Belt, and Coastal Zone. The Source Water Protection Area is covered by two of these areas: Jackson Prairie and South Central Hills. Also illustrated in Figure 3 is the Delta (Mississippi Alluvial Plain), which is not included in any of the Source Water Protection Area.

The East Gulf Coastal Plain in its entirety extends from the Florida Parishes of Louisiana over most of Mississippi, parts of western Tennessee and Kentucky, the southwestern two-thirds of Alabama and Florida's western panhandle. The East Gulf Coastal Plain is characterized by a flat to rolling topography, which is broken by numerous streams and rivers. In the state of Mississippi, the East Gulf Coastal Plain's elevation range is from sea level at the coast to 806 feet above sea level at Woodall Mountain. All rivers in this region drain to the Gulf of Mexico, including those in the Coastal Streams, Pearl River, Pascagoula River and Tombigbee River watersheds.

Many species of pine dominate the natural vegetation in the East Gulf Coastal Plain. Originally, longleaf and slash pine covered the southern part of this physiographic region, while shortleaf pine mixed with hardwoods enveloped the north. Loblolly pine and hardwoods were often found in damp areas, while bottomland hardwood forests were located in extensive lowland drainages. Under present-day land use practices, many of the bottomland hardwood forests have been cleared for agricultural use and much of the original longleaf pine and upland hardwoods have been cleared and replanted with loblolly or slash pine.

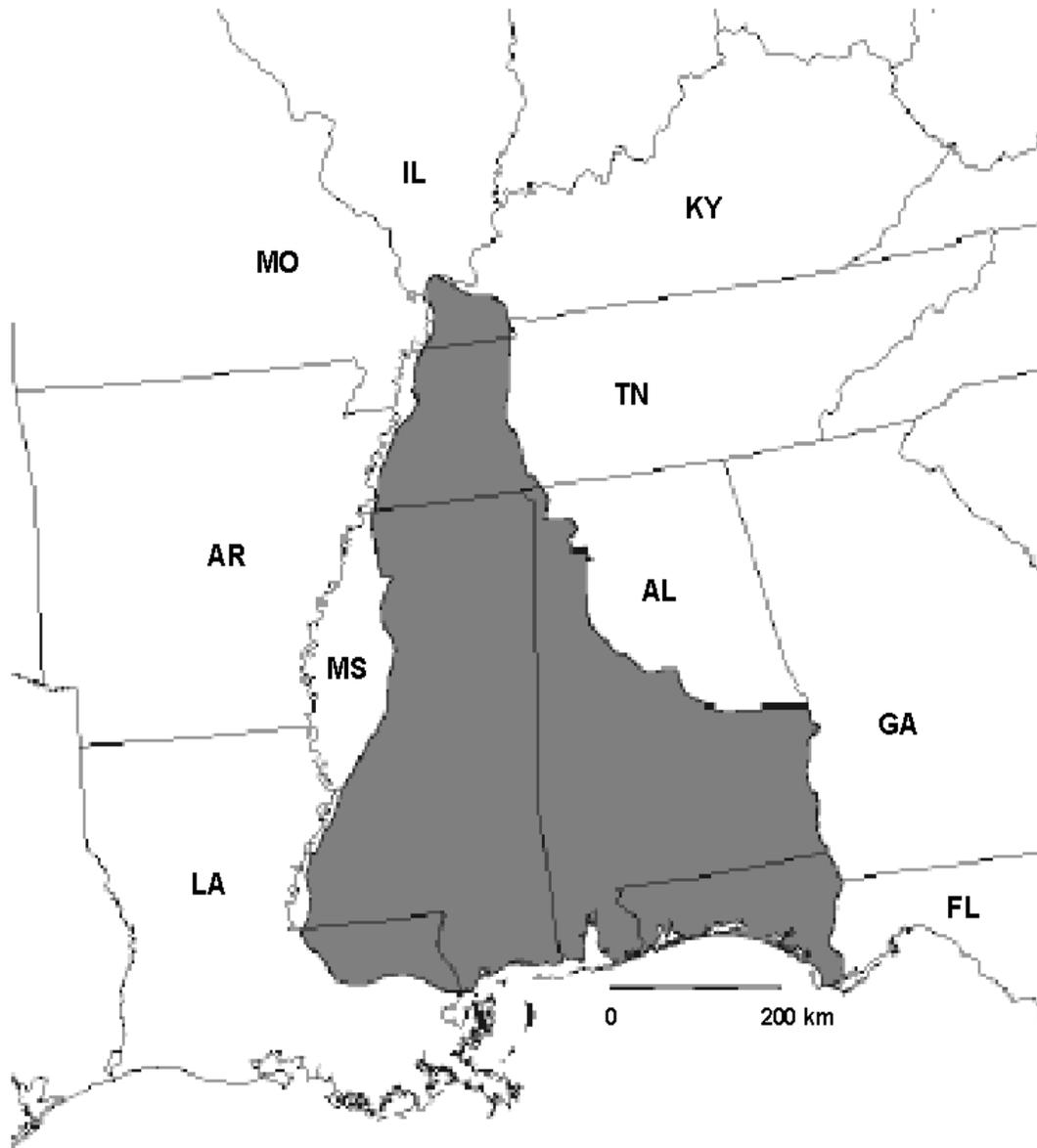


Figure 2. Physiographic Map Illustrating the East Gulf Coastal Plain

The East Gulf Coastal Plain, physiographic area 4, covers 95,138 square miles across Louisiana, Mississippi, Alabama, Tennessee, Kentucky, and Florida.

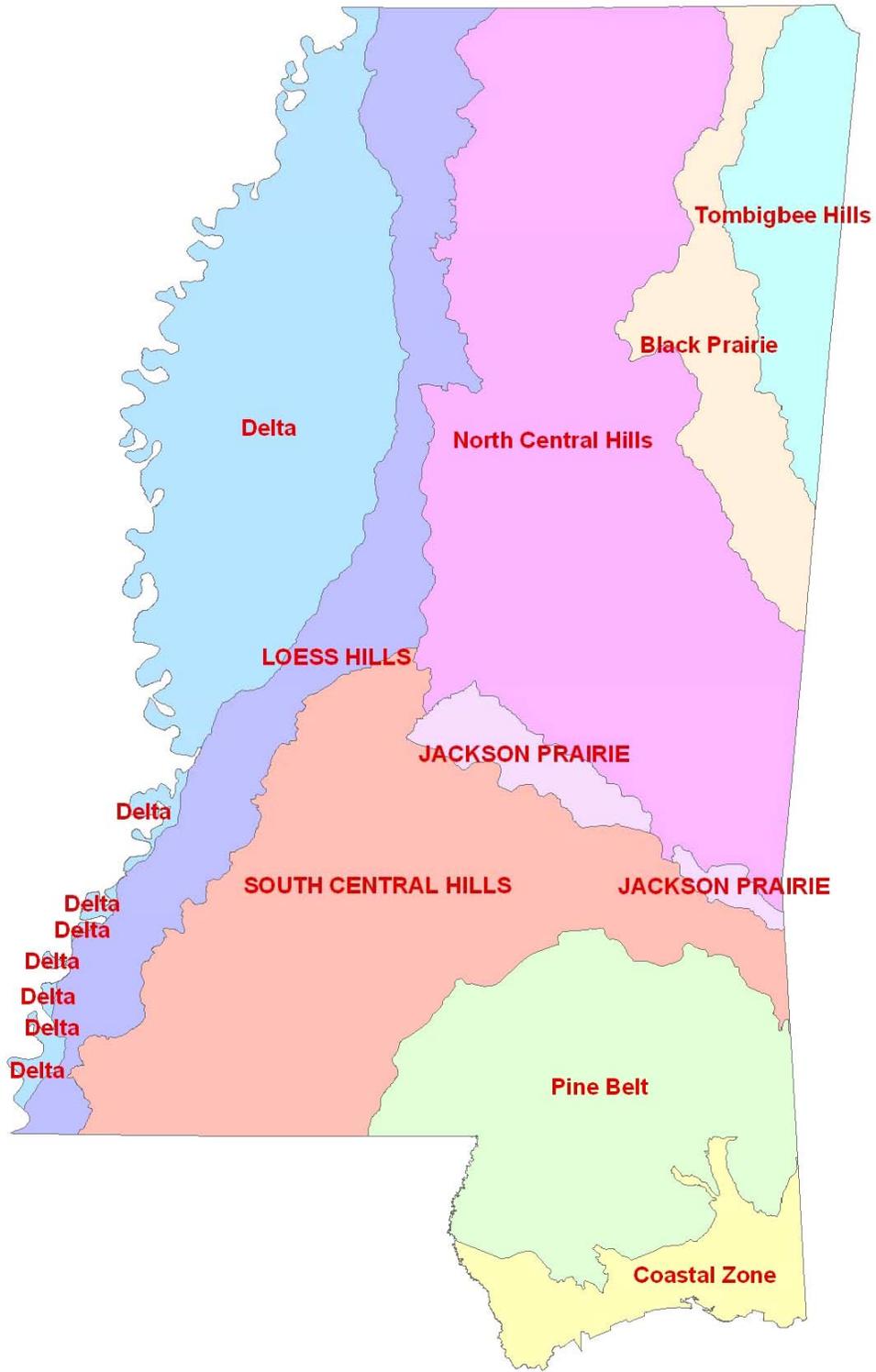


Figure 3. Physiography Map Illustrating Nine Sections in Mississippi

CITY OF JACKSON WATER SUPPLY DISTRICT, WATERSHED

DESCRIPTION

The City of Jackson J. H. Fewel water supply intake is located approximately 11 miles downstream of the Ross R. Barnett Dam near Le Fleur's Bluff State Park. This intake is located within the Middle Pearl-Strong Watershed, which covers an area 3050 square miles. The drainage area upstream of the intake to the upstream boundary of the Middle Pearl-Strong Watershed (HUC 03180002) covers 687.4 square miles and is illustrated in the watershed delineation map, entitled "Area of the Pearl-Strong Watershed Upstream of the Jackson Water Intake" accompanying this report. The watershed boundaries on this map were produced using the state of Mississippi's 8 digit hydrologic unit code (HUC) by TVA's Geographic Information & Engineering (GI&E) facility in Chattanooga, Tennessee.

Water Use Classification

The state of Mississippi has established water use classifications for its inter- and intrastate waters. Use classifications apply water quality criteria to ensure protection of the existing water quality and to enhance water quality in the state of Mississippi. Use classifications utilized by the state of Mississippi are: public water supply, shellfish harvesting, recreation, fish and wildlife, and ephemeral stream. Any state waters that are not specifically classified by the state are assumed to be listed as fish and wildlife.

The Pearl River in the vicinity of the City of Jackson J. H. Fewell Water Supply District is classified by the state of Mississippi for use as a public water supply, for recreation, and for fish and wildlife (see Figure 1).

Soils/Land Use

Soils within the Source Water Protection Area (SWPA) for the City of Jackson - J.H. Fewell water supply intake located on the Pearl River has soils classified as

Vicksburg silt loam, Vicksburg fine sandy loam, and Olivier silt loam (soils classified by the U.S. Department of Agriculture).

Vicksburg silt loam dominates the majority of the SWPA. The surface layer of this soil consists of grayish-brown or brown mellow silt loam. At an approximate depth of eight inches, a somewhat lighter-brown silt loam is present. In the Pearl River bottoms, this soil varies with location. In the ridges, depressions and hummocks that the Pearl River has made it is not feasible to separate the soil variations and phases that have been developed.

Another soil in the SWPA is the Vicksburg fine sandy loam. It is characteristically near the banks of the larger streams; in this case the Pearl River. It consists of brownish-gray fine sand, about 2 inches deep, underlain by light-brown slightly loamy fine sand which gives way to brown fine sandy loam at a depth of 10 or 12 inches. Vicksburg fine sandy loam occurs principally along the banks in narrow flats or on rounded ridges interspersed with narrow elongated depression.

In some of the better-drained areas along the Pearl River, Olivier silt loam consists of grayish-brown or brown friable silt loam from three to five inches deep, grading into light-brown or brownish-yellow at a depth of 10 to 12 inches. Olivier silt loam lies from about 10 to 25 feet above the present flood plains of streams. The surface relief is faintly undulating in places, but most commonly is nearly level. Surface drainage is fairly good, but under drainage is poor.

Land use data for the Middle Pearl-Strong Watershed in the Source Water Protection Area is shown in Figure 4 and was obtained from color infrared photography. In general, the SWPA of the watershed is approximately 39% wetland, 20% residential, 13% commercial, 12% water, and the remainder cropland/pasture, forested, right-of-way, industrial, and rangeland.

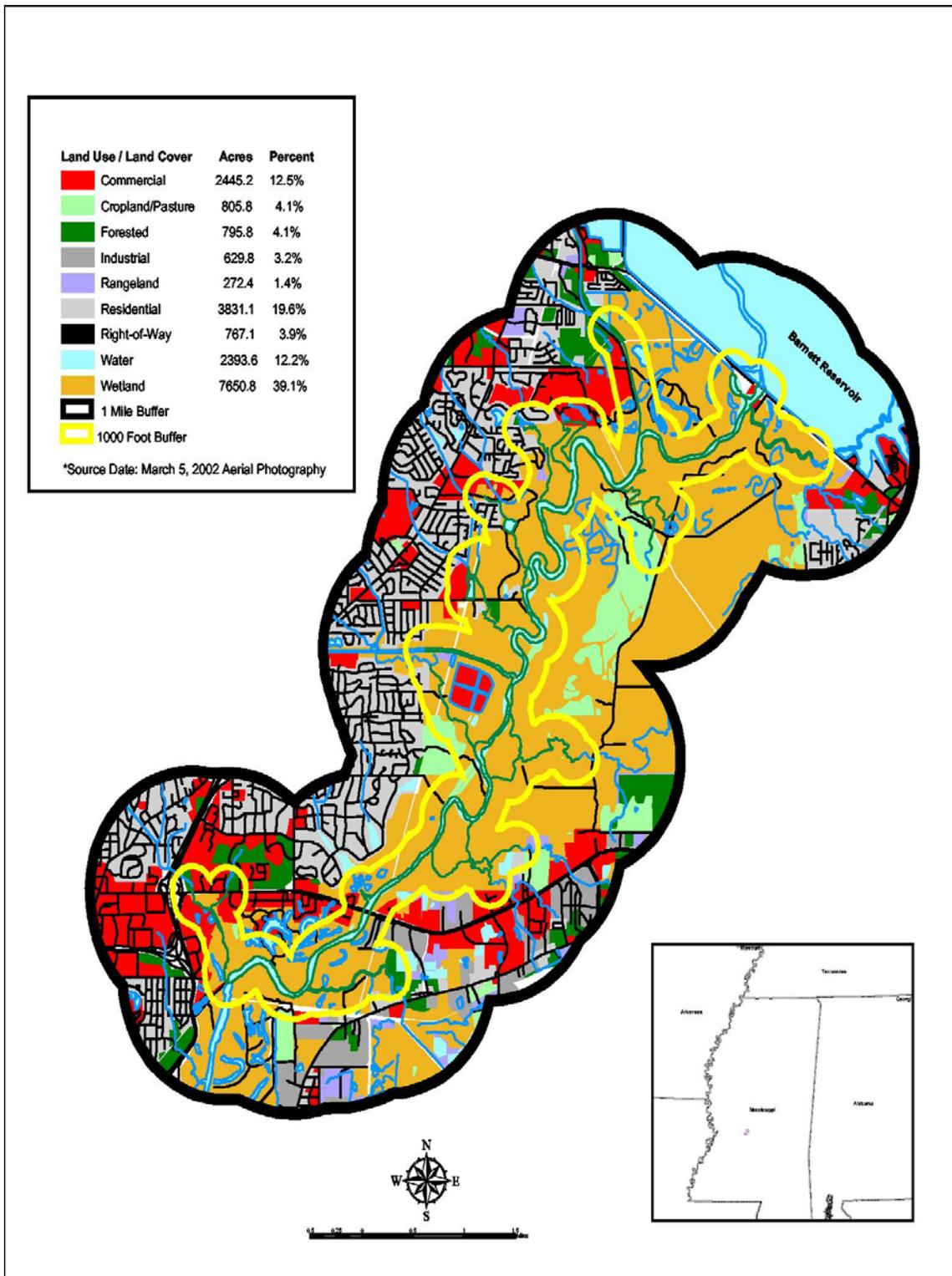


Figure 4: Land Use within the City of Jackson Water Supply SWPA, 2002

The Source Water Protection Area (SWPA)

For purposes of this source water assessment, the SWPA is defined as a zone extending ¼ mile downstream of the intake and 15 miles upstream of the intake. This “critical area” also includes a 1000-foot buffer from the water’s edge on each side of the river, and locations where it is known or suspected that a source of potential contamination is present within 1500 feet of the water’s edge. For locations where that information is available, the buffer was extended to include those areas. Where a significant tributary enters the SWPA within the 15-mile segment upstream of the intake, the SWPA also extends up the tributary for 1 mile and includes the 1000-foot buffer on each side of the tributary.

In developing the land use/land cover data for the SWPA, the TVA elected to extend this coverage to one mile from the water’s edge rather than the 1000 feet specified by the contract. This was done to further assist the water supply in the developing its source water protection plan. However, the potential contamination sites within the one mile zone, but outside the 1000-foot buffer, are not included in this report. Land use/land cover data for the J. H. Fewell Water Supply SWPA and the one mile zone from the water’s edge is summarized in Figure 5. The non-aquatic land cover in these areas is predominantly wetlands, followed by commercial, residential and small percentages of other land uses.

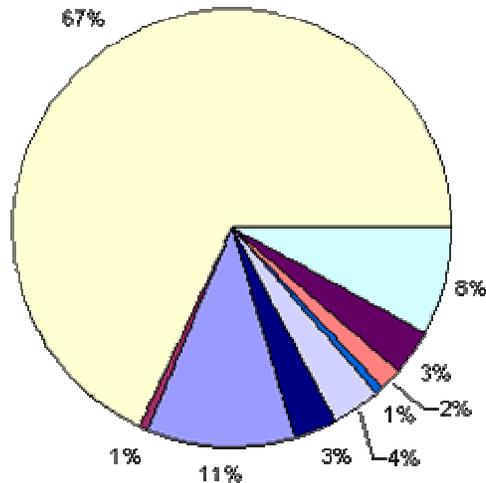
Within the SWPA (1000 foot buffer), potential sources of contamination have been identified using the databases previously mentioned. These sources include the National Pollutant Discharge Elimination System (NPDES) permitted discharges, hazardous waste facilities, petroleum storage sites, bridges and pipelines. These potential sources and their associated contaminants (if available) are described in Appendix A.

Also included are the 2002 agricultural chemical usage summaries for the counties in the SWPA. This agricultural information is presented in Appendix B.

The SWPA and the locations of the potential sources of contamination are shown on the 7.5 minute topographical map accompanying this document. The map also shows land use within one mile of the shoreline, including the SWPA.

The map, locations of the potential sources of contamination, and the information in Appendix A can also be viewed from the compact disc accompanying this document. The CD contains the GIS project file which was used to generate the information. It was created using ArcView 3.2, which is software manufactured by ESRI, Inc. Using this software enables MDEQ to update information by the addition, deletion, or other changes to the data sets which generate the map attributes. ArcView or compatible software is required to update data sets or change the project file. Since the CD containing this information is in read-only format, the files must be copied from the CD (placed on a computer, etc.) in order to make updates. Documentation and instructions regarding the use of these programs are presented in Appendix C.

J. H. Fewel Intake Surface Water Protection Area (SWPA) Land Use/Land Cover

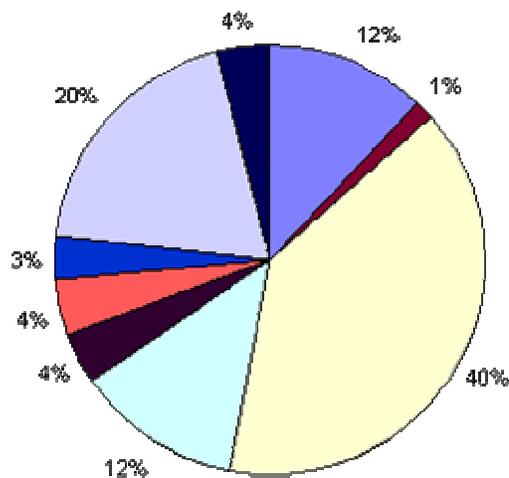


The SWPA is 5,665 acres
(9 Sq. Miles)

Water	611 acres
Rangeland	32 acres
Wetland	3,874 acres
Commercial	545 acres
Cropland/Pasture	187 acres
Forested	103 acres
Industrial	29 acres
Residential	207 acres
Right-of-Way	168 acres

(Figures rounded up)

J. H. Fewel Intake 1-Mile Zone Including SWPA Land Use/Land Cover



The 1-Mile Zone is 15,952 acres
(30.6 Sq. Miles)

Water	2394 acres
Rangeland	272 acres
Wetland	7651 acres
Commercial	2445 acres
Cropland/Pasture	806 acres
Forested	796 acres
Industrial	630 acres
Residential	3831 acres
Right-of-Way	767 acres

(Figures rounded up)

Figure 5. Land Use/Land Cover in City of Jackson J. H. Fewel SWPA and the 1-Mile Zone Including the SWPA

Time of Travel

Travel times of a hypothetical chemical spill that occurs either immediately downstream of the reservoir or that escapes from the reservoir in the dam releases to travel through the meandering downstream channel and reach Jackson were evaluated using the one-dimensional mathematical model, ADYN (Hauser, 1991) developed by TVA. ADYN is a one-dimensional unsteady flow model capable of generating quantitative information as wetted area, depth, velocity, flow, volumes, and has a particle tracking feature which allows travel times to be estimated, assuming that river flow is the dominant transport mechanism. The ADYN model does not perform dispersion calculations or take wind-related parameters such as fetch into consideration in the particle tracking routine.

Geometry data for the ADYN model of the Pearl River were obtained primarily from the USGS 7.5 minute quadrangle topographic maps, and a USGS cross section at the Jackson stream gage. The topographic maps have a 10-foot contour interval. A total of 10 cross sections were taken from the three topo maps that cover the 14 mile reach. The section locations are shown in Figure 6, below. Both Figure 6 and Figure 7 may be useful to help determine the river mile to use for the location of a chemical spill.

The model was used to evaluate travel times for about 14 miles of the Pearl River, from the Jackson gage to Ross Barnett Reservoir. The Jackson gage is assumed to be mile zero in the model. Figure 6 shows the model reach and cross section locations.

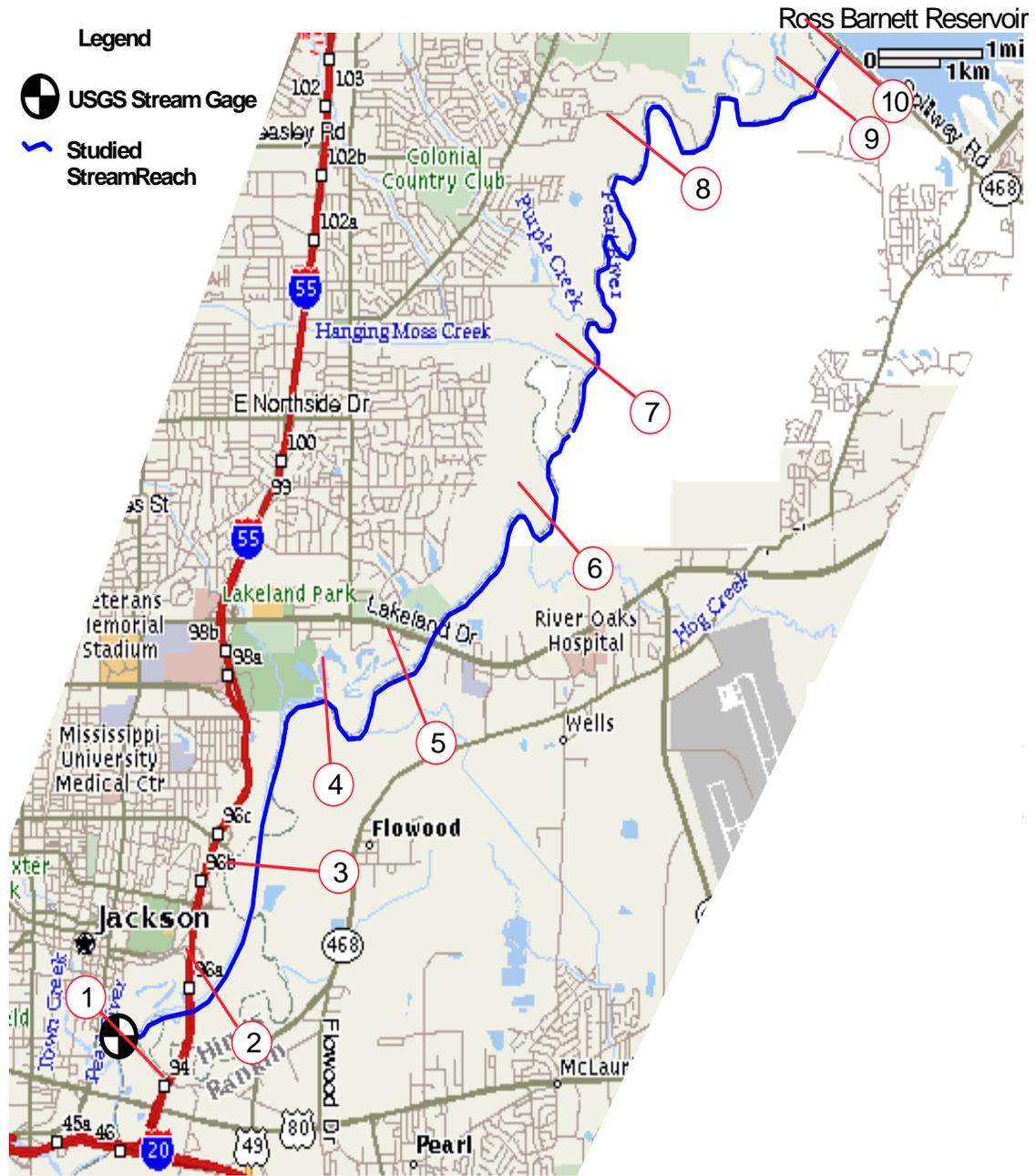


Figure 6. Pearl River Cross Section Locations

Pearl River Cross Section Locations		
Section number on map	River Mile (Mile 0 = Jackson gage)	Comment
1	0	Pearl River at Jackson, MS USGS stream gage
2	0.92	
3	1.99	
4	3.53	1800 feet upstream of City of Jackson J.H. Fewell Water Treatment Intak
5	4.81	
6	6.94	
7	8.32	Just upstream of Hanging Moss Creek
8	11.49	
9	13.95	
10	14.33	Ross Barnett Reservoir/Dam

Figure 7. Listing of Cross Section Locations in Model

Arriving at a travel time from the plot involves reading the data from two locations and taking the difference of the two travel time values.

When the location of the spill is known, one should:

1. Locate the river mile of the spill on the appropriate chart. Whether the spill occurs along the edge of the reservoir or in the middle, the model handles it the same way due to its one-dimensional nature.
2. Find out the last 24 hours of water releases from the dam and inflows from the Lena stream gage from the Mississippi USGS web site: <http://ms.waterdata.usgs.gov/nwis/current/?type=flow>
3. Find the appropriate line on the travel time charts (Figures 7 and 8) closest to the recorded water releases from the web site and read the water travel time off the chart for the water intake location (near River Mile 3.15), and subtract from it the water travel time from the chart for the location of the spill.

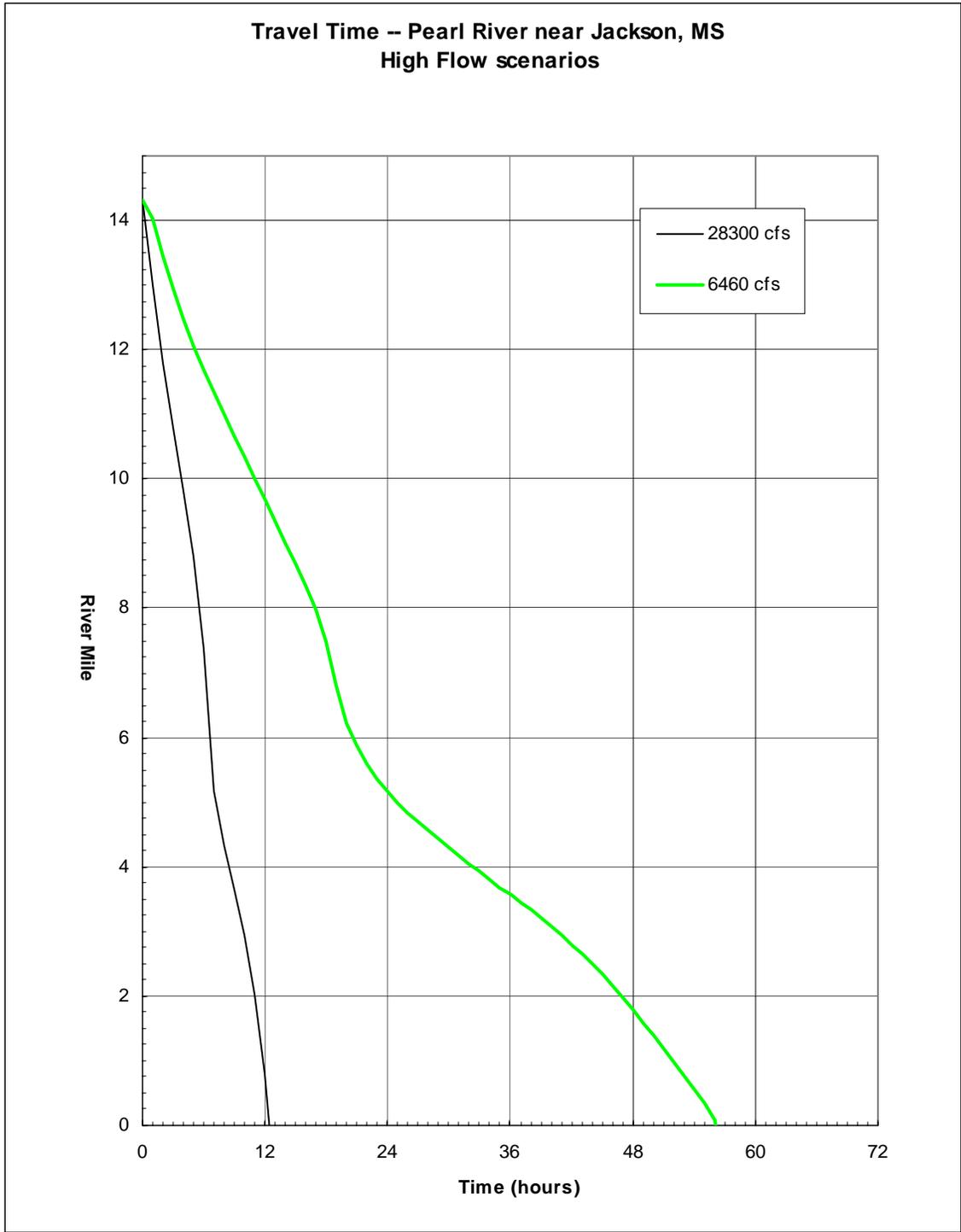


Figure 8. High Flow Travel Time Chart, Pearl River

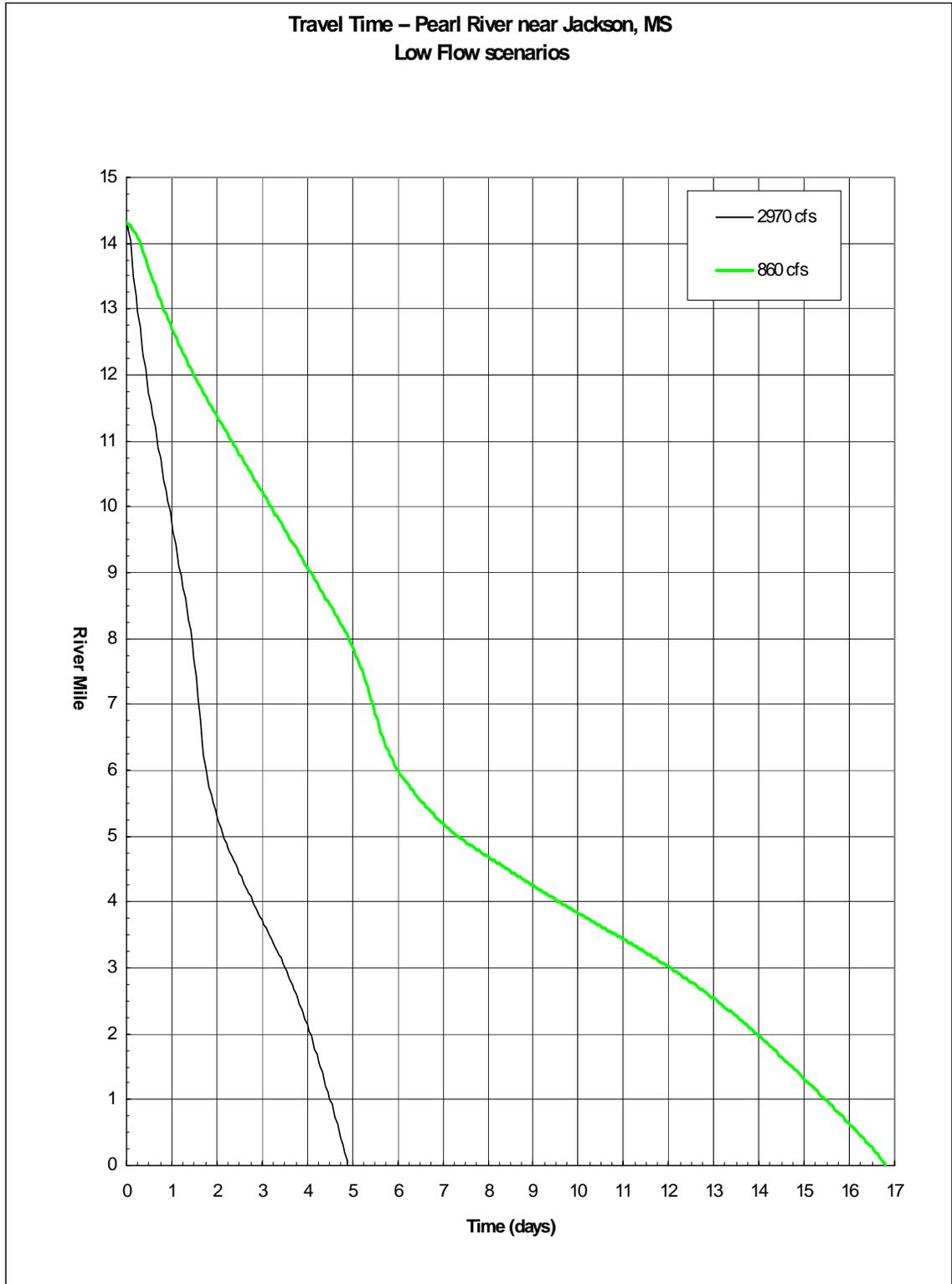


Figure 9. Low Flow Travel Time Chart, Pearl River

The following example illustrates the procedure using Figures 6, 7, 8, and 9.

Example: An oil spill occurs at the Highway 25 (Lakeland Drive) bridge at 0730 hours on 3/01/2004. Consulting the USGS website, you find that the current Jackson stream gage reading is 3050 cfs, very close to the 2970 cfs line. Water travel time to the City of Jackson's J.H. Fewell surface water intake is calculated as follows:

Determine the river mile of the spill and of the water works. Using the map in this document and the USGS Jackson quad map, locate the nearest cross section on the quad map, which is #5. Measure the distance from this section to the highway bridge, which is 1500 feet along the river. Section 5 is at mile 4.81 + 1500 feet is mile 5.09. The water intake is at mile 3.15. You can use the 2970 cfs line because the discharge is very similar to this number. So, travel time from the spill location to the water intake is about 1.2 days at this flow rate.

A complete description of the methodology used to produce the above calculation is presented in the accompanying report, *Determination of Contaminant Travel Time on Pearl River from Ross Barnett Reservoir to Jackson, Mississippi*

SOURCES OF INFORMATION

Mississippi Department of Environmental Quality – Office of Pollution Control, State of Mississippi Water Quality Criteria for Intrastate, Interstate and Coastal Waters. Jackson, Mississippi: 1995.

USDA, 1997 Census of Agriculture, Volume 1 Geographic Area Series, “Table 1. County Summary Highlights: 1997.”

USDA, National Agricultural Statistics Service, Agricultural Statistics 2003. United States Government Printing Office, Washington: 2003.

USDA, National Agricultural Statistics Service, Agricultural Chemical Usage – 1998 Field Crops Summary. United States Government Printing Office, Washington: 1999.

USDA, National Agricultural Statistics Service, Agricultural Chemical Usage – 2001 Field Crops Summary. United States Government Printing Office, Washington: 2002.

USDA, National Agricultural Statistics Service, Agricultural Chemical Usage – 2002 Field Crops Summary. United States Government Printing Office, Washington: 2003.

USDA, Soil Conservation Service, Soil Survey of Madison County, Mississippi. 1980.

USDA, Soil Conservation Service, Soil Survey of Rankin County, Mississippi. 1926.

INTERNET SOURCES OF INFORMATION

<http://www.rtknet.org/rtkdata.html>

<http://www.deq.state.ms.us>

http://www.epa.gov/enviro/index_java.html

Appendix A
Potential Sources of Contamination
Water Quality and Water Supply Intake Information

List of Acronyms

BRS	Biennial Reporting System
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Act Information System
NPDES	National Pollution Discharge Elimination System
NPL	National Priorities List
RCRA	Resource Conservation and Recovery Act
SIC	Standard Industrial Code
TRI	Toxic Release Inventory
UST	Underground Storage Tank

Sources of Information

All information obtained for Jackson, MS, in the source water assessment project has been provided by the Mississippi Department of Environmental Quality; the Tennessee Valley Authority; Envirofacts, an Internet-accessed Environmental Protection Agency database, which provides the public with direct access to environmental information; and the Community Right-to-Know Act database, which is administered by the Office of Management and Budget (OMB) and the Unison Institute. The Internet addresses for these databases are listed on page 21 of this report.

INDEX TO APPENDIX A

Site	Distance from Intake	Description	Page
1	At Intake	City of Jackson J. H. Fewell Water Treatment	A3
2	At Intake	City of Jackson J. H. Fewell Water Treatment	A4
3	0.5 miles upstream	Boat Ramp 2 (Le Fleur's Bluff State Park)	A5
4	0.9 miles upstream	Boat Ramp 1 (Le Fleur's Bluff State Park)	A6
5	1.0 mile upstream	Bridge - Highway 25	A7
6	1.5 miles upstream	Lakeland Shell	A8
7	1.9 miles upstream	Bridge - Lakeland Drive	A9
8	2.1 miles upstream	Super Stop #23	A10
9	6.4 miles upstream	Bridge - Westbrook Road	A11
10	6.4 miles upstream	City of Jackson Sewer Department	A12
11	10.4 miles upstream	O. B. Curtis Water Treatment Plant	A13
11A	9.4 miles upstream	O. B. Curtis Water Treatment Plant	A14
12	10.9 miles upstream	Spillway Boat Ramp	A15
13	11.0 miles upstream	Bridge - Spillway Road	A16

City of Jackson J. H. Fewel Water Treatment Plant

Water Supply

Location on Stream: Next to Intake
Distance from Intake: At Intake
Latitude: 32.32291
Longitude: -90.15275
Address: 2302 Laurel Street
City: Jackson
State: MS
Zip: 39202
County: Hinds
Telephone: (601)960-1071
Contact: Isom Cameron
Title: Plant Supervisor
SIC: 4941
Type of Facility: Water Supply
Facility Sequence Number: NA

Toxic Release Inventory (TRI) Information

TRI ID: NA

Hazardous Waste Facilities (RCRA, BRS) Information

Hazardous Waste Handler ID: NA
Hazardous Waste Handler Type: NA

Comprehensive Environmental Response, Compensation, and Liability Act "Super Fund" Information (CERCLIS)

CERCLIS: NA
NPL Status: NA

NA - Not Applicable

Note: This site does not have an NPDES permit because MDEQ has classified the treatment plant as 'unpermittable' until January 1, 2006.

City of Jackson J. H. Fewel Water Treatment Plant

Storage Tank

Location on Stream: Next to Intake
Distance from Intake: At Intake
Latitude: 32.32291
Longitude: -90.15275
Address: 2302 Laurel Street
City: Jackson
State: MS
Zip: 39202
County: Hinds
Telephone: (601)960-1071
Contact: Isom Cameron
Title: Plant Supervisor

Storage Tank Information

Tank Type: AST
Number of Regulated Tanks (UST): 0
Number of Tanks (AST): 2
Potential Contaminants: Anhydrous Ammonia
Facility Sequence Number: NA
SIC: 4941
Type of Facility: Water Treatment Plant

NA - Not Applicable

Boat Ramp 2 (Le Fleur's Bluff State Park)

Miscellaneous

Location on Stream: 0.5 miles on Pearl River

Distance from Intake: 0.5 miles upstream

Latitude: 32.3253

Longitude: -90.14554

Address: South side of LeFleur's Bluff State Park

City: Jackson

State: MS

Zip: 39201

County: Hinds

Telephone: (601)948-7830

Contact: Rod Hill

Title: County Engineer

NA - Not Applicable

Boat Ramp 1 (Le Fleur's Bluff State Park)

Miscellaneous

Location on Stream: 0.5 miles to Pearl River and 0.4 miles on Pearl River

Distance from Intake: 0.9 miles upstream

Latitude: 32.33075

Longitude: -90.14586

Address: North Side of LeFleur's Bulff State Park

City: Jackson

State: MS

Zip: 39201

County: Hinds

Telephone: (601)948-7830

Contact: Rod Hill

Title: County Engineer

NA - Not Applicable

Bridge - Highway 25

Bridge

Location on Stream: 1 miles on Eubanks Creek to Pearl River

Distance from Intake: 1 miles upstream

Latitude: 32.333819

Longitude: -90.15883

Address: Highway 25 over Eubanks Creek

City: Jackson

State: MS

Zip: 39042

County: Hinds

Telephone: (601)948-7930

Contact: Rod Hill

Title: County Engineer

NA - Not Applicable

Lakeland Shell

Storage Tank

Location on Stream: 0.7 miles on Unknown Creek to 5.4 miles on Pearl River

Distance from Intake: 1.5 miles upstream

Latitude: 32.3389

Longitude: -90.14985

Address: 1403 Lakeland Drive

City: Jackson

State: MS

Zip: 39216

County: Hinds

Telephone: (601)362-8388

Contact: Unknown

Title: Manager

Storage Tank Information

Tank Type: UST

Number of Regulated Tanks (UST): 10

Number of Tanks (AST): 0

Potential Contaminants: Gasoline

Facility Sequence Number: NA

SIC: 5411

Type of Facility: Convenience Store

NA - Not Applicable

Bridge - Lakeland Drive

Bridge

Location on Stream: 1.9 miles on Pearl River

Distance from Intake: 1.9 miles upstream

Latitude: 32.53214

Longitude: -90.13101

Address: Lakeland Drive Over Pearl River

City: Jackson

State: MS

Zip: 39201

County: Hinds and Rankin

Telephone: (601)939-8737

Contact: Charles Parker

Title: Rankin County Engineer

NA - Not Applicable

Super Stop #23

Storage Tank

Location on Stream: 2.1 miles on Pearl River

Distance from Intake: 2.1 miles upstream

Latitude: 32.33320

Longitude: -90.13251

Address: 2088 Lakeland Drive

City: Jackson

State: MS

Zip: 39216

County: Hinds

Telephone: (601)362-7421

Contact: Unknown

Title: Manager

Storage Tank Information

Tank Type: UST

Number of Regulated Tanks (UST): 6

Number of Tanks (AST): 0

Potential Contaminants: Gasoline

Facility Sequence Number: NA

SIC: 5411

Type of Facility: Convenience Store

NA - Not Applicable

Bridge - Westbrook Road

Bridge

Location on Stream: 0.7 miles on Purple Creek to 5.4 miles on Pearl River

Distance from Intake: 6.4 miles upstream

Latitude: 32.37088

Longitude: -90.11008

Address: Westbrook Road over Purple Creek

City: Jackson

State: MS

Zip: 39201

County: Hinds

Telephone: (601)948-7930

Contact: Rod Hill

Title: County Engineer

NA - Not Applicable

City of Jackson Sewer Department

Pipeline

Location on Stream: 0.7 miles on Purple Creek to 5.4 miles on Pearl River

Distance from Intake: 6.4 miles upstream

Latitude: 32.37088

Longitude: -90.11008

Address: NA

City: Jackson

State: MS

Zip: 39201

County: Hinds

Telephone: (601)960-2090

Contact: John Thomas

Title: Engineer

Pipeline Information

SIC: 1623

Type of Facility: Pipeline

Potential Contaminants: Wastewater

NA - Not Applicable

O.B. Curtis Water Treatment Plant

Water Supply

Location on Stream: 1 mile on Diversion Ditch to 9.4 miles Pearl River
Distance from Intake: 10.4 miles upstream
Latitude: 32.4035
Longitude: -90.088833
Address: 100 O.B. Curtis Drive
City: Ridgeland
State: MS
Zip: 39157
County: Madison
Telephone: (601)960-2091
Contact: Herman Cooper
Title: Unknown
SIC: 4941
Type of Facility: Water Supply
FRS ID: 110000547793
NPDES: MS0046906
Number of Outfalls: 2
Permitted Contaminants: pH, TSS, Aluminum, Chlorine, TDS
Facility Sequence Number: NA

Toxic Release Inventory (TRI) Information

TRI ID: NA

Hazardous Waste Facilities (RCRA, BRS) Information

Hazardous Waste Handler ID: NA
Hazardous Waste Handler Type: NA

Comprehensive Environmental Response, Compensation, and Liability Act "Super Fund" Information (CERCLIS)

CERCLIS: NA
NPL Status: NA

NA - Not Applicable

O.B. Curtis Water Treatment Plant (Outfall #2)*

Water Supply

Location on Stream: 9.4 miles on Pearl River
Distance from Intake: 9.4 miles upstream
Latitude: 32.390969
Longitude: -90.084661
Address: 100 O.B. Curtis Drive
City: Ridgeland
State: MS
Zip: 39157
County: Madison
Telephone: (601)960-2091
Contact: Herman Cooper
Title: Unknown
SIC: 4941
Type of Facility: Water Supply
NPDES: MS0046906
Number of Outfalls: 2
Permitted Contaminants: pH, TSS, Aluminum, Chlorine, TDS

***Note** - O. B. Curtis Water Treatment Plant has two outfalls under the same NPDES permit. The first outfall is located at Site 11. Since the second outfall is located much further away at the intersection of a Diversion Ditch and the Pearl River, Site 11A was used to indicate its location so that an accurate time of travel could be determined if needed.

Spillway Boat Ramp

Miscellaneous

Location on Stream: 10.9 miles on Pearl River

Distance from Intake: 10.9 miles upstream

Latitude: 32.39660

Longitude: -90.06580

Address: South Side of the Spillway

City: Jackson

State: MS

Zip: 39201

County: Rankin

Telephone: (601)939-8737

Contact: Charles Parker

Title: County Engineer

NA - Not Applicable

Bridge - Spillway Road

Bridge

Location on Stream:11.0 miles on Pearl River

Distance from Intake: 11.0 miles upstream

Latitude: 32.3967

Longitude: -90.0638

Address: Spillway Road Over Dam Release of R.B. Reservoir

City: Pelahatchie

State: MS

Zip: 39042

County: Rankin

Telephone: (601)939-8737

Contact: Charles Parker

Title: County Engineer

NA - Not Applicable

Appendix B
Agriculture – Hinds, Madison, and Rankin Counties

AGRICULTURE – HINDS COUNTY

- Land in Farms (acres) – 196,393
- Total Cropland (acres) – 89,203
- Harvested Cropland (acres) – 45,590
- Irrigated Land (acres) – 111

Crops

Corn

Wheat

Cotton

Soybeans

Hay/Alfalfa

Sorghum

Livestock

Beef Cows

Milk Cows

Hogs and Pigs

Sheep and Lamb

Poultry

Egg Layers

Broilers

Hens and Pullets

AGRICULTURE – MADISON COUNTY

- Land in Farms (acres) – 182,095
- Total Cropland (acres) – 89,870
- Harvested Cropland (acres) – 61,091
- Irrigated Land (acres) – Withheld

Crops

Corn

Wheat

Cotton

Soybeans

Hay/Alfalfa

Livestock

Beef Cows

Milk Cows

Hogs and Pigs

Sheep and Lamb

Poultry

Egg Layers

Broilers

Hens and Pullets

AGRICULTURE – RANKIN COUNTY

- Land in Farms (acres) – 117,296
- Total Cropland (acres) – 49,560
- Harvested Cropland (acres) – 22,026
- Irrigated Land (acres) – 198

Crops

Corn

Wheat

Cotton

Soybeans

Hay/Alfalfa

Livestock

Beef Cows

Milk Cows

Hogs and Pigs

Sheep and Lamb

Poultry

Egg Layers

Broilers

Hens and Pullets

AGRICULTURAL CHEMICAL USAGE IN COUNTIES IN THE SWPA

The agricultural chemical usage estimates are based on data compiled by the National Agricultural Statistics Service from the 2002 field crops summary and the 1997 – 2003 agricultural statistics. The rates of chemical application were estimated from 1997 to 2003. The results that refer to on-farm use of herbicides and pesticides on the targeted crops of corn, wheat and hay are for the 1997 crop year. Upland cotton and soybeans are also included for rates of chemical use. Pesticide data were collected late in the growing season or after the farm operator had indicated that planned applications were completed.

AGRICULTURAL CHEMICAL USAGE BY CROP

Corn

In 1997, Atrazine was reported to be the most commonly used herbicide in 1997 with Nicosulruron and Glyphosate being the next two greatest applied herbicides to corn fields. In addition, Lambda-cyhalothrin was the most widely used insecticide to planted corn acreage at this time. Table 1 shows a complete list of herbicides and insecticides applied to Mississippi corn crops in 1997.

Upland Cotton

In 2003, 100 percent of upland cotton acreage in the state of Mississippi had herbicide applications, while 94 percent of this planted acreage also had insecticide applied. 17 percent of the area was also treated with fungicide, and 95 percent had some other type of chemical applied to it. Glyphosate was reported to be the most commonly used herbicide, while the acephate was the most widely used insecticide applied. Table 2 shows a complete list of treatments applied to Mississippi cotton crops in 2003.

Hay/Alfalfa

Across Mississippi 648,809 acres of hay/alfalfa was planted. Seven percent of hay/alfalfa growers used the herbicide 2,4-D. This was the most widely used herbicide with 7 percent of acres being treated. The most common used insecticide was carbaryl. A complete list of chemicals applied in 1997 to hay and alfalfa crops in the state of Mississippi is displayed in Table 3.

Soybeans

An average of 99 percent of Mississippi soybean fields had herbicide applied to it in 2000, with five percent also treated with insecticides. Less than one percent of the soybean acreage had fungicides applied to it. The most widely applied herbicide, by far, is glyphosate, which was applied to 78 percent of the acreage.

A complete listing of herbicides, insecticides and fungicides used in the state of Mississippi is listed in Table 4.

Wheat

In 1997, there was a total of 155,049 acres planted with wheat in the state of Mississippi. 38 percent of that was treated with the herbicide 2,4-D This was the most widely used herbicide in the state with Thifensulfuron and Tribenuron being the next two greatest applied herbicides. There was not much insecticides used on wheat. Methyl parathion, an insecticide was the most widely used, treating 10 percent of the wheat crops. Mancozeb was used as fungicide on 22 percent of the wheat. A complete list of herbicides, insecticides and fungicides can be found in Table 5.

Active Ingredients - Corn

Herbicides:	Insecticides:
2,4-D	Carbaryl
Acetochlor	Carbofuran
Atrazine	Chlorpyrifos
Bromoxynil	Esfenvalerate
Cyanazine	Lambda-cyhalothrin
Dicamba	Methomyl
Dimethenamid	Methyl parathion
Flumetsulam	Permethrin
Glyphosate	Phorate
Imazethapyr	Tefluthrin
Metolachlor	Terbufos
Nicosulfuron	
Paraquat	
Pendimethalin	
Primisulfuron	
Prosulfuron	

Table 1. List of Herbicides, Insecticides and Fungicides Used to Treat Corn Crops, Mississippi, 1997

Active Ingredients - Cotton

Herbicides:	Insecticides:	Fungicides:
2,4-D	Acephate	Etridiazole
Carfentrazone-ethyl	Acetamiprid	Mefenoxam
Cyanazine	Aldicarb	Metalaxyl
Diuron	Cyfluthrin	PCNB
Fluometuron	Cypermethrin	
Glyphosate	Diclotophos	Other Chemicals:
Linuron	Esfenvalerate	Bacillus cereus
MSMA	Imidacloprid	Cyclanilide
Norflurazon	Indoxacarb	Ethephon
Pendimethalin	Lambda-cyhalothrin	Mepiquat chloride
Prometryn	Malathion	Paraquat
Pyriithiobac-sodium	Triamethoxam	Sodium chlorate
Trifluralin	Zeta-cypermethrin	Thidiazuron
		Tribufos

Table 2. List of Herbicides, Insecticides and Fungicides Used to Treat Upland Cotton Crops, Mississippi, 2003

Active Ingredients - Hay/Alfalfa	
Herbicides:	Insecticides:
2,4-D	Carbaryl
Dicamba	Malathion
Glyphosate	

Table 3. List of Herbicides, Insecticides and Fungicides Used to Treat Hay/Alfalfa Crops, Mississippi, 1997

Active Ingredients - Soybean		
Herbicides:	Insecticides:	Fungicides:
2,4-D	Benzoic acid	Azoxystrobin
Acifluorfen	Lambda-cyhalothrin	
Chlorimuron-ethyl	Methyl parathion	
Cloransulam-methyl		
Glyphosate		
Imazaquin		
Pendimethalin		
Trifluralin		

Table 4. List of Herbicides, Insecticides and Fungicides Used to Treat Soybean Crops, Mississippi, 2002

Active Ingredients - Wheat		
Herbicides:	Insecticides:	Fungicides:
2,4-D	Dimethoate	Mancozeb
Dicamba	Lambda-cyhalothrin	Propiconazole
Diclofop	Methyl parathion	Triadimefon
Prosulfuron		
Thifensulfuron		
Tribenuron		

Table 5. List of Herbicides, Insecticides and Fungicides Used to Treat Wheat Crops, Mississippi, 1997

Appendix C
Documentation and Instructions
ArcView Compact Disc

ArcView Information

This project uses ArcView version 3.1.

To start ArcView project, select jackson.apr

Workspace Directories:

- Drg Digital Raster Graphic
- Html Web pages of the Potential Pollution Sources
- Images Contains to TVA logo
- Metadata Information about the geographic data
- Jackson Data Layers
 - Buf_1mi 1 mile buffer from identified stream
 - Buf_1000 1000 Foot buffer from identified stream
 - County County boundary
 - Dumps Dump site location
 - Huc Hydrologic Unit
 - Livestock Livestock locations
 - Lulc Land Use / Land Cover
 - Pipeline Pipelines
 - Points Potential Pollution Sources
 - Quads 7 1/2 minute quadrangle boundaries
 - Railrds Railroads
 - Roads Roads
 - Txline Transmission lines
 - Streams Streams
- Plots Digital files of the maps
- Scripts hotlink script which links the html files to the points
- Tables chart and spreadsheet