

Mississippi's Voluntary Silvicultural  
Best Management Practices Implementation  
Monitoring Program

**Big Black, Tombigbee, Tennessee River Basin Group  
BMP Implementation Survey for Mississippi**

Survey Period: July 2004 – June 2006



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## EXECUTIVE SUMMARY

Between June 2004 and July 2006, the Mississippi Forestry Commission conducted a survey of Best Management Practices (BMPs) voluntarily implemented on forestland in Mississippi in Mississippi Department of Environmental Quality (MDEQ) Basin Group 1. This report presents the results of that survey.

## INTRODUCTION

Mississippi has nearly 20 million acres of forestland, covering two-thirds of the state's total land area. Forests make an important contribution to Mississippians' quality of life by providing jobs, forest products, livestock forage areas, wildlife habitat, scenic areas, recreational experiences, and many other social and economic benefits. It is estimated that some type of forestry activity occurs on nearly 800,000 forested acres each year in Mississippi. Mississippi's forestland also plays a vital role in protecting the state's water resources and maintaining water quality.

Why conduct a BMP Survey? The Clean Water Act of 1987 requires that proper steps be taken to prevent water pollution. Mississippi's Silvicultural Best Management Practices (BMPs) were established as a result of the Clean Water Act of 1987. Best management practices are non-regulated, voluntary guidelines for silvicultural activities that, when properly applied, will protect water quality from nonpoint source pollutants while maintaining site productivity.

## SURVEY PROCEDURES

The 2006 BMP Implementation Monitoring in Basin Group I Survey was developed based on the recommendations found in the document "Silviculture Best Management Practices Implementation Monitoring: A Framework for State Forestry Agencies"<sup>1</sup>. In order to promote consistent BMP monitoring through out the southeastern region, the Southern Group of State Foresters adopted this document for use in developing or updating BMP monitoring programs. Listed below are highlights from this document that set the foundation for our sampling procedures.

### *Sampling Intensity*

Two hundred and three sites, having recent silvicultural activity, were randomly selected to evaluate the voluntary implementation of best management practices. These sites were selected based on the criteria found in "Sampling and Estimating Compliance with BMPs"<sup>2</sup>. The number of sites needed to maximize the validity and credibility of the survey was calculated to be 203, which is  $\pm 5\%$  within the 95% confidence interval. The 2000 Resource Assessment was used to determine the amount of forest harvesting activity in the state.

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<sup>1</sup>"Silviculture Best Management Practices Implementation Monitoring: A Framework for State Forestry Agencies", BMP Monitoring Task Force, Southern Group of State Foresters, June 2002.

<sup>2</sup> McNew, Ronald W., "Sampling and Estimating Compliance with BMPs", Implementation Monitoring of Forestry Best Management Practices Workshop, Southern Group of State Foresters and USDA Forest Service, Atlanta, Georgia, January 23-25, 1990. Edited by G. Dissmeyer.

This information was used to determine the number and distribution of the sites to be evaluated in this survey. The number and distribution of sites was supplied by Mississippi Automated Resource Information System.

### ***Eligible Survey Sites***

Two hundred and three geographical points of reference were distributed across Basin Group 1 in a manner representative of the distribution of forested area having the potential need for BMPs. The Mississippi Forestry Commission used aerial reconnaissance to locate the specific points of reference by finding the respective latitude and longitude coordinates. The tract of land closest to each point of reference that met all site selection criteria was identified as an eligible survey site.

The following criteria were applied in selecting sites to be evaluated in this survey:

- Forest harvesting activity must have occurred within the past 24 months
- Sites must be at least 10 acres in size
- Sites were selected without regard to ownership
- Surface water does not have to be present on the site

Survey sites were located in the Big Black, Tombigbee and Tennessee River Basin as delineated in the Mississippi Department of Environmental Quality Basin Management Program. The river basins of Mississippi are shown below in Figure 1.

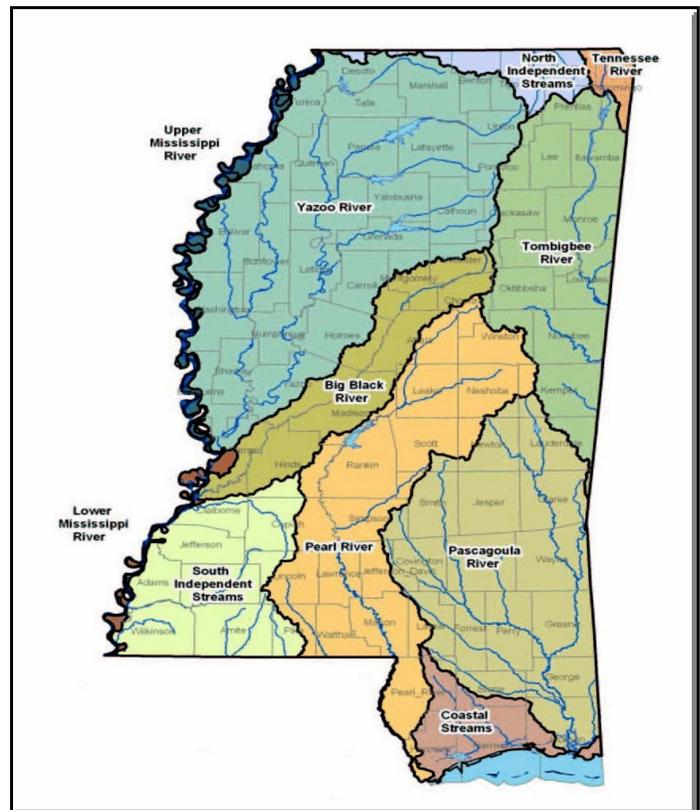


Figure 1: MDEQ River Basins Of Mississippi

### ***Survey Site Evaluation***

Upon selection of survey sites, the Water Quality Team assessed 73 concerns relating to each survey site, including 55 specific best management practices within the following categories were evaluated:

- Streamside Management Zones
- Stream Crossings
- Forest Roads (Permanent Roads, Skid Trails/Temporary Roads or Secondary Roads)
- Site Preparation (Mechanical, Chemical and Burning)
- Landings
- Wetlands
- Fireline Construction

This survey evaluates practices on three levels: Individual practices, categories of practices and overall site rating.

Evaluation of BMPs on the individual practices provides the basic measure of on-site BMP implementation. This level of information also allows for comparison of a specific practice among all monitoring sites and against any other site variables. This comparison is useful for identifying reasons that are often associated with non-implementation.

By evaluating by category of practices, we can provide broader conclusions about BMP implementation for stream crossing, forest roads, etc. This evaluation can provide information on where training is needed.

Finally, evaluating by overall site rating can provide us with an overall or cumulative level of BMP implementation for individual forestry operations. This is the primary and traditional measure of program success and indicates the effectiveness of the non-regulatory approach to controlling silvicultural nonpoint source pollution.

If a particular practice within a category did not apply to the survey site, it was recorded as Not Applicable. All other practices were considered applicable to the site and were evaluated on whether or not they were implemented as specified in Mississippi's BMP Handbook<sup>3</sup>. This method of evaluation allowed each BMP category and, ultimately, the overall BMP implementation program, to be evaluated and the results expressed as a percent of applicable BMPs implemented.

The presence of a significant risk to water quality was noted for each best management practice evaluated. The Water Quality Team used the following standard to determine the presence of significant risk to water quality: **Significant risk to water quality exists if during a normal rainfall, sediment is likely to be delivered to a permanent water body. The presence of significant risk did not indicate that water quality was impaired on the site.**

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<sup>3</sup> Mississippi's BMPs - Best Management Practices for Forestry in Mississippi, Third Edition, Mississippi Forestry Commission, March 2000.

All information recorded for each BMP was based on observation made at the time of inspection. The evaluation process did not include any assumptions concerning future activities on the site.

## AREA SURVEYED

This survey was conducted in the MDEQ Basin I Group area. This group is comprised of the Big Black River, Tombigbee River and Tennessee River Basins. Special emphasis was placed on the Luxapallila Creek and Buttahatchee Creek watersheds of the Tombigbee River Basin. Basin Group 1 covers an area of approximately 9,917 square miles and has approximately 18,034 miles of perennial and intermittent rivers and streams.

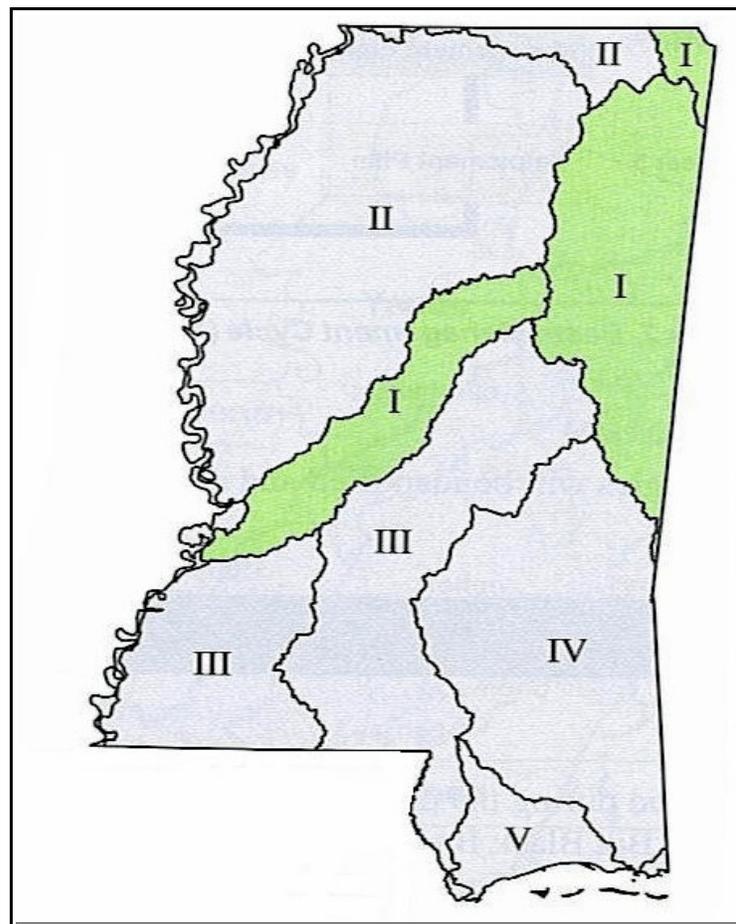


Figure 2: MDEQ Basin Group I

### ***Tombigbee River Basin***

The Tombigbee River Basin covers an area of 6,100 square miles in northeastern Mississippi and 7,600 square miles in Alabama. The Mississippi portion of the basin is approximately 190 miles in length and averages 48 miles in width. This basin encompasses all or part of 19 counties, 18 of which were included in the BMP Implementation survey. The topography





## BMP IMPLEMENTATION SURVEY RESULTS

The 2006 BMP Implementation Survey revealed that 90 percent of best management practices applicable to the survey sites were implemented according to specifications.

A total of 203 sites having recent silvicultural activity were randomly selected to evaluate the voluntary implementation of best management practices. Figure 6 shows the distribution of sites within the Basin 1 Group by river basin. A compilation of all survey data collected is found on the BMP Monitoring Inspection Form – [Basin 1 Totals](#) (see pages 25-27 in the appendix).

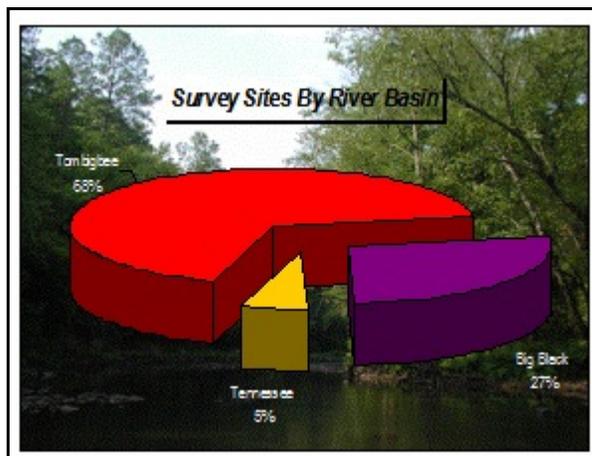


Figure 6: Percent of surveyed sites per river basin.

### General Tract Information

#### Silvicultural Activity:

A regeneration harvest had occurred on 155 (76.35%) of the 203 sites surveyed. The remaining 23.65 percent of the sites involved thinning operations. Of the sites that had received a regeneration harvest, 85 had been artificially regenerated at the time of evaluation.

#### Tract Size:

The survey sites ranged in size from 10 acres to 161 acres. Figure 7 shows the distribution of survey sites by tract size.

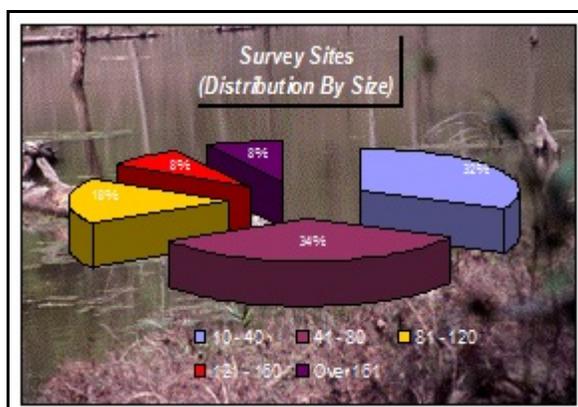


Figure 7: Distribution of surveyed sites by tract size.

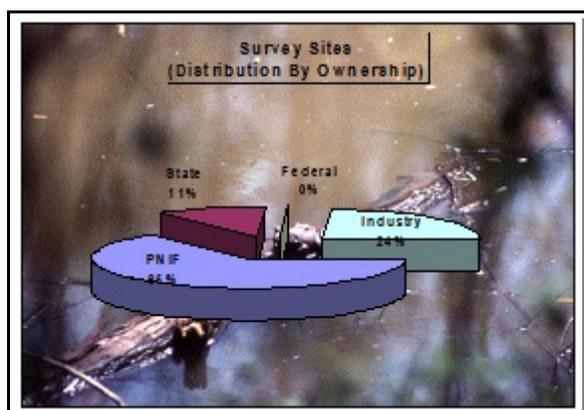


Figure 8: Distribution of surveyed sites by ownership.

#### Ownership:

The survey sites were distributed and selected without regard to ownership in order to ensure an unbiased sample. Ownership was determined after a site was located. Figure 8 shows distribution of survey sites in regard to ownership.

*Counties:*

The BMP survey sites were randomly distributed across the basin based on the potential need for BMPs as determined by the change in forest cover shown in the Mississippi Forestry Commission's 2000 Resource Assessment. Survey sites were located in 31 of 36 basin counties (See Table 1).

**Table 1: Distribution of Bmp Survey Sites By River Basin**

DISTRICT (MFC)	COUNTY	BASIN	NUMBER OF SITES
NED	Choctaw	Big Black	8
NED	Webster	Big Black	5
NWD	Attala	Big Black	12
NWD	Carroll	Big Black	3
NWD	Holmes	Big Black	3
NWD	Montgomery	Big Black	7
NWD	Yazoo	Big Black	1
SWD	Claiborne	Big Black	2
SWD	Hinds	Big Black	8
SWD	Madison	Big Black	6
SWD	Warren	Big Black	<u>2</u>
			57
NED	Alcorn	Tennessee	3
NED	Tishomingo	Tennessee	<u>8</u>
			11
NED	Chickasaw	Tombigbee	5
NED	Chotaw	Tombigbee	1
NED	Clay	Tombigbee	8
NED	Itawamba	Tombigbee	11
NED	Lee	Tombigbee	5
NED	Lowndes	Tombigbee	8
NED	Monroe	Tombigbee	9
NED	Noxubee	Tombigbee	25
NED	Oktibbeha	Tombigbee	12
NED	Pontotoc	Tombigbee	2
NED	Prentiss	Tombigbee	4
NED	Tishomingo	Tombigbee	2
NED	Union	Tombigbee	1
NED	Webster	Tombigbee	1
NED	Winston	Tombigbee	6
SED	Clarke	Tombigbee	1
SED	Kemper	Tombigbee	26
SED	Lauderdale	Tombigbee	<u>8</u>
			135
<b>Totals</b>			<b>203</b>

## BMP IMPLEMENTATION RESULTS FOR ALL RIVER BASINS

### *BMP Results By Site And Category*

The BMP categories of Landings, Skid Trails/Temporary Roads and Permanent Roads were applicable on more survey sites than any other category. The categories of Skid Trails/Temporary Roads and Landings were applicable on 201 (99.01%) of the 203 survey sites. The Permanent Roads category was applicable on 179 (88.18%) of the survey sites.

### *BMP Results By Category*

The lowest percentage of BMP categorical practice implemented correctly was found in Skid Trails/ Temporary Roads with 77.20% of the 956 applicable practices implemented as specified. Of the 642 practices in the Stream Crossing category, 87.69% were implemented as specified and 87.73% of the 1,915 practices in the Permanent Roads category were implemented as specified.

Applicable BMP practices in the Site Preparation category had the highest percentage implemented as specified with 95.55% of the 786 applicable practices implemented according to specification.

The number and percent of all applicable BMPs implemented for each category is presented in Table 2.

<b>Table 2: Applicable BMP's Implemented By Category</b>				
<b>BMP CATEGORY</b>	<b>NUMBER OF</b>	<b>TOTAL APPLICABLE</b>	<b>BMPs IMPLEMENTED*</b>	
	<b>SURVEY SITES</b>	<b>PRACTICES</b>	<b>NUMBER</b>	<b>PERCENT</b>
Site Preparation	100	786	751	96%
Wetlands	14	40	38	95%
Fireline Construction	49	310	292	94%
Landings	201	993	928	93%
Streamside Management Zones	166	1,635	1,463	89%
Stream Crossings	137	642	563	88%
Permanent Roads	179	1,915	1,680	88%
Skid Trails/Temporary Roads	201	956	738	77%
<b>State Totals</b>	-----	<b>7,277</b>	<b>6,453</b>	<b>90%</b>

\*BMPs implemented as specified in Mississippi's BMP handbook

### *BMP Results By Individual Practices*

The following practices were applicable 804 times of out of 7,277 applied practices or 11 percent of all applicable individual practices. The top four applicable individual practices occurred on 201 of the 203 surveyed sites. Listed below are the top four individual BMP practices applied:

- Rutting does not exceed six inches for more than fifty feet (Skid Trails/ Temporary Roads)

- ❑ Well drained locations (Landings)
- ❑ Number and size minimized (Landings)
- ❑ Restored stabilized (Landings)

### Results For Overall Implementation

Implementation of applicable BMPs were evaluated on whether or not they were implemented as specified in the Mississippi BMP handbook. Results show that ninety percent of best management practices were implemented on survey sites where they were applicable (see Table 2, and Figure 9).

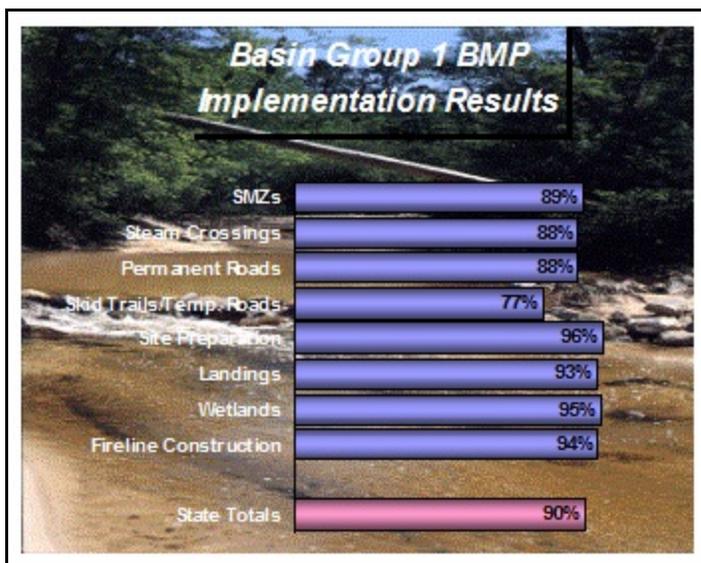


Figure 9: BMP Implementation Results By BMP Category.

## SIGNIFICANT RISK RESULTS FOR ALL BASINS

Sites were evaluated for significant risks to water quality each time a best management practice was determined to be applicable to the survey site. Of the 7,277 applicable BMPs evaluated, a significant risk to water quality was observed 133 times. A complete listing of significant risk & individual best management practices is found on the BMP Monitoring Inspection Form – [State Totals](#) (see pages 25-27 in appendix). A summary of significant risks by BMP category is given in Table 3.

<b>Table 3: BMP Categories With Significant Risks To Water Quality</b>		
<b>BMP CATEGORY</b>	<b>NUMBER</b>	<b>PERCENT</b>
Permanent Roads	37	27.82%
Streamside Management Zones	36	27.07%
Skid Trails/Temporary Roads	32	24.06%
Stream Crossings	20	15.04%
Landings	7	5.26%
Site Preparation	1	0.75%
Wetlands	0	0.00%
Fireline Construction	0	0.00%
<b>State Totals</b>	<b>133</b>	<b>100.00%</b>

### ***Significant Risk By Individual Practice***

Of the 55 individual practices, only 4 practices with risk to water quality occur 7 or more times. The top four individual practices with significant risk to water quality were:

- ❑ Roads & skid trail are stabilized (Skid Trails/Temporary Roads) with 10 occurrences
- ❑ Stream crossing properly installed (Stream Crossings) with 9 occurrences
- ❑ Roads meet grade specification (Permanent Roads) with 7 occurrences
- ❑ Majority of skid trails grades below 15% (Skid Trails/Temporary Roads) with 7 occurrences

### ***Significant Risk By BMP Category***

No significant risks to water quality were found associated with practices in the Wetlands and Fireline Construction categories. One significant risk was found in the Site Preparation category and 7 significant risks in the Landings category.

There were thirty-seven significant risks to water quality observed in the Permanent Roads category. The Permanent Roads category had a higher percentage of significant risk to water quality than any other BMP category. The majority of these risks were associated with the individual practice of *road meets grade specifications*.

Thirty-six of the significant risks to water quality were found in the Streamside Management Zone category. Of the 36 significant risks, 6 were associated with *blocking the natural flow of water* and five each were associated with the individual practices of *SMZ established according to BMP specifications*, *harvesting/thinning within SMZ according to BMP specifications* and *stream course clear of logging debris*.

Thirty-two significant risks to water quality were found in the BMP category of Skid Trails/ Temporary Roads. Ten of the thirty-two significant risks were associated with the individual practice of *roads and skid trails are stabilized*.

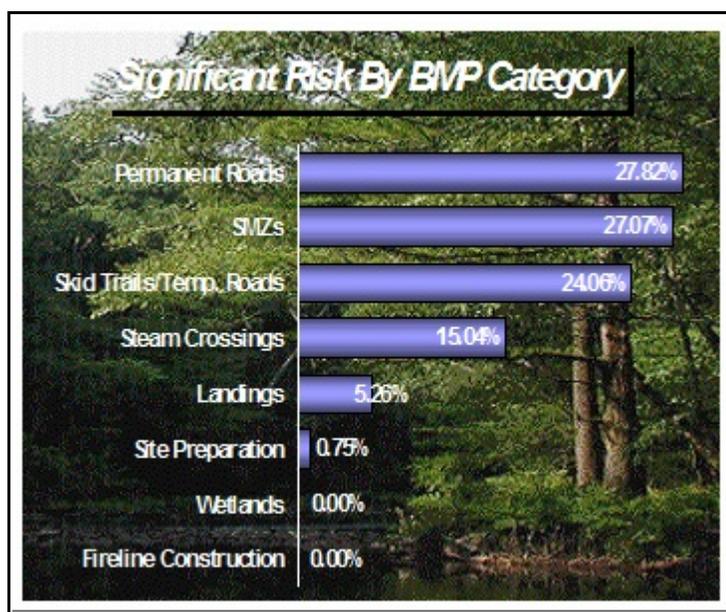


Figure 10: Significant Risk by BMP Category

The BMP category of Stream Crossing had twenty significant risks to water quality and the majority of these risks were associated with the individual practice of *stream crossings properly installed*.

## **BMP IMPLEMENTATION RESULTS FOR TOMBIGBEE RIVER BASIN**

Of 203 evaluated sites, 137 sites were within the Tombigbee River Basin. A compilation of survey data for this basin is found on the BMP Monitoring Inspection Form -[Tombigbee River Basin Totals](#) (see pages 28-30 in appendix).

### ***General Tract Information***

#### *Silvicultural Activity:*

A regeneration cut was performed on 108 of the 137 sites, and 60 sites had been artificially regenerated at the time of evaluation.

#### *Tract Size:*

The survey sites for this basin range in site size from 10 to more than 161 acres. The most frequently encountered site size grouping was the 41 to 80 acres category.

#### *Ownership:*

Private Nonindustrial accounted for 89 survey sites or 64.96 percent of the total Basin survey sites. State/Public ownership accounted for 12 sites or 8.76 percent of the total Basin survey sites. Industry ownership accounted for 36 sites or 26.28 percent of the total Basin survey sites.

### ***BMP Results By Individual Practices***

The following practices were applicable 548 time out of 5,061 applied practices or 10.83 percent of all applicable individual practices. The top four applicable individual practices occurred on all surveyed sites within the Tombigbee River Basin:

- Rutting does not exceed six inches for more than fifty feet (Skid Trails/ Temporary Roads)
- Well-drained locations (Landings)
- Number and size minimized (Landings)
- Restored stabilized (Landings)

### ***BMP Results By Category***

Applicable BMP practices in the Site Preparation category had the highest percentage of practices implemented as specified with 96 percent of the 567 applicable practices implemented according to specifications. The lowest percentage of BMP implemented correctly was found in the Skid Trails/ Temporary Roads category with 78 percent of the 640 applicable practices implemented as specified. See Table 4 for a complete listing of all categories and their ranking based on practices implemented according to specifications.

**Table 4: Ranking Of BMP Categories By Practices Implemented According To Specifications For Tombigbee River Basin**

Individual Practices	Applicable Practices			
	Yes	No	Total Practices	Percent
Site Preparation	545	22	567	96%
Wetlands	33	2	35	94%
Fireline Constructions	195	13	208	94%
Landings	628	45	673	93%
Stream Crossings	460	46	506	91%
Streamside Management Zones	1,000	115	1,115	90%
Permanent Roads	1,141	176	1,317	87%
Skid Trails/Temporary Roads	496	144	640	78%
<b>Basin Totals</b>	<b>4,498</b>	<b>563</b>	<b>5,061</b>	<b>90%</b>

### ***BMP Results By Site And Category***

The BMP categories of Landings and Skid Trails/Temporary Roads were applicable on more survey sites than any other category. These categories were applicable on all survey sites within the Tombigbee River Basin. See Table 5 for a listing of the top five individual practices by site and category.

**Table 5: Ranking Of BMP Categories By Number Of Sites For Tombigbee River Basin**

Individual Practice	Category	Number of Site	Percentage of Sites
Rutting does not exceed six inches for more than 50 feet	Skid Trails /Temporary Roads	137	100%
Well-drained location	Landings	137	100%
Number and size minimized	Landings	137	100%
Restored stabilized	Landings	137	100%
Roads and skit trails are stabilized	Skid Trails /Temporary Roads	135	99%

### ***BMP Results For Overall Implementation***

Implementation of applicable BMPs were evaluated on whether or not they were implemented as specified in the Mississippi BMP handbook. Results show that ninety percent of best management practices were implemented on survey sites where they were applicable within the Tombigbee River Basin (see [Table 4](#)).

## SIGNIFICANT RISK RESULTS FOR TOMBIGBEE RIVER BASIN

Sites were evaluated for a significant risk to water quality each time a best management practice was determined to be applicable to the survey site. Of the 5,061 applicable BMPs evaluated, a significant risk to water quality was observed 122 times. This accounts for 91.72 percent of all significant risk to water quality found in this survey. A complete listing of significant risks and individual best management practices is found on the BMP Monitoring Inspection Form - [Tombigbee River Basin Totals](#) (see pages 28-30 in appendix). See Table 6 for a summary of significant risks by BMP category.

**Table 6: BMP Categories With Significant Risks To Water Quality For Tombigbee River Basin**

<u>BMP CATEGORY</u>	<u>NUMBER</u>	<u>PERCENT</u>
Permanent Roads	37	30.33%
Streamside Management Zones	30	24.59%
Skid Trails/Temporary Roads	29	23.77%
Stream Crossings	19	15.57%
Landings	6	4.92%
Site Preparation	1	0.82%
Wetlands	0	0.00%
Fireline Construction	0	0.00%
<b>State Totals</b>	<b>122</b>	<b>100.00%</b>

### ***Significant Risk By Individual Practice***

Of the one hundred twenty-two significant risks to water quality found in the Tombigbee River Basin, the individual practices of *stream crossing properly installed* and *roads and skid trails are stabilized* were associated with sixteen significant risk occurrences or 14 percent of all significant risks. The top four individual practices associated with a significant risk to water quality are listed below:

- Stream crossing properly installed (Stream Crossings) with 8 occurrences
- Roads and skid trails are stabilized (Skid Trails/Temporary Roads) with 8 occurrences
- Roads meet grade specifications (Permanent Roads) with 7 occurrences
- Majority of side trails grades (steepness) below 15% (Skid Trails/ Temporary Roads) with 7 occurrences

### ***Significant Risk By BMP Category***

The result of significant risk to water quality for the Tombigbee River Basin, mirror the finding for the Basin Totals. There were no significant risks to water quality associated with Wetlands and Fireline Construction, one significant risk found in the Site Preparation category and six significant risks found in the Landing category.

There were thirty-seven significant risks found in the Permanent Road category. The Permanent Roads category had the highest percentage of significant risks to water

quality than any other BMP category. The majority of these risks were in the individual practice of *road meet grade specifications*.

Thirty of the one hundred and twenty-two significant risks were associated with the Streamside Management Zone category. The individual practice of *blocking the natural flow of water avoid* had the highest significant risk to water quality with five occurrences (17% of significant risks for the category). The individual practices of *SMZ width established according to BMP spec*, *Harvesting/thinning within SMZ according to BMP spec*, *stream course clear of logging debris*, *streams free of sediment due to silvicultural activity* and *rutting through streams or drains avoided* each has 4 occurrences associated with them.

Twenty-nine significant risks to water quality were found in the Skid Trails/Temporary Road category. The individual practice of *roads and skid trails are stabilized* has the highest occurrence with 8 of the 29 significant risks.

The BMP category of Stream Crossings had nineteen significant risks to water quality associated with it. The individual practice of *stream crossing properly installed* accounted for 8 occurrences or 42 percent of the significant risks for this category.

## **BMP IMPLEMENTATION RESULTS FOR BIG BLACK RIVER BASIN**

Of the 203 evaluates sites, 55 sites were located with the Big Black River Basin. A compilation of survey data for this basin is found on the BMP Monitoring Inspection Form - [Big Black River Basin Totals](#) on pages 31-33 in appendix.

### ***General Tract Information***

#### *Silvicultural Activity:*

Of the fifty-five evaluated sites, a regeneration cut was performed on thirty-six (65.45%) of all sites surveyed. The remaining 34.55 percent of the sites were thinned.

#### *Tract Size:*

The surveyed fifty-five sites ranged in sizes from 10 to 160 acres. The 10-40 acres category had the highest number of surveyed sites with 27 sites or 49 percent of all surveyed sites.

#### *Ownership:*

The ownership of the 55 surveyed sites fall into the following four categories:

<i>Private Nonindustrial</i> (35 sites, 63.64%)	<i>Federal</i> (0 sites, 0.00%)
<i>State/Public</i> (11 sites, 20.00%)	<i>Industry</i> (9 sites, 16.36%)

### ***BMP Results By Individual Practices***

The following practices were applicable 424 times out of the 1,787 applied practices or 23.73 percent of all applicable individual practices. The following eight individual practices occurred on 53 of 55 surveyed sites within the Big Black River Basin:

- Sensitive area respected (Skid Trails/Temporary Roads)
- Majority skid trails grades (steepness) below 15% (Skid Trails/Temporary Roads)

- Rutting does not exceed six inches for more than fifty feet (Skid Trails/Temporary Roads)
- Location outside of SMZ (Landings)
- Well-drained location (Landings)
- Number and size minimized (Landings)
- Sensitive area respected (Landings)
- Restored stabilized (Landing)

### ***BMP Results By Category***

Applicable BMP practices in the Wetland category had the highest percentage of practices implemented as specified with 100% of the five applicable practices implemented according to specifications. The lowest percentage of implemented BMP according to specifications was found in the Stream Crossings category with 74 percent of the 97 applicable practices implemented correctly. See Table 7 for a complete listing of all categories and their ranking based on practices implemented according to specifications.

**Table 7: Ranking Of BMP Categories By Practices Implemented According To Specifications For Big Black River Basin**

Individual Practices	Applicable Practices			
	Yes	No	Total Practices	Percent
Wetlands	5	0	5	100%
Fireline Construction	90	5	95	95%
Landings	248	17	265	94%
Site Preparation	154	11	165	93%
Permanent Roads	438	50	488	90%
Streamside Management Zones	357	54	411	87%
Skid Trails/Temporary Roads	211	50	261	81%
Stream Crossings	72	25	97	74%
<b>Basin Totals</b>	<b>1,575</b>	<b>212</b>	<b>1,787</b>	<b>89%</b>

### ***BMP Results By Site And Category***

The BMP categories of Landings and Skid Trails/Temporary Roads were applicable on more survey sites than any other category. These categories were applicable on 53 of the 55 surveyed sites in the Big Black River Basin. See Table 8 for a listing of the top 8 individual practices by site and category.

**Table 8: Ranking Of BMP Categories By Number of Sites For Big Black River Basin**

Individual Practice	Category	Number of Site	Percentage of Sites
Sensitive areas respected	Skid Trails/Temporary Roads	53	96%
Majority of skid trails grades (steeps below 15%)	Skid Trails/Temporary Roads	53	96%
Rutting does not exceed six inches for more than fifty feet	Skid Trails/Temporary Roads	53	96%
Location outside of SMZ	Landings	53	96%
Well-drained location	Landings	53	96%
Number and size minimized	Landings	53	96%
Sensitive areas respected	Landings	53	96%
Restored stabilized	Landings	53	96%

### **BMP Results For Overall Implementation**

Results show that eighty-nine percent of best management practices were implemented according to specifications on the 55 surveyed sites where applicable within the Big Black River Basin.

## **SIGNIFICANT RISKS FOR BIG BLACK RIVER BASIN**

Sites within the Big Black River Basin were evaluated for significant risk to water quality each time a BMP was determined to be applicable to the surveyed site. Of the 1,787 applicable BMPs evaluated, a significant risk to water quality was observed eleven times. The Big Black River Basin accounts for 8.27 percent of all significant risk in the Group 1 Basin area. A complete listing of significant risks and individual best management practices can be found in the BMP Monitoring Form - [Big Black River Basin Totals](#) (see pages 31-33 in appendix). See Table 9 for a summary of significant risk by BMP category.

**Table 9: BMP Categories With Significant Risks To Water Quality For Big Black River Basin**

<u>BMP CATEGORY</u>	<u>NUMBER</u>	<u>PERCENT</u>
Streamside Management Zones	6	54.55%
Skid Trails/Temporary Roads	3	27.27%
Landings	1	9.09%
Stream Crossings	1	9.09%
Permanent Roads	0	0.00%
Site Preparation	0	0.00%
Wetlands	0	0.00%
Fireline Construction	0	0.00%
<b>State Totals</b>	<b>11</b>	<b>100.00%</b>

### ***Significant Risk By Individual Practice***

Of the eleven significant risks to water quality found in the Big Black River Basin, the individual practice of *roads and skid trails are established* was associated with two significant risks. Listed below is the complete listing of significant risks by individual practice:

- Roads and skid trails are stabilized (Skid Trails/Temporary Roads) with 2 occurrences
- Stream crossing properly installed (Stream Crossings) with 1 occurrence
- Water bars, turnouts, and other water control structures present (Skid Trails /Temporary Roads) with 1 occurrence
- Well-drained location (Landings) with 1 occurrence
- SMZ width established according to BMP specs (Streamside Management Zones) with 1 occurrence
- Harvesting/thinning within SMZ according to BMP spec (Streamside Management Zones) with 1 occurrence
- Stream course clear of logging debris (Streamside Management Zones) with 1 occurrence
- SMZ free of roads and landings (Streamside Management Zones) with 1 occurrence
- Blocking the natural flow of water avoided (Streamside Management Zones) with 1 occurrence
- Stream bank integrity honored (Streamside Management Zones) with 1 occurrence

### ***Significant Risk By BMP Category***

There were no significant risks to water quality for surveyed sites in the Big Black River Basin for the following BMP categories:

- Permanent Roads
- Site Preparations
- Wetlands
- Fireline Construction

Both the Stream Crossings and Landings category had one significant risk to water quality and accounted for 18.18 percent of all significant risks for the Big Black River Basin.

The Streamside Management Zones category had the most occurrence of significant risk within the Big Black River Basin with 6 significant risks. This represents 54.55percent of all risks found in the Big Black River Basin. Each of the following individual practices within the Streamside Management Zone has one significant risk associated with it:

- SMZ width established according to BMP specs
- Harvesting/thinning within SMZ according to BMP spec
- Stream course clear of logging debris
- Blocking the natural flow of water avoided,
- Stream bank integrity honored
- SMZ free of roads and landings

There were three significant risks associated with the Skid Trails/Temporary Roads category and accounted for 27.27 percent of significant risks within this basin. These significant risks were found in the following individual practices:

- Water bars, turnouts, and other water control structures present
- Roads and skid trails are stabilized

## **BMP IMPLEMENTATION RESULTS FOR TENNESSEE RIVER BASIN**

Of the 203 surveyed sites, 11 sites were located with the Tennessee River Basin. These sites account for 5.4 percent of all survey sites in Basin Group 1. A compilation of survey data for this basin is found on the BMP Monitoring Inspection Form - [Tennessee River Basin Totals](#) on pages 34-36 in appendix.

### ***General Tract Information***

#### *Silvicultural Activity:*

Of the eleven evaluated sites, a regeneration cut was performed on all surveyed sites.

#### *Tract Size:*

The surveyed eleven sites ranged in sizes from 40 to 161 or more acres. The 41-80 acres category had the highest number of surveyed sites with 4 sites or 36.36 percent of all surveyed sites.

#### *Ownership:*

The ownership of the 11 surveyed sites fall into the following four categories:

<i>Private Nonindustrial</i> (7 sites, 63.63%)	<i>Federal</i> (0 sites, 0.00%)
<i>State/Public</i> (0 sites, 0.00%)	<i>Industry</i> (4 sites, 36.36%)

### ***BMP Results By Individual Practices***

Twenty individual practices were applicable 220 times out of the 429 applied practices or 51.28 percent of all applicable individual practices. Listed below are the top five individual practices that occurred on all 11 surveyed sites within the Tennessee River Basin:

- Location outside of SMZ (Landings)
- Well-drained location (Landings)
- Number and size minimized (Landings)
- Sensitive areas respected (Landings)
- Ditches that dump in streams avoided (Stream Crossings)

### ***BMP Results By Category***

Applicable BMP practices in the Fireline Construction category had the highest percentage of practices implemented as specified with 100% of the seven applicable practices implemented according to specifications. The lowest percentage of implemented BMP according to specifications was found in the Skid Trails/Temporary Roads category with 56 percent of the 55 applicable practices implemented correctly. See Table 10 for a complete

listing of all categories and their ranking based on practices implemented according to specifications.

**Table 10: Ranking Of BMP Categories By Practices Implemented According To Specifications For Tennessee River Basin**

Individual Practices	Applicable Practices			
	Yes	No	Total Practices	Percent
Fireline Constructions	7	0	7	100%
Site Preparation	52	2	54	96%
Landings	52	3	55	95%
Streamside Management Zones	101	8	109	93%
Permanent Roads	101	9	110	92%
Stream Crossings	31	8	39	79%
Skid Trails/Temporary Roads	31	24	55	56%
Wetlands	0	0	0	0%
<b>Basin Totals</b>	<b>375</b>	<b>54</b>	<b>429</b>	<b>76%</b>

### ***BMP Results By Site And Category***

The BMP categories of Streamside Management Zones, Landings and Skid Trails/ Temporary Roads were applicable on more survey sites than any other category. These categories were applicable on all surveyed sites in the Tennessee River Basin. See Table 8 for a listing of the top 5 individual practices by site and category.

**Table 11: Ranking Of BMP Categories By Number of Sites For Tennessee River Basin**

Individual Practice	Category	Number of Site	Percentage of Sites
Location outside of SMZ	Landings	11	100%
Well-drained location	Landings	11	100%
Number and size minimized	Landings	11	100%
Sensitive areas respected	Landings	11	100%
Ditches that dump in streams avoided	Stream Crossings	11	100%

### ***BMP Results For Overall Implementation***

Results show that eighty-seven percent of best management practices were implemented according to specifications on the 11 surveyed sites where applicable with the Tennessee River Basin.

## **SIGNIFICANT RISKS FOR TENNESSEE RIVER BASIN**

Sites with the Tennessee River Basin were evaluated for significant risk to water quality each time a BMP was determined to be applicable to the surveyed site. Of the 429 applicable BMPs evaluated, a significant risk to water quality was not observed within this river basin.

## **CONCLUSIONS**

Our forests play an essential role in the protection of water quality. They absorb rainfall, filter pollutants, and recharge underground water supplies. Forests produce much of the clean water we need for recreation and support of fish and wildlife habitats as well as the drinking water supply for millions of Americans.

Through voluntary best management practices, the forestry community has played a part in improving and protecting water quality in the State of Mississippi. Even though the overall score for the Big Black-Tombigbee-Tennessee River Basin was ninety percent, there is still room for improvement. The BMP categories of Skid Trails/Temporary Roads, Streamside Management Zones, Stream Crossings and Permanent Roads were all below ninety percent. Through more educational workshops for landowners and loggers we can increase all BMPs categories to ninety percent or greater implementation rating.

The Mississippi forestry communities are committed to the protection of our forest and water quality through the use of voluntary best management practices. We, the forestry community, will continue to evaluate our role in insuring water quality in Mississippi by utilizing voluntary best management practices and striving to increase our overall implementation score in the coming years.



## APPENDIX

**Mississippi Forestry Commission  
BMP Monitoring Inspection Form  
State Totals**

**1. General Tract Information**

<i>Silviculture Activity:</i>	Regeneration Cut	<u>155</u>	Thinning	<u>48</u>
<i>Estimated Tract Size (Acres):</i>	10-40	<u>65</u>	41-80	<u>69</u>
	81-120	<u>37</u>	121-160	<u>16</u>
	161 or more	<u>16</u>		
<i>Ownership Group:</i>	PNIF	<u>131</u>	State	<u>23</u>
	Federal	<u>0</u>	Industry	<u>94</u>
<i>Mississippi's River Basins:</i>				
	Big Black River Basin	<u>55</u>		
	North Independent Streams Basin			
	South Independent Streams Basin			
	Coastal Streams Basin			
	Pascagoula River Basin			
	Tennessee River Basin	<u>11</u>		
	Lower Mississippi River Basin			
	Tombigbee River Basin	<u>137</u>		
	Upper Mississippi River Basin			
	Pearl River Basin			
	Yazoo River Basin			

**2. Site Characteristics**

<i>Estimate Slope Present:</i>	0 - 5	<u>91</u>	6 - 20	<u>75</u>	21 - 40	<u>34</u>	Over 40	<u>3</u>
<i>Predominated Soil Texture:</i>	Clay	<u>3</u>	Clay Loam	<u>104</u>	Loam	<u>24</u>		
	Sandy Loam	<u>64</u>	Sand	<u>2</u>	Silty Soils	<u>6</u>		
<i>Erodibility Hazards:</i>	Low	<u>94</u>	Medium	<u>72</u>	High	<u>37</u>		
<i>Type of Stream Present:</i>								
	Perennial	<u>52</u>	Intermittent	<u>58</u>	Ephemeral	<u>62</u>	N/A	<u>31</u>
<i>Estimated Distance to Nearest Permanent Water Body:</i>								
	300 feet or less	<u>44</u>	301 -800 feet	<u>10</u>	801-1600 ft	<u>31</u>	1601 feet or more	<u>117</u>
<i>Evidence of Spills or Fuels On Site:</i>	Yes	<u>4</u>	No					
<i>Trash, Oil Cans, Hoses Or Containers Left On Site:</i>	Yes	<u>23</u>	No	<u>180</u>				
<i>Has Tract Been Regenerated Artificially:</i>	Yes	<u>80</u>	No	<u>123</u>	N/A			

**3. Streamside Management Zones**

	N/A	Yes	No	Sig. Risk
a. SMZ Width Established According to BMP Specs	39	141	23	5
b. Harvesting/thinning Within Smz According to BMP Specs	39	143	21	5
c. SMZ Integrity Honored (No Chem, Fert, Burning, Etc. Within SMZ)	39	147	17	3
d. Stream Course Clear of Logging Debris	38	135	30	5
e. SMZ Free of Roads and Landings	37	158	8	2
f. Stream Free of Sediment Due to Silvicultural Activity	37	151	15	4
g. Rutting Through Streams or Drains Avoided	37	156	10	4
h. Prescribed Burning Avoided	52	133	18	0
i. Blocking The Natural Flow Of Water Avoided	37	147	19	6
j. Stream Banks Integrity Honored	40	152	11	2
<b>Section Total</b>		<b>1,463</b>	<b>172</b>	<b>36</b>
<b>% Compliance</b>	<b>89.48%</b>			

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BMP Monitoring Inspection Form

	N/A	Yes	No	Sig. Risk
<b>4. Stream Crossings</b>				
a. Ditches That Dump Into Streams Avoided	66	108	29	4
b. Stream Crossings Properly Installed	77	107	19	9
c. Number Of Stream Crossing Minimized	76	118	9	2
d. Stream or Drain Crossings Installed At Right Angle Only	77	119	7	1
e. Stream Crossings Stabilized During Use	77	111	15	4
<b>Section Totals</b>		<b>563</b>	<b>79</b>	<b>20</b>
<b>% Compliance</b>	<b>87.69%</b>			
<b>5. Permanent Roads</b>				
a. Roads Respect Sensitive Area	28	166	9	2
b. Rutting Depth Does Not Exceed Six Inches For More Than 50 Ft.	24	146	33	3
c. Roads Located Where Side Drainage Can Be Achieved	24	164	15	5
d. Roads Wide Enough to Achieve Surface Drying	24	161	18	1
e. Roads Reshaped And/Or Stabilized	24	132	47	5
f. Roads Meet Grade Specifications	25	144	34	7
g. Roads Are Well Drained With Appropriate Structures	48	128	27	3
h. Side Ditches Do Not Dump Into Streams	33	157	13	1
i. Flat No Grade Roads Avoided	27	163	13	4
j. Streambeds, Rocky Places, And Steep Slopes Avoided	34	160	9	2
k. Potential Problem Soils Avoided	27	159	17	4
<b>Section Totals</b>		<b>1680</b>	<b>235</b>	<b>37</b>
<b>% Compliance</b>	<b>87.73%</b>			
<b>6. Skid Trails/Temporary (Secondary ) Roads</b>				
a. Sensitive Areas Respected	10	176	17	4
b. Majority Of Skid Trail Grades (Steepness) Below 15%	8	168	27	7
c. Rutting Does Not Exceed Six Inches For More Than 50 Feet	2	156	45	6
d. Water Bars, Turnouts, And Other Water Control Structures Present	34	102	67	5
e. Roads And Skid Trails Are Stabilized	5	136	62	10
<b>Section Totals</b>		<b>738</b>	<b>218</b>	<b>32</b>
<b>% Compliance</b>	<b>77.20%</b>			
<b>7. Site Preparation</b>				
a. Sensitive Areas Respected	108	88	7	1
b. Contour Followed	132	70	1	0
c. SMZ Integrity Honored (No Chem, Fert, Burning, Etc. Within SMZ)	113	80	10	0
d. Soil Disturbance Kept To A Minimum	104	94	5	0
e. Excessive Soil Compaction Avoided	103	99	1	0
f. Does it Appear That Chemicals Were Used According to Label Spec	128	77	1	0
g. Disturbance on Slopes Minimized	111	89	3	0
h. Water Diverted from Site Prep Area to Vegetated Surface	113	86	4	0
i. Extremely Hot Burns Avoided	132	68	3	0
<b>Section Totals</b>		<b>751</b>	<b>35</b>	<b>1</b>
<b>% Compliance</b>	<b>95.55%</b>			

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	N/A	Yes	No	Sig. Risk
<b>8. Landings</b>				
a. Location Outside of SMZ	11	192	0	0
b. Well-Drained Location	2	197	4	2
c. Number and Size Minimized	2	199	2	1
d. Sensitive Areas Respected	5	195	3	1
e. Restored Stabilized	2	145	56	3
<b>Section Totals</b>		<b>928</b>	<b>65</b>	<b>7</b>
<b>% Compliance</b>	<b>93.46%</b>			
<b>9. Wetlands</b>	<b>N/A</b>	<b>Yes</b>	<b>No</b>	<b>Sig. Risk</b>
a. Hydrology Of Site Unaltered	189	13	1	0
b. Roads, Drainage Structures Applied Properly	190	12	1	0
c. Mandatory BMP's Followed	190	13	0	0
<b>Section Totals</b>		<b>38</b>	<b>2</b>	<b>0</b>
<b>% Compliance</b>	<b>95.00%</b>			
<b>10. Fireline Construction</b>	<b>N/A</b>	<b>Yes</b>	<b>No</b>	<b>Sig. Risk</b>
a. Firebreak Erosion Controlled	154	46	3	0
b. Majority Of Fireline Constructed Around Slopes Or Grade of Less Than 10%	156	44	2	0
c. Water Bars, Turnouts and Out Water Control Structures Properly Installed	157	41	5	0
d. Diversion Ditches Not Constructed At The Head Of A Drain	162	41	0	0
e. Firelines Not Constructed Down The Slope Of Natural Gully	158	44	1	0
f. SMZs Left Between The Fireline And Stream	163	38	2	0
g. Avoid Constructing Firelines Into An SMZ	161	38	4	0
<b>Section Totals</b>		<b>292</b>	<b>18</b>	<b>0</b>
<b>% Compliance</b>	<b>94.19%</b>			
<b>11. Follow Up Questions</b>	<b>N/A</b>	<b>Yes</b>	<b>No</b>	
a. Was Activity Supervised by Professional Forester?	83	105	15	
b. Was Landowner Familiar with BMP Handbook?	83	101	19	
c. Was Logger Familiar with BMP Handbook?	90	104	9	
d. Were BMPs Included in Contract?	100	86	17	
e. Has Logger Completed Logger Educational Training Scores?	108	88	7	
f. Are Recommendations Planned for Landowner, If Needed?	87	57	59	
<b>Section Totals</b>		<b>541</b>	<b>126</b>	
<b>% Compliance</b>	<b>81%</b>			
<b>State Totals</b>				
<b>% Compliance</b>	<b>90.04%</b>			

**Mississippi Forestry Commission  
BMP Monitoring Inspection Form  
Tombigbee River Basin - Totals**

**1. General Tract Information**

*Silviculture Activity:* Regeneration Cut 108 Thinning 29  
*Estimated Tract Size (Acres):* 10-40 38 41-80 46 81-120 26 121-160 14  
 161 or more 13  
*Ownership Group:* PNIF 89 State 12 Federal 0 Industry 36  
*Mississippi's River Basins:*  
 Big Black River Basin  
 North Independent Streams Basin  
 South Independent Streams Basin  
 Coastal Streams Basin  
 Pascagoula River Basin  
 Tennessee River Basin  
 Lower Mississippi River Basin  
 Tombigbee River Basin 137  
 Upper Mississippi River Basin  
 Pearl River Basin  
 Yazoo River Basin

**2. Site Characteristics**

*Estimate Slope Present:* 0 - 5 67 6 - 20 49 21 - 40 18 Over 40 3  
*Predominated Soil Texture:* Clay 3 Clay Loam 77 Loam 14  
 Sandy Loam 39 Sand 0 Silty 0  
*Erodibility Hazards:* Low 73 Medium 41 High 23  
*Type of Stream Present:*  
 Perennial 39 Intermittent 33 Ephemeral 39 N/A 26  
*Estimated Distance to Nearest Permanent Water Body:*  
 300 feet or less 25 301 -800 feet 7 801-1600 ft 0 1601 feet or more 92  
*Evidence of Spills or Fuels On Site:* Yes 4 No  
*Trash, Oil Cans, Hoses Or Containers Left On Site:* Yes 13 No 124  
*Has Tract Been Regenerated Artificially:* Yes 55 No 82 N/A

**3. Streamside Management Zones**

	N/A	Yes	No	Sig. Risk
a. SMZ Width Established According to BMP Specs	26	95	16	4
b. Harvesting/thinning Within Smz According to BMP Specs	25	97	15	4
c. SMZ Integrity Honored (No Chem, Fert, Burning, Etc. Within SMZ)	25	99	13	3
d. Stream Course Clear of Logging Debris	24	92	21	4
e. SMZ Free of Roads and Landings	24	109	4	1
f. Stream Free of Sediment Due to Silvicultural Activity	24	103	10	4
g. Rutting Through Streams or Drains Avoided	24	103	10	4
h. Prescribed Burning Avoided	33	98	6	0
i. Blocking The Natural Flow Of Water Avoided	24	99	14	5
j. Stream Banks Integrity Honored	26	105	6	1
<b>Section Total</b>		<b>1000</b>	<b>115</b>	<b>30</b>
<b>% Compliance</b>	<b>90%</b>			

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	N/A	Yes	No	Sig. Risk
<b>4. Stream Crossings</b>				
a. Ditches That Dump Into Streams Avoided	31	83	23	4
b. Stream Crossings Properly Installed	37	90	10	8
c. Number Of Stream Crossing Minimized	37	95	5	2
d. Stream or Drain Crossings Installed At Right Angle Only	37	99	1	1
e. Stream Crossings Stabilized During Use	37	93	7	4
<b>Section Totals</b>		<b>460</b>	<b>46</b>	<b>19</b>
<b>% Compliance</b>	<b>91%</b>			
<b>5. Permanent Roads</b>	<b>N/A</b>	<b>Yes</b>	<b>No</b>	<b>Sig. Risk</b>
a. Roads Respect Sensitive Area	17	114	6	2
b. Rutting Depth Does Not Exceed Six Inches For More Than 50 Ft.	13	99	25	3
c. Roads Located Where Side Drainage Can Be Achieved	13	112	12	5
d. Roads Wide Enough to Achieve Surface Drying	13	116	8	1
e. Roads Reshaped And/Or Stabilized	13	89	35	5
f. Roads Meet Grade Specifications	14	94	29	7
g. Roads Are Well Drained With Appropriate Structures	31	84	22	3
h. Side Ditches Do Not Dump Into Streams	21	106	10	1
i. Flat No Grade Roads Avoided	16	108	13	4
j. Streambeds, Rocky Places, And Steep Slopes Avoided	23	106	8	2
k. Potential Problem Soils Avoided	16	113	8	4
<b>Section Totals</b>		<b>1141</b>	<b>176</b>	<b>37</b>
<b>% Compliance</b>	<b>87%</b>			
<b>6. Skid Trails/Temporary (Secondary ) Roads</b>	<b>N/A</b>	<b>Yes</b>	<b>No</b>	<b>Sig. Risk</b>
a. Sensitive Areas Respected	8	118	11	4
b. Majority Of Skid Trail Grades (Steepness) Below 15%	6	117	14	7
c. Rutting Does Not Exceed Six Inches For More Than 50 Feet	0	104	33	6
d. Water Bars, Turnouts, And Other Water Control Structures Present	29	64	44	4
e. Roads And Skid Trails Are Stabilized	2	93	42	8
<b>Section Totals</b>		<b>496</b>	<b>144</b>	<b>29</b>
<b>% Compliance</b>	<b>78%</b>			
<b>7. Site Preparation</b>	<b>N/A</b>	<b>Yes</b>	<b>No</b>	<b>Sig. Risk</b>
a. Sensitive Areas Respected	68	64	5	1
b. Contour Followed	87	49	1	0
c. SMZ Integrity Honored (No Chem, Fert, Burning, Etc. Within SMZ)	71	58	8	0
d. Soil Disturbance Kept To A Minimum	64	72	1	0
e. Excessive Soil Compaction Avoided	63	74	0	0
f. Does it Appear That Chemicals Were Used According to Label Spec	84	52	1	0
g. Disturbance on Slopes Minimized	71	65	1	0
h. Water Diverted from Site Prep Area to Vegetated Surface	73	62	2	0
i. Extremely Hot Burns Avoided	85	49	3	0
<b>Section Totals</b>		<b>545</b>	<b>22</b>	<b>1</b>
<b>% Compliance</b>	<b>96%</b>			

Mississippi BMP Implementation Monitoring Program

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Mississippi Forestry Commission  
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	N/A	Yes	No	Sig. Risk
<b>8. Landings</b>				
a. Location Outside of SMZ	9	128	0	0
b. Well-Drained Location	0	134	3	1
c. Number and Size Minimized	0	136	1	1
d. Sensitive Areas Respected	3	132	2	1
e. Restored Stabilized	0	98	39	3
<b>Section Totals</b>		<b>628</b>	<b>45</b>	<b>6</b>
<b>% Compliance</b>	<b>93%</b>			
<b>9. Wetlands</b>	<b>N/A</b>	<b>Yes</b>	<b>No</b>	<b>Sig. Risk</b>
a. Hydrology Of Site Unaltered	125	11	1	0
b. Roads, Drainage Structures Applied Properly	125	11	1	0
c. Mandatory BMP's Followed	126	11	0	0
<b>Section Totals</b>		<b>33</b>	<b>2</b>	<b>0</b>
<b>% Compliance</b>	<b>94%</b>			
<b>10. Fireline Construction</b>	<b>N/A</b>	<b>Yes</b>	<b>No</b>	<b>Sig. Risk</b>
a. Firebreak Erosion Controlled	103	32	2	0
b. Majority Of Fireline Constructed Around Slopes Or Grade of Less Than 10%	105	30	2	0
c. Water Bars, Turnouts and Out Water Control Structures Properly Installed	106	28	3	0
d. Diversion Ditches Not Constructed At The Head Of A Drain	110	27	0	0
e. Firelines Not Constructed Down The Slope Of Natural Gully	107	30	0	0
f. SMZs Left Between The Fireline And Stream	111	24	2	0
g. Avoid Constructing Firelines Into An SMZ	109	24	4	0
<b>Section Totals</b>		<b>195</b>	<b>13</b>	<b>0</b>
<b>% Compliance</b>	<b>94%</b>			
<b>11. Follow Up Questions</b>	<b>N/A</b>	<b>Yes</b>	<b>No</b>	
a. Was Activity Supervised by Professional Forester?	49	77	11	
b. Was Landowner Familiar with BMP Handbook?	48	73	16	
c. Was Logger Familiar with BMP Handbook?	48	81	8	
d. Were BMPs Included in Contract?	58	63	16	
e. Has Logger Completed Logger Educational Training Scores?	57	74	6	
f. Are Recommendations Planned for Landowner, If Needed?	48	41	48	
<b>Section Totals</b>		<b>409</b>	<b>105</b>	
<b>% Compliance</b>	<b>80%</b>			
<b>State Totals</b>				
<b>% Compliance</b>	<b>90%</b>			

**Mississippi Forestry Commission  
BMP Monitoring Inspection Form  
Big Black River Basin - Totals**

**1. General Tract Information**

*Silviculture Activity:* Regeneration Cut 36 Thinning 19  
*Estimated Tract Size (Acres):* 10-40 27 41-80 19 81-120 8 121-160 1  
 161 or more 0  
*Ownership Group:* PNIF 35 State 11 Federal 0 Industry 9  
*Mississippi's River Basins:*  
 Big Black River Basin 55  
 North Independent Streams Basin  
 South Independent Streams Basin  
 Coastal Streams Basin  
 Pascagoula River Basin  
 Tennessee River Basin  
 Lower Mississippi River Basin  
 Tombigbee River Basin  
 Upper Mississippi River Basin  
 Pearl River Basin  
 Yazoo River Basin

**2. Site Characteristics**

*Estimate Slope Present:* 0 - 5 24 6 - 20 22 21 - 40 9 Over 40 0  
*Predominated Soil Texture:* Clay 0 Clay Loam 27 Loam 9  
 Sandy Loam 17 Sand 0 Silty 0  
*Erodibility Hazards:* Low 21 Medium 25 High 9  
*Type of Stream Present:*  
 Perennial 9 Intermittent 21 Ephemeral 20 N/A 5  
*Estimated Distance to Nearest Permanent Water Body:*  
 300 feet or less 14 301 -800 feet 2 801-1600 ft 0 1601 feet or more 23  
*Evidence of Spills or Fuels On Site:* Yes 0 No  
*Trash, Oil Cans, Hoses Or Containers Left On Site:* Yes 9 No 46  
*Has Tract Been Regenerated Artificially:* Yes 17 No 38 N/A

**3. Streamside Management Zones**

	N/A	Yes	No	Sig. Risk
a. SMZ Width Established According to BMP Specs	13	36	6	1
b. Harvesting/thinning Within Smz According to BMP Specs	14	36	5	1
c. SMZ Integrity Honored (No Chem, Fert, Burning, Etc. Within SMZ)	14	38	3	0
d. Stream Course Clear of Logging Debris	14	33	8	1
e. SMZ Free of Roads and Landings	13	38	4	1
f. Stream Free of Sediment Due to Silvicultural Activity	13	38	4	0
g. Rutting Through Streams or Drains Avoided	13	38	4	0
h. Prescribed Burning Avoided	18	27	10	0
i. Blocking The Natural Flow Of Water Avoided	13	37	5	1
j. Stream Banks Integrity Honored	14	36	5	1
<b>Section Total</b>		<b>357</b>	<b>54</b>	<b>6</b>
<b>% Compliance</b>	<b>87%</b>			

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	N/A	Yes	No	Sig. Risk
<b>4. Stream Crossings</b>				
a. Ditches That Dump Into Streams Avoided	35	18	2	0
b. Stream Crossings Properly Installed	36	12	7	1
c. Number Of Stream Crossing Minimized	35	16	4	0
d. Stream or Drain Crossings Installed At Right Angle Only	36	14	5	0
e. Stream Crossings Stabilized During Use	36	12	7	0
<b>Section Totals</b>		<b>72</b>	<b>25</b>	<b>1</b>
<b>% Compliance</b>	<b>74%</b>			
<b>5. Permanent Roads</b>				
a. Roads Respect Sensitive Area	10	43	2	0
b. Rutting Depth Does Not Exceed Six Inches For More Than 50 Ft.	10	41	4	0
c. Roads Located Where Side Drainage Can Be Achieved	10	42	3	0
d. Roads Wide Enough to Achieve Surface Drying	10	35	10	0
e. Roads Reshaped And/Or Stabilized	10	34	11	0
f. Roads Meet Grade Specifications	10	40	5	0
g. Roads Are Well Drained With Appropriate Structures	16	34	5	0
h. Side Ditches Do Not Dump Into Streams	11	42	2	0
i. Flat No Grade Roads Avoided	10	45	0	0
j. Streambeds, Rocky Places, And Steep Slopes Avoided	10	45	0	0
k. Potential Problem Soils Avoided	10	37	8	0
<b>Section Totals</b>		<b>438</b>	<b>50</b>	<b>0</b>
<b>% Compliance</b>	<b>90%</b>			
<b>6. Skid Trails/Temporary (Secondary ) Roads</b>				
a. Sensitive Areas Respected	2	49	4	0
b. Majority Of Skid Trail Grades (Steepness) Below 15%	2	45	8	0
c. Rutting Does Not Exceed Six Inches For More Than 50 Feet	2	47	6	0
d. Water Bars, Turnouts, And Other Water Control Structures Present	5	33	17	1
e. Roads And Skid Trails Are Stabilized	3	37	15	2
<b>Section Totals</b>		<b>211</b>	<b>50</b>	<b>3</b>
<b>% Compliance</b>	<b>81%</b>			
<b>7. Site Preparation</b>				
a. Sensitive Areas Respected	36	18	1	0
b. Contour Followed	37	18	0	0
c. SMZ Integrity Honored (No Chem, Fert, Burning, Etc. Within SMZ)	38	16	1	0
d. Soil Disturbance Kept To A Minimum	36	15	4	0
e. Excessive Soil Compaction Avoided	36	18	1	0
f. Does it Appear That Chemicals Were Used According to Label Spec	36	19	0	0
g. Disturbance on Slopes Minimized	36	17	2	0
h. Water Diverted from Site Prep Area to Vegetated Surface	36	17	2	0
i. Extremely Hot Burns Avoided	39	16	0	0
<b>Section Totals</b>		<b>154</b>	<b>11</b>	<b>0</b>
<b>% Compliance</b>	<b>93%</b>			

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	N/A	Yes	No	Sig. Risk
<b>8. Landings</b>				
a. Location Outside of SMZ	2	53	0	0
b. Well-Drained Location	2	52	1	1
c. Number and Size Minimized	2	52	1	0
d. Sensitive Areas Respected	2	52	1	0
e. Restored Stabilized	2	39	14	0
<b>Section Totals</b>		<b>248</b>	<b>17</b>	<b>1</b>
<b>% Compliance</b>	<b>94%</b>			
<b>9. Wetlands</b>	N/A	Yes	No	Sig. Risk
a. Hydrology Of Site Unaltered	53	2	0	0
b. Roads, Drainage Structures Applied Properly	54	1	0	0
c. Mandatory BMP's Followed	53	2	0	0
<b>Section Totals</b>		<b>5</b>	<b>0</b>	<b>0</b>
<b>% Compliance</b>	<b>100%</b>			
<b>10. Fireline Construction</b>	N/A	Yes	No	Sig. Risk
a. Firebreak Erosion Controlled	41	13	1	0
b. Majority Of Fireline Constructed Around Slopes Or Grade of Less Than 10%	41	13	1	0
c. Water Bars, Turnouts and Out Water Control Structures Properly Installed	41	12	2	0
d. Diversion Ditches Not Constructed At The Head Of A Drain	42	13	0	0
e. Firelines Not Constructed Down The Slope Of Natural Gully	41	13	1	0
f. SMZs Left Between The Fireline And Stream	42	13	0	0
g. Avoid Constructing Firelines Into An SMZ	42	13	0	0
<b>Section Totals</b>		<b>90</b>	<b>5</b>	<b>0</b>
<b>% Compliance</b>	<b>95%</b>			
<b>11. Follow Up Questions</b>	N/A	Yes	No	
a. Was Activity Supervised by Professional Forester?	23	28	4	
b. Was Landowner Familiar with BMP Handbook?	24	28	3	
c. Was Logger Familiar with BMP Handbook?	31	23	1	
d. Were BMPs Included in Contract?	31	23	1	
e. Has Logger Completed Logger Educational Training Scores?	40	14	1	
f. Are Recommendations Planned for Landowner, If Needed?	28	16	11	
<b>Section Totals</b>		<b>132</b>	<b>21</b>	
<b>% Compliance</b>	<b>86%</b>			
<b>State Totals</b>				
<b>% Compliance</b>	<b>89%</b>			

**Mississippi Forestry Commission  
BMP Monitoring Inspection Form  
Tennessee River Basin - Totals**

**1. General Tract Information**

*Silviculture Activity:* Regeneration Cut 11 Thinning 0  
*Estimated Tract Size (Acres):* 10-40 0 41-80 4 81-120 3 121-160 0  
 161 or more 3  
*Ownership Group:* PNIF 7 State 0 Federal 0 Industry 4  
*Mississippi's River Basins:*  
 Big Black River Basin  
 North Independent Streams Basin  
 South Independent Streams Basin  
 Coastal Streams Basin  
 Pascagoula River Basin  
 Tennessee River Basin 11  
 Lower Mississippi River Basin  
 Tombigbee River Basin  
 Upper Mississippi River Basin  
 Pearl River Basin  
 Yazoo River Basin

**2. Site Characteristics**

*Estimate Slope Present:* 0 - 5 0 6 - 20 4 21 - 40 7 Over 40 0  
*Predominated Soil Texture:* Clay 0 Clay Loam 0 Loam 1  
 Sandy Loam 8 Sand 2 Silty 0  
*Erodibility Hazards:* Low 0 Medium 6 High 5  
*Type of Stream Present:*  
 Perennial 4 Intermittent 4 Ephemeral 3 N/A 0  
*Estimated Distance to Nearest Permanent Water Body:*  
 300 feet or less 5 301 -800 feet 1 801-1600 ft 0 1601 feet or more 2  
*Evidence of Spills or Fuels On Site:* Yes 0 No  
*Trash, Oil Cans, Hoses Or Containers Left On Site:* Yes 1 No 10  
*Has Tract Been Regenerated Artificially:* Yes 8 No 3 N/A

**3. Streamside Management Zones**

	N/A	Yes	No	Sig. Risk
a. SMZ Width Established According to BMP Specs	0	10	1	0
b. Harvesting/thinning Within Smz According to BMP Specs	0	10	1	0
c. SMZ Integrity Honored (No Chem, Fert, Burning, Etc. Within SMZ)	0	10	1	0
d. Stream Course Clear of Logging Debris	0	10	1	0
e. SMZ Free of Roads and Landings	0	11	0	0
f. Stream Free of Sediment Due to Silvicultural Activity	0	10	1	0
g. Rutting Through Streams or Drains Avoided	0	10	1	0
h. Prescribed Burning Avoided	1	8	2	0
i. Blocking The Natural Flow Of Water Avoided	0	11	0	0
j. Stream Banks Integrity Honored	0	11	0	0
<b>Section Total</b>		<b>101</b>	<b>8</b>	<b>0</b>
<b>% Compliance</b>	<b>93%</b>			

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	N/A	Yes	No	Sig. Risk
<b>4. Stream Crossings</b>				
a. Ditches That Dump Into Streams Avoided	0	7	4	0
b. Stream Crossings Properly Installed	4	5	2	0
c. Number Of Stream Crossing Minimized	4	7	0	0
d. Stream or Drain Crossings Installed At Right Angle Only	4	6	1	0
e. Stream Crossings Stabilized During Use	4	6	1	0
<b>Section Totals</b>		<b>31</b>	<b>8</b>	<b>0</b>
<b>% Compliance</b>	<b>79%</b>			
<b>5. Permanent Roads</b>				
a. Roads Respect Sensitive Area	1	9	1	0
b. Rutting Depth Does Not Exceed Six Inches For More Than 50 Ft.	1	6	4	0
c. Roads Located Where Side Drainage Can Be Achieved	1	10	0	0
d. Roads Wide Enough to Achieve Surface Drying	1	10	0	0
e. Roads Reshaped And/Or Stabilized	1	9	1	0
f. Roads Meet Grade Specifications	1	10	0	0
g. Roads Are Well Drained With Appropriate Structures	1	10	0	0
h. Side Ditches Do Not Dump Into Streams	1	9	1	0
i. Flat No Grade Roads Avoided	1	10	0	0
j. Streambeds, Rocky Places, And Steep Slopes Avoided	1	9	1	0
k. Potential Problem Soils Avoided	1	9	1	0
<b>Section Totals</b>		<b>101</b>	<b>9</b>	<b>0</b>
<b>% Compliance</b>	<b>92%</b>			
<b>6. Skid Trails/Temporary (Secondary ) Roads</b>				
a. Sensitive Areas Respected	0	9	2	0
b. Majority Of Skid Trail Grades (Steepness) Below 15%	0	6	5	0
c. Rutting Does Not Exceed Six Inches For More Than 50 Feet	0	5	6	0
d. Water Bars, Turnouts, And Other Water Control Structures Present	0	5	6	0
e. Roads And Skid Trails Are Stabilized	0	6	5	0
<b>Section Totals</b>		<b>31</b>	<b>24</b>	<b>0</b>
<b>% Compliance</b>	<b>56%</b>			
<b>7. Site Preparation</b>				
a. Sensitive Areas Respected	4	6	1	0
b. Contour Followed	8	3	0	0
c. SMZ Integrity Honored (No Chem, Fert, Burning, Etc. Within SMZ)	4	6	1	0
d. Soil Disturbance Kept To A Minimum	4	7	0	0
e. Excessive Soil Compaction Avoided	4	7	0	0
f. Does it Appear That Chemicals Were Used According to Label Spec	5	6	0	0
g. Disturbance on Slopes Minimized	4	7	0	0
h. Water Diverted from Site Prep Area to Vegetated Surface	4	7	0	0
i. Extremely Hot Burns Avoided	8	3	0	0
<b>Section Totals</b>		<b>52</b>	<b>2</b>	<b>0</b>
<b>% Compliance</b>	<b>96%</b>			

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	N/A	Yes	No	Sig. Risk
<b>8. Landings</b>				
a. Location Outside of SMZ	0	11	0	0
b. Well-Drained Location	0	11	0	0
c. Number and Size Minimized	0	11	0	0
d. Sensitive Areas Respected	0	11	0	0
e. Restored Stabilized	0	8	3	0
<b>Section Totals</b>		<b>52</b>	<b>3</b>	<b>0</b>
<b>% Compliance</b>	<b>95%</b>			
<b>9. Wetlands</b>	<b>N/A</b>	<b>Yes</b>	<b>No</b>	<b>Sig. Risk</b>
a. Hydrology Of Site Unaltered	11	0	0	0
b. Roads, Drainage Structures Applied Properly	11	0	0	0
c. Mandatory BMP's Followed	11	0	0	0
<b>Section Totals</b>		<b>0</b>	<b>0</b>	<b>0</b>
<b>% Compliance</b>	<b>0%</b>			
<b>10. Fireline Construction</b>	<b>N/A</b>	<b>Yes</b>	<b>No</b>	<b>Sig. Risk</b>
a. Firebreak Erosion Controlled	10	1	0	0
b. Majority Of Fireline Constructed Around Slopes Or Grade of Less Than 10%	10	1	0	0
c. Water Bars, Turnouts and Out Water Control Structures Properly Installed	10	1	0	0
d. Diversion Ditches Not Constructed At The Head Of A Drain	10	1	0	0
e. Firelines Not Constructed Down The Slope Of Natural Gully	10	1	0	0
f. SMZs Left Between The Fireline And Stream	10	1	0	0
g. Avoid Constructing Firelines Into An SMZ	10	1	0	0
<b>Section Totals</b>		<b>7</b>	<b>0</b>	<b>0</b>
<b>% Compliance</b>	<b>100%</b>			
<b>11. Follow Up Questions</b>	<b>N/A</b>	<b>Yes</b>	<b>No</b>	
a. Was Activity Supervised by Professional Forester?	11	0	0	
b. Was Landowner Familiar with BMP Handbook?	11	0	0	
c. Was Logger Familiar with BMP Handbook?	11	0	0	
d. Were BMPs Included in Contract?	11	0	0	
e. Has Logger Completed Logger Educational Training Scores?	11	0	0	
f. Are Recommendations Planned for Landowner, If Needed?	11	0	0	
<b>Section Totals</b>		<b>0</b>	<b>0</b>	
<b>% Compliance</b>	<b>0%</b>			
<b>State Totals</b>				
<b>% Compliance</b>	<b>87%</b>			



BEST MANAGEMENT PRACTICES  
FOR FORESTRY IN MISSISSIPPI



The Mississippi Forestry Commission