

**ACTUARIAL ANALYSIS OF THE  
MISSISSIPPI STATE AGENCIES  
SELF-INSURED WORKERS'  
COMPENSATION TRUST  
AS OF JUNE 30, 2018**



August 30, 2018

Mr. Richard Self  
Trust Administrator  
Mississippi State Agencies Self-Insured  
Workers' Compensation Trust  
901 Woolfolk Building, Suite B  
501 NW Street  
Jackson, Mississippi 39202-4021

RE: Actuarial Analysis of the Mississippi State Agencies  
Self-Insured Workers' Compensation Trust  
as of June 30, 2018

Dear Mr. Self:

Please find enclosed a copy of the above captioned report. We have enjoyed working on this project and hope you find the results satisfactory. Please let us know should you have any questions.

Sincerely,

Brian Sullivan, ACAS, MAAA

Mark Crawshaw, Ph.D., FCAS, MAAA

MC/bs  
Attachments

**ACTUARIAL ANALYSIS OF THE MISSISSIPPI STATE AGENCIES  
SELF-INSURED WORKERS' COMPENSATION TRUST  
AS OF JUNE 30, 2018**

**PURPOSE**

Madison Consulting Group, Inc. was requested by the State of Mississippi to perform an analysis to support recommendations as to reasonable funding levels for the Mississippi State Agencies Self-Insured Workers' Compensation Trust (the Trust). Specifically, we were requested to estimate the Trust's liability as of June 30, 2018 for losses associated with claims occurring prior to July 1, 2018. This report, including the attached exhibits, sets forth a summary of our analysis.

**ACKNOWLEDGEMENT OF QUALIFICATION**

This report was prepared by Mark Crawshaw, Ph.D., FCAS, MAAA, and Brian Sullivan, ACAS, MAAA. Both Dr. Crawshaw and Mr. Sullivan are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

**DISTRIBUTION AND USE**

This report has been prepared for the internal use of the management of the Trust in their determination of reasonable reserve and funding levels for the self-insured program. It is our understanding that this report may be distributed to the State's auditors and may become a public

document. It is requested that all distributions of this report be made in its entirety. Any other use or distribution is not authorized without our prior consent.

## **CONDITIONS AND LIMITATIONS**

It is our understanding that the Trust has provided workers' compensation coverage since July 1, 1990 to participating state agencies. The population of participating agencies has varied from year to year but, in each year, has included the vast majority of agencies except the Institutes of Higher Learning (IHL). Prior to being self-insured, state agencies were insured through traditional commercial insurance policies. This report addresses only those liabilities of the Trust associated with covered accidents occurring on or after July 1, 1990. It does not address liabilities, if any, associated with prior insured periods.

As the Trust has been operating for a period of time, the appropriateness of considering the feasibility of adopting a self-insurance program of this type is beyond the scope of this report. However, it is important to note certain implications inherent in self-insuring workers' compensation exposure. The first, and most important is that self-insurance, unlike commercial insurance, does not result in a transfer of risk. Thus, if actual losses exceed funded amounts, the difference must be paid by the self-insurer. As a consequence, the self-insurer is exposed to greater fluctuation in financial results than a similar entity with a commercial insurance program. Excess, or catastrophe, insurance can help to reduce the adverse impact on financial results of unusually large losses or an unexpectedly long series of small losses.

The second major consideration is that there is a potential for significant variation of actual results compared to expectations based on historical experience. In particular, changes in the social and legal environments may result in differences between the historic and future loss profiles.

The third major consideration for a self-insured program of this size is that even if the historical experience proves to be a good indication of average future emergence, the year to year fluctuations in the averages may be substantial.

The loss amounts presented in this report have been aggregated by fiscal accident period. For example, fiscal year 2010-2011 includes all incidents occurring between July 1, 2010 and June 30, 2011.

The Trust has purchased commercial excess insurance (on an occurrence basis) to limit its exposure to large losses. Exhibit A-14 provides a summary of the primary self-insured retentions under these contracts. In this analysis, it has been assumed that the commercial excess insurance will remain in effect and will be fully collectible. However, Madison Consulting Group has performed no analysis of, and formed no opinion of, the financial condition of the Trust's excess insurers.

The liabilities estimated in this report reflect the Trust's primary self-insured retention only. The reserve and funding estimates do not include any provision for the contingency that the Trust's excess policies may, under unusual circumstances, be exhausted.

The funding recommendations contained in this report provide for workers' compensation losses (including allocated loss adjustment expenses). They do not include any provision for associated excess insurance premiums, overhead expenses, administrative expenses or similar items.

Funding recommendations are presented both at ultimate value and discounted to present value at alternative investment yield rates of 5.0% and 4.0% per annum. The discounted funding recommendations reflect the time value of money and the lag between the time a claim is incurred and the time it is fully paid. The yield rates of 5.0% and 4.0% are provided for

comparative purposes and are the interest rates that have been provided historically to the Trust.

### **Risk Margin**

Actuarial reserve or funding rate estimates for the Trust's self-insurance program are subject to inherent variability. This variability stems from two sources: process risk and parameter/model risk. Process risk is the risk that actual results will vary from actuarial central estimates based on random chance. Parameter risk is the risk that the actuarial methods underlying the estimates do not accurately represent the true characteristics of the risk.

For example, suppose a coin is flipped ten times. The estimate of the expected number of heads is five, assuming the coin is fair. Process risk is the risk that the actual number of heads will be more or less than five due to random variability in the coin flipping process. Parameter risk is the risk that the coin itself is not fair (i.e., the probability of achieving heads is less than or greater than 50%).

If the Trust were to follow a strategy of funding its programs based on our central estimates, significant year-to-year fluctuations in indicated fund contributions would likely result. To mitigate these fluctuations and to stabilize year-to-year financial results, management may wish to maintain a margin in the fund balance. In this report, funding indications are shown both on a central estimate basis (based on long-term averages) and also at higher probability levels. (For example, funding at the 90% probability level means that it is estimated that funds will be sufficient to cover liabilities in nine out of ten years). These alternative estimates can be utilized by management to determine an appropriate margin. The central estimate should be considered the minimum acceptable funding level. In our experience, many clients with similar profiles fund between the 75% and 90% probability levels.

The statistical model used to generate the risk margins associated with the various probability levels is based on a simulation approach where claim counts (frequency) are assumed to follow a Poisson distribution and claim costs (severity) follow a lognormal distribution. The model runs 1,000 random trials to generate a set of 1,000 possible outcomes, which are ordered from lowest to highest. The risk margin for the 70% probability level, for example, is the ratio of the 700<sup>th</sup> ordered result to the mean of the random sample.

We emphasize that the range of values discussed above are based on a statistical model that measures only the process risk involved with the Trust's reserve and funding estimates. We have not analyzed any potential parameter/model risk inherent in our underlying estimates. In our experience, in a small program such as the Trust's, process risk accounts for the majority of the associated inherent variability.

### **Data Sources**

In the analysis, we have relied, without audit or verification, on the following sources of data provided by the State:

- historical loss data evaluated as of June 30, 2018;
- payroll data as of June 30, 2018;
- data already provided for our previous analyses; and,
- expense and other financial information through June 30, 2018.

Finally, it should be noted that the development of funding recommendations for workers' compensation losses involves the projection of future contingent events. Therefore, no

guarantee can be made that the recommendations contained in this report will prove to be adequate or not excessive. We have, however, utilized methods and assumptions that are in accord with accepted actuarial standards, and we believe the conclusions reached are reasonable.

## **RECOMMENDATIONS AND CONCLUSIONS**

Based on our analysis we make the following recommendations and conclusions:

### **Central Estimate as of June 30, 2018**

The estimated undiscounted central estimate for unpaid workers' compensation claims as of June 30, 2018 for all covered accidents occurring between 7/1/90 and 6/30/18 at the Trust's primary self-insured retention is \$45.256 million. The present value of this liability at a 5.0% annual interest rate is estimated to be \$36.958 million and \$38.315 million at a 4% annual interest rate. Exhibit 1 provides a summary of these amounts, as well as alternative estimates at various probability levels.

We understand that the Trust had assets of approximately \$33.7 million at June 30, 2018. This compares to indicated liabilities at the same time of \$38.3 million (i.e. the reserve amount for claims discounted at 4% (see Exhibit 1)). On this basis, there is a deficiency in the Fund of \$4.6 million ( $=\$33.7 - \$38.3$ ).

### **Corridor Deductible**

As part of its commercial excess insurance coverage for fiscal year 2005/2006 through 2009/2010, the Trust is subject to a \$500,000 corridor deductible. That is, the Trust is responsible for the first \$500,000 of losses for any claims that go over the self-insured limit of \$1 million in each fiscal year. To date (i.e. as of June 30, 2018), the largest claim for these five fiscal years has an incurred value of approximately \$696,409. In this analysis, we have estimated the

liability for the corridor deductible to be zero as there are no claims for any of these five fiscal years that are projected to pierce the self-insured limit.

### **Reconciliation to Previous Reserve Estimate**

Exhibit 2 provides a reconciliation of the reserve estimate as of June 30, 2018 to the reserve estimate as of June 30, 2017 contained in our previous report. This reconciliation indicates that there has been a decrease of approximately \$6.4 million in estimated ultimate losses as compared to our previous estimates. This is due mainly to the more recent accident years developing favorably compared to historical patterns.

### **Interim Reserve Schedule**

Exhibit 3 presents recommended unpaid loss amounts (see Column (5)) for future quarterly valuation dates. This exhibit has been prepared to facilitate planning and preparation of quarterly interim financial statements.

To verify the reasonableness of the interim recommendations, a "cross check" calculation is also presented on Exhibit 3 based on case reserves. In the event of substantial (i.e., greater than 10%) divergence between the cross check calculation and the recommended unpaid loss amounts, it is suggested that we be contacted to review the data in more detail.

The schedule on Exhibit 3 was developed based on the assumption that no major changes occur to the program. Any other changes (e.g., change in population insured, change in claims management procedures, change in case reserving philosophy, etc.) should be immediately reported to us so that appropriate adjustments can be made. In addition, it is recommended that the schedule be used on an interim basis only and that a full study be conducted at least annually.

## **Future Funding**

Our analysis indicates that the costs of the program per \$100 of payroll are currently approximately as follows:

	<u>Expected</u>
Estimated Future Claim Costs (Exhibit 4)	\$1.491
Overhead Expense (Exhibit 5)	0.170
Interest Income Credit	<u>-0.060</u>
Total	\$1.601

The selection of \$1.491 for future claim costs is based on the Trust's historical experience and excludes experience of the Mississippi Department of Corrections and the Bureau of Narcotics which exited the Trust effective December 31, 2004 and February 28, 2005, respectively. It also recognizes the increase in the Trust's self-insured retention from \$2.0 million to \$2.5 million beginning July 1, 2017.

## ANALYSIS

The procedure utilized in this analysis is generally similar to that used in our previous studies and was as follows:

- (i) Ultimate retained losses for each self-insured period prior to July 1, 2018 were estimated using a variety of projection methods.
- (ii) Paid losses through June 30, 2018 were subtracted from the ultimate retained loss estimates in (i) to determine the Trust's projected central estimate of unpaid losses as of June 30, 2018.
- (iii) The central estimate of unpaid losses was discounted to present value using assumed interest discount rates of 5.0% and 4.0% per annum and a payout pattern based on the Trust's own experience.
- (iv) A statistical model was utilized to estimate reserves at various probability levels.

Each of these steps is discussed in more detail in the remaining sections.

### **Projection of Ultimate Retained Losses**

Losses were projected utilizing seven projection methods, i.e.:

- paid loss approach;
- reported loss approach;
- unpaid loss approach;
- unreported loss approach;
- expected loss approach;
- Berquist-Sherman approach; and
- reserve development approach.

### **Paid Loss Approach**

Exhibit A-4, Sheet 1 summarizes the application of the paid loss approach in projecting the Trust's losses. In this method, aggregate paid losses for each fiscal accident year are projected to an estimated ultimate value by multiplying actual losses by a loss development factor. The loss development factors utilized on these exhibits are based on the Trust's own experience.

### **Reported Loss Approach**

Exhibit A-5, Sheet 1 summarizes the application of the reported loss approach in projecting the Trust's losses. This method is similar to the paid loss development approach except reported losses (i.e., paid losses plus claim examiner's case reserve estimates for open claims) are used in lieu of paid losses. Again, the Trust's actual loss development experience was used.

### **Unpaid Loss Approach**

Exhibit A-6 summarizes the application of the unpaid loss approach in projecting the Trust's losses. In this method, expected unpaid losses are estimated by multiplying an initial estimate of ultimate losses by estimated percentages of ultimate losses remaining unpaid (based on the Trust's payment patterns). Ultimate losses for the Trust are then estimated as the sum of actual paid losses and estimated unpaid losses.

An important component of the unpaid loss approach is the initial estimate of expected loss. In the analysis, this was estimated based on actual payroll and selected loss rates which reflect the Trust's long-term historical loss experience (see discussion of expected loss approach below).

### **Unreported Loss Approach**

Exhibit A-7 summarizes the application of the unreported loss approach in projecting the Trust's losses. This method is similar to the unpaid loss approach except that unreported losses are estimated and added to the reported losses to obtain the estimated ultimate losses.

### **Expected Loss Approach**

Exhibit A-8, Sheet 1 summarizes the application of the expected loss approach to projecting the Trust's workers' compensation losses. In this approach, an initial estimate of expected ultimate losses is determined by multiplying actual payroll by an expected loss rate per \$100 of payroll. In past analyses, workers' compensation industry data was used to calculate the initial estimate of expected losses for years through June 30, 2004, and subsequent years were based on the prior year's funding and budget studies. Beginning with last year's analysis, the years subsequent to June 30, 2002 (when the retention was raised to \$1.0 million) are based on a review of the Trust's total experience at its various historical retention levels (see Exhibit 4). Based on this overall experience, an expected loss rate of \$1.43 per \$100/payroll is judgmentally chosen for the \$1.5 million retention level. The loss rates at the other historical retention levels are then calculated using industry excess loss relationships. In order to check the reasonableness of the selected expected loss rates and to be sure the Trust is in balance, Sheet 2 of Exhibit A-8 provides a comparison of loss amounts expected to be reported (based on the selected expected loss rates and the selected reporting pattern) and the actual reported losses as of June 30, 2018. This comparison shows that, on average, for periods subsequent to June 30, 2002, the actual reported losses are approximately 0.3% lower than what would be expected. An analysis based on paid losses was also

performed (see Sheet 3). This comparison shows that, on average, for periods subsequent to June 30, 2002, the actual paid losses are approximately 2.6% higher than what would be expected. We do, however, note that there is year to year fluctuation, and in various years, the actual results are greater or less than what is shown on Sheets 2 and 3.

### **Berquist-Sherman Loss Approach**

Exhibit A-9 summarizes the application of the Berquist-Sherman loss approach to projecting the Trust's workers' compensation losses. This method is similar to the reported loss approach except that the reported losses are "adjusted" based on current average case reserve values. That is, average case reserves for prior evaluation periods are adjusted to reflect current case reserve practices. This is shown on Sheets 2 through 10 of Exhibit A-9. The resulting triangle of adjusted reported losses is then used as an alternative method to projecting the Trust's reported losses to an ultimate settlement value. This method compensates for fluctuations in case reserve adequacy.

### **Reserve Development Approach**

Exhibit A-10 summarizes the application of the reserve development approach in projecting the Trust's workers' compensation losses. In this method, the case reserves are multiplied by an industry IBNR (incurred but not reported) to case reserve ratio to determine estimated IBNR losses. Ultimate losses are then estimated as the sum of the case reserves, the IBNR reserves and paid losses.

### **Selected Ultimate Losses**

Exhibit A-3 provides a summary of the results of the projection methods. Based on these projections, ultimate retained losses are selected.

### **Development of Indicated Reserves**

Exhibit A-2 summarizes the determination of the indicated reserve. On this exhibit, the reserve is calculated by subtracting from the selected ultimate retained losses all the losses that have been paid on claims through the reserve evaluation date for each self-insured period prior to July 1, 2018 as of June 30, 2018. These amounts, together with the statistical model described on Exhibit A-13, form the basis of the reserve recommendations shown on Exhibit 1.

### **General**

The payroll is an important component of the loss projections. Any change in payroll amounts could cause a change in reserve estimates. In particular, any significant change in actual 2017-18 or 2018-19 payroll from that which has been projected should be reported to us so that estimates can be adjusted accordingly.

Finally, in order to keep this report reasonably concise, the source documents and any interim calculations have not been included. We will be pleased to provide any or all of these documents as requested.

**STATE OF MISSISSIPPI**  
**SELF-INSURED WORKERS' COMPENSATION TRUST**  
**SUMMARY OF ESTIMATED RESERVES**  
**AS OF JUNE 30, 2018**

(\$000'S OMITTED)

Probability Level	Undiscounted Reserve	<u>Discounted Reserve at</u>	
		5.0%	4.0%
90%	\$ 53,855	\$ 43,980	\$ 45,595
70%	48,424	39,545	40,997
Central Estimate	45,256	36,958	38,315

Note: The "Expected" values are from Exhibit A-1.

The remaining values reflect the statistical model described on Exhibit A-13.

The funding recommendations reflect loss and allocated loss adjustment expenses only and do not include any allowance for overhead expenses.

# STATE OF MISSISSIPPI

## SELF-INSURED WORKERS' COMPENSATION TRUST

### RECONCILIATION OF CENTRAL ESTIMATE UNDISCOUNTED RESERVE ESTIMATES AS OF JUNE 30, 2017 AND JUNE 30, 2018

(\$000'S OMITTED)

1.	Central Estimate Reserve as of 6/30/17 (a)	\$ 50,773
2.	Estimated Required Fund Contribution for Fiscal Accident Year 7/17 - 6/18 (b)	\$ 14,200
3.	Amounts Paid in Fiscal Year 7/17 - 6/18 Net of All Recoveries (c)	\$ 13,355
4.	Change in 6/30/17 Estimates of Ultimate Losses Net of Recoveries (d)	\$ (6,362)
5.	Central Estimate Reserve as of 6/30/18 (e) [(1) + (2) - (3) + (4)]	\$ 45,256

- Notes:
- (a) See Exhibit 1 of the prior report.
  - (b) See Exhibit A-3.
  - (c) Based on data provided by the State of Mississippi.
  - (d) Based on Exhibit A-3 and selected ultimates from prior report.
  - (e) Reconciles to Exhibit 1.

# STATE OF MISSISSIPPI

## SELF-INSURED WORKERS' COMPENSATION TRUST

### SCHEDULE OF RECOMMENDED UNPAID LOSSES THROUGH JUNE 30, 2018

NET OF ALL RECOVERIES

EXPECTED PROBABILITY LEVEL

(\$000'S OMITTED)

Evaluation Date	Actual Case Reserve (a)	Anticipated		Anticipated		Test Ratio (e)
		IBNR Reserve (b)	Total (c)	Unpaid Losses (d)	(5)	
(1)	(2)	(3)	(4)	(5)	(6)	
6/30/2018	\$ 19,994	\$ 25,262	\$ 45,256	\$ 45,256		1.000
9/30/2018	_____	25,276	_____	45,128		_____
12/31/2018	_____	25,290	_____	45,000		_____
3/31/2019	_____	25,304	_____	44,872		_____
6/30/2019	_____	25,316	_____	44,742		_____
9/30/2019	_____	25,330	_____	44,614		_____

To calculate reserves at 4.0% discount, multiply by 0.8466

- Notes:
- (a) Reserve values (net of recoveries) should be entered as they become available.
  - (b) Based on reporting pattern on Exhibit A-5.
  - (c) [(2) + (3)]
  - (d) Based on payment pattern on Exhibit A-4.
  - (e) [(4) ÷ (5)]. If the test ratio is less than 0.900 or greater than 1.100, contact the actuary.

# STATE OF MISSISSIPPI

## SELF-INSURED WORKERS' COMPENSATION TRUST

### REVIEW OF AVERAGE WORKERS' COMPENSATION NET LOSSES PER \$100 OF PAYROLL IMPLIED BY SELECTED LOSS ESTIMATES

Accident Period	Selected Ultimate		Implied Loss Per \$100 of Payroll	
	Losses (a) (\$000's)	Payroll (b) (\$000's)	Pure Premium (c)	Percent Change
(1)	(2)	(3)	(4)	(5)
7/90 - 6/91	\$ 4,536	\$ 397,236	1.142	---
7/91 - 6/92	4,841	467,244	1.036	-9.3%
7/92 - 6/93	4,612	488,642	0.944	-8.9%
7/93 - 6/94	7,100	539,268	1.317	39.5%
7/94 - 6/95	7,200	611,792	1.177	-10.6%
7/95 - 6/96	7,600	656,621	1.157	-1.7%
7/96 - 6/97	7,200	675,720	1.066	-7.9%
7/97 - 6/98	10,400	706,273	1.473	38.2%
7/98 - 6/99	9,538	752,087	1.268	-13.9%
7/99 - 6/00	13,700	808,869	1.694	33.6%
7/00 - 6/01	15,300	827,461	1.849	9.1%
7/01 - 6/02	14,600	822,657	1.775	-4.0%
7/02 - 6/03	12,950	849,854	1.524	-14.1%
7/03 - 6/04	18,800	887,390	2.119	39.0%
7/04 - 6/05	12,700	843,146	1.506	-28.9%
7/05 - 6/06	11,800	796,958	1.481	-1.7%
7/06 - 6/07	13,900	881,752	1.576	6.4%
7/07 - 6/08	15,400	969,591	1.588	0.8%
7/08 - 6/09	13,750	997,294	1.379	-13.2%
7/09 - 6/10	16,500	1,017,908	1.621	17.5%
7/10 - 6/11	14,600	993,518	1.470	-9.3%
7/11 - 6/12	12,500	992,656	1.259	-14.4%
7/12 - 6/13	12,800	1,003,227	1.276	1.4%
7/13 - 6/14	12,000	992,029	1.210	-5.2%
7/14 - 6/15	13,500	1,013,150	1.332	10.1%
7/15 - 6/16	13,500	1,002,347	1.347	1.1%
7/16 - 6/17	14,750	990,760	1.489	10.5%
7/17 - 6/18	14,200	948,630	1.497	0.5%

- Notes:
- (a) See Exhibit A-3.
  - (b) Provided by the State of Mississippi.
  - (c) [(2) ÷ (3)] × 100

# STATE OF MISSISSIPPI

## SELF-INSURED WORKERS' COMPENSATION TRUST

### REVIEW OF HISTORICAL OVERHEAD EXPENSES EXPRESSED AS A RATE PER \$100 OF PAYROLL

Accident Period (1)	Excess Insurance (2)	Other Overhead (3)	Change in Accrual for		Total Overhead (5)
			Prepaid Expense (4)		
7/91 - 6/92	0.047	0.162	n/a	0.209	
7/92 - 6/93	0.047	0.172	n/a	0.219	
7/93 - 6/94	0.050	0.158	n/a	0.208	
7/94 - 6/95	0.048	0.151	n/a	0.199	
7/95 - 6/96	0.033	0.145	n/a	0.178	
7/96 - 6/97	0.028	0.160	n/a	0.188	
7/97 - 6/98	0.025	0.163	n/a	0.188	
7/98 - 6/99	0.021	0.136	n/a	0.157	
7/99 - 6/00	0.000	0.131	n/a	0.131	
7/00 - 6/01	0.052	0.138	n/a	0.190	
7/01 - 6/02	0.096	0.136	n/a	0.232	
7/02 - 6/03	0.175	0.155	n/a	0.330	
7/03 - 6/04	0.194	0.107	n/a	0.301	
7/04 - 6/05	0.173	0.122	n/a	0.295	
7/05 - 6/06	0.204	0.141	0.091	0.254	
7/06 - 6/07	0.071	0.123	-0.023	0.217	
7/07 - 6/08	0.062	0.117	-0.008	0.187	
7/08 - 6/09	0.059	0.050	-0.004	0.113	
7/09 - 6/10	0.056	0.112	-0.006	0.174	
7/10 - 6/11	0.052	0.117	-0.001	0.170	
7/11 - 6/12	0.056	0.122	0.005	0.173	
7/12 - 6/13	0.056	0.131	0.003	0.184	
7/13 - 6/14	0.059	0.126	0.001	0.184	
7/14 - 6/15	0.058	0.130	-0.014	0.202	
7/15 - 6/16	0.046	0.127	-0.001	0.174	
7/16 - 6/17	0.044	0.108	-0.009	0.161	
7/17 - 6/18	0.036	0.112	0.002	0.146	

Note: Rates derived from data supplied by the State of Mississippi.

7/01-6/02, 7/04-6/05 and 7/05-6/06 other overhead

excludes the transfers to the budget contingency fund.

7/05-6/06 thru 7/17-6/18 reflects the change in accrual for prepaid reinsurance premiums.

# STATE OF MISSISSIPPI

## SELF-INSURED WORKERS' COMPENSATION TRUST

### REVIEW OF AVERAGE WORKERS' COMPENSATION LOSSES PER CLAIM IMPLIED BY SELECTED LOSS ESTIMATES

Accident Period (1)	Selected Ultimate		Implied Loss Per Claim	
	Losses (a) (\$000's) (2)	Claim Count (b) (3)	Severity (c) (4)	Percent Change (5)
7/90 - 6/91	\$ 4,536	1,866	\$ 2,431	---
7/91 - 6/92	4,841	2,047	2,365	-2.7%
7/92 - 6/93	4,612	2,241	2,058	-13.0%
7/93 - 6/94	7,100	2,543	2,792	35.7%
7/94 - 6/95	7,200	2,555	2,818	0.9%
7/95 - 6/96	7,600	2,524	3,011	6.8%
7/96 - 6/97	7,200	2,526	2,850	-5.3%
7/97 - 6/98	10,400	2,823	3,684	29.3%
7/98 - 6/99	9,538	2,698	3,535	-4.0%
7/99 - 6/00	13,700	2,888	4,744	34.2%
7/00 - 6/01	15,300	3,124	4,898	3.2%
7/01 - 6/02	14,600	2,960	4,932	0.7%
7/02 - 6/03	12,950	2,715	4,770	-3.3%
7/03 - 6/04	18,800	2,860	6,573	37.8%
7/04 - 6/05	12,700	2,505	5,070	-22.9%
7/05 - 6/06	11,800	2,406	4,904	-3.3%
7/06 - 6/07	13,900	2,328	5,971	21.8%
7/07 - 6/08	15,400	2,151	7,159	19.9%
7/08 - 6/09	13,750	2,133	6,446	-10.0%
7/09 - 6/10	16,500	2,007	8,221	27.5%
7/10 - 6/11	14,600	1,931	7,561	-8.0%
7/11 - 6/12	12,500	1,882	6,642	-12.2%
7/12 - 6/13	12,800	1,697	7,543	13.6%
7/13 - 6/14	12,000	1,492	8,043	6.6%
7/14 - 6/15	13,500	1,492	9,048	12.5%
7/15 - 6/16	13,500	1,434	9,414	4.0%
7/16 - 6/17	14,750	1,431	10,307	9.5%
7/17 - 6/18	14,200	1,296	10,957	6.3%

- Notes: (a) See Exhibit A-3.  
 (b) See Exhibit A-12, Sheet 1.  
 (c) [(2) x 1,000] ÷ (3)

## STATE OF MISSISSIPPI

## SELF-INSURED WORKERS' COMPENSATION TRUST

DEVELOPMENT OF ESTIMATED PAYOUT OF RESERVES AS OF JUNE 30, 2018

Accident Period	Undiscounted Reserve (a)	Amount Paid in Calendar Period Ending (b):																														Total (37)										
		6/19 (2)	6/20 (3)	6/21 (4)	6/22 (5)	6/23 (6)	6/24 (7)	6/25 (8)	6/26 (9)	6/27 (10)	6/28 (11)	6/29 (12)	6/30 (13)	6/31 (14)	6/32 (15)	6/33 (16)	6/34 (17)	6/35 (18)	6/36 (19)	6/37 (20)	6/38 (21)	6/39 (22)	6/40 (23)	6/41 (24)	6/42 (25)	6/43 (26)	6/44 (27)	6/45 (28)	6/46 (29)	6/47 (30)	6/48 (31)	6/49 (32)	6/50 (33)	6/51 (34)	6/52 (35)							
7/90 - 6/91	\$ 0																																	\$ 0								
7/91 - 6/92	0																																	0								
7/92 - 6/93	0																																	0								
7/93 - 6/94	119	20	25	25	25	24																												119								
7/94 - 6/95	142	24	24	24	23	24	23																										142									
7/95 - 6/96	150	38	19	19	19	18	19	18																									150									
7/96 - 6/97	89	18	18	9	9	9	9	9	8																								89									
7/97 - 6/98	118	20	20	20	10	10	10	9	10	9																						118										
7/98 - 6/99	0	0	0	0	0	0	0	0	0	0	0																					0										
7/99 - 6/00	369	46	46	46	46	23	23	23	24	23																						369										
7/00 - 6/01	279	44	29	29	30	29	30	15	15	15	14	15	14																		279											
7/01 - 6/02	516	70	70	47	47	47	47	47	24	23	24	23	24	23																	516											
7/02 - 6/03	528	98	59	59	39	39	39	39	20	19	19	20	19	19																	528											
7/03 - 6/04	2,061	322	322	193	193	129	129	129	129	129	64	64	65	64	65	64	64														2,061											
7/04 - 6/05	545	109	68	68	41	41	27	27	27	28	14	14	14	13	14	13	13														545											
7/05 - 6/06	611	102	102	64	64	38	38	25	25	26	13	13	13	12	13	12	13	12													611											
7/06 - 6/07	1,050	150	150	150	94	94	56	56	38	37	38	37	38	19	19	19	18	19	18												1,050											
7/07 - 6/08	1,086	150	134	134	134	83	84	50	50	33	33	34	33	34	17	17	17	16	17	16											1,086											
7/08 - 6/09	1,315	219	152	135	135	84	84	51	51	34	34	34	33	34	17	17	17	16	17	16											1,315											
7/09 - 6/10	1,505	229	213	147	131	131	131	82	82	49	49	33	33	33	32	33	16	16	16	16	17	16										1,505										
7/10 - 6/11	1,867	247	247	229	158	141	141	88	88	53	53	35	35	35	35	35	18	18	18	18	17	18	17	17								1,867										
7/11 - 6/12	1,919	265	218	219	203	140	125	125	78	78	47	47	31	31	31	31	31	16	16	16	16	15	15	15	15						1,919											
7/12 - 6/13	2,162	365	248	205	205	190	131	117	117	73	73	44	44	29	29	29	15	15	15	15	14	15	14									2,162										
7/13 - 6/14	2,555	596	331	225	185	185	172	119	106	106	106	66	66	40	40	27	26	27	13	13	13	13	14	13									2,555									
7/14 - 6/15	3,910	915	698	388	264	217	217	202	140	124	124	124	78	78	47	46	31	31	31	16	15	16	15	16	15	15	14	14	14	3,910												
7/15 - 6/16	4,886	1,211	860	656	365	248	204	204	190	131	117	117	73	73	44	44	29	29	29	29	15	14	15	14	15	14	14	14	14	4,886												
7/16 - 6/17	6,829	1,941	1,211	861	657	365	248	204	204	190	131	117	117	73	73	44	44	29	29	29	29	15	14	15	14	15	14	14	14	14	6,829											
7/17 - 6/18	10,645	4,064	1,870	1,167	830	633	352	239	197	197	183	126	112	113	112	70	70	42	42	28	28	28	28	14	14	14	14	14	14	14	14	10,645										
Total	\$ 45,256	\$ 11,263	\$ 7,134	\$ 5,119	\$ 3,907	\$ 3,016	\$ 2,339	\$ 1,964	\$ 1,688	\$ 1,473	\$ 1,217	\$ 1,046	\$ 903	\$ 784	\$ 652	\$ 531	\$ 404	\$ 331	\$ 287	\$ 242	\$ 211	\$ 179	\$ 147	\$ 117	\$ 86	\$ 72	\$ 58	\$ 43	\$ 29	\$ 14	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 45,256						
7/18 - 6/19	\$ 14,200	\$ 3,451	\$ 4,104	\$ 1,888	\$ 1,179	\$ 838	\$ 639	\$ 355	\$ 241	\$ 199	\$ 185	\$ 128	\$ 113	\$ 114	\$ 71	\$ 71	\$ 43	\$ 42	\$ 28	\$ 28	\$ 29	\$ 29	\$ 14	\$ 14	\$ 14	\$ 14	\$ 15	\$ 14	\$ 14	\$ 14	\$ 14	\$ 14	\$ 14	\$ 14	\$ 14	\$ 14	\$ 14	\$ 14,200				
7/19 - 6/20	14,626	3,554	4,227	1,945	1,214	863	658	366	249	205	190	132	117	117	73	73	44	44	29	29	15	15	15	15	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14,626		
7/20 - 6/21	15,065		3,661	4,354	2,004	1,250	889	678	377	256	211	211	196	135	120	121	120	75	75	45	45	30	30	30	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	15,065	
7/21 - 6/22	15,517			3,771	4,484	2,064	1,288	915	698	388	264	217	217	202	140	124	124	124	78	78	47	46	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	15,517	
7/22 - 6/23	15,983				3,884	4,619	2,126	1,327	943	719	399	272	224	224	208	144	128	128	128	80	80	48	48	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	15,983

Notes: (a) See Exhibit A-1, Column (4). Prospective periods calculated based on future loss rate of 1.491 and payroll trend of 3.0%. Future loss rate reflects SIR of \$2.5 million.

(b) Based on payment pattern on Exhibit A-4.

# STATE OF MISSISSIPPI

## SELF-INSURED WORKERS' COMPENSATION TRUST

### SUMMARY OF RESERVES AS OF JUNE 30, 2018

(\$000'S OMITTED)

Accident Period	Case Reserves (a)	Unreported Losses (b)	Total Undiscounted Reserves (c)	At 5.0% Rate of Return		At 4.0% Rate of Return	
				Discount Factor (d)	Total Discounted Reserves (e)	Discount Factor (f)	Total Discounted Reserves (g)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
7/90 - 6/91	\$ 0	\$ 0	\$ 0	0.9455	\$ 0	0.9559	\$ 0
7/91 - 6/92	0	0	0	0.9197	0	0.9349	0
7/92 - 6/93	0	0	0	0.8963	0	0.9155	0
7/93 - 6/94	58	61	119	0.8744	104	0.8973	107
7/94 - 6/95	50	92	142	0.8535	121	0.8799	125
7/95 - 6/96	76	74	150	0.8494	127	0.8763	131
7/96 - 6/97	56	33	89	0.8396	75	0.8679	77
7/97 - 6/98	5	113	118	0.8270	98	0.8571	101
7/98 - 6/99	0	0	0	0.8118	0	0.8443	0
7/99 - 6/00	302	67	369	0.7962	294	0.8310	307
7/00 - 6/01	207	72	279	0.7805	218	0.8176	228
7/01 - 6/02	306	210	516	0.7747	400	0.8124	419
7/02 - 6/03	392	136	528	0.7813	413	0.8175	432
7/03 - 6/04	1,850	211	2,061	0.7792	1,606	0.8156	1,681
7/04 - 6/05	345	200	545	0.7919	432	0.8261	450
7/05 - 6/06	467	144	611	0.7924	484	0.8264	505
7/06 - 6/07	736	314	1,050	0.7869	826	0.8217	863
7/07 - 6/08	707	379	1,086	0.7803	847	0.8160	886
7/08 - 6/09	959	356	1,315	0.7842	1,031	0.8192	1,077
7/09 - 6/10	746	759	1,505	0.7803	1,174	0.8159	1,228
7/10 - 6/11	1,388	479	1,867	0.7736	1,444	0.8101	1,512
7/11 - 6/12	706	1,213	1,919	0.7704	1,478	0.8074	1,549
7/12 - 6/13	601	1,561	2,162	0.7753	1,676	0.8113	1,754
7/13 - 6/14	651	1,904	2,555	0.7934	2,027	0.8266	2,112
7/14 - 6/15	1,062	2,848	3,910	0.8069	3,155	0.8381	3,277
7/15 - 6/16	1,404	3,482	4,886	0.8201	4,007	0.8493	4,150
7/16 - 6/17	3,295	3,534	6,829	0.8365	5,712	0.8633	5,895
7/17 - 6/18	3,625	7,020	10,645	0.8651	9,209	0.8876	9,449
Total	\$ 19,994	\$ 25,262	\$ 45,256		\$ 36,958		\$ 38,315

Notes: (a) Provided by the State of Mississippi. Losses are net of all recoveries.

(b) Selected ultimate losses on Exhibit A-3 minus reported losses on Exhibit A-5, Sheet 1.

(c) [(2) + (3)]

(d) See Exhibit A-11, Sheet 1.

(e) [(4) x (5)]

(f) See Exhibit A-11, Sheet 2.

(g) [(4) x (7)]



MADISON CONSULTING GROUP, INC.

**STATE OF MISSISSIPPI**  
**SELF-INSURED WORKERS' COMPENSATION TRUST**  
**DEVELOPMENT OF ESTIMATED UNPAID LOSSES**  
**AS OF JUNE 30, 2018**  
**(\$000'S OMITTED)**

Accident Period	Selected		
	Ultimate Loss (a)	Paid Losses (b)	Undiscounted Reserve (c)
(1)	(2)	(3)	(4)
7/90 - 6/91	\$ 4,536	\$ 4,536	\$ 0
7/91 - 6/92	4,841	4,841	0
7/92 - 6/93	4,612	4,612	0
7/93 - 6/94	7,100	6,981	119
7/94 - 6/95	7,200	7,058	142
7/95 - 6/96	7,600	7,450	150
7/96 - 6/97	7,200	7,111	89
7/97 - 6/98	10,400	10,282	118
7/98 - 6/99	9,538	9,538	0
7/99 - 6/00	13,700	13,331	369
7/00 - 6/01	15,300	15,021	279
7/01 - 6/02	14,600	14,084	516
7/02 - 6/03	12,950	12,422	528
7/03 - 6/04	18,800	16,739	2,061
7/04 - 6/05	12,700	12,155	545
7/05 - 6/06	11,800	11,189	611
7/06 - 6/07	13,900	12,850	1,050
7/07 - 6/08	15,400	14,314	1,086
7/08 - 6/09	13,750	12,435	1,315
7/09 - 6/10	16,500	14,995	1,505
7/10 - 6/11	14,600	12,733	1,867
7/11 - 6/12	12,500	10,581	1,919
7/12 - 6/13	12,800	10,638	2,162
7/13 - 6/14	12,000	9,445	2,555
7/14 - 6/15	13,500	9,590	3,910
7/15 - 6/16	13,500	8,614	4,886
7/16 - 6/17	14,750	7,921	6,829
7/17 - 6/18	14,200	3,555	10,645
Total	\$ 330,277	\$ 285,021	\$ 45,256

Notes: (a) See Exhibit A-3.  
(b) Provided by the State of Mississippi. Losses are net of all recoveries.  
(c) [(2) - (3)]

# STATE OF MISSISSIPPI

## SELF-INSURED WORKERS' COMPENSATION TRUST

### DEVELOPMENT OF SELECTED ULTIMATE LOSSES AS OF JUNE 30, 2018

(\$000'S OMITTED)

Accident Period	Paid Loss Approach (a)	Reported Loss Approach (b)	Unpaid Loss Approach (c)	Unreported Loss Approach (d)	Expected Loss Approach (e)	Berquist-Sherman Approach (f)	Reserve Development Approach (g)	Selected Prior Report (h)	Selected Ultimate Loss
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
7/90 - 6/91	\$ 4,550	\$ 4,536	\$ 4,548	\$ 4,536	\$ 4,112			\$ 4,536	\$ 4,536
7/91 - 6/92	4,860	4,841	4,861	4,841	4,958			4,841	4,841
7/92 - 6/93	4,635	4,612	4,638	4,612	5,167			4,612	4,612
7/93 - 6/94	7,023	7,039	7,014	7,039	5,505			7,100	7,100
7/94 - 6/95	7,107	7,108	7,102	7,108	6,324			7,200	7,200
7/95 - 6/96	7,517	7,526	7,511	7,526	6,824			7,600	7,600
7/96 - 6/97	7,189	7,174	7,192	7,174	7,347			7,250	7,200
7/97 - 6/98	10,416	10,308	10,385	10,303	7,906			10,400	10,400
7/98 - 6/99	9,681	9,567	9,662	9,563	8,245			9,600	9,538
7/99 - 6/00	13,558	13,688	13,513	13,676	10,677			13,700	13,700
7/00 - 6/01	15,306	15,304	15,249	15,288	11,998			15,400	15,300
7/01 - 6/02	14,394	14,491	14,406	14,493	14,643			14,600	14,600
7/02 - 6/03	12,757	12,929	12,728	12,920	11,787			13,150	12,950
7/03 - 6/04	17,275	18,793	17,121	18,724	12,308			18,700	18,800
7/04 - 6/05	12,653	12,675	12,611	12,664	11,694			12,800	12,700
7/05 - 6/06	11,748	11,854	11,720	11,844	11,054			11,700	11,800
7/06 - 6/07	13,608	13,858	13,535	13,831	12,230			13,900	13,900
7/07 - 6/08	15,302	15,366	15,188	15,317	13,448			15,500	15,400
7/08 - 6/09	13,492	13,742	13,514	13,740	13,832	\$ 13,742	\$ 13,640	14,000	13,750
7/09 - 6/10	16,509	16,197	16,294	16,136	14,118	16,685	15,939	16,500	16,500
7/10 - 6/11	14,235	14,672	14,239	14,661	14,207	14,672	14,429	14,600	14,600
7/11 - 6/12	12,062	11,840	12,327	11,954	14,195	12,280	11,450	13,000	12,500
7/12 - 6/13	12,489	11,902	12,761	12,042	14,346	12,599	11,399	13,500	12,800
7/13 - 6/14	11,702	10,954	12,183	11,203	14,186	11,661	10,312	13,500	12,000
7/14 - 6/15	12,812	11,845	13,226	12,115	14,488	12,644	11,040	14,500	13,500
7/15 - 6/16	12,947	11,421	13,560	11,834	14,764	12,422	10,589	15,000	13,500
7/16 - 6/17	14,884	13,358	14,751	13,551	14,593	13,212	13,071	15,250	14,750
7/17 - 6/18	14,629	11,201	14,266	12,259	14,149	12,773	10,414	16,900	14,200
Total	\$ 325,340	\$ 318,801	\$ 326,105	\$ 320,954	\$ 309,105			\$ 339,339	\$ 330,277

Notes: (a) See Exhibit A-4, Sheet 1.

(b) See Exhibit A-5, Sheet 1.

(c) See Exhibit A-6.

(d) See Exhibit A-7.

(e) See Exhibit A-8, Sheet 1.

(f) See Exhibit A-9, Sheet 1.

(g) See Exhibit A-10.

(h) For accident periods through 6/17, see Exhibit A-3 of the June 30, 2017 study. For 7/17 - 6/18, see Exhibit 7 of the June 30, 2017 study.

# STATE OF MISSISSIPPI

## SELF-INSURED WORKERS' COMPENSATION TRUST

### PAID LOSS APPROACH

#### DEVELOPMENT OF INDICATED ULTIMATE LOSSES AS OF JUNE 30, 2018

(\$000'S OMITTED)

Accident Period	Paid Losses (a)	Selected Development Factor (b)	Indicated Ultimate Losses (c)
(1)	(2)	(3)	(4)
7/90 - 6/91	\$ 4,536	1.003	\$ 4,550
7/91 - 6/92	4,841	1.004	4,860
7/92 - 6/93	4,612	1.005	4,635
7/93 - 6/94	6,981	1.006	7,023
7/94 - 6/95	7,058	1.007	7,107
7/95 - 6/96	7,450	1.009	7,517
7/96 - 6/97	7,111	1.011	7,189
7/97 - 6/98	10,282	1.013	10,416
7/98 - 6/99	9,538	1.015	9,681
7/99 - 6/00	13,331	1.017	13,558
7/00 - 6/01	15,021	1.019	15,306
7/01 - 6/02	14,084	1.022	14,394
7/02 - 6/03	12,422	1.027	12,757
7/03 - 6/04	16,739	1.032	17,275
7/04 - 6/05	12,155	1.041	12,653
7/05 - 6/06	11,189	1.050	11,748
7/06 - 6/07	12,850	1.059	13,608
7/07 - 6/08	14,314	1.069	15,302
7/08 - 6/09	12,435	1.085	13,492
7/09 - 6/10	14,995	1.101	16,509
7/10 - 6/11	12,733	1.118	14,235
7/11 - 6/12	10,581	1.140	12,062
7/12 - 6/13	10,638	1.174	12,489
7/13 - 6/14	9,445	1.239	11,702
7/14 - 6/15	9,590	1.336	12,812
7/15 - 6/16	8,614	1.503	12,947
7/16 - 6/17	7,921	1.879	14,884
7/17 - 6/18	3,555	4.115	14,629
<b>Total</b>	<b>\$ 285,021</b>		<b>\$ 325,340</b>

Notes: (a) Provided by the State of Mississippi. Losses are net of all recoveries.

(b) See Sheet 2 through Sheet 4.

(c) [(2) x (3)]

## STATE OF MISSISSIPPI

SELF-INSURED WORKERS' COMPENSATION TRUST

PAID LOSS APPROACH

DEVELOPMENT OF INDICATED ULTIMATE LOSSES  
AS OF JUNE 30, 2018

NET OF ALL RECOVERIES

(\$000'S OMITTED)

Accident Year	Valued as of (Months)									
	12	24	36	48	60	72	84	96	108	
1991	1,337	2,596	3,287	3,736	3,899	4,177	4,246	4,266	4,321	
1992	1,459	2,940	3,520	3,944	4,326	4,512	4,554	4,721	4,736	
1993	1,828	3,345	3,994	4,233	4,431	4,590	4,626	4,627	4,592	
1994	2,075	3,729	4,592	5,586	6,103	6,416	6,509	6,570	6,625	
1995	1,992	3,928	4,920	5,355	5,744	5,921	6,012	6,201	6,449	
1996	1,943	3,957	5,157	5,698	5,990	6,319	6,446	6,743	6,808	
1997	2,209	4,275	5,092	5,407	5,621	5,757	6,082	6,261	6,385	
1998	2,838	6,201	7,467	8,461	8,904	9,261	9,399	9,599	9,634	
1999	2,425	5,125	6,611	7,478	8,173	8,528	8,805	9,013	9,107	
2000	3,455	7,165	8,234	9,355	10,307	11,037	11,685	11,925	12,091	
2001	4,210	7,136	9,675	11,277	12,181	12,853	13,053	13,381	13,727	
2002	3,297	7,309	9,283	10,554	11,513	12,482	13,139	13,427	13,584	
2003	3,316	6,916	8,926	10,301	11,039	11,437	11,625	11,790	11,869	
2004	3,785	7,835	10,110	11,409	12,660	13,592	14,106	14,579	15,166	
2005	3,402	6,950	8,660	9,738	10,330	10,753	11,057	11,393	11,571	
2006	2,860	5,585	6,891	8,100	8,898	9,302	9,851	10,218	10,411	
2007	3,306	6,760	8,673	10,091	10,936	11,543	12,099	12,281	12,666	
2008	3,697	7,554	9,868	11,451	12,278	12,838	13,180	13,670	13,839	
2009	3,869	7,343	9,116	10,390	11,290	11,662	12,185	12,296	12,359	
2010	3,686	7,990	10,822	12,497	13,335	14,261	14,652	14,859	14,995	
2011	3,410	7,052	9,031	10,306	11,262	12,031	12,392	12,733		
2012	3,344	6,770	8,216	9,156	10,128	10,379	10,581			
2013	2,976	6,356	8,079	9,393	10,061	10,638				
2014	2,577	6,252	8,112	8,954	9,445					
2015	3,486	6,889	8,706	9,590						
2016	3,423	7,273	8,614							
2017	3,394	7,921								
2018	3,555									

Accident Year	Period to Period Factors									
	12	24	36	48	60	72	84	96	108	
1991	1.942	1.266	1.137	1.044	1.071	1.017	1.005	1.013	1.007	
1992	2.015	1.197	1.120	1.097	1.043	1.009	1.037	1.003	1.001	
1993	1.830	1.194	1.060	1.047	1.036	1.008	1.000	0.992	1.000	
1994	1.797	1.231	1.216	1.093	1.051	1.014	1.009	1.008	1.014	
1995	1.972	1.253	1.088	1.073	1.031	1.015	1.031	1.040	1.023	
1996	2.037	1.303	1.105	1.051	1.055	1.020	1.046	1.010	1.006	
1997	1.935	1.191	1.062	1.040	1.024	1.056	1.029	1.020	1.025	
1998	2.185	1.204	1.133	1.052	1.040	1.015	1.021	1.004	1.003	
1999	2.113	1.290	1.131	1.093	1.043	1.032	1.024	1.010	1.009	
2000	2.074	1.149	1.136	1.102	1.071	1.059	1.021	1.014	1.024	
2001	1.695	1.356	1.166	1.080	1.055	1.016	1.025	1.026	1.028	
2002	2.217	1.270	1.137	1.091	1.084	1.053	1.022	1.012	1.009	
2003	2.086	1.291	1.154	1.072	1.036	1.016	1.014	1.007	1.011	
2004	2.070	1.290	1.128	1.110	1.074	1.038	1.034	1.040	1.023	
2005	2.043	1.246	1.124	1.061	1.041	1.028	1.030	1.016	1.023	
2006	1.953	1.234	1.175	1.099	1.045	1.059	1.037	1.019	1.016	
2007	2.045	1.283	1.163	1.084	1.056	1.048	1.015	1.031	1.007	
2008	2.043	1.306	1.160	1.072	1.046	1.027	1.037	1.012	1.014	
2009	1.898	1.241	1.140	1.087	1.033	1.045	1.009	1.005	1.006	
2010	2.168	1.354	1.155	1.067	1.069	1.027	1.014	1.009		
2011	2.068	1.281	1.141	1.093	1.068	1.030	1.028			
2012	2.025	1.214	1.114	1.106	1.025	1.019				
2013	2.136	1.271	1.163	1.071	1.057					
2014	2.426	1.298	1.104	1.055						
2015	1.976	1.264	1.102							
2016	2.125	1.184								
2017	2.334									

	Average Development Factors									
	3/3	5/5	3/5	3-\$	5-\$	Industry				
Selected	2.190	1.250	1.125	1.078	1.055	1.030	1.020	1.015	1.015	
Cumulative	4.115	1.879	1.503	1.336	1.239	1.174	1.140	1.118	1.101	

Note: Based on data provided by the State Of Mississippi.



MADISON CONSULTING GROUP, INC.

## STATE OF MISSISSIPPI

SELF-INSURED WORKERS' COMPENSATION TRUST

PAID LOSS APPROACH

DEVELOPMENT OF INDICATED ULTIMATE LOSSES  
AS OF JUNE 30, 2018

NET OF ALL RECOVERIES

(\$000'S OMITTED)

Accident Year	Valued as of (Months)								
	120	132	144	156	168	180	192	204	216
1991	4,350	4,355	4,362	4,375	4,385	4,451	4,478	4,480	4,482
1992	4,743	4,745	4,773	4,792	4,792	4,792	4,792	4,792	4,829
1993	4,593	4,595	4,612	4,612	4,612	4,612	4,612	4,612	4,612
1994	6,715	6,774	6,801	6,820	6,889	6,901	6,902	6,921	6,932
1995	6,595	6,672	6,739	6,791	6,826	6,860	6,898	6,936	6,967
1996	6,849	6,894	7,065	7,167	7,187	7,208	7,220	7,229	7,313
1997	6,542	6,623	6,759	6,812	6,865	6,909	6,981	7,042	7,053
1998	9,664	9,734	9,816	9,925	9,943	9,983	10,007	10,086	10,276
1999	9,185	9,349	9,421	9,447	9,490	9,503	9,538	9,538	9,538
2000	12,387	12,678	12,817	12,901	13,058	13,135	13,204	13,297	13,312
2001	14,118	14,332	14,442	14,600	14,785	14,906	14,967	14,997	15,021
2002	13,708	13,577	13,682	13,646	13,835	13,916	14,004	14,084	
2003	11,994	12,068	12,161	12,255	12,337	12,386	12,422		
2004	15,519	15,830	16,059	16,292	16,432	16,739			
2005	11,842	12,053	12,089	12,121	12,155				
2006	10,582	10,763	10,855	11,189					
2007	12,754	12,789	12,850						
2008	14,036	14,314							
2009	12,435								
2010									
2011									
2012									
2013									
2014									
2015									
2016									
2017									
2018									

Accident Year	Period to Period Factors								
	120	132	144	156	168	180	192	204	216
1991	1.001	1.002	1.003	1.002	1.015	1.006	1.000	1.000	1.012
1992	1.000	1.006	1.004	1.000	1.000	1.000	1.008	1.002	
1993	1.000	1.004	1.000	1.000	1.000	1.000	1.000	1.000	
1994	1.009	1.004	1.003	1.010	1.002	1.000	1.003	1.002	1.000
1995	1.012	1.010	1.008	1.005	1.005	1.006	1.006	1.004	1.004
1996	1.007	1.025	1.014	1.003	1.003	1.002	1.001	1.012	1.003
1997	1.012	1.021	1.008	1.008	1.006	1.010	1.009	1.002	1.002
1998	1.007	1.008	1.011	1.002	1.004	1.002	1.008	1.019	1.000
1999	1.018	1.008	1.003	1.005	1.001	1.004	1.000	1.000	
2000	1.023	1.011	1.007	1.012	1.006	1.005	1.007	1.001	1.001
2001	1.015	1.008	1.011	1.013	1.008	1.004	1.002	1.002	
2002	0.990	1.008	0.997	1.014	1.006	1.006	1.006		
2003	1.006	1.008	1.008	1.007	1.004	1.003			
2004	1.020	1.014	1.015	1.009	1.019				
2005	1.018	1.003	1.003	1.003					
2006	1.017	1.009	1.031						
2007	1.003	1.005							
2008	1.020								
2009									
2010									
2011									
2012									
2013									
2014									
2015									
2016									
2017									

	Average Development Factors									
	3/3	1.013	1.006	1.016	1.006	1.010	1.004	1.005	1.001	1.000
5/5	1.016	1.008	1.011	1.009	1.009	1.004	1.005	1.005	1.001	
3/5	1.018	1.007	1.009	1.010	1.007	1.004	1.005	1.002	1.001	
3-\$	1.013	1.005	1.015	1.006	1.010	1.004	1.005	1.001	1.001	
5-\$	1.016	1.008	1.010	1.009	1.009	1.005	1.005	1.004	1.001	
Industry	1.007	1.006	1.015	1.005	1.004	1.005	1.004	1.003	1.004	
Selected Cumulative	1.015	1.009	1.009	1.009	1.009	1.005	1.005	1.003	1.002	
Cumulative	1.085	1.069	1.059	1.050	1.041	1.032	1.027	1.022	1.019	

Note: Based on data provided by the State Of Mississippi.



## STATE OF MISSISSIPPI

SELF-INSURED WORKERS' COMPENSATION TRUST

PAID LOSS APPROACH

DEVELOPMENT OF INDICATED ULTIMATE LOSSES  
AS OF JUNE 30, 2018

NET OF ALL RECOVERIES

(\$000'S OMITTED)

Accident Year	Valued as of (Months)									
	228	240	252	264	276	288	300	312	324	336
1991	4,536	4,536	4,536	4,536	4,536	4,536	4,536	4,536	4,536	4,536
1992	4,840	4,841	4,841	4,841	4,841	4,841	4,841	4,841	4,841	4,841
1993	4,612	4,612	4,612	4,612	4,612	4,612	4,612	4,612	4,612	4,612
1994	6,935	6,969	6,972	6,975	6,979	6,980	6,981			
1995	6,992	7,014	7,027	7,044	7,052	7,058				
1996	7,338	7,354	7,384	7,422	7,450					
1997	7,064	7,086	7,099	7,111						
1998	10,277	10,277	10,282							
1999	9,538	9,538								
2000	13,331									
2001										
2002										
2003										
2004										
2005										
2006										
2007										
2008										
2009										
2010										
2011										
2012										
2013										
2014										
2015										
2016										
2017										
2018										

Accident Year	Period to Period Factors									
	228	240	252	264	276	288	300	312	324	336
1991	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1992	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1993	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1994	1.005	1.000	1.000	1.001	1.000	1.000				
1995	1.003	1.002	1.002	1.001	1.001	1.001				
1996	1.002	1.004	1.005	1.004						
1997	1.003	1.002	1.002							
1998	1.000	1.000								
1999	1.000									
2000										
2001										
2002										
2003										
2004										
2005										
2006										
2007										
2008										
2009										
2010										
2011										
2012										
2013										
2014										
2015										
2016										
2017										

Average Development Factors										
	3/3	5/5	3/5	3-\$	5-\$	Industry	1.002	1.002	1.001	1.001
Selected	1.002	1.002	1.001	1.002	1.002	1.004	1.005	1.005	1.005	1.005
Cumulative	1.017	1.015	1.013	1.011	1.009	1.007	1.006	1.005	1.004	1.003

Note: Based on data provided by the State Of Mississippi.



MADISON CONSULTING GROUP, INC.

# STATE OF MISSISSIPPI

## SELF-INSURED WORKERS' COMPENSATION TRUST

### REPORTED LOSS APPROACH

#### DEVELOPMENT OF INDICATED ULTIMATE LOSSES AS OF JUNE 30, 2018

(\$000'S OMITTED)

Accident Period	Reported Losses (a)	Selected Development Factor (b)	Indicated Ultimate Losses (c)
(1)	(2)	(3)	(4)
7/90 - 6/91	\$ 4,536	1.000	\$ 4,536
7/91 - 6/92	4,841	1.000	4,841
7/92 - 6/93	4,612	1.000	4,612
7/93 - 6/94	7,039	1.000	7,039
7/94 - 6/95	7,108	1.000	7,108
7/95 - 6/96	7,526	1.000	7,526
7/96 - 6/97	7,167	1.001	7,174
7/97 - 6/98	10,287	1.002	10,308
7/98 - 6/99	9,538	1.003	9,567
7/99 - 6/00	13,633	1.004	13,688
7/00 - 6/01	15,228	1.005	15,304
7/01 - 6/02	14,390	1.007	14,491
7/02 - 6/03	12,814	1.009	12,929
7/03 - 6/04	18,589	1.011	18,793
7/04 - 6/05	12,500	1.014	12,675
7/05 - 6/06	11,656	1.017	11,854
7/06 - 6/07	13,586	1.020	13,858
7/07 - 6/08	15,021	1.023	15,366
7/08 - 6/09	13,394	1.026	13,742
7/09 - 6/10	15,741	1.029	16,197
7/10 - 6/11	14,121	1.039	14,672
7/11 - 6/12	11,287	1.049	11,840
7/12 - 6/13	11,239	1.059	11,902
7/13 - 6/14	10,096	1.085	10,954
7/14 - 6/15	10,652	1.112	11,845
7/15 - 6/16	10,018	1.140	11,421
7/16 - 6/17	11,216	1.191	13,358
7/17 - 6/18	7,180	1.560	11,201
Total	\$ 305,015		\$ 318,801

Notes: (a) Provided by the State of Mississippi. Losses are net of all recoveries.  
(b) See Sheet 2 through Sheet 4.  
(c) [(2) x (3)]

## STATE OF MISSISSIPPI

SELF-INSURED WORKERS' COMPENSATION TRUST

REPORTED LOSS APPROACH

DEVELOPMENT OF INDICATED ULTIMATE LOSSES  
AS OF JUNE 30, 2018

NET OF ALL RECOVERIES

(\$000'S OMITTED)

Accident Year	Valued as of (Months)									
	12	24	36	48	60	72	84	96	108	
1991	2,556	3,808	4,566	4,299	4,268	4,326	4,503	4,587	4,552	
1992	3,595	4,356	4,504	4,567	4,733	4,710	4,971	4,844	4,850	
1993	4,099	4,948	4,731	4,775	4,728	4,672	4,661	4,680	4,641	
1994	4,759	5,421	5,900	6,647	6,972	6,841	6,865	6,830	6,859	
1995	3,575	5,236	6,096	6,622	6,430	6,681	6,977	6,816	6,833	
1996	3,967	5,963	6,813	6,791	6,891	7,027	6,896	7,120	6,877	
1997	5,336	6,396	6,292	6,133	6,224	6,318	6,385	6,495	6,628	
1998	8,669	9,265	9,643	9,915	10,061	9,921	9,758	9,749	9,812	
1999	6,267	7,988	8,377	8,860	8,947	8,998	9,293	9,352	9,392	
2000	8,366	9,909	10,509	11,107	11,356	12,203	12,376	12,615	12,922	
2001	10,067	10,419	12,219	13,161	13,509	13,650	13,677	14,060	14,433	
2002	7,099	10,047	11,010	12,629	12,870	13,545	14,122	14,007	14,281	
2003	6,561	9,278	11,481	12,086	12,224	12,262	12,130	13,001	13,034	
2004	7,881	11,383	13,000	13,590	14,968	15,625	17,370	18,379	18,530	
2005	8,459	9,728	10,491	11,169	11,607	11,830	12,663	12,686	12,639	
2006	7,442	7,892	9,116	10,277	10,802	11,070	11,069	11,206	11,165	
2007	8,143	10,340	12,043	12,662	13,284	13,176	13,111	13,287	13,618	
2008	9,207	12,938	14,038	14,010	14,769	14,708	14,831	15,121	15,079	
2009	10,127	12,038	12,690	13,227	12,873	13,020	13,334	13,432	13,517	
2010	9,299	14,621	15,845	15,835	15,530	15,838	15,675	15,658	15,741	
2011	9,704	12,060	12,523	12,349	12,988	13,851	13,838	14,121		
2012	9,097	11,073	10,689	11,097	11,368	11,347	11,287			
2013	9,085	10,403	10,613	10,818	10,964	11,239				
2014	6,446	9,301	9,890	9,985	10,096					
2015	7,867	10,165	10,457	10,652						
2016	8,188	9,594	10,018							
2017	7,635	11,216								
2018		7,180								

Accident Year	Period to Period Factors									
	12	24	36	48	60	72	84	96	108	
1991	1.490	1.199	0.942	0.993	1.014	1.041	1.019	0.992	1.002	
1992	1.212	1.034	1.014	1.036	0.995	1.055	0.974	1.001	0.990	
1993	1.207	0.956	1.009	0.990	0.988	0.998	1.004	0.992	1.003	
1994	1.139	1.088	1.127	1.049	0.981	1.004	0.995	1.004	1.012	
1995	1.465	1.164	1.086	0.971	1.039	1.044	0.977	1.002	1.008	
1996	1.503	1.143	0.997	1.015	1.020	0.981	1.032	0.966	1.012	
1997	1.199	0.984	0.975	1.015	1.015	1.011	1.017	1.020	1.026	
1998	1.069	1.041	1.028	1.015	0.986	0.984	0.999	1.006	0.997	
1999	1.275	1.049	1.058	1.010	1.006	1.033	1.006	1.004	1.017	
2000	1.184	1.061	1.057	1.022	1.075	1.014	1.019	1.024	1.034	
2001	1.035	1.173	1.077	1.026	1.010	1.002	1.028	1.027	1.026	
2002	1.415	1.096	1.147	1.019	1.052	1.043	0.992	1.020	1.010	
2003	1.414	1.237	1.053	1.011	1.003	0.989	1.072	1.003	1.001	
2004	1.444	1.142	1.045	1.101	1.044	1.112	1.058	1.008	0.998	
2005	1.150	1.078	1.065	1.039	1.019	1.070	1.002	0.996	1.021	
2006	1.060	1.155	1.127	1.051	1.025	1.000	1.012	0.996	1.009	
2007	1.270	1.165	1.051	1.049	0.992	0.995	1.013	1.025	0.997	
2008	1.405	1.085	0.998	1.054	0.996	1.008	1.020	0.997	0.998	
2009	1.189	1.054	1.042	0.973	1.011	1.024	1.007	1.006	0.991	
2010	1.572	1.084	0.999	0.981	1.020	0.990	0.999	1.005		
2011	1.243	1.038	0.986	1.052	1.066	0.999	1.020			
2012	1.217	0.965	1.038	1.024	0.998	0.995				
2013	1.145	1.020	1.019	1.013	1.025					
2014	1.443	1.063	1.010	1.011						
2015	1.292	1.029	1.019							
2016	1.172	1.044								
2017	1.469									

	Average Development Factors									
	3/3	5/5	3/5	3-\$	5-\$	Industry				
Selected	1.310	1.045	1.025	1.025	1.025	1.287	1.009	1.003	0.995	
Cumulative	1.560	1.191	1.140	1.112	1.085	1.059	1.049	1.039	1.029	

Note: Based on data provided by the State Of Mississippi.



## STATE OF MISSISSIPPI

SELF-INSURED WORKERS' COMPENSATION TRUST

REPORTED LOSS APPROACH

DEVELOPMENT OF INDICATED ULTIMATE LOSSES  
AS OF JUNE 30, 2018

NET OF ALL RECOVERIES

(\$000'S OMITTED)

Accident Year	Valued as of (Months)								
	120	132	144	156	168	180	192	204	216
1991	4,560	4,558	4,558	4,656	4,610	4,600	4,601	4,544	4,544
1992	4,803	4,803	4,808	4,792	4,792	4,792	4,792	4,792	4,854
1993	4,653	4,652	4,612	4,612	4,612	4,612	4,612	4,612	4,612
1994	6,939	6,919	7,046	7,046	7,065	7,065	7,017	7,031	
1995	6,888	7,012	7,068	6,954	6,994	7,085	7,085	7,136	7,106
1996	6,958	7,191	7,212	7,249	7,443	7,443	7,412	7,412	7,431
1997	6,798	6,808	6,944	7,048	7,152	7,152	7,147	7,147	7,148
1998	9,781	9,939	10,021	10,161	10,118	10,118	10,119	10,158	10,276
1999	9,548	9,596	9,751	9,629	9,560	9,560	9,538	9,538	9,538
2000	13,367	13,441	13,469	13,461	13,463	13,564	13,609	13,608	13,621
2001	14,814	15,232	15,088	15,080	15,072	15,114	15,060	15,161	15,228
2002	14,424	14,128	14,107	14,048	14,407	14,468	14,487	14,390	
2003	13,052	13,044	12,991	12,993	13,083	12,995	12,814		
2004	18,496	18,286	18,390	18,413	18,451	18,589			
2005	12,907	12,940	12,619	12,463	12,500				
2006	11,270	11,341	11,488	11,656					
2007	13,572	13,569	13,586						
2008	15,054	15,021							
2009	13,394								
2010									
2011									
2012									
2013									
2014									
2015									
2016									
2017									
2018									

Accident Year	Period to Period Factors								
	120	132	144	156	168	180	192	204	216
1991	1,000	1,000	1,022	0,990	0,998	1,000	0,988	1,000	0,998
1992	1,000	1,001	0,997	1,000	1,000	1,000	1,000	1,013	1,000
1993	1,000	0,991	1,000	1,000	1,000	1,000	1,000	1,000	1,000
1994	0,997	1,018	1,000	1,003	1,000	1,000	0,993	1,002	1,000
1995	1,018	1,008	0,984	1,006	1,013	1,000	1,007	0,996	1,000
1996	1,033	1,003	1,005	1,027	1,000	0,996	1,000	1,003	1,006
1997	1,001	1,020	1,015	1,015	1,000	1,000	0,999	1,000	1,000
1998	1,016	1,008	1,014	0,996	1,000	1,000	1,004	1,012	1,000
1999	1,005	1,016	0,987	0,993	1,000	0,998	1,000	1,000	1,000
2000	1,006	1,002	0,999	1,000	1,008	1,003	1,000	1,001	1,001
2001	1,028	0,991	0,999	0,999	1,003	0,996	1,007	1,004	
2002	0,979	0,999	0,996	1,026	1,004	1,001	0,993	0,986	
2003	0,999	0,996	1,000	1,007	0,993	0,986			
2004	0,989	1,006	1,001	1,002	1,007				
2005	1,003	0,975	0,988	1,003					
2006	1,006	1,013	1,015						
2007	1,000	1,001							
2008	0,998								
2009									
2010									
2011									
2012									
2013									
2014									
2015									
2016									
2017									

Average Development Factors									
	3/3	5/5	3/5	3-\$	5-\$	Industry	Selected	Cumulative	
	1,001	0,996	1,001	1,004	1,001	0,994	1,000	1,002	1,000
	0,999	0,998	1,000	1,007	1,003	0,997	1,001	1,003	1,001
	1,000	1,001	0,999	1,004	1,005	0,998	1,001	1,002	1,000
	1,001	0,996	1,001	1,004	1,002	0,995	1,000	1,002	1,000
	0,998	0,998	1,000	1,007	1,003	0,997	1,001	1,004	1,001
	1,000	1,000	1,001	1,010	1,000	1,001	1,001	1,001	1,001
	1,003	1,003	1,003	1,003	1,003	1,002	1,002	1,002	1,001
	1,026	1,023	1,020	1,017	1,014	1,011	1,009	1,007	1,005

Note: Based on data provided by the State Of Mississippi.



MADISON CONSULTING GROUP, INC.

## STATE OF MISSISSIPPI

SELF-INSURED WORKERS' COMPENSATION TRUST

REPORTED LOSS APPROACH

DEVELOPMENT OF INDICATED ULTIMATE LOSSES  
AS OF JUNE 30, 2018

NET OF ALL RECOVERIES

(\$000'S OMITTED)

Accident Year	Valued as of (Months)									
	228	240	252	264	276	288	300	312	324	336
1991	4,536	4,536	4,536	4,536	4,536	4,536	4,536	4,536	4,536	4,536
1992	4,854	4,841	4,841	4,841	4,841	4,841	4,841	4,841	4,841	4,841
1993	4,612	4,612	4,612	4,612	4,612	4,612	4,612	4,612	4,612	4,612
1994	7,031	7,029	7,029	7,029	7,039	7,039	7,039	7,039	7,039	7,039
1995	7,106	7,106	7,106	7,108	7,108	7,108	7,108	7,108	7,108	7,108
1996	7,473	7,473	7,490	7,490	7,526					
1997	7,148	7,148	7,148	7,148	7,167					
1998	10,277	10,282	10,282	10,287						
1999	9,538	9,538								
2000	13,633									
2001										
2002										
2003										
2004										
2005										
2006										
2007										
2008										
2009										
2010										
2011										
2012										
2013										
2014										
2015										
2016										
2017										
2018										

Accident Year	Period to Period Factors									
	228	240	252	264	276	288	300	312	324	336
1991	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1992	0.997	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1993	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1994	1.000	1.000	1.000	1.001	1.000	1.000				
1995	1.000	1.000	1.000	1.000	1.000	1.000				
1996	1.000	1.002	1.000	1.005						
1997	1.000	1.000	1.003							
1998	1.000	1.000								
1999	1.000									
2000										
2001										
2002										
2003										
2004										
2005										
2006										
2007										
2008										
2009										
2010										
2011										
2012										
2013										
2014										
2015										
2016										
2017										

Average Development Factors										
	3/3	5/5	3/5	3-\$	5-\$	Industry	1.000	1.000	1.000	1.000
Selected	1.001	1.001	1.001	1.001	1.000	1.001	1.000	1.000	1.000	1.000
Cumulative	1.004	1.003	1.002	1.001	1.000	1.000	1.000	1.000	1.000	1.000

Note: Based on data provided by the State Of Mississippi.



MADISON CONSULTING GROUP, INC.

# STATE OF MISSISSIPPI

## SELF-INSURED WORKERS' COMPENSATION TRUST

### UNPAID LOSS APPROACH

#### DEVELOPMENT OF INDICATED ULTIMATE LOSSES AS OF JUNE 30, 2018

(\$000'S OMITTED)

Accident Period	Indicated Expected Losses (a)	Expected Portion Unpaid (b)	Expected Unpaid Losses (c)	Paid Losses (d)	Indicated Ultimate Losses (e)	
	(1)	(2)	(3)	(4)	(5)	(6)
7/90 - 6/91	\$ 4,112	0.003	\$ 12	\$ 4,536	\$ 4,548	
7/91 - 6/92	4,958	0.004	20	4,841	4,861	
7/92 - 6/93	5,167	0.005	26	4,612	4,638	
7/93 - 6/94	5,505	0.006	33	6,981	7,014	
7/94 - 6/95	6,324	0.007	44	7,058	7,102	
7/95 - 6/96	6,824	0.009	61	7,450	7,511	
7/96 - 6/97	7,347	0.011	81	7,111	7,192	
7/97 - 6/98	7,906	0.013	103	10,282	10,385	
7/98 - 6/99	8,245	0.015	124	9,538	9,662	
7/99 - 6/00	10,677	0.017	182	13,331	13,513	
7/00 - 6/01	11,998	0.019	228	15,021	15,249	
7/01 - 6/02	14,643	0.022	322	14,084	14,406	
7/02 - 6/03	11,787	0.026	306	12,422	12,728	
7/03 - 6/04	12,308	0.031	382	16,739	17,121	
7/04 - 6/05	11,694	0.039	456	12,155	12,611	
7/05 - 6/06	11,054	0.048	531	11,189	11,720	
7/06 - 6/07	12,230	0.056	685	12,850	13,535	
7/07 - 6/08	13,448	0.065	874	14,314	15,188	
7/08 - 6/09	13,832	0.078	1,079	12,435	13,514	
7/09 - 6/10	14,118	0.092	1,299	14,995	16,294	
7/10 - 6/11	14,207	0.106	1,506	12,733	14,239	
7/11 - 6/12	14,195	0.123	1,746	10,581	12,327	
7/12 - 6/13	14,346	0.148	2,123	10,638	12,761	
7/13 - 6/14	14,186	0.193	2,738	9,445	12,183	
7/14 - 6/15	14,488	0.251	3,636	9,590	13,226	
7/15 - 6/16	14,764	0.335	4,946	8,614	13,560	
7/16 - 6/17	14,593	0.468	6,830	7,921	14,751	
7/17 - 6/18	14,149	0.757	10,711	3,555	14,266	
Total	\$ 309,105		\$ 41,084	\$ 285,021	\$ 326,105	

Notes: (a) See Exhibit A-8, Sheet 1.

(b) Derived from payment pattern on Exhibit A-4.

(c) [(2) x (3)]

(d) Provided the State of Mississippi. Losses are net of all recoveries.

(e) [(4) + (5)]

# STATE OF MISSISSIPPI

## SELF-INSURED WORKERS' COMPENSATION TRUST

### UNREPORTED LOSS APPROACH

#### DEVELOPMENT OF INDICATED ULTIMATE LOSSES AS OF JUNE 30, 2018

(\$000'S OMITTED)

Accident Period	Indicated Expected Losses (a)	Expected Unreported Portion (b)	Expected Unreported Losses (c)	Reported Losses (d)	Indicated Ultimate Losses (e)	
	(1)	(2)	(3)	(4)	(5)	(6)
7/90 - 6/91	\$ 4,112	0.000	\$ 0	\$ 4,536	\$ 4,536	
7/91 - 6/92	4,958	0.000	0	4,841	4,841	
7/92 - 6/93	5,167	0.000	0	4,612	4,612	
7/93 - 6/94	5,505	0.000	0	7,039	7,039	
7/94 - 6/95	6,324	0.000	0	7,108	7,108	
7/95 - 6/96	6,824	0.000	0	7,526	7,526	
7/96 - 6/97	7,347	0.001	7	7,167	7,174	
7/97 - 6/98	7,906	0.002	16	10,287	10,303	
7/98 - 6/99	8,245	0.003	25	9,538	9,563	
7/99 - 6/00	10,677	0.004	43	13,633	13,676	
7/00 - 6/01	11,998	0.005	60	15,228	15,288	
7/01 - 6/02	14,643	0.007	103	14,390	14,493	
7/02 - 6/03	11,787	0.009	106	12,814	12,920	
7/03 - 6/04	12,308	0.011	135	18,589	18,724	
7/04 - 6/05	11,694	0.014	164	12,500	12,664	
7/05 - 6/06	11,054	0.017	188	11,656	11,844	
7/06 - 6/07	12,230	0.020	245	13,586	13,831	
7/07 - 6/08	13,448	0.022	296	15,021	15,317	
7/08 - 6/09	13,832	0.025	346	13,394	13,740	
7/09 - 6/10	14,118	0.028	395	15,741	16,136	
7/10 - 6/11	14,207	0.038	540	14,121	14,661	
7/11 - 6/12	14,195	0.047	667	11,287	11,954	
7/12 - 6/13	14,346	0.056	803	11,239	12,042	
7/13 - 6/14	14,186	0.078	1,107	10,096	11,203	
7/14 - 6/15	14,488	0.101	1,463	10,652	12,115	
7/15 - 6/16	14,764	0.123	1,816	10,018	11,834	
7/16 - 6/17	14,593	0.160	2,335	11,216	13,551	
7/17 - 6/18	14,149	0.359	5,079	7,180	12,259	
Total	\$ 309,105		\$ 15,939	\$ 305,015	\$ 320,954	

- Notes:
- (a) See Exhibit A-8, Sheet 1.
  - (b) Derived from reporting pattern on Exhibit A-5.
  - (c) [(2) x (3)]
  - (d) Provided by the State of Mississippi. Losses are net of all recoveries.
  - (e) [(4) + (5)]

# STATE OF MISSISSIPPI

## SELF-INSURED WORKERS' COMPENSATION TRUST

### EXPECTED LOSS APPROACH

#### DEVELOPMENT OF INDICATED EXPECTED LOSSES

(\$000'S OMITTED)

Accident Period	Payroll (a) (\$000's)	Expected Loss		Indicated Losses (c)
		Per \$100 Payroll (b)	(3)	
(1)	(2)			
7/90 - 6/91	\$ 397,236	1.035	\$ 4,112	
7/91 - 6/92	467,244	1.061	4,958	
7/92 - 6/93	488,642	1.057	5,167	
7/93 - 6/94	539,268	1.021	5,505	
7/94 - 6/95	611,792	1.034	6,324	
7/95 - 6/96	656,621	1.039	6,824	
7/96 - 6/97	675,720	1.087	7,347	
7/97 - 6/98	706,273	1.119	7,906	
7/98 - 6/99	752,087	1.096	8,245	
7/99 - 6/00	808,869	1.320	10,677	
7/00 - 6/01	827,461	1.450	11,998	
7/01 - 6/02	822,657	1.780	14,643	
7/02 - 6/03	849,854	1.387	11,787	
7/03 - 6/04	887,390	1.387	12,308	
7/04 - 6/05	843,146	1.387	11,694	
7/05 - 6/06	796,958	1.387	11,054	
7/06 - 6/07	881,752	1.387	12,230	
7/07 - 6/08	969,591	1.387	13,448	
7/08 - 6/09	997,294	1.387	13,832	
7/09 - 6/10	1,017,908	1.387	14,118	
7/10 - 6/11	993,518	1.430	14,207	
7/11 - 6/12	992,656	1.430	14,195	
7/12 - 6/13	1,003,227	1.430	14,346	
7/13 - 6/14	992,029	1.430	14,186	
7/14 - 6/15	1,013,150	1.430	14,488	
7/15 - 6/16	1,002,347	1.473	14,764	
7/16 - 6/17	990,760	1.473	14,593	
7/17 - 6/18	948,630	1.491	14,149	
Total			\$ 309,105	

- Notes:
- (a) Provided by the State of Mississippi.
  - (b) Based on MCG's calculation of claim costs at the \$1.5M retention level from the June 30, 2017 analysis, Exhibit 4. Factors at other retentions based on industry increased limits relationships.
  - (c)  $\{(2) \times (3)\} \div 100\}$ .

# STATE OF MISSISSIPPI

## SELF-INSURED WORKERS' COMPENSATION TRUST

### COMPARISON OF INDICATED EXPECTED LOSSES TO REPORTED LOSSES AS OF JUNE 30, 2018

(\$000'S OMITTED)

Accident Period	Indicated Expected Losses (a)	Expected Reported Portion (b)	Expected Reported Losses (c)	Reported Losses (d)	Indicated Experience Modification Factor (e)
(1)	(2)	(3)	(4)	(5)	(6)
7/90 - 6/91	\$ 4,112	1.000	\$ 4,112	\$ 4,536	1.103
7/91 - 6/92	4,958	1.000	4,958	4,841	0.976
7/92 - 6/93	5,167	1.000	5,167	4,612	0.893
7/93 - 6/94	5,505	1.000	5,505	7,039	1.279
7/94 - 6/95	6,324	1.000	6,324	7,108	1.124
7/95 - 6/96	6,824	1.000	6,824	7,526	1.103
7/96 - 6/97	7,347	0.999	7,340	7,167	0.976
7/97 - 6/98	7,906	0.998	7,890	10,287	1.304
7/98 - 6/99	8,245	0.997	8,220	9,538	1.160
7/99 - 6/00	10,677	0.996	10,634	13,633	1.282
7/00 - 6/01	11,998	0.995	11,938	15,228	1.276
7/01 - 6/02	14,643	0.993	14,540	14,390	0.990
7/02 - 6/03	11,787	0.991	11,681	12,814	1.097
7/03 - 6/04	12,308	0.989	12,173	18,589	1.527
7/04 - 6/05	11,694	0.986	11,530	12,500	1.084
7/05 - 6/06	11,054	0.983	10,866	11,656	1.073
7/06 - 6/07	12,230	0.980	11,985	13,586	1.134
7/07 - 6/08	13,448	0.978	13,152	15,021	1.142
7/08 - 6/09	13,832	0.975	13,486	13,394	0.993
7/09 - 6/10	14,118	0.972	13,723	15,741	1.147
7/10 - 6/11	14,207	0.962	13,667	14,121	1.033
7/11 - 6/12	14,195	0.953	13,528	11,287	0.834
7/12 - 6/13	14,346	0.944	13,543	11,239	0.830
7/13 - 6/14	14,186	0.922	13,079	10,096	0.772
7/14 - 6/15	14,488	0.899	13,025	10,652	0.818
7/15 - 6/16	14,764	0.877	12,948	10,018	0.774
7/16 - 6/17	14,593	0.840	12,258	11,216	0.915
7/17 - 6/18	14,149	0.641	9,070	7,180	0.792
Total	\$ 309,105		\$ 293,166	\$ 305,015	1.040
7/02 - 6/18	215,399		199,714	199,110	0.997

- Notes:
- (a) See Sheet 1.
  - (b) Derived from reporting pattern on Exhibit A-5.
  - (c) [(2) x (3)]
  - (d) Provided by the State of Mississippi. Losses are net of all recoveries.
  - (e) [(5) ÷ (4)]

# STATE OF MISSISSIPPI

## SELF-INSURED WORKERS' COMPENSATION TRUST

### COMPARISON OF INDICATED EXPECTED LOSSES TO PAID LOSSES AS OF JUNE 30, 2018

(\$000'S OMITTED)

Accident Period	Indicated	Expected	Expected	Paid	Indicated
	Expected Losses (a)	Portion Paid (b)	Paid Losses (c)	Paid Losses (d)	Experience Modification Factor (e)
(1)	(2)	(3)	(4)	(5)	(6)
7/90 - 6/91	\$ 4,112	0.997	\$ 4,100	\$ 4,536	1.106
7/91 - 6/92	4,958	0.996	4,938	4,841	0.980
7/92 - 6/93	5,167	0.995	5,141	4,612	0.897
7/93 - 6/94	5,505	0.994	5,472	6,981	1.276
7/94 - 6/95	6,324	0.993	6,280	7,058	1.124
7/95 - 6/96	6,824	0.991	6,763	7,450	1.102
7/96 - 6/97	7,347	0.989	7,266	7,111	0.979
7/97 - 6/98	7,906	0.987	7,803	10,282	1.318
7/98 - 6/99	8,245	0.985	8,121	9,538	1.174
7/99 - 6/00	10,677	0.983	10,495	13,331	1.270
7/00 - 6/01	11,998	0.981	11,770	15,021	1.276
7/01 - 6/02	14,643	0.978	14,321	14,084	0.983
7/02 - 6/03	11,787	0.974	11,481	12,422	1.082
7/03 - 6/04	12,308	0.969	11,926	16,739	1.404
7/04 - 6/05	11,694	0.961	11,238	12,155	1.082
7/05 - 6/06	11,054	0.952	10,523	11,189	1.063
7/06 - 6/07	12,230	0.944	11,545	12,850	1.113
7/07 - 6/08	13,448	0.935	12,574	14,314	1.138
7/08 - 6/09	13,832	0.922	12,753	12,435	0.975
7/09 - 6/10	14,118	0.908	12,819	14,995	1.170
7/10 - 6/11	14,207	0.894	12,701	12,733	1.003
7/11 - 6/12	14,195	0.877	12,449	10,581	0.850
7/12 - 6/13	14,346	0.852	12,223	10,638	0.870
7/13 - 6/14	14,186	0.807	11,448	9,445	0.825
7/14 - 6/15	14,488	0.749	10,852	9,590	0.884
7/15 - 6/16	14,764	0.665	9,818	8,614	0.877
7/16 - 6/17	14,593	0.532	7,763	7,921	1.020
7/17 - 6/18	14,149	0.243	3,438	3,555	1.034
Total	\$ 309,105		\$ 268,021	\$ 285,021	1.063
7/02 - 6/18	215,399		175,551	180,176	1.026

- Notes:
- (a) See Sheet 1.
  - (b) Derived from payment pattern on Exhibit A-4.
  - (c) [(2) x (3)]
  - (d) Provided by the State of Mississippi. Losses are net of all recoveries.
  - (e) [(5) ÷ (4)]

# STATE OF MISSISSIPPI

## SELF-INSURED WORKERS' COMPENSATION TRUST

### BERQUIST-SHERMAN APPROACH

#### DEVELOPMENT OF INDICATED ULTIMATE LOSSES AS OF JUNE 30, 2018

(\$000'S OMITTED)

Accident Period	Adjusted Reported Losses (a)	Selected Development Factor (a)	Indicated Ultimate Losses (b)
(1)	(2)	(3)	(4)
7/08 - 6/09	13,394	1.026	\$ 13,742
7/09 - 6/10	15,741	1.060	16,685
7/10 - 6/11	14,121	1.039	14,672
7/11 - 6/12	11,287	1.088	12,280
7/12 - 6/13	11,239	1.121	12,599
7/13 - 6/14	10,096	1.155	11,661
7/14 - 6/15	10,652	1.187	12,644
7/15 - 6/16	10,018	1.240	12,422
7/16 - 6/17	11,216	1.178	13,212
7/17 - 6/18	7,180	1.779	12,773
Total	\$ 114,944		\$ 132,690

Notes: (a) See Sheet 2 through Sheet 4.  
(b) [(2) x (3)]

## **STATE OF MISSISSIPPI**

## SELF-INSURED WORKERS' COMPENSATION TRUST

## BERQUIST-SHERMAN APPROACH

DEVELOPMENT OF INDICATED ULTIMATE LOSSES  
AS OF JUNE 30, 2018

#### **ADJUSTED REPORTED LOSSES**

(\$000'S OMITTED)

Year	Period to Period Factors							
	12	24	36	48	60	72	84	96
1991								
1992								0.999
1993							0.977	1.023
1994							1.019	0.984
1995						1.032	1.074	0.998
1996					1.039	1.013	1.100	0.962
1997				1.008	1.010	1.053	1.028	1.012
1998			1.098	1.017	1.020	1.004	1.015	0.992
1999	1.079	1.096	1.044	1.016	1.039	1.032	0.979	1.040
2000	1.392	0.992	1.117	1.057	1.042	1.059	1.049	0.991
2001	1.429	1.130	1.113	1.037	1.008	1.013	1.059	0.997
2002	1.707	1.024	1.116	1.033	1.043	1.051	1.033	0.996
2003	1.346	1.110	1.085	1.029	1.025	1.013	1.036	0.983
2004	1.422	1.077	1.084	1.066	1.057	1.041	1.080	0.990
2005	1.426	1.017	1.095	1.035	1.022	1.035	1.052	0.981
2006	1.250	1.055	1.135	1.070	1.038	1.049	1.069	0.959
2007	1.526	1.076	1.131	1.047	1.029	1.046	1.032	1.006
2008	1.458	1.124	1.143	1.016	1.019	1.044	1.060	0.967
2009	1.520	1.019	1.087	1.021	0.993	1.040	1.044	0.981
2010	1.739	1.074	1.104	1.002	1.046	1.013	1.037	0.988
2011	1.464	1.045	1.058	1.066	1.025	1.044	1.059	
2012	1.646	0.920	1.073	1.029	0.981	1.027		
2013	1.450	1.004	1.027	1.027	1.035			
2014	1.609	0.936	1.023	1.029				
2015	1.489	0.948	1.040					
2016	1.415	0.945						
2017	1.609							

	Average Development Factors								
3/3	1.504	0.943	1.030	1.028	1.014	1.028	1.047	0.979	1.031
5/5	1.514	0.951	1.044	1.031	1.016	1.034	1.046	0.980	1.036
3/5	1.516	0.943	1.042	1.028	1.018	1.037	1.047	0.979	1.034
3-\$	1.502	0.943	1.030	1.028	1.014	1.027	1.046	0.979	1.031
5-\$	1.511	0.950	1.045	1.029	1.017	1.033	1.046	0.981	1.036
Selected	1.510	0.950	1.045	1.028	1.030	1.030	1.047	0.980	1.033
Cumulative	1.779	1.178	1.240	1.187	1.155	1.121	1.088	1.039	1.060

Note: Based on data provided by the State Of Mississippi.



MADISON CONSULTING GROUP, INC.

## STATE OF MISSISSIPPI

SELF-INSURED WORKERS' COMPENSATION TRUST

BERQUIST-SHERMAN APPROACH

DEVELOPMENT OF INDICATED ULTIMATE LOSSES  
AS OF JUNE 30, 2018

### ADJUSTED REPORTED LOSSES

(\$000'S OMITTED)

Accident Year	Valued as of (Months)								
	120	132	144	156	168	180	192	204	216
1991	4,613	4,557	4,558	4,634	4,485	4,653	4,600	4,513	4,517
1992	4,852	4,829	4,855	4,846	4,818	4,897	4,856	4,826	4,865
1993	4,764	4,726	4,612	4,668	4,612	4,612	4,612	4,612	4,612
1994	7,011	7,001	6,934	6,995	6,945	7,128	7,040	6,996	7,011
1995	6,903	6,955	7,015	7,034	6,943	7,333	7,184	7,091	7,090
1996	7,425	7,237	7,304	7,419	7,308	7,700	7,518	7,390	7,483
1997	6,941	6,929	7,008	7,140	7,023	7,548	7,368	7,210	7,230
1998	10,010	10,052	10,023	10,130	10,041	10,382	10,249	10,173	10,368
1999	9,761	9,625	9,636	9,731	9,558	9,779	9,622	9,583	9,586
2000	13,585	13,482	13,600	13,934	13,483	14,860	13,901	13,533	13,611
2001	15,052	14,989	15,024	15,291	15,006	15,953	15,329	15,193	15,228
2002	14,518	14,074	14,105	14,285	14,142	15,160	14,664	14,390	
2003	12,836	12,649	12,538	12,753	12,576	13,356	12,814		
2004	16,920	16,703	16,910	17,242	16,888	18,589			
2005	12,844	12,751	12,701	12,839	12,500				
2006	11,245	11,199	11,280	11,656					
2007	13,739	13,544	13,586						
2008	15,265	15,021							
2009	13,394								
2010									
2011									
2012									
2013									
2014									
2015									
2016									
2017									
2018									

Accident Year	Period to Period Factors								
	120	132	144	156	168	180	192	204	216
1991	0.988	1.000	1.017	0.968	1.037	0.989	0.981	1.001	1.004
1992	0.995	1.005	0.998	0.994	1.016	0.992	0.994	1.008	1.010
1993	0.992	0.976	1.012	0.988	1.000	1.000	1.000	1.000	1.000
1994	0.999	0.990	1.009	0.993	1.026	0.988	0.994	1.002	1.001
1995	1.008	1.009	1.003	0.987	1.056	0.980	0.987	1.000	1.004
1996	0.975	1.009	1.016	0.985	1.054	0.976	0.983	1.013	0.998
1997	0.998	1.011	1.019	0.984	1.075	0.976	0.979	1.003	0.996
1998	1.004	0.997	1.011	0.991	1.034	0.987	0.993	1.019	1.000
1999	0.986	1.001	1.010	0.982	1.023	0.984	0.996	1.000	1.000
2000	0.992	1.009	1.025	0.968	1.102	0.935	0.974	1.006	1.002
2001	0.996	1.002	1.018	0.981	1.063	0.961	0.991	1.002	
2002	0.969	1.002	1.013	0.990	1.072	0.967	0.981		
2003	0.985	0.991	1.017	0.986	1.062	0.959			
2004	0.987	1.012	1.020	0.979	1.101				
2005	0.993	0.996	1.011	0.974					
2006	0.996	1.007	1.033						
2007	0.986	1.003							
2008	0.984								
2009									
2010									
2011									
2012									
2013									
2014									
2015									
2016									
2017									

Average Development Factors									
	3/3	5/5	3/5	3-\$	5-\$	120	132	144	156
	0.989	1.002	1.021	0.980	1.078	0.962	0.982	1.003	1.001
	0.989	1.002	1.019	0.982	1.080	0.961	0.987	1.006	0.999
	0.989	1.002	1.017	0.982	1.079	0.962	0.988	1.004	0.999
	0.988	1.002	1.021	0.980	1.080	0.963	0.982	1.003	1.001
	0.989	1.003	1.018	0.982	1.081	0.960	0.986	1.006	1.000

Selected Cumulative      1.026

Note: Based on data provided by the State Of Mississippi.



MADISON CONSULTING GROUP, INC.

## STATE OF MISSISSIPPI

SELF-INSURED WORKERS' COMPENSATION TRUST

BERQUIST-SHERMAN APPROACH

DEVELOPMENT OF INDICATED ULTIMATE LOSSES  
AS OF JUNE 30, 2018

### ADJUSTED REPORTED LOSSES

(\$000'S OMITTED)

Accident Year	Valued as of (Months)									
	228	240	252	264	276	288	300	312	324	336
1991	4,536	4,536	4,536	4,536	4,536	4,536	4,536	4,536	4,536	4,536
1992	4,914	4,841	4,841	4,841	4,841	4,841	4,841	4,841	4,841	4,841
1993	4,612	4,612	4,612	4,612	4,612	4,612	4,612	4,612	4,612	4,612
1994	7,015	6,969	6,975	7,025	7,026	7,012	7,039			
1995	7,116	7,014	7,031	7,122	7,125	7,108				
1996	7,467	7,354	7,389	7,503	7,526					
1997	7,198	7,086	7,104	7,167						
1998	10,370	10,277	10,287							
1999	9,586	9,538								
2000	13,633									
2001										
2002										
2003										
2004										
2005										
2006										
2007										
2008										
2009										
2010										
2011										
2012										
2013										
2014										
2015										
2016										
2017										
2018										
Accident Year	Period to Period Factors									
	228	240	252	264	276	288	300	312	324	336
1991	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1992	0.985	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
1993	1.000	1.000	1.000	1.000	1.000	1.000	1.000			
1994	0.993	1.001	1.007	1.000	0.998	1.004				
1995	0.986	1.002	1.013	1.000	0.998					
1996	0.985	1.005	1.015	1.003						
1997	0.984	1.003	1.009							
1998	0.991	1.001								
1999	0.995									
2000										
2001										
2002										
2003										
2004										
2005										
2006										
2007										
2008										
2009										
2010										
2011										
2012										
2013										
2014										
2015										
2016										
2017										
Average Development Factors										
3/3	0.990	1.003	1.012	1.001	0.999	1.001	1.000	1.000	1.000	1.000
5/5	0.988	1.002	1.009	1.001	0.999	1.001	1.000	1.000	1.000	1.000
3/5	0.987	1.002	1.010	1.000	0.999	1.001	1.000	1.000	1.000	1.000
3-\$	0.991	1.003	1.012	1.001	0.998	1.002	1.000	1.000	1.000	1.000
5-\$	0.989	1.002	1.010	1.001	0.999	1.001	1.000	1.000	1.000	1.000

Selected  
Cumulative

Note: Based on data provided by the State Of Mississippi.



MADISON CONSULTING GROUP, INC.

**STATE OF MISSISSIPPI**

SELF-INSURED WORKERS' COMPENSATION TRUST

BERQUIST-SHERMAN APPROACH

Adjusted Case Reserve (\$000's Omitted)

Accident Year	Valued as of (Months)								
	12	24	36	48	60	72	84	96	108
1991									
1992									
1993									
1994									
1995									
1996									
1997									
1998									
1999									
2000									
2001									
2002									
2003									
2004									
2005									
2006									
2007									
2008									
2009									
2010									
2011									
2012									
2013									
2014									
2015									
2016									
2017									
2018									

Accident Year	Paid Loss (\$000's Omitted)								
	12	24	36	48	60	72	84	96	108
1991									
1992									
1993									
1994									
1995									
1996									
1997									
1998									
1999									
2000									
2001									
2002									
2003									
2004									
2005									
2006									
2007									
2008									
2009									
2010									
2011									
2012									
2013									
2014									
2015									
2016									
2017									
2018									

Accident Year	Adjusted Reported Loss (\$000's Omitted)								
	12	24	36	48	60	72	84	96	108
1991									
1992									
1993									
1994									
1995									
1996									
1997									
1998									
1999									
2000									
2001									
2002									
2003									
2004									
2005									
2006									
2007									
2008									
2009									
2010									
2011									
2012									
2013									
2014									
2015									
2016									
2017									
2018									

Note: Based on data provided by the State Of Mississippi.



MADISON CONSULTING GROUP, INC.

**STATE OF MISSISSIPPI**

SELF-INSURED WORKERS' COMPENSATION TRUST

BERQUIST-SHERMAN APPROACH

Adjusted Case Reserve (\$000's Omitted)

Accident Year	Valued as of (Months)								
	120	132	144	156	168	180	192	204	216
1991	263	202	196	259	100	202	122	33	35
1992	109	84	82	54	26	105	64	34	36
1993	171	131	0	56	0	0	0	0	0
1994	296	227	133	175	56	227	138	75	79
1995	308	283	276	243	117	473	286	155	123
1996	576	343	239	252	121	492	298	161	170
1997	399	306	249	328	158	639	387	168	177
1998	346	318	207	205	98	399	242	87	92
1999	576	276	215	284	68	276	84	45	48
2000	1,198	804	783	1,033	425	1,725	697	236	299
2001	934	657	582	691	221	1,047	362	196	207
2002	810	497	423	639	307	1,244	660	306	
2003	842	581	377	498	239	970	392		
2004	1,401	873	851	950	456	1,850			
2005	1,002	698	612	718	345				
2006	663	436	425	467					
2007	985	755	736						
2008	1,229	707							
2009	959								
2010									
2011									
2012									
2013									
2014									
2015									
2016									
2017									
2018									

Accident Year	Paid Loss (\$000's Omitted)								
	120	132	144	156	168	180	192	204	216
1991	4,350	4,355	4,362	4,375	4,385	4,451	4,478	4,480	4,482
1992	4,743	4,745	4,773	4,792	4,792	4,792	4,792	4,829	
1993	4,593	4,595	4,612	4,612	4,612	4,612	4,612	4,612	
1994	6,715	6,774	6,801	6,820	6,889	6,901	6,902	6,921	6,932
1995	6,595	6,672	6,739	6,791	6,826	6,860	6,898	6,936	6,967
1996	6,849	6,894	7,065	7,167	7,187	7,208	7,220	7,229	7,313
1997	6,542	6,623	6,759	6,812	6,865	6,909	6,981	7,042	7,053
1998	9,664	9,734	9,816	9,925	9,943	9,983	10,007	10,086	10,276
1999	9,185	9,349	9,421	9,447	9,490	9,503	9,538	9,538	9,538
2000	12,387	12,678	12,817	12,901	13,058	13,135	13,204	13,297	13,312
2001	14,118	14,332	14,442	14,600	14,785	14,906	14,967	14,997	15,021
2002	13,708	13,577	13,682	13,646	13,835	13,916	14,004	14,084	
2003	11,994	12,068	12,161	12,255	12,337	12,386	12,422		
2004	15,519	15,830	16,059	16,292	16,432	16,739			
2005	11,842	12,053	12,089	12,121	12,155				
2006	10,582	10,763	10,855	11,189					
2007	12,754	12,789	12,850						
2008	14,036	14,314							
2009	12,435								
2010									
2011									
2012									
2013									
2014									
2015									
2016									
2017									
2018									

Accident Year	Adjusted Reported Loss (\$000's Omitted)								
	120	132	144	156	168	180	192	204	216
1991	4,613	4,557	4,558	4,634	4,485	4,653	4,600	4,513	4,517
1992	4,852	4,829	4,855	4,846	4,818	4,897	4,856	4,826	4,865
1993	4,764	4,726	4,612	4,668	4,612	4,612	4,612	4,612	4,612
1994	7,011	7,001	6,934	6,995	6,945	7,128	7,040	6,996	7,011
1995	6,903	6,955	7,015	7,034	6,943	7,333	7,184	7,091	7,090
1996	7,425	7,237	7,304	7,419	7,308	7,700	7,518	7,390	7,483
1997	6,941	6,929	7,008	7,140	7,023	7,548	7,368	7,210	7,230
1998	10,010	10,052	10,023	10,130	10,041	10,382	10,249	10,173	10,368
1999	9,761	9,625	9,636	9,731	9,558	9,779	9,622	9,583	9,586
2000	13,585	13,482	13,600	13,934	13,483	14,860	13,901	13,533	13,611
2001	15,052	14,989	15,024	15,291	15,006	15,953	15,329	15,193	15,228
2002	14,518	14,074	14,105	14,285	14,142	15,160	14,664	14,390	
2003	12,836	12,649	12,538	12,753	12,576	13,356	12,814		
2004	16,920	16,703	16,910	17,242	16,888	18,589			
2005	12,844	12,751	12,701	12,839	12,500				
2006	11,245	11,199	11,280	11,656					
2007	13,739	13,544	13,586						
2008	15,265	15,021							
2009	13,394								
2010									
2011									
2012									
2013									
2014									
2015									
2016									
2017									
2018									

Note: Based on data provided by the State Of Mississippi.

**STATE OF MISSISSIPPI**

SELF-INSURED WORKERS' COMPENSATION TRUST

BERQUIST-SHERMAN APPROACH

Adjusted Case Reserve (\$000's Omitted)

Accident Year	Valued as of (Months)									
	228	240	252	264	276	288	300	312	324	336
1991	0	0	0	0	0	0	0	0	0	0
1992	74	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0	0
1994	80	0	3	50	47	32	58			
1995	124	0	4	78	73	50				
1996	129	0	5	81	76					
1997	134	0	5	56						
1998	93	0	5							
1999	48	0								
2000	302									
2001										
2002										
2003										
2004										
2005										
2006										
2007										
2008										
2009										
2010										
2011										
2012										
2013										
2014										
2015										
2016										
2017										
2018										

Accident Year	Paid Loss (\$000's Omitted)									
	228	240	252	264	276	288	300	312	324	336
1991	4,536	4,536	4,536	4,536	4,536	4,536	4,536	4,536	4,536	4,536
1992	4,840	4,841	4,841	4,841	4,841	4,841	4,841	4,841	4,841	4,841
1993	4,612	4,612	4,612	4,612	4,612	4,612	4,612	4,612	4,612	4,612
1994	6,935	6,969	6,972	6,975	6,979	6,980	6,981			
1995	6,992	7,014	7,027	7,044	7,052	7,058				
1996	7,338	7,354	7,384	7,422	7,450					
1997	7,064	7,086	7,099	7,111						
1998	10,277	10,277	10,282							
1999	9,538	9,538								
2000	13,331									
2001										
2002										
2003										
2004										
2005										
2006										
2007										
2008										
2009										
2010										
2011										
2012										
2013										
2014										
2015										
2016										
2017										
2018										

Accident Year	Adjusted Reported Loss (\$000's Omitted)									
	228	240	252	264	276	288	300	312	324	336
1991	4,536	4,536	4,536	4,536	4,536	4,536	4,536	4,536	4,536	4,536
1992	4,914	4,841	4,841	4,841	4,841	4,841	4,841	4,841	4,841	4,841
1993	4,612	4,612	4,612	4,612	4,612	4,612	4,612	4,612	4,612	4,612
1994	7,015	6,969	6,975	7,025	7,026	7,012	7,039			
1995	7,116	7,014	7,031	7,122	7,125	7,108				
1996	7,467	7,354	7,389	7,503	7,526					
1997	7,198	7,086	7,104	7,167						
1998	10,370	10,277	10,287							
1999	9,586	9,538								
2000	13,633									
2001										
2002										
2003										
2004										
2005										
2006										
2007										
2008										
2009										
2010										
2011										
2012										
2013										
2014										
2015										
2016										
2017										
2018										

Note: Based on data provided by the State Of Mississippi.



MADISON CONSULTING GROUP, INC.

**STATE OF MISSISSIPPI**

SELF-INSURED WORKERS' COMPENSATION TRUST

BERQUIST-SHERMAN APPROACH

Adjusted Average Case Reserve Per Open Claim (using 4% trend)

Accident Year	Valued as of (Months)								
	12	24	36	48	60	72	84	96	108
1991									30,687
1992									
1993								45,679	31,914
1994									
1995							19,778	27,881	49,406
1996						21,424	20,569	28,996	51,382
1997					20,970	22,281	21,392	30,156	53,437
1998			15,751	21,809	23,172	22,248	31,362	55,574	38,829
1999		16,429	16,381	22,681	24,099	23,138	32,616	57,797	40,382
2000	4,250	17,086	17,036	23,588	25,063	24,063	33,921	60,109	41,997
2001	4,420	17,769	17,717	24,531	26,065	25,025	35,278	62,513	43,677
2002	4,597	18,480	18,426	25,512	27,108	26,026	36,689	65,013	45,424
2003	4,781	19,219	19,163	26,532	28,192	27,067	38,157	67,613	47,241
2004	4,972	19,988	19,930	27,593	29,320	28,150	39,683	70,318	49,131
2005	5,171	20,788	20,727	28,697	30,493	29,276	41,270	73,131	51,096
2006	5,378	21,620	21,556	29,845	31,713	30,447	42,921	76,056	53,140
2007	5,593	22,485	22,418	31,039	32,981	31,665	44,638	79,098	55,266
2008	5,817	23,384	23,315	32,281	34,300	32,932	46,423	82,262	57,477
2009	6,050	24,319	24,248	33,572	35,672	34,249	48,280	85,552	59,776
2010	6,292	25,292	25,218	34,915	37,099	35,619	50,211	88,974	62,167
2011	6,544	26,304	26,227	36,312	38,583	37,044	52,219	92,533	
2012	6,806	27,356	27,276	37,764	40,126	38,526	54,308		
2013	7,078	28,450	28,367	39,275	41,731	40,067			
2014	7,361	29,588	29,502	40,846	43,400				
2015	7,655	30,772	30,682	42,480					
2016	7,961	32,003	31,909						
2017	8,279	33,283							
2018		8,610							

Accident Year	Open Claims								
	12	24	36	48	60	72	84	96	108
1991									4
1992									
1993								3	2
1994									
1995							13	13	11
1996						19	16	10	13
1997					25	13	9	5	6
1998			72	45	30	24	14	7	7
1999		122	66	42	26	18	15	10	7
2000	808	142	75	54	37	28	21	18	19
2001	661	172	104	63	43	22	15	16	14
2002	631	177	84	60	36	21	15	11	11
2003	775	132	82	41	24	21	14	12	11
2004	793	158	87	52	35	31	24	24	19
2005	654	131	57	36	27	22	18	14	12
2006	601	94	53	34	27	27	18	15	9
2007	512	118	65	44	32	25	18	13	13
2008	578	117	73	55	34	26	24	18	14
2009	548	147	83	51	30	18	12	12	12
2010	528	166	90	56	31	25	14	12	12
2011	583	134	77	38	31	20	18	15	
2012	494	156	71	46	27	16	13		
2013	579	137	78	30	19	15			
2014	515	135	50	21	15				
2015	492	127	50	25					
2016	511	104	44						
2017	432	99							
2018		421							

Accident Year	Adjusted Case Reserve (\$000's Omitted)								
	12	24	36	48	60	72	84	96	108
1991									123
1992									
1993								137	64
1994								268	333
1995								257	362
1996								290	668
1997								278	323
1998			1,134	981	695	534	439	389	272
1999		2,004	1,081	953	627	416	489	578	283
2000	3,434	2,426	1,278	1,274	927	674	712	1,082	798
2001	2,922	3,056	1,843	1,545	1,121	551	529	1,000	611
2002	2,901	3,271	1,548	1,531	976	547	550	715	500
2003	3,705	2,537	1,571	1,088	677	568	534	811	520
2004	3,943	3,158	1,734	1,435	1,026	873	952	1,688	933
2005	3,382	2,723	1,181	1,033	823	644	743	1,024	613
2006	3,232	2,032	1,142	1,015	856	822	773	1,141	478
2007	2,864	2,653	1,457	1,366	1,055	792	803	1,028	718
2008	3,362	2,736	1,702	1,775	1,166	856	1,114	1,481	805
2009	3,315	3,575	2,013	1,712	1,070	616	579	1,027	717
2010	3,322	4,198	2,270	1,955	1,150	890	703	1,068	746
2011	3,815	3,525	2,019	1,380	1,196	741	940	1,388	
2012	3,362	4,268	1,937	1,737	1,083	616	706		
2013	4,098	3,898	2,213	1,178	793		601		
2014	3,791	3,994	1,475	858	651				
2015	3,766	3,908	1,534	1,062					
2016	4,068	3,328	1,404						
2017	3,577	3,295							
2018		3,625							

Note: Based on data provided by the State Of Mississippi.



MADISON CONSULTING GROUP, INC.

## STATE OF MISSISSIPPI

SELF-INSURED WORKERS' COMPENSATION TRUST

BERQUIST-SHERMAN APPROACH

Adjusted Average Case Reserve Per Open Claim (using 4% trend)

Accident Year	Valued as of (Months)								
	120	132	144	156	168	180	192	204	216
1991	52,599	40,328	39,295	51,862	24,904	101,006	61,212	33,128	34,962
1992	54,703	41,941	40,867	53,936	25,900	105,046	63,660	34,453	36,360
1993	56,891	43,619	42,502	56,093	26,936	109,248	66,206	35,831	37,814
1994	59,167	45,364	44,202	58,337	28,013	113,616	68,854	37,264	39,327
1995	61,534	47,179	45,970	60,670	29,134	118,163	71,608	38,755	40,900
1996	63,995	49,066	47,809	63,097	30,299	122,889	74,472	40,305	42,536
1997	66,555	51,029	49,721	65,621	31,511	127,805	77,451	41,917	44,237
1998	69,217	53,070	51,710	68,246	32,771	132,917	80,549	43,594	46,006
1999	71,986	55,193	53,778	70,976	34,082	138,234	83,771	45,338	47,846
2000	74,865	57,401	55,929	73,815	35,445	143,763	87,122	47,152	49,760
2001	77,860	59,697	58,166	76,766	36,863	149,513	90,607	49,038	51,750
2002	80,974	62,085	60,493	79,839	38,338	155,493	94,231	51,000	
2003	84,213	64,568	62,913	83,033	39,871	161,713	98,000		
2004	87,582	67,151	65,430	86,354	41,466	168,182			
2005	91,085	69,837	68,047	89,808	43,125				
2006	94,728	72,630	70,769	93,400					
2007	98,517	75,535	73,600						
2008	102,458	78,556							
2009	106,556								
2010									
2011									
2012									
2013									
2014									
2015									
2016									
2017									
2018									

Accident Year	Open Claims								
	120	132	144	156	168	180	192	204	216
1991	5	5	5	5	4	2	2	1	1
1992	2	2	2	1	1	1	1	1	1
1993	3	3	0	1	0	0	0	0	0
1994	5	5	3	3	2	2	2	2	2
1995	5	6	6	4	4	4	4	4	3
1996	9	7	5	4	4	4	4	4	4
1997	6	6	5	5	5	5	5	4	4
1998	5	6	4	3	3	3	3	2	2
1999	8	5	4	4	2	2	1	1	1
2000	16	14	14	14	12	12	8	5	6
2001	12	11	10	9	6	7	4	4	4
2002	10	8	7	8	8	8	7	6	
2003	10	9	6	6	6	6	4		
2004	16	13	13	11	11	11			
2005	11	10	9	8	8				
2006	7	6	6	5					
2007	10	10	10						
2008	12	9							
2009	9								
2010									
2011									
2012									
2013									
2014									
2015									
2016									
2017									
2018									

Accident Year	Adjusted Case Reserve (\$000's Omitted)								
	120	132	144	156	168	180	192	204	216
1991	263	202	196	259	100	202	122	33	35
1992	109	84	82	54	26	105	64	34	36
1993	171	131	0	56	0	0	0	0	0
1994	296	227	133	175	56	227	138	75	79
1995	308	283	276	243	117	473	286	155	123
1996	576	343	239	252	121	492	298	161	170
1997	399	306	249	328	158	639	387	168	177
1998	346	318	207	205	98	399	242	87	92
1999	576	276	215	284	68	276	84	45	48
2000	1,198	804	783	1,033	425	1,725	697	236	299
2001	934	657	582	691	221	1,047	362	196	207
2002	810	497	423	639	307	1,244	660	306	
2003	842	581	377	498	239	970	392		
2004	1,401	873	851	950	456	1,850			
2005	1,002	698	612	718	345				
2006	663	436	425	467					
2007	985	755	736						
2008	1,229	707							
2009	959								
2010									
2011									
2012									
2013									
2014									
2015									
2016									
2017									
2018									

## STATE OF MISSISSIPPI

SELF-INSURED WORKERS' COMPENSATION TRUST

BERQUIST-SHERMAN APPROACH

Adjusted Average Case Reserve Per Open Claim (using 4% trend)

Accident Year	Valued as of (Months)									
	228	240	252	264	276	288	300	312	324	336
1991	35,363	0	1,266	22,129	20,822	14,247	25,782	0	0	0
1992	36,778	0	1,317	23,014	21,655	14,817	26,813	0	0	0
1993	38,249	0	1,370	23,935	22,521	15,410	27,885	0	0	0
1994	39,779	0	1,425	24,892	23,422	16,026	29,000	0	0	0
1995	41,370	0	1,482	25,888	24,359	16,667	0	0	0	0
1996	43,025	0	1,541	26,923	25,333	0	0	0	0	0
1997	44,746	0	1,603	28,000	0	0	0	0	0	0
1998	46,536	0	1,667	0	0	0	0	0	0	0
1999	48,397	0	0	0	0	0	0	0	0	0
2000	50,333	0	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0	0	0
2002	0	0	0	0	0	0	0	0	0	0
2003	0	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	0
2016	0	0	0	0	0	0	0	0	0	0
2017	0	0	0	0	0	0	0	0	0	0
2018	0	0	0	0	0	0	0	0	0	0

Accident Year	Open Claims									
	228	240	252	264	276	288	300	312	324	336
1991	0	0	0	0	0	0	0	0	0	0
1992	2	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0	0
1994	2	2	2	2	2	2	2	2	2	2
1995	3	3	3	3	3	3	3	3	3	3
1996	3	3	3	3	3	3	3	3	3	3
1997	3	3	3	3	2	2	2	2	2	2
1998	2	3	3	3	3	3	3	3	3	3
1999	1	1	1	1	1	1	1	1	1	1
2000	6	6	6	6	6	6	6	6	6	6
2001	0	0	0	0	0	0	0	0	0	0
2002	0	0	0	0	0	0	0	0	0	0
2003	0	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	0
2016	0	0	0	0	0	0	0	0	0	0
2017	0	0	0	0	0	0	0	0	0	0
2018	0	0	0	0	0	0	0	0	0	0

Accident Year	Adjusted Case Reserve (\$000's Omitted)									
	228	240	252	264	276	288	300	312	324	336
1991	0	0	0	0	0	0	0	0	0	0
1992	74	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0	0
1994	80	0	3	50	47	32	58	0	0	0
1995	124	0	4	78	73	50	0	0	0	0
1996	129	0	5	81	76	0	0	0	0	0
1997	134	0	5	56	0	0	0	0	0	0
1998	93	0	5	0	0	0	0	0	0	0
1999	48	0	0	0	0	0	0	0	0	0
2000	302	0	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0	0	0
2002	0	0	0	0	0	0	0	0	0	0
2003	0	0	0	0	0	0	0	0	0	0
2004	0	0	0	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0	0	0	0
2006	0	0	0	0	0	0	0	0	0	0
2007	0	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	0
2016	0	0	0	0	0	0	0	0	0	0
2017	0	0	0	0	0	0	0	0	0	0
2018	0	0	0	0	0	0	0	0	0	0

Note: Based on data provided by the State Of Mississippi.



MADISON CONSULTING GROUP, INC.

# STATE OF MISSISSIPPI

## SELF-INSURED WORKERS' COMPENSATION TRUST

### RESERVE DEVELOPMENT APPROACH

#### DEVELOPMENT OF INDICATED ULTIMATE LOSSES AS OF JUNE 30, 2018

(\$000'S OMITTED)

Accident Period	Case Reserves (a)	Industry IBNR to Case Ratio (b)	Indicated IBNR (c)	Paid Loss (a)	Indicated Ultimate Loss (d)
(1)	(2)	(3)	(4)	(5)	(6)
7/08 - 6/09	\$ 959	0.257	\$ 246	\$ 12,435	\$ 13,640
7/09 - 6/10	746	0.265	198	14,995	15,939
7/10 - 6/11	1,388	0.222	308	12,733	14,429
7/11 - 6/12	706	0.231	163	10,581	11,450
7/12 - 6/13	601	0.266	160	10,638	11,399
7/13 - 6/14	651	0.332	216	9,445	10,312
7/14 - 6/15	1,062	0.365	388	9,590	11,040
7/15 - 6/16	1,404	0.407	571	8,614	10,589
7/16 - 6/17	3,295	0.563	1,855	7,921	13,071
7/17 - 6/18	3,625	0.892	3,234	3,555	10,414
Total	\$ 14,437		\$ 7,339	\$ 100,507	\$ 122,283

Notes: (a) Provided by the State of Mississippi. Losses are net of all recoveries.  
 (b) Derived from industry based loss patterns.  
 (c) [(2) x (3)]  
 (d) [(2) + (4) + (5)]

# STATE OF MISSISSIPPI

## SELF-INSURED WORKERS' COMPENSATION TRUST

### DEVELOPMENT OF PRESENT VALUE ADJUSTMENT FACTORS

5.0% RATE OF RETURN

Payment Year (1)	Payment Made in Period (2)	Remaining Payments at Beginning of the Period (3)	Present Value of Remaining Payments (4)	Reserve Discount Factor [(4)÷(3)] (5)
1	24.30	100.0000	86.0853	0.8609
2	28.92	75.7000	65.4895	0.8651
3	13.31	46.7800	39.1298	0.8365
4	8.32	33.4700	27.4476	0.8201
5	5.86	25.1500	20.2945	0.8069
6	4.47	19.2900	15.3045	0.7934
7	2.54	14.8200	11.4893	0.7753
8	1.73	12.2800	9.4610	0.7704
9	1.38	10.5500	8.1613	0.7736
10	1.34	9.1700	7.1553	0.7803
11	1.38	7.8300	6.1400	0.7842
12	0.88	6.4500	5.0329	0.7803
13	0.81	5.5700	4.3828	0.7869
14	0.82	4.7600	3.7719	0.7924
15	0.84	3.9400	3.1202	0.7919
16	0.47	3.1000	2.4155	0.7792
17	0.48	2.6300	2.0547	0.7813
18	0.29	2.1500	1.6656	0.7747
19	0.19	1.8600	1.4517	0.7805
20	0.19	1.6700	1.3296	0.7962
21	0.19	1.4800	1.2014	0.8118
22	0.20	1.2900	1.0668	0.8270
23	0.20	1.0900	0.9152	0.8396
24	0.20	0.8900	0.7560	0.8494
25	0.10	0.6900	0.5889	0.8535
26	0.10	0.5900	0.5159	0.8744
27	0.10	0.4900	0.4392	0.8963
28	0.10	0.3900	0.3587	0.9197
29	0.10	0.2900	0.2742	0.9455
30	0.19	0.1900	0.1854	0.9758

Note: Column (2) is based on payment pattern on Exhibit A-4.

# STATE OF MISSISSIPPI

## SELF-INSURED WORKERS' COMPENSATION TRUST

### DEVELOPMENT OF PRESENT VALUE ADJUSTMENT FACTORS

4.0% RATE OF RETURN

Payment Year (1)	Payment Made in Period (2)	Remaining Payments at Beginning of the Period (3)	Present Value of Remaining Payments (4)	Reserve Discount Factor [(4)÷(3)] (5)
1	24.30	100.0000	88.4327	0.8843
2	28.92	75.7000	67.1888	0.8876
3	13.31	46.7800	40.3836	0.8633
4	8.32	33.4700	28.4254	0.8493
5	5.86	25.1500	21.0776	0.8381
6	4.47	19.2900	15.9447	0.8266
7	2.54	14.8200	12.0240	0.8113
8	1.73	12.2800	9.9147	0.8074
9	1.38	10.5500	8.5470	0.8101
10	1.34	9.1700	7.4816	0.8159
11	1.38	7.8300	6.4143	0.8192
12	0.88	6.4500	5.2635	0.8160
13	0.81	5.5700	4.5766	0.8217
14	0.82	4.7600	3.9336	0.8264
15	0.84	3.9400	3.2547	0.8261
16	0.47	3.1000	2.5283	0.8156
17	0.48	2.6300	2.1501	0.8175
18	0.29	2.1500	1.7466	0.8124
19	0.19	1.8600	1.5207	0.8176
20	0.19	1.6700	1.3878	0.8310
21	0.19	1.4800	1.2495	0.8443
22	0.20	1.2900	1.1057	0.8571
23	0.20	1.0900	0.9460	0.8679
24	0.20	0.8900	0.7799	0.8763
25	0.10	0.6900	0.6071	0.8799
26	0.10	0.5900	0.5294	0.8973
27	0.10	0.4900	0.4486	0.9155
28	0.10	0.3900	0.3646	0.9349
29	0.10	0.2900	0.2772	0.9559
30	0.19	0.1900	0.1863	0.9805

Note: Column (2) is based on payment pattern on Exhibit A-4.

# STATE OF MISSISSIPPI

## SELF-INSURED WORKERS' COMPENSATION TRUST

### DEVELOPMENT OF ULTIMATE CLAIMS AS OF JUNE 30, 2018

Accident Period	Reported Claims (a)	Selected Development Factor (b)	Indicated Ultimate Claims (c)
(1)	(2)	(3)	(4)
7/90 - 6/91	1,866	1.000	1,866
7/91 - 6/92	2,047	1.000	2,047
7/92 - 6/93	2,241	1.000	2,241
7/93 - 6/94	2,543	1.000	2,543
7/94 - 6/95	2,555	1.000	2,555
7/95 - 6/96	2,524	1.000	2,524
7/96 - 6/97	2,526	1.000	2,526
7/97 - 6/98	2,823	1.000	2,823
7/98 - 6/99	2,698	1.000	2,698
7/99 - 6/00	2,888	1.000	2,888
7/00 - 6/01	3,124	1.000	3,124
7/01 - 6/02	2,960	1.000	2,960
7/02 - 6/03	2,715	1.000	2,715
7/03 - 6/04	2,860	1.000	2,860
7/04 - 6/05	2,505	1.000	2,505
7/05 - 6/06	2,406	1.000	2,406
7/06 - 6/07	2,328	1.000	2,328
7/07 - 6/08	2,151	1.000	2,151
7/08 - 6/09	2,133	1.000	2,133
7/09 - 6/10	2,007	1.000	2,007
7/10 - 6/11	1,931	1.000	1,931
7/11 - 6/12	1,882	1.000	1,882
7/12 - 6/13	1,697	1.000	1,697
7/13 - 6/14	1,492	1.000	1,492
7/14 - 6/15	1,492	1.000	1,492
7/15 - 6/16	1,433	1.001	1,434
7/16 - 6/17	1,425	1.004	1,431
7/17 - 6/18	1,245	1.041	1,296
Total	62,497		62,555

Notes: (a) Provided by the State of Mississippi.

(b) See Sheet 2 thru Sheet 4.

(c) [(2) x (3)]

## STATE OF MISSISSIPPI

### SELF-INSURED WORKERS' COMPENSATION TRUST

DEVELOPMENT OF ULTIMATE CLAIMS  
AS OF JUNE 30, 2018

#### Reported Claims

Accident Year	Valued as of (Months)									
	12	24	36	48	60	72	84	96	108	
1991	1,738	1,855	1,861	1,862	1,862	1,864	1,864	1,865	1,864	
1992	1,966	2,041	2,045	2,045	2,045	2,046	2,046	2,046	2,046	
1993	2,154	2,235	2,239	2,239	2,239	2,240	2,240	2,240	2,240	
1994	2,367	2,533	2,539	2,539	2,540	2,540	2,542	2,542	2,542	
1995	2,402	2,547	2,554	2,554	2,554	2,554	2,554	2,554	2,554	
1996	2,353	2,512	2,517	2,522	2,522	2,522	2,522	2,522	2,524	
1997	2,364	2,519	2,521	2,522	2,522	2,522	2,522	2,526	2,526	
1998	2,682	2,802	2,806	2,808	2,808	2,808	2,822	2,822	2,822	
1999	2,535	2,662	2,668	2,671	2,671	2,698	2,698	2,698	2,698	
2000	2,694	2,846	2,853	2,856	2,888	2,888	2,888	2,888	2,888	
2001	3,023	3,094	3,100	3,124	3,124	3,124	3,124	3,124	3,124	
2002	2,775	2,922	2,957	2,959	2,960	2,960	2,960	2,960	2,960	
2003	2,537	2,706	2,714	2,714	2,714	2,715	2,715	2,715	2,715	
2004	2,694	2,847	2,851	2,853	2,856	2,859	2,860	2,860	2,860	
2005	2,362	2,488	2,497	2,499	2,501	2,501	2,503	2,504	2,505	
2006	2,249	2,397	2,402	2,406	2,406	2,406	2,406	2,406	2,406	
2007	2,227	2,319	2,323	2,323	2,325	2,327	2,328	2,328	2,328	
2008	2,060	2,148	2,151	2,151	2,151	2,151	2,151	2,151	2,151	
2009	2,055	2,120	2,128	2,132	2,132	2,132	2,132	2,133	2,133	
2010	1,916	2,002	2,007	2,007	2,007	2,007	2,007	2,007	2,007	
2011	1,873	1,927	1,930	1,931	1,931	1,931	1,931	1,931	1,931	
2012	1,827	1,878	1,881	1,881	1,882	1,882	1,882			
2013	1,635	1,690	1,697	1,697	1,697	1,697				
2014	1,424	1,487	1,491	1,492	1,492					
2015	1,434	1,487	1,492	1,492						
2016	1,377	1,428	1,433							
2017	1,393	1,425								
2018		1,245								

Accident Year	Period to Period Factors									
	12	24	36	48	60	72	84	96	108	
1991	1.067	1.003	1.001	1.000	1.001	1.000	1.001	0.999	1.000	
1992	1.038	1.002	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
1993	1.038	1.002	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
1994	1.070	1.002	1.000	1.000	1.000	1.001	1.000	1.000	1.000	
1995	1.060	1.003	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
1996	1.068	1.002	1.002	1.000	1.000	1.000	1.000	1.001	1.000	
1997	1.066	1.001	1.000	1.000	1.000	1.000	1.002	1.000	1.000	
1998	1.045	1.001	1.001	1.000	1.000	1.005	1.000	1.000	1.000	
1999	1.050	1.002	1.001	1.000	1.010	1.000	1.000	1.000	1.000	
2000	1.056	1.002	1.001	1.011	1.000	1.000	1.000	1.000	1.000	
2001	1.023	1.002	1.008	1.000	1.000	1.000	1.000	1.000	1.000	
2002	1.053	1.012	1.001	1.000	1.000	1.000	1.000	1.000	1.000	
2003	1.067	1.003	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
2004	1.057	1.001	1.001	1.001	1.001	1.000	1.000	1.000	1.000	
2005	1.053	1.004	1.001	1.001	1.000	1.001	1.000	1.000	1.000	
2006	1.066	1.002	1.002	1.000	1.000	1.000	1.000	1.000	1.000	
2007	1.041	1.002	1.000	1.001	1.001	1.000	1.000	1.000	1.000	
2008	1.043	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
2009	1.032	1.004	1.002	1.000	1.000	1.000	1.000	1.000	1.000	
2010	1.045	1.002	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
2011	1.029	1.002	1.001	1.000	1.000	1.000	1.000			
2012	1.028	1.002	1.000	1.001	1.000	1.000				
2013	1.034	1.004	1.000	1.000	1.000					
2014	1.044	1.003	1.001	1.000						
2015	1.037	1.003	1.000							
2016	1.037	1.004								
2017	1.023									

Average Development Factors									
3/3	1.032	1.003	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5/5	1.035	1.003	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3/5	1.036	1.003	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3-\$	1.032	1.003	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5-\$	1.035	1.003	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Selected Cumulative	1.037	1.003	1.001	1.000	1.000	1.000	1.000	1.000	1.000
	1.041	1.004	1.001	1.000	1.000	1.000	1.000	1.000	1.000

Note: Based on data provided by the State Of Mississippi. Excludes 'Reporting Purposes Only' claims and 'Incident Only' claims.



MADISON CONSULTING GROUP, INC.

## STATE OF MISSISSIPPI

### SELF-INSURED WORKERS' COMPENSATION TRUST

DEVELOPMENT OF ULTIMATE CLAIMS  
AS OF JUNE 30, 2018

#### Reported Claims

Accident Year	Valued as of (Months)								
	120	132	144	156	168	180	192	204	216
1991	1,864	1,864	1,864	1,864	1,866	1,866	1,866	1,866	1,866
1992	2,046	2,046	2,046	2,047	2,047	2,047	2,047	2,047	2,047
1993	2,240	2,240	2,241	2,241	2,241	2,241	2,241	2,241	2,241
1994	2,542	2,543	2,543	2,543	2,543	2,543	2,543	2,543	2,543
1995	2,555	2,555	2,555	2,555	2,555	2,555	2,555	2,555	2,555
1996	2,524	2,524	2,524	2,524	2,524	2,524	2,524	2,524	2,524
1997	2,526	2,526	2,526	2,526	2,526	2,526	2,526	2,526	2,526
1998	2,822	2,822	2,822	2,822	2,822	2,823	2,823	2,823	2,823
1999	2,698	2,698	2,698	2,698	2,698	2,698	2,698	2,698	2,698
2000	2,888	2,888	2,888	2,888	2,888	2,888	2,888	2,888	2,888
2001	3,124	3,124	3,124	3,124	3,124	3,124	3,124	3,124	3,124
2002	2,960	2,960	2,960	2,959	2,960	2,960	2,960	2,960	2,960
2003	2,715	2,715	2,715	2,715	2,715	2,715	2,715	2,715	2,715
2004	2,860	2,860	2,860	2,860	2,860	2,860	2,860	2,860	2,860
2005	2,505	2,505	2,505	2,505	2,505	2,505	2,505	2,505	2,505
2006	2,406	2,406	2,406	2,406	2,406	2,406	2,406	2,406	2,406
2007	2,328	2,328	2,328	2,328	2,328	2,328	2,328	2,328	2,328
2008	2,151	2,151	2,151	2,151	2,151	2,151	2,151	2,151	2,151
2009	2,133								
2010									
2011									
2012									
2013									
2014									
2015									
2016									
2017									
2018									

Accident Year	Period to Period Factors								
	120	132	144	156	168	180	192	204	216
1991	1,000	1,000	1,000	1,001	1,000	1,000	1,000	1,000	1,000
1992	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
1993	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
1994	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
1995	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
1996	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
1997	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
1998	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
1999	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
2000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
2001	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
2002	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
2003	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
2004	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
2005	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
2006	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
2007	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
2008	1,000								
2009									
2010									
2011									
2012									
2013									
2014									
2015									
2016									
2017									

Average Development Factors									
3/3	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
5/5	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
3/5	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
3-\$	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
5-\$	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Selected Cumulative	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000

Note: Based on data provided by the State Of Mississippi. Excludes 'Reporting Purposes Only' claims and 'Incident Only' claims.

## STATE OF MISSISSIPPI

### SELF-INSURED WORKERS' COMPENSATION TRUST

#### DEVELOPMENT OF ULTIMATE CLAIMS AS OF JUNE 30, 2018

Accident Year	Reported Claims									
	Valued as of (Months)									
	228	240	252	264	276	288	300	312	324	336
1991	1,866	1,866	1,866	1,866	1,866	1,866	1,866	1,866	1,866	1,866
1992	2,047	2,047	2,047	2,047	2,047	2,047	2,047	2,047	2,047	2,047
1993	2,241	2,241	2,241	2,241	2,241	2,241	2,241	2,241	2,241	2,241
1994	2,543	2,543	2,543	2,543	2,543	2,543	2,543	2,543	2,543	2,543
1995	2,555	2,555	2,555	2,555	2,555	2,555	2,555	2,555	2,555	2,555
1996	2,524	2,524	2,524	2,524	2,524	2,524				
1997	2,526	2,526	2,526	2,526						
1998	2,823	2,823	2,823							
1999	2,698	2,698								
2000	2,888									
2001										
2002										
2003										
2004										
2005										
2006										
2007										
2008										
2009										
2010										
2011										
2012										
2013										
2014										
2015										
2016										
2017										
2018										
Accident Year	Period to Period Factors									
	228	240	252	264	276	288	300	312	324	336
1991	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1992	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1993	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1994	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1995	1.000	1.000	1.000	1.000	1.000	1.000				
1996	1.000	1.000	1.000	1.000						
1997	1.000	1.000	1.000							
1998	1.000	1.000								
1999	1.000									
2000										
2001										
2002										
2003										
2004										
2005										
2006										
2007										
2008										
2009										
2010										
2011										
2012										
2013										
2014										
2015										
2016										
2017										
	Average Development Factors									
	3/3	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5/5	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3/5	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3-\$	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5-\$	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Selected Cumulative	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Note: Based on data provided by the State Of Mississippi. Excludes 'Reporting Purposes Only' claims and 'Incident Only' claims.

**STATE OF MISSISSIPPI**

SELF-INSURED WORKERS' COMPENSATION TRUST

AVERAGE CASE RESERVE PER OPEN CLAIM

Accident Year	Open Claims								
	Valued as of (Months)								
	12	24	36	48	60	72	84	96	108
1991									4
1992									2
1993								3	5
1994								7	9
1995							13	13	11
1996					19	16	10	13	9
1997				25	16	13	9	5	6
1998			72	45	30	24	14	7	7
1999		122	66	42	26	18	15	10	7
2000	808	142	75	54	37	28	21	18	19
2001	661	172	104	63	43	22	15	16	14
2002	631	177	84	60	36	21	15	11	11
2003	775	132	82	41	24	21	14	12	11
2004	793	158	87	52	35	31	24	24	19
2005	654	131	57	36	27	22	18	14	12
2006	601	94	53	34	27	27	18	15	9
2007	512	118	65	44	32	25	18	13	13
2008	578	117	73	55	34	26	24	18	14
2009	548	147	83	51	30	18	12	12	12
2010	528	166	90	56	31	25	14	12	12
2011	583	134	77	38	31	20	18	15	
2012	494	156	71	46	27	16	13		
2013	579	137	78	30	19	15			
2014	515	135	50	21	15				
2015	492	127	50	25					
2016	511	104	44						
2017	432	99							
2018	421								
Accident Year	Case Reserves (\$000's)								
	12	24	36	48	60	72	84	96	108
1991									114
1992									49
1993								52	
1994							356	260	233
1995						760	965	615	384
1996					900	707	450	377	69
1997				725	603	561	302	234	243
1998		2,176	1,454	1,158	660	359	150	178	
1999	2,862	1,766	1,382	774	470	488	339	285	
2000	4,911	2,744	2,275	1,752	1,049	1,166	691	690	831
2001	5,857	3,283	2,544	1,884	1,328	797	624	679	706
2002	3,801	2,737	1,727	2,075	1,357	1,063	983	580	697
2003	3,245	2,362	2,555	1,785	1,185	825	505	1,211	1,165
2004	4,096	3,548	2,890	2,181	2,308	2,033	3,264	3,800	3,364
2005	5,057	2,778	1,831	1,431	1,277	1,077	1,606	1,293	1,068
2006	4,582	2,307	2,225	2,177	1,904	1,768	1,218	988	754
2007	4,837	3,580	3,370	2,571	2,348	1,633	1,012	1,006	952
2008	5,510	5,384	4,170	2,559	2,491	1,870	1,651	1,451	1,240
2009	6,258	4,695	3,574	2,837	1,583	1,358	1,149	1,136	1,158
2010	5,613	6,631	5,023	3,338	2,195	1,577	1,023	799	746
2011	6,294	5,008	3,492	2,043	1,726	1,820	1,446	1,388	
2012	5,753	4,303	2,473	1,941	1,240	968	706		
2013	6,109	4,047	2,534	1,425	903	601			
2014	3,869	3,049	1,778	1,031	651				
2015	4,381	3,276	1,751	1,062					
2016	4,765	2,321	1,404						
2017	4,241	3,295							
2018	3,625								
Accident Year	Case Reserves Per Open Claim								
	12	24	36	48	60	72	84	96	108
1991									28,500
1992									17,333
1993							35,600	37,143	46,600
1994						58,462	74,231	47,308	34,909
1995					47,369	44,188	45,000	29,000	7,667
1996				29,000	37,688	43,154	33,556	46,800	40,500
1997		30,222	32,311	38,600	27,500	25,643	21,429	25,429	
1998	23,459	26,758	32,905	29,769	26,111	32,533	33,900	40,714	
1999	6,078	19,324	30,333	32,444	28,351	41,643	32,905	38,333	43,737
2000	8,861	19,087	24,462	29,905	30,884	36,227	41,600	42,438	50,429
2001	6,024	15,463	20,560	34,583	37,694	50,619	65,533	52,727	63,364
2002	4,187	17,894	31,159	43,537	49,375	39,286	36,071	100,917	105,909
2003	5,165	22,456	33,218	41,942	65,943	65,581	136,000	158,333	177,053
2004	7,732	21,204	32,123	39,750	47,296	48,955	89,222	92,357	89,000
2005	7,624	24,543	41,981	64,029	70,519	65,481	67,667	65,867	83,778
2006	9,447	30,339	51,846	58,432	73,375	65,320	56,222	77,385	73,231
2007	9,533	46,017	57,123	46,527	73,265	71,923	68,792	80,611	88,571
2008	11,420	31,939	43,060	55,627	52,767	75,444	95,750	94,667	96,500
2009	10,631	39,946	55,811	59,607	70,806	63,080	73,071	66,583	62,167
2010	10,796	37,373	45,351	53,763	55,677	91,000	80,333	92,533	
2011	11,646	27,583	34,831	42,196	45,926	60,500	54,308		
2012	10,551	29,540	32,487	47,500	47,526	40,067			
2013	7,513	22,585	35,560	49,095	43,400				
2014	8,904	25,795	35,020	42,480					
2015	9,325	22,317	31,909						
2016	9,817	33,283							
2017	8,610								

Note: Based on data provided by the State Of Mississippi.



**STATE OF MISSISSIPPI**

SELF-INSURED WORKERS' COMPENSATION TRUST

AVERAGE CASE RESERVE PER OPEN CLAIM

Accident Year	Open Claims								
	Valued as of (Months)								
	120	132	144	156	168	180	192	204	216
1991	5	5	5	5	4	2	2	1	1
1992	2	2	2	1	1	1	1	1	1
1993	3	3	0	1	0	0	0	0	0
1994	5	5	3	3	2	2	2	2	2
1995	5	6	6	4	4	4	4	4	3
1996	9	7	5	4	4	4	4	4	4
1997	6	6	5	5	5	5	5	4	4
1998	5	6	4	3	3	3	3	2	2
1999	8	5	4	4	2	2	1	1	1
2000	16	14	14	14	12	12	8	5	6
2001	12	11	10	9	6	7	4	4	4
2002	10	8	7	8	8	8	7	6	
2003	10	9	6	6	6	6	4		
2004	16	13	13	11	11	11			
2005	11	10	9	8	8				
2006	7	6	6	5					
2007	10	10	10						
2008	12	9							
2009	9								
2010									
2011									
2012									
2013									
2014									
2015									
2016									
2017									
2018									
Accident Year	Case Reserves (\$000's)								
	120	132	144	156	168	180	192	204	216
1991	210	203	197	280	225	149	123	64	62
1992	60	58	35	0	0	0	0	0	25
1993	60	58	0	0	0	0	0	0	0
1994	224	145	245	226	176	164	163	96	99
1995	293	340	329	163	168	225	187	200	139
1996	109	297	147	82	256	235	192	183	118
1997	256	185	185	236	287	243	171	105	95
1998	117	205	205	236	175	135	112	72	0
1999	363	247	330	182	70	57	0	0	0
2000	980	763	652	560	405	429	405	311	309
2001	696	900	646	480	287	208	93	164	207
2002	716	551	425	402	572	552	483	306	
2003	1,058	976	830	738	746	609	392		
2004	2,977	2,456	2,331	2,121	2,019	1,850			
2005	1,065	887	530	342	345				
2006	688	578	633	467					
2007	818	780	736						
2008	1,018	707							
2009	959								
2010									
2011									
2012									
2013									
2014									
2015									
2016									
2017									
2018									
Accident Year	Case Reserves Per Open Claim								
	120	132	144	156	168	180	192	204	216
1991	42,000	40,600	39,400	56,000	56,250	74,500	61,500	64,000	62,000
1992	30,000	29,000	17,500	0	0	0	0	0	25,000
1993	20,000	19,333	0	0	0	0	0	0	0
1994	44,800	29,000	81,667	75,333	88,000	82,000	81,500	48,000	49,500
1995	58,600	56,667	54,833	40,750	42,000	56,250	46,750	50,000	46,333
1996	12,111	42,429	29,400	20,500	64,000	58,750	48,000	45,750	29,500
1997	42,667	30,833	37,000	47,200	57,400	48,600	34,200	26,250	23,750
1998	23,400	34,167	51,250	78,667	58,333	45,000	37,333	36,000	0
1999	45,375	49,400	82,500	45,500	35,000	28,500	0	0	0
2000	61,250	54,500	46,571	40,000	33,750	35,750	50,625	62,200	51,500
2001	58,000	81,818	64,600	53,333	47,833	29,714	23,250	41,000	51,750
2002	71,600	68,875	60,714	50,250	71,500	69,000	69,000	51,000	
2003	105,800	108,444	138,333	123,000	124,333	101,500	98,000		
2004	186,063	188,923	179,308	192,818	183,545	168,182			
2005	96,818	88,700	58,889	42,750	43,125				
2006	98,286	96,333	105,500	93,400					
2007	81,800	78,000	73,600						
2008	84,833	78,556							
2009	106,556								
2010									
2011									
2012									
2013									
2014									
2015									
2016									
2017									
2018									

Note: Based on data provided by the State Of Mississippi.



MADISON CONSULTING GROUP, INC.

**STATE OF MISSISSIPPI**

SELF-INSURED WORKERS' COMPENSATION TRUST

AVERAGE CASE RESERVE PER OPEN CLAIM

Accident Year	Open Claims									
	228	240	252	264	276	288	300	312	324	336
1991	0	0	0	0	0	0	0	0	0	0
1992	2	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0	0
1994	2	2	2	2	2	2	2	2	2	2
1995	3	3	3	3	3	3	3	3	3	3
1996	3	3	3	3	3	3	3	3	3	3
1997	3	3	3	3	2					
1998	2	3	3							
1999	1	1								
2000	6									
2001										
2002										
2003										
2004										
2005										
2006										
2007										
2008										
2009										
2010										
2011										
2012										
2013										
2014										
2015										
2016										
2017										
2018										
Accident Year	Case Reserves (\$000's)									
	228	240	252	264	276	288	300	312	324	336
1991	0	0	0	0	0	0	0	0	0	0
1992	14	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0	0
1994	96	60	57	54	60	59	58			
1995	114	92	79	64	56	50				
1996	135	119	106	68	76					
1997	84	62	49	56						
1998	0	5	5							
1999	0	0								
2000	302									
2001										
2002										
2003										
2004										
2005										
2006										
2007										
2008										
2009										
2010										
2011										
2012										
2013										
2014										
2015										
2016										
2017										
2018										
Accident Year	Case Reserves Per Open Claim									
	228	240	252	264	276	288	300	312	324	336
1991	0	0	0	0	0	0	0	0	0	0
1992	7,000	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0	0
1994	48,000	30,000	28,500	27,000	30,000	29,500	29,000			
1995	38,000	30,667	26,333	21,333	18,667	16,667				
1996	45,000	39,667	35,333	22,667	25,333					
1997	28,000	20,667	16,333	28,000						
1998	0	1,667	1,667							
1999	0	0								
2000	50,333									
2001										
2002										
2003										
2004										
2005										
2006										
2007										
2008										
2009										
2010										
2011										
2012										
2013										
2014										
2015										
2016										
2017										
2018										

Note: Based on data provided by the State Of Mississippi.



MADISON CONSULTING GROUP, INC.

## STATE OF MISSISSIPPI

SELF-INSURED WORKERS' COMPENSATION TRUST

### RATIO OF OPEN CLAIMS TO REPORTED CLAIMS

Accident Year	Open Claims								
	12	24	36	48	60	72	84	96	108
1991									
1992									4
1993								3	2
1994							10	7	5
1995						13	13	13	11
1996				19	16	10	13	9	
1997			25	16	13	9	5	6	
1998		72	45	30	24	14	7	7	
1999	122	66	42	26	18	15	10	7	
2000	808	142	75	54	37	28	21	18	19
2001	661	172	104	63	43	22	15	16	14
2002	631	177	84	60	36	21	15	11	11
2003	775	132	82	41	24	21	14	12	11
2004	793	158	87	52	35	31	24	24	19
2005	654	131	57	36	27	22	18	14	12
2006	601	94	53	34	27	27	18	15	9
2007	512	118	65	44	32	25	18	13	13
2008	578	117	73	55	34	26	24	18	14
2009	548	147	83	51	30	18	12	12	12
2010	528	166	90	56	31	25	14	12	12
2011	583	134	77	38	31	20	18	15	
2012	494	156	71	46	27	16	13		
2013	579	137	78	30	19	15			
2014	515	135	50	21	15				
2015	492	127	50	25					
2016	511	104	44						
2017	432	99							
2018	421								
Accident Year	Reported Claims								
	12	24	36	48	60	72	84	96	108
1991									
1992								2,046	
1993							2,240	2,240	
1994						2,542	2,542	2,542	
1995					2,554	2,554	2,554	2,554	
1996				2,522	2,522	2,522	2,522	2,522	2,524
1997			2,522	2,522	2,522	2,522	2,526	2,526	
1998		2,806	2,808	2,808	2,808	2,822	2,822	2,822	
1999	2,662	2,668	2,671	2,671	2,698	2,698	2,698	2,698	
2000	2,694	2,846	2,853	2,856	2,888	2,888	2,888	2,888	
2001	3,023	3,094	3,100	3,124	3,124	3,124	3,124	3,124	
2002	2,775	2,922	2,957	2,959	2,960	2,960	2,960	2,960	
2003	2,537	2,706	2,714	2,714	2,714	2,715	2,715	2,715	
2004	2,694	2,847	2,851	2,853	2,856	2,859	2,860	2,860	
2005	2,362	2,488	2,497	2,499	2,501	2,501	2,503	2,504	2,505
2006	2,249	2,397	2,402	2,406	2,406	2,406	2,406	2,406	2,406
2007	2,227	2,319	2,323	2,323	2,325	2,327	2,326	2,328	2,328
2008	2,060	2,148	2,151	2,151	2,151	2,151	2,151	2,151	2,151
2009	2,055	2,120	2,128	2,132	2,132	2,132	2,132	2,133	2,133
2010	1,916	2,002	2,007	2,007	2,007	2,007	2,007	2,007	2,007
2011	1,873	1,927	1,930	1,931	1,931	1,931	1,931	1,931	
2012	1,827	1,878	1,881	1,881	1,882	1,882	1,882		
2013	1,635	1,690	1,697	1,697	1,697	1,697			
2014	1,424	1,487	1,491	1,492	1,492				
2015	1,434	1,487	1,492	1,492					
2016	1,377	1,428	1,433						
2017	1,393	1,425							
2018	1,245								
Accident Year	Ratio of Open Claims to Reported Claims								
	12	24	36	48	60	72	84	96	108
1991									
1992								0.002	
1993							0.001	0.001	
1994						0.004	0.003	0.002	
1995					0.008	0.005	0.005	0.004	
1996					0.010	0.006	0.004	0.005	0.004
1997				0.026	0.016	0.011	0.009	0.005	0.002
1998			0.046	0.025	0.016	0.010	0.007	0.006	0.003
1999	0.300	0.050	0.026	0.019	0.013	0.010	0.007	0.006	0.007
2000	0.219	0.056	0.034	0.020	0.014	0.007	0.005	0.005	0.004
2001	0.227	0.061	0.028	0.020	0.012	0.007	0.005	0.004	0.004
2002	0.305	0.049	0.030	0.015	0.009	0.008	0.005	0.004	0.004
2003	0.294	0.055	0.031	0.018	0.012	0.011	0.008	0.008	0.007
2004	0.277	0.053	0.023	0.014	0.011	0.009	0.007	0.006	0.005
2005	0.267	0.039	0.022	0.014	0.011	0.011	0.007	0.006	0.004
2006	0.230	0.051	0.028	0.019	0.014	0.011	0.008	0.006	0.006
2007	0.281	0.054	0.034	0.026	0.016	0.012	0.011	0.008	0.007
2008	0.267	0.069	0.039	0.024	0.014	0.008	0.006	0.006	0.006
2009	0.276	0.083	0.045	0.028	0.015	0.012	0.007	0.006	0.006
2010	0.311	0.070	0.040	0.020	0.016	0.010	0.009	0.008	
2011	0.270	0.083	0.038	0.024	0.014	0.009	0.007		
2012	0.354	0.081	0.046	0.018	0.011	0.009			
2013	0.362	0.091	0.034	0.014	0.010				
2014	0.343	0.085	0.034	0.017					
2015	0.371	0.073	0.031						
2016	0.310	0.069							
2017	0.338								

Note: Based on data provided by the State Of Mississippi.



MADISON CONSULTING GROUP, INC.

## STATE OF MISSISSIPPI

SELF-INSURED WORKERS' COMPENSATION TRUST

### RATIO OF OPEN CLAIMS TO REPORTED CLAIMS

#### Open Claims

Accident Year	Valued as of (Months)								
	120	132	144	156	168	180	192	204	216
1991	5	5	5	5	4	2	2	1	1
1992	2	2	2	1	1	1	1	1	1
1993	3	3	0	1	0	0	0	0	0
1994	5	5	3	3	2	2	2	2	2
1995	5	6	6	4	4	4	4	4	3
1996	9	7	5	4	4	4	4	4	4
1997	6	6	5	5	5	5	5	4	4
1998	5	6	4	3	3	3	3	2	2
1999	8	5	4	4	2	2	1	1	1
2000	16	14	14	14	12	12	8	5	6
2001	12	11	10	9	6	7	4	4	4
2002	10	8	7	8	8	8	7	6	
2003	10	9	6	6	6	6	4		
2004	16	13	13	11	11	11			
2005	11	10	9	8	8				
2006	7	6	6	5					
2007	10	10	10						
2008	12	9							
2009	9								
2010									
2011									
2012									
2013									
2014									
2015									
2016									
2017									
2018									

Accident Year	Reported Claims								
	120	132	144	156	168	180	192	204	216
1991	1,864	1,864	1,864	1,864	1,866	1,866	1,866	1,866	1,866
1992	2,046	2,046	2,046	2,047	2,047	2,047	2,047	2,047	2,047
1993	2,240	2,240	2,241	2,241	2,241	2,241	2,241	2,241	2,241
1994	2,542	2,543	2,543	2,543	2,543	2,543	2,543	2,543	2,543
1995	2,555	2,555	2,555	2,555	2,555	2,555	2,555	2,555	2,555
1996	2,524	2,524	2,524	2,524	2,524	2,524	2,524	2,524	2,524
1997	2,526	2,526	2,526	2,526	2,526	2,526	2,526	2,526	2,526
1998	2,822	2,822	2,822	2,822	2,822	2,823	2,823	2,823	2,823
1999	2,698	2,698	2,698	2,698	2,698	2,698	2,698	2,698	2,698
2000	2,888	2,888	2,888	2,888	2,888	2,888	2,888	2,888	2,888
2001	3,124	3,124	3,124	3,124	3,124	3,124	3,124	3,124	3,124
2002	2,960	2,960	2,960	2,959	2,960	2,960	2,960	2,960	
2003	2,715	2,715	2,715	2,715	2,715	2,715	2,715		
2004	2,860	2,860	2,860	2,860	2,860	2,860			
2005	2,505	2,505	2,505	2,505	2,505				
2006	2,406	2,406	2,406	2,406					
2007	2,328	2,328	2,328						
2008	2,151	2,151							
2009	2,133								
2010									
2011									
2012									
2013									
2014									
2015									
2016									
2017									
2018									

Accident Year	Ratio of Open Claims to Reported Claims								
	120	132	144	156	168	180	192	204	216
1991	0.003	0.003	0.003	0.003	0.002	0.001	0.001	0.001	0.001
1992	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000
1993	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1994	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
1995	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001
1996	0.004	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002
1997	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
1998	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
1999	0.003	0.002	0.001	0.001	0.001	0.001	0.000	0.000	0.000
2000	0.006	0.005	0.005	0.005	0.004	0.004	0.003	0.002	0.002
2001	0.004	0.004	0.003	0.003	0.002	0.002	0.001	0.001	0.001
2002	0.003	0.003	0.002	0.003	0.003	0.003	0.002	0.002	
2003	0.004	0.003	0.002	0.002	0.002	0.002	0.002	0.001	
2004	0.006	0.005	0.005	0.004	0.004	0.004			
2005	0.004	0.004	0.004	0.003	0.003				
2006	0.003	0.002	0.002	0.002					
2007	0.004	0.004	0.004						
2008	0.006	0.004							
2009	0.004								
2010									
2011									
2012									
2013									
2014									
2015									
2016									
2017									
2018									

Note: Based on data provided by the State Of Mississippi.



MADISON CONSULTING GROUP, INC.

## STATE OF MISSISSIPPI

SELF-INSURED WORKERS' COMPENSATION TRUST

### RATIO OF OPEN CLAIMS TO REPORTED CLAIMS

Accident Year	Open Claims									
	Valued as of (Months)									
	228	240	252	264	276	288	300	312	324	336
1991	0	0	0	0	0	0	0	0	0	0
1992	2	0	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0	0	0
1994	2	2	2	2	2	2	2	2	2	2
1995	3	3	3	3	3	3	3	3	3	3
1996	3	3	3	3	3	3	3	3	3	3
1997	3	3	3	3	2					
1998	2	3	3							
1999	1	1								
2000	6									
2001										
2002										
2003										
2004										
2005										
2006										
2007										
2008										
2009										
2010										
2011										
2012										
2013										
2014										
2015										
2016										
2017										
2018										
Accident Year	Reported Claims									
	228	240	252	264	276	288	300	312	324	336
1991	1,866	1,866	1,866	1,866	1,866	1,866	1,866	1,866	1,866	1,866
1992	2,047	2,047	2,047	2,047	2,047	2,047	2,047	2,047	2,047	2,047
1993	2,241	2,241	2,241	2,241	2,241	2,241	2,241	2,241	2,241	2,241
1994	2,543	2,543	2,543	2,543	2,543	2,543	2,543	2,543	2,543	2,543
1995	2,555	2,555	2,555	2,555	2,555	2,555	2,555	2,555	2,555	2,555
1996	2,524	2,524	2,524	2,524	2,524	2,524				
1997	2,526	2,526	2,526	2,526						
1998	2,823	2,823	2,823							
1999	2,698	2,698								
2000	2,888									
2001										
2002										
2003										
2004										
2005										
2006										
2007										
2008										
2009										
2010										
2011										
2012										
2013										
2014										
2015										
2016										
2017										
2018										
Accident Year	Ratio of Open Claims to Reported Claims									
	228	240	252	264	276	288	300	312	324	336
1991	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1992	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1993	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1994	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
1995	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
1996	0.001	0.001	0.001	0.001	0.001	0.001				
1997	0.001	0.001	0.001	0.001						
1998	0.001	0.001	0.001							
1999	0.000	0.000								
2000	0.002									
2001										
2002										
2003										
2004										
2005										
2006										
2007										
2008										
2009										
2010										
2011										
2012										
2013										
2014										
2015										
2016										
2017										
2018										

Note: Based on data provided by the State Of Mississippi.



MADISON CONSULTING GROUP, INC.

# STATE OF MISSISSIPPI

## SELF-INSURED WORKERS' COMPENSATION TRUST

### SPECIFICATIONS OF SIMULATION MODEL TO ESTIMATE THE VARIABILITY IN LOSS ESTIMATES

1. The average outstanding losses are lognormally distributed with an unlimited mean of \$60,000 and a coefficient of variation of 5.00.
2. The maximum value of a claim is limited to \$2,500,000 and includes loss and loss adjustment expenses.
3. The number of unpaid claims as of 6/30/18 are Poisson distributed with a mean of 803.

# STATE OF MISSISSIPPI

## SELF-INSURED WORKERS' COMPENSATION TRUST

### SUMMARY OF PRIMARY PER OCCURRENCE AND AGGREGATE SELF-INSURED RETENTIONS

Accident Period	Per Occurrence Program		Aggregate Self-Insured Retention
	Primary Self-Insured Retention	Limits of Indemnity	
(1)	(2)	(3)	(4)
7/90 - 6/91	\$350,000	\$10,000,000	Unlimited
7/91 - 6/92	\$350,000	\$10,000,000	Unlimited
7/92 - 6/93	\$350,000	\$10,000,000	Unlimited
7/93 - 6/94	\$350,000	\$10,000,000	Unlimited
7/94 - 6/95	\$350,000	\$10,000,000	Unlimited
7/95 - 6/96	\$350,000	Statutory	Unlimited
7/96 - 6/97	\$350,000	Statutory	Unlimited
7/97 - 6/98	\$350,000	Statutory	Unlimited
7/98 - 6/99	\$350,000	Statutory	Unlimited
7/99 - 6/00	\$350,000	Statutory	Unlimited
7/00 - 6/01	\$350,000	Statutory	Unlimited
7/01 - 6/02	\$500,000	Statutory	Unlimited
7/02 - 6/03	\$1,000,000	Statutory	Unlimited
7/03 - 6/04	\$1,000,000	Statutory	Unlimited
7/04 - 6/05	\$1,000,000	Statutory	Unlimited
7/05 - 6/06	\$1,000,000	Statutory	Unlimited
7/06 - 6/07	\$1,000,000	Statutory	Unlimited
7/07 - 6/08	\$1,000,000	Statutory	Unlimited
7/08 - 6/09	\$1,000,000	Statutory	Unlimited
7/09 - 6/10	\$1,000,000	Statutory	Unlimited
7/10 - 6/11	\$1,500,000	Statutory	Unlimited
7/11 - 6/12	\$1,500,000	Statutory	Unlimited
7/12 - 6/13	\$1,500,000	Statutory	Unlimited
7/13 - 6/14	\$1,500,000	Statutory	Unlimited
7/14 - 6/15	\$1,500,000	Statutory	Unlimited
7/15 - 6/16	\$2,000,000	Statutory	Unlimited
7/16 - 6/17	\$2,000,000	Statutory	Unlimited
7/17 - 6/18	\$2,500,000	Statutory	Unlimited
7/18 - 6/19	\$2,500,000	Statutory	Unlimited

Note: Provided by the State of Mississippi.

A \$500,000 corridor deductible applies in the excess layer  
for accident periods 7/05-6/06 through 7/09-6/10.