Taylor&Mulder
Property and Casualty Consulting Actuaries

MISSOURI PETROLEUM STORAGE TANK INSURANCE FUND

LOSS AND LOSS ADJUSTMENT EXPENSE RESERVE ANALYSIS AS OF JUNE 30, 2023

AUGUST 2023

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Property and Casualty Consulting Actuaries

August 17, 2023

Ms. Kelley J. Ogletree
Executive Director
Petroleum Storage Tank Insurance Fund
P.O. Box 836
Jefferson City, MO 65102

RE: ACTUARIAL ANALYSIS OF THE PETROLEUM STORAGE TANK INSURANCE FUND AS OF JUNE 30, 2023

Dear Ms. Ogletree:

Enclosed is the actuarial review of the loss and allocated loss adjustment expense reserves of the Missouri Petroleum Storage Tank Insurance Fund as of June 30, 2023.

The first section in the text of our report is the Executive Summary section. This section presents our Conclusions and Recommendations. It also describes the Purpose and Scope of our report, explains the Distribution and Use of our report, and provides the Conditions and Limitations underlying our work. This section of our report includes the Background section which provides information about the PSTIF program history.

The next section of the text of our report is the Actuarial Analysis section that describes the sources of data, our overall methodology, the selection of factors and specific methodologies and considerations by line of business. It also describes the selection of ultimate losses, and loss reserve discounting. The Exhibits section of our report follows the text of the report and includes all of our analyses.

Please feel free to call if you have any questions regarding any aspect of our report.

Sincerely,

Bobby J. Jaegers, ACAS, MAAA, CSPA, FCA

Daniel W. Lupton, FCAS, MAAA, CSPA, MBA

E. Toni Mulder, FCAS, MAAA, FCA

Enclosures

Missouri Petroleum Storage Tank Insurance Fund Loss and Loss Adjustment Expense Reserve Analysis as of June 30, 2023

Contents

Executive Summary

Purpose and Scope

Taylor & Mulder, Incorporated ("T&M") was requested by the Board of Trustees ("Board") of the Missouri Petroleum Storage Tank Insurance Fund ("PSTIF") to conduct an actuarial review of the PSTIF's loss and loss adjustment expenses reserves as of June 30, 2023. This report contains our summary, conclusions and recommendations along with a description of the analysis underlying our conclusions.

Specifically, T&M was asked by the Board to conduct an actuarial analysis to include within its scope the following tasks:

- A review and opinion on the adequacy of current claim reserves of PSTIF,

- A projection of PSTIF's future claim liabilities, including an estimate on future claim severity and frequency, separately for each claim type, and

- An analysis of PSTIF's large loss claims, including:

    o Information on the typical lag time between the time when a claim is opened and the time it is identified as a "large loss claim,"

    o The history of losses and reserving practices on "large loss claims," and

    o Information on how "large loss claims" are expected to impact the PSTIF's future finances.

- An estimation of the claims impact on PSTIF's financial position of the December 31, 2030 sunset provision in the enabling legislation.

This report presents the results of those analyses. This report was prepared by Daniel W. Lupton, FCAS, MAAA, CSPA, MBA, Vice President and Consulting Actuary, and E. Toni Mulder, FCAS, MAAA, FCA, President and Principal and Consulting Actuary.

In accordance with the requirements of the Actuarial Standards of Practice in making statements of actuarial opinion, we provide the following statements:

> *I, Daniel W. Lupton, am an Officer and Consulting Actuary in the firm of Taylor & Mulder, Inc. I am a Fellow of the Casualty Actuarial Society in good standing and qualified to issue a Statement of Actuarial Opinion. I am also a Member of the American Academy of Actuaries.*

Background

In the early 1980s, the federal government recognized that an underground storage tank ("UST") could present an environmental hazard. At the time, many underground petroleum tanks were fabricated of unprotected steel which was subject to corrosion and deterioration leading to contamination of the surrounding soil and, perhaps more importantly, nearby groundwater. By 1984, legislation was in place to permit the Environmental Protection Agency ("EPA") to set standards for tank design, installation, and protection to minimize the danger of future releases of petroleum or other hazardous chemicals stored underground. Over the years since, there have been additional EPA standards and regulations for tanks to further strengthen measures to protect the environment and groundwater. Included in these rules are requirements for tank owners/operators to have minimum levels of financial resources to deal with leaks and spills that might occur. In Missouri, this financial requirement is generally met by the purchase of commercial insurance, participation in PSTIF, or both.

Missouri responded to the federal actions and established the Underground Storage Tank Insurance Fund in 1989, which preceded the creation of the PSTIF, to assist owners/operators of underground storage tanks in meeting federal financial responsibility rules. In 1992, the PSTIF began offering contractual coverage to underground tank owners/operators to pay for the costs associated with petroleum leaks and spills in the state of Missouri. This coverage is provided on a claims-made basis.

The initial legislation enabling the PSTIF had a sunset date of December 31, 1998. Additional legislative actions have moved the date to 2003, 2010, 2020, 2025, and finally to the current

December 31, 2030 sunset date. Consequently, all projections performed by T&M in this report assume a December 31, 2030 sunset date. PSTIF will be responsible for the cost of claims reported to it as of December 31, 2030. Claims reported after that date will not be handled by PSTIF without further legislation extending the sunset date.

In 1995, the PSTIF's mandate was expanded to include cleanup of petroleum contamination from certain uninsured leaks and spills. Uninsured risks included operations that had been closed prior to December 31, 1997. Therefore, the PSTIF pays for remediation costs associated with uninsured aboveground and underground storage tanks that were taken out of use by December 31, 1997, even when the tanks were never covered by the PSTIF. In some cases, petroleum releases went undetected (for example, at old gas stations) for many years. When soil or water tests reveal petroleum contamination as a result of such disused sites and a party is identified who is willing to assume responsibility for directing remediation efforts, PSTIF will pay for the remediation associated with that leak or spill subject to certain criteria and after a deductible.

In 1996, PSTIF was opened to aboveground storage tank ("AST") owners/operators to voluntarily purchase protection. Then in 2008, the Missouri legislature mandated that AST owners/operators demonstrate financial responsibility for liability arising from any leak or spill beginning in 2011. This increased the number of ASTs covered by PSTIF.

Extended reporting endorsements permit the reporting of claims for a period of up to five (5) years after the tank is retired from service or sold. PSTIF began offering extended reporting endorsements for AST owners/operators taking tanks out of service in 2002. Beginning in 2004,

UST owners/operators have been able to buy an extended reporting endorsement. However, no extended reporting endorsements will cover claims reported after December 31, 2030, the sunset date in the most recent legislation.

In contrast to many such state funds, which often act more as government grant programs than risk shifting programs, the PSTIF requires tanks owners/operators to complete an application and be approved to receive a coverage document. The coverage document is either the Underground Storage Tank Participation Agreement or the Aboveground Storage Tank Pollution Liability Participation Agreement depending on the type of tank provided coverage. The application and approval process allows PSTIF to enforce compliance with ever-developing standards for tanks and the associated piping.

In the event that a release is discovered after the retroactive date of the PSTIF coverage (the date at which coverage initially attaches), PSTIF will pay for the first $1,000,000 of the costs per event, subject to a $2,000,000 annual aggregate. Each event carries a $10,000 deductible.

For purposes of this report, PSTIF storage tank claims are categorized into the following groups:

- Insurance UST – Release: Underground storage tank petroleum releases from contractually covered tanks;

- Insurance UST – Closure: Underground storage tank petroleum releases from contractually covered tanks that were discovered when the tank was being removed from an contractually covered site;

- Insurance UST – Other: Underground storage tank petroleum releases from contractually covered tanks that do not fit into either of the above categories;

- Remedial UST: Cleanup costs associated with remediation of uninsured underground storage tank sites that were taken out of use prior to the deadline set by the Missouri Legislature;

- Insurance AST: Aboveground storage tank petroleum spills from contractually covered tanks, and

- Remedial AST: Cleanup costs associated with remediation of uninsured aboveground storage tank sites that were taken out of use prior to the deadline set by the Missouri Legislature.

Terms Defined

ALAE   Allocated Loss Adjustment Expense ("ALAE") is the amount of money spent on a particular claim to the benefit of an insured, the amount that can be allocated to a single claim. These expenses include the attorneys' fees, expert witnesses, collection and protection of material germane to the claim, etc. For the PSTIF, ALAE does not include contracted fund administration expenses.

Claims-Made   Claims-made coverage is a type of insurance coverage that provides protection for the participant on claims reported during the coverage period given that the incident giving rise to the claim occurred on or after the Retroactive Date ("retro date"). The retro date is usually the date the first claims-made coverage was

issued to the participant. Coverage provided by PSTIF attaches on a claims-made basis.

Claims-made coverage may be contrasted to occurrence coverage, which responds to claims brought against the insured given that the incident giving rise to the claim occurred during the coverage period. Both private passenger automobile and homeowners' policies are written on an occurrence basis.

Claim Frequency Claim frequency is the average number of claims per contractually covered exposure. For PSTIF, an contractually covered exposure is one tank contractually covered for one year. For example, if 250 claims are reported in a year with 10,000 contractually covered tanks, the claim frequency (average number of claims per contractually covered exposure) is 250 / 10,000 covered tanks = 0.025 claim per tank.

IBNR Incurred But Not Reported ("IBNR"), strictly speaking, is a reserve derived by actuaries for claims not as yet reported to the insurer for which premium has been earned and for which the insurer is responsible. Under this narrow definition of IBNR, claims-made coverages would not have IBNR as all claims are known at the end of the coverage period (or soon thereafter). However, the term IBNR for claims-made coverage is used in a broad sense and includes changes in incurred amounts (i.e., paid plus case reserves) for known claims.

Claim estimates done by a claim department or fund administrator must rely on information about the claim at a point in time. The available information may be lacking in important details that will greatly impact the ultimate cost of the claim. Actuaries review the data from the aggregated claims data by year as it changes over time, from the first report of the claim to settlement. From these reviews, the actuary can calculate factors to apply to current case data to estimate the ultimate costs of a body of claims. The difference between estimated ultimate values and current case incurred is IBNR.

Because coverage provided by the PSTIF is claims-made rather than occurrence, all references to IBNR in this report will typically refer exclusively to development on known claims unless otherwise noted.

LAE   Loss Adjustment Expense ("LAE") is the sum of Allocated Loss Adjustment Expense ("ALAE") and Unallocated Loss Adjustment Expenses ("ULAE") and represents the total costs of handling and defending claims.

LDF   A Loss Development Factor ("LDF") is calculated by an actuary from historical claim data and applied to current paid or incurred values to estimate ultimate claim costs for an insurer.

Pure Premium   Pure Premium is the average cost of insurance per covered exposure. For PSTIF, a covered exposure is one tank contractually covered for one year. An

example might help clarify the concept. If two tanks are covered and one has a claim for $100, then the pure premium (average loss per covered exposure) is $100 / 2 covered tanks = $50

Severity   Severity is the average size of claim for a given collection of claims. For instance, if the total cost for three claims is $45,000, the claim severity (average size of claim) is $45,000 / 3 claims = $15,000 severity.

ULAE   Unallocated Loss Adjustment Expense ("ULAE") represents the expenses. For the Fund, ULAE represents costs associated with fund administration.

Conclusions

Loss and Allocated Loss Adjustment Expense Reserve Adequacy

T&M analyzed loss and loss adjustment expense reserves for the six broad categories of claims enumerated above. The following table shows the results of our analysis for these categories:

Claim Type	Case Outstanding	IBNR	Unpaid ALAE	Unpaid Loss & ALAE
Missouri Petroleum Storage Tank Insurance Fund **Undiscounted Unpaid Loss & ALAE as of June 30, 2023**				
Insurance UST - Release	7,697,692	5,390,726	78,020	13,166,438
Insurance UST - Closure	10,775,789	7,674,339	109,980	18,560,108
Insurance UST - Other	5,798,851	5,557,771	67,696	11,424,318
Remedial UST	16,279,718	3,002,530	114,941	19,397,188
Insurance AST	14,135,152	10,236,537	145,279	24,516,969
Remedial AST	2,164,094	248,779	14,383	2,427,256
Total	**56,851,296**	**32,110,683**	**530,299**	**89,492,278**

Projected investment income for this report was 1.5%, based on historical investment yields earned by the State. Investment income amounts to approximately 8.8% of undiscounted losses. Improvements in investment yield will increase this amount.

The following table shows the results of our analysis taking into account the effect of investment income:

Claim Type	Undiscounted Unpaid Loss & ALAE	Discount	Discounted Unpaid Loss & ALAE
Missouri Petroleum Storage Tank Insurance Fund **Discounted Unpaid Loss & ALAE as of June 30, 2023**			
Insurance UST – Release	13,166,438	1,138,278	12,028,160
Insurance UST – Closure	18,560,108	1,489,340	17,070,768
Insurance UST – Other	11,424,318	986,010	10,438,308
Remedial UST	19,397,188	1,778,428	17,618,761
Insurance AST	24,516,969	2,225,111	22,291,858
Remedial AST	2,427,256	227,016	2,200,240
Total	**89,492,278**	**7,844,183**	**81,648,095**

Although Remedial UST claims made up the largest category of case reserves, contractually covered events (particularly those of type "Insurance UST – Other", "Insurance UST – Closure", and "Insurance AST") carry most of the IBNR. In the future, as remedial claims are closed and future remedial claims decrease in number (proportional to the decreasing number of remedial sites), we expect Remedial UST to continue to decrease as a portion of unpaid loss and LAE compared to other claim types.

As of June 30, 2023, the PSTIF held $88,791,485 in reserves for claims payable. This is $700,793 deficient when compared with the undiscounted unpaid loss and ALAE, and $7,143,390 redundant when compared with the discounted unpaid loss and ALAE.

Note that the reserves in the above table do not include a provision for claims not yet reported to the PSTIF as of June 30, 2023.

Unallocated Loss Adjustment Expense Reserve

If PSTIF were a commercial insurance company, statutory insurance accounting rules would require that all estimated future costs for claims administration for open claims be held as reserves. T&M has estimated those additional costs for Williams & Company Consulting, Inc. ("Williams"), the PSTIF fund administrator, to handle all open claims until final settlement at $16,424,823 on an undiscounted basis and $14,985,153 on a discounted basis. This amount is not included in the tables above. This amount reflects the extended time horizon over which

PSTIF claims are paid. The following chart shows the total liability including unallocated loss adjustment expense:

Missouri Petroleum Storage Tank Insurance Fund Discounted Unpaid Loss & LAE as of June 30, 2023			
	Undiscounted Reserve	Discount	Discounted Reserve
Loss & Allocated Loss Adjustment Expense	89,492,278	7,844,183	81,648,095
Unallocated Loss Adjustment Expense	16,424,823	1,439,670	14,985,153
Total	105,917,100	9,283,852	96,633,248

Loss and Loss Adjustment Expense Reserves (Including Unallocated) Needed at Sunset Date

If the sunset date of the PSTIF is not changed by the legislature, the ability for filing new claims will sunset on December 31, 2030. In order to estimate the reserve position of PSTIF as of December 31, 2030, T&M made several assumptions. The first assumption was that there would not be any increase in the rate at which releases are reported as the sunset date approaches, see Exhibits E-16 and E-20.

T&M also assumed that the releases reported from June 30, 2023 through December 31, 2030 will have the same average frequency and severity as the historical data, adjusted for trends in the data. Payment patterns by type of release were applied to the data to produce the needed reserves. The following table summarizes the anticipated reserve required to run off all claims reported as of the anticipated fund sunset date:

Missouri Petroleum Storage Tank Insurance Fund
Unpaid Loss & LAE on December 31, 2030
Assuming No Increase in the Rate of Reported Releases
Reserve Study as of June 30, 2023

	Undiscounted	Discounted
Unpaid Claim Expense	77,446,714	70,658,350
Unpaid Allocated Loss Adjustment Expense	461,657	421,192
Unpaid Unallocated Loss Adjustment Expense	14,298,789	13,045,471
Total	92,207,159	84,125,012

As discussed above, these unpaid claim amounts do not take into account the possibility of increased claim reporting in the period leading up to the fund sunset, nor do the above reserves include amounts required for overhead expenses such as salaries of fund personnel or the PSTIF Board's annual contributions to support the Department of Natural Resources' regulatory program. Discounted losses are calculated using an investment yield of 1.5% which is consistent with historical financial documents prepared by PSTIF.

Reserving Practices

Claims handling and underwriting is provided by Williams under a contract with the PSTIF. Much of the Williams' staff has a technical background in engineering or geology and significant experience in handling claims for the PSTIF.

Williams' claim philosophy entails providing a swift response to reports of covered releases in order to minimize further contamination and the associated increased liability. A swift response also enables the claim department to secure pertinent physical evidence (such as damaged piping, valves, etc.) before it is discarded. Discussions during the preparation of this report

indicate that the claims philosophy has not changed, although there has been a concerted effort to decrease the time between the receipt of a claim and its closure.

Claims handling is somewhat different than that of an insurance company in that the PSTIF was created to protect the environment and the citizens of Missouri from the impact of petroleum releases. Therefore, the claims handling effort is focused on reasonable and necessary costs for effective response to reach the cleanup standards required by the MoDNR. The number of PSTIF lawsuits appears relatively modest when compared to commercial general liability insurers. Those claims involving lawsuits have defense counsel assigned as would be expected.

Claims are handled by having the contractor or the consultant hired by the owner/operator submit a proposed work plan and estimated costs to the PSTIF. The planned costs may be challenged by the claims adjustor and proposed costs must be deemed "reasonable" to be approved. Once the project is started, invoices are submitted to the PSTIF for reimbursement.

Remedial claims present a unique situation that would not be encountered in a commercial insurance company. Often the site has been abandoned completely or converted to a different use. Remedial claims generally move forward only when a party is willing to step forward and participate in the remediation process, which usually includes paying the first $10,000 of cleanup costs.

Adjustors are also charged with establishing appropriate case reserves for the PSTIF. In insurance companies, aggregate incurred values (paid plus case reserves) tend to increase over time as more information regarding claims becomes known. Overall, PSTIF incurred values produce low loss development factors, which indicates that the case incurred values are a reasonable indicator of the ultimate cost of PSTIF claims, particularly for the UST Closure and UST Remedial claims.

When the proposed work plan for the release site has been completed and all monitoring results are within required limits, the claimant's environmental consultant informs the Missouri DNR that the impact of the release meets the DNR's remediation standards. Once the DNR concurs with the consultant's conclusions, they will then issue a "No Further Action" ("NFA") letter. Some activities must be completed after an NFA is issued, and once all costs have been submitted and reimbursed, the claim is closed. Claims not actively being managed by the owner/operator (i.e., cleanup activities have been abandoned or monitoring is not in place) are placed in suspense. Essentially, this means that the claim is not progressing toward the issuance of an NFA letter by the Missouri DNR. These stalled claims are removed from the suspense list and handled in a normal manner if someone again takes an interest in completing the cleanup at a future date.

Underwriting

Williams also provides underwriting services as part of its fund administration function. An application for coverage with the PSTIF must be filled out by the tank owner/operator along with a method of securing payment of the $10,000 deductible. In addition, the tank

owners/operators must demonstrate that the tanks and associated piping under their control are not currently leaking and are in compliance with state regulations.

Coverage attaches on a claims-made basis which means that claims must be reported during the coverage period in order to be covered. Remedial claims are covered as reported without the requirement that coverage was in effect at the time of the release.

Data required on the application for participation in PSTIF for UST installations include such items as the installation date, the tank capacity, the type of product contained, type of tank (e.g., single walled, double walled, fiberglass, etc.), type of piping, and details on overfill and leak protection. The PSTIF application for AST's requires similar documentation requirements along with information on the secondary containment system in place.

Applications for coverage with the PSTIF are reviewed by Williams' personnel and deficiencies are noted. Coverage documents are only issued if the application information is found to be satisfactory.

Projection of Future Loss and Loss Adjustment Expense, Claim Severity, and Frequency
T&M was asked to estimate costs for claims to be reported in 2023 and subsequent years, i.e., claims that have not yet been reported to PSTIF. To perform this projection, T&M applied several methodologies to estimate future loss and loss adjustment expenses based on claim frequency and claim severity for each claim category. For purposes of our initial projection of reserves needed as of December 31, 2030, we assumed that claims reporting would proceed as

normal with no increase in reporting due to the impending sunset date. In addition, T&M created scenarios that might represent an expected influx of claims should the program not have its termination date extended.

Projection of Frequency and Severity

As part of projecting the financial condition of the PSTIF through December 31, 2030, we estimated (1) future claim severity and (2) future claims reporting for each claim category.

Analysis of coverage in-force indicates a modest negative trend in the number of UST and AST tanks with in-force coverage. In the case of UST coverage, we have projected modest declines in the future based on this recent trend. In the case of in-force AST coverage, the PSTIF previously provided a likely maximum penetration of 80% to 85% of ASTs. The number of AST policies in force have been decreasing since 2014 and we expect the number of AST policies to continue to decrease by roughly 1.2% per year.

The current analysis of average claim severities this year suggests that Insurance UST – Release, Insurance UST – Other, and Insurance AST claims will increase over time, while Insurance UST – Closure and remedial claims of all types will tend to stay at about the same average severity level over time.

The following four charts show claim severities over time. The first chart displays the Insurance UST claim severities over time from Report Year 2013 to Report Year 2031:

UST Insurance Severities by Report Year

Legend: Insurance UST - Release, Insurance UST - Closure, Insurance UST - Other
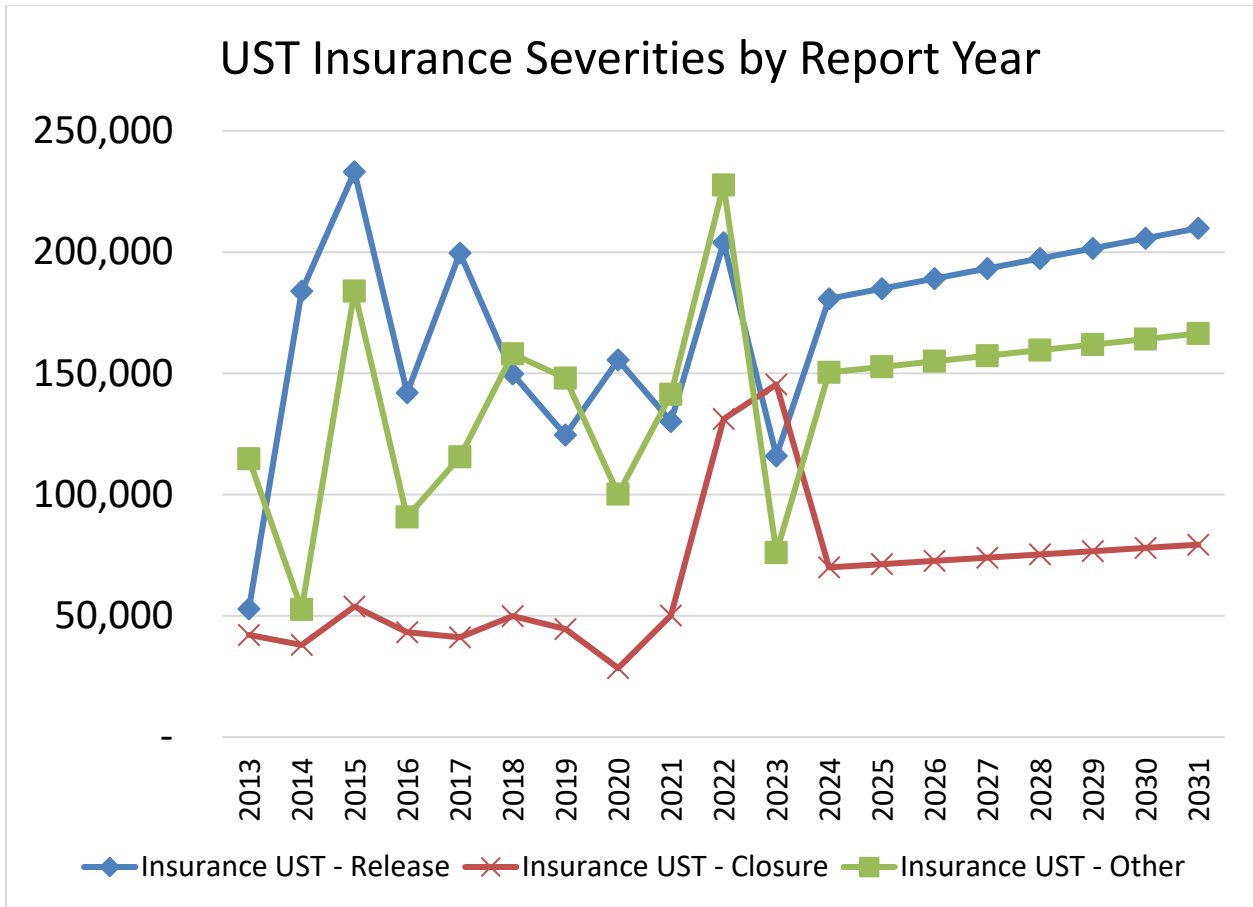
Note that everywhere they are discussed in this report, Report Years are based on the fiscal year in which a claim was opened. For example, a claim that was opened between July 2022 and June 2023 will have a Report Year of 2023 to match the fiscal year ending June 30, 2023.

As this graph shows, the average severity for the "Release" and "Other" claim types have generally fluctuated between $50,000 and $250,000, while the "Closure" claim type has shown very stable average severity over time. This stability may be attributed to the higher number of "Closure" claims compared to other Insurance UST claim types, which creates lower volatility.

The following chart shows the average claim severity from Report Year 2005 to Report Year 2031 for Insurance AST claims:

AST Insurance Severity by Report Year
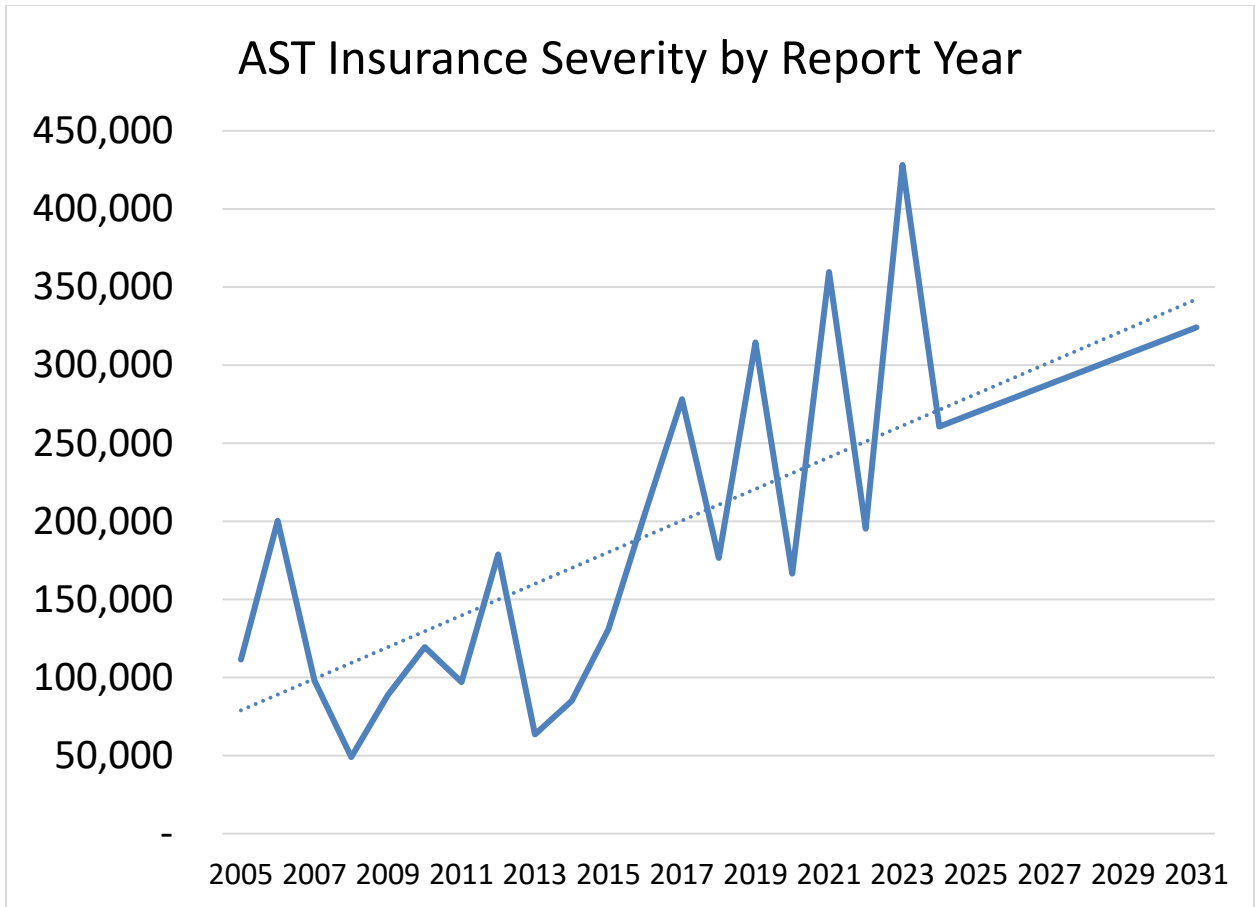
As this chart shows, the average severity of Insurance AST claims has shown significant volatility over time. Recent years have shown continued upward trend, leading us to project continued increases in average severity over time.

Finally, the following chart shows the average severity of Remedial UST and AST claims from Report Year 2005 to Report Year 2031:

Remedial Claim Severities by Report Year
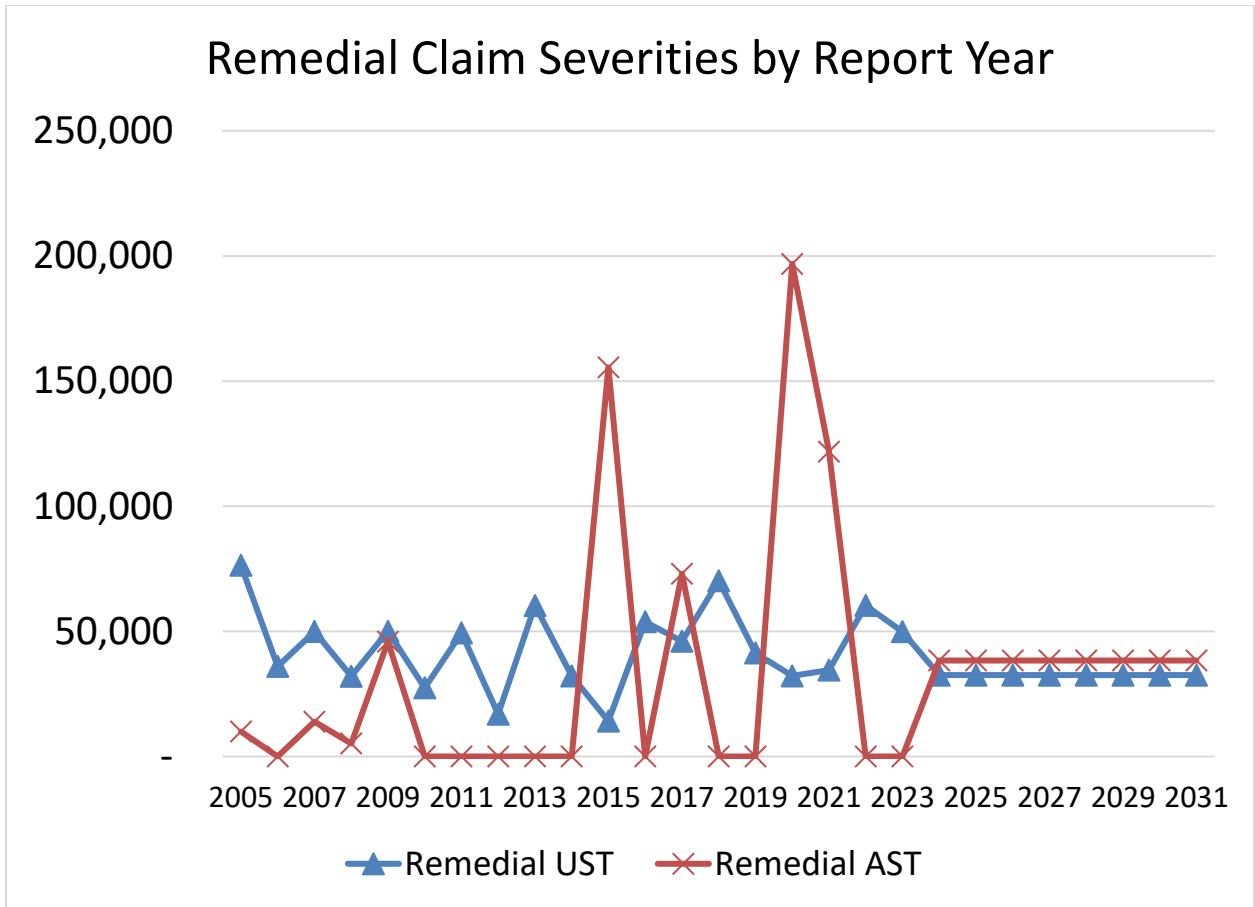
As this chart shows, the remedial UST claim severities have remained relatively stable over time. Remedial AST frequencies show a similar pattern on an individual claim basis but show greater volatility in this chart because claim volumes are much lower, and a small number of large claims can cause severity to appear to have spiked, when this is really a result of normal variation in claim severities.

Finally, the following chart shows the combined total average severity over time:

Total Average Severity by Report Year
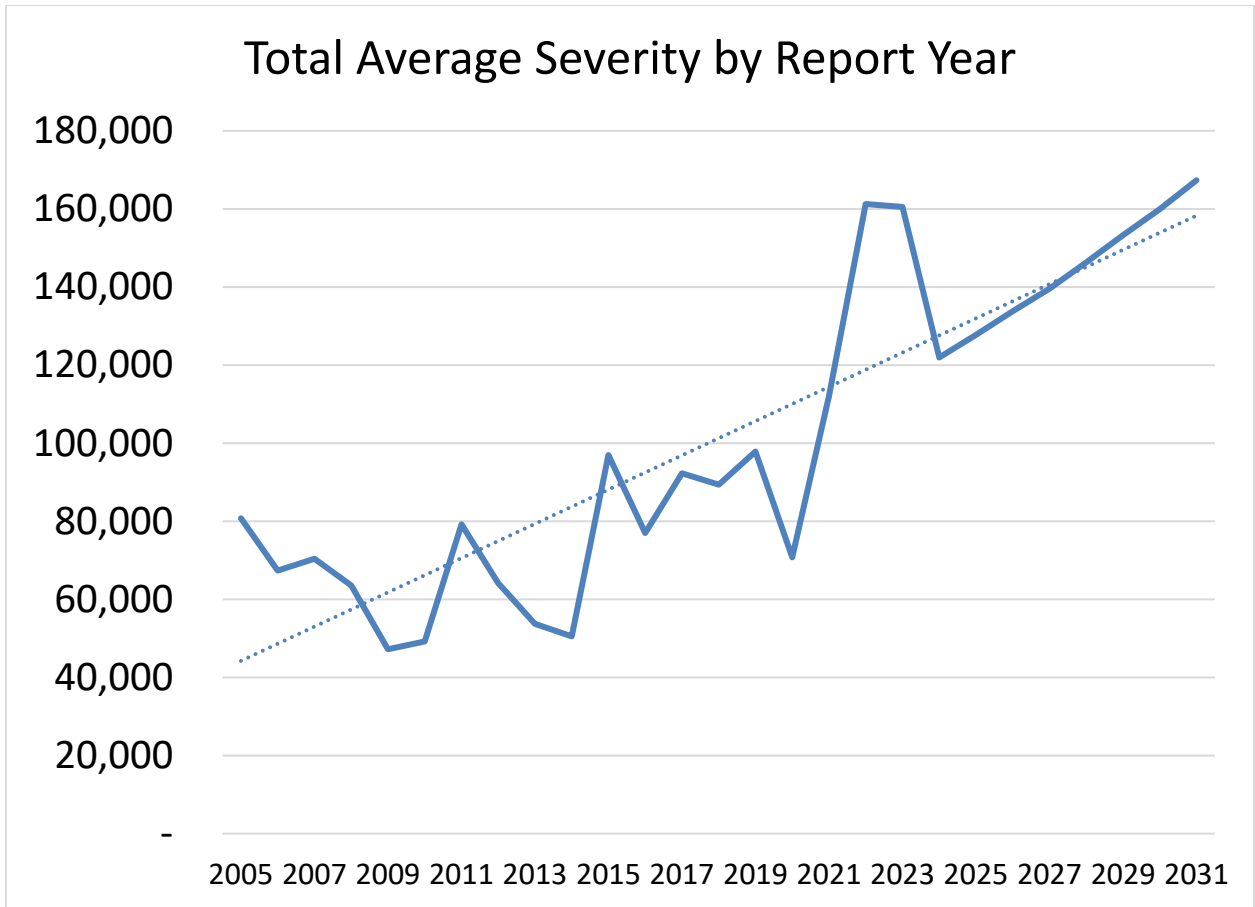
As this graph shows, the overall average severity has increased since the mid-2000s. This is likely caused by several trends. First, it is expected that increasing DNR requirements over time will have the effect of increasing the cost to remediate, all else remaining equal. In addition, we observe a changing mix of claim types over time. As claim types with higher average severities make up a larger percentage of total claims and claim types with lower average severities make up a smaller share, the average severity has drifted upward over time.

Finally, note that the spike in 2022-2023 may be driven in part by lower-than-expected claim counts during that period on a combined basis. Because of the immaturity of these years, ultimate loss projections remained at levels consistent with the recent past. This, combined with the decrease in claim counts, led to a spike in severity. Subsequent analyses may see that

spike reduce considerably as claims mature, either as incident reports are reclassified as normal insurance claims or as more mature claims development information supports a decrease in the ultimate losses for these years.

In addition, we performed an analysis of claim frequencies over time. To project future reported claims counts, T&M used a variety of regression techniques. The results from those analyses led us to project relatively flat claim count patterns in the future for most claim types and modest declines in claim counts for Insurance UST – Closure and Insurance UST – Release claim types.

The following chart displays historical and projected claim counts by UST claim type:

Projected Reported Claim Counts by Claim Type

Chart: Reported Claim Counts by Type of Claim (y-axis, 0 to 100) vs. Report Year (x-axis, 2007 to 2031)

Legend:
- Insurance UST - Release
- Insurance UST - Closure
- Insurance UST - Other
- Remedial UST
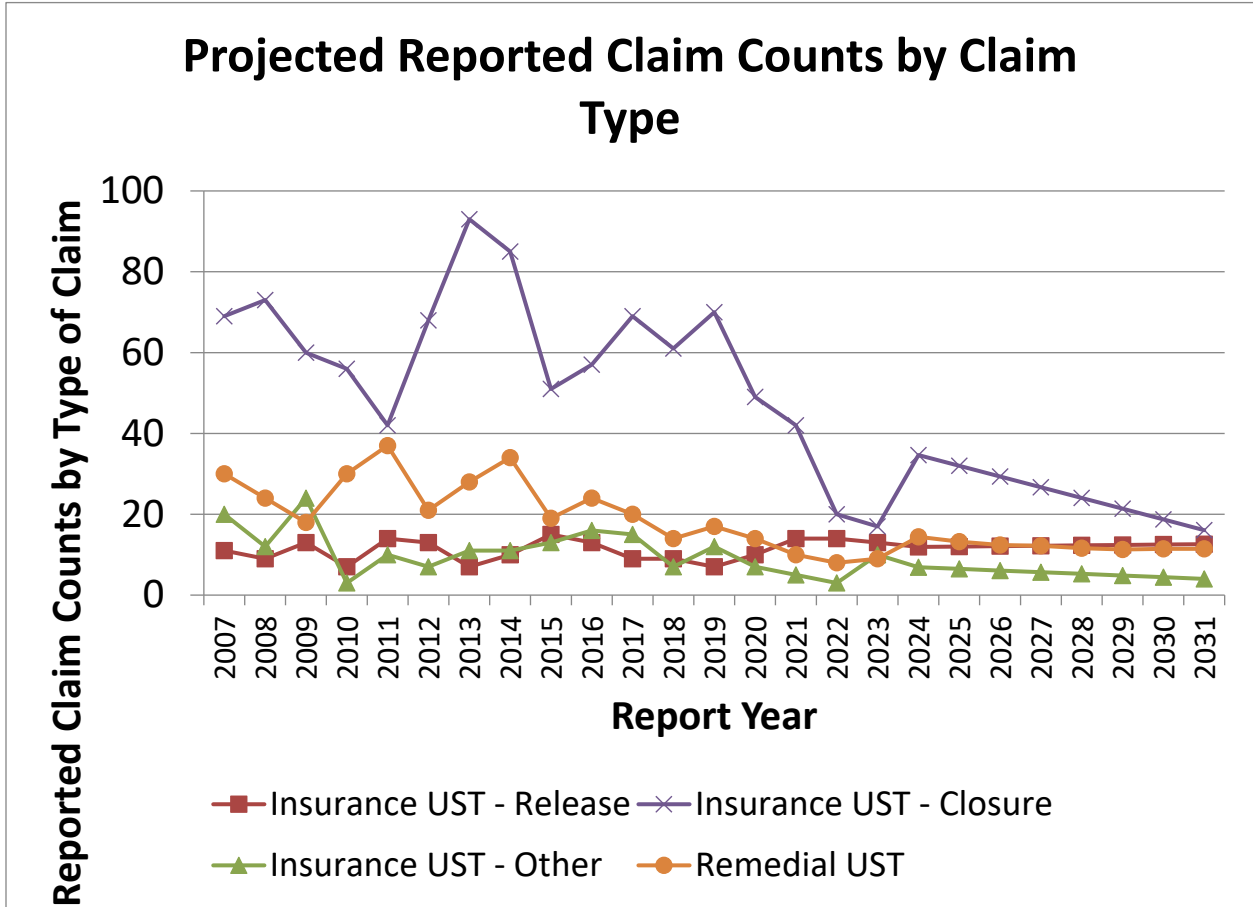
Note that for consistency, the 2031 year shows the projected overall claim frequency for a full report year; however, if the fund sunsets at December 31, 2030 then the total number of anticipated claims in the 2031 report year would be half the number projected on this chart.

It will be noted that the number of Closure and Other claims declined markedly in 2022-2023 as compared to recent years. The number of claim reports in 2022-2023 was equivalent to recent years, but many of those claim reports are categorized as "incident reports" rather than Closure or Other claims at present. It is possible that in future years, some of those incidents will be reclassified as claims, which would reduce the magnitude of the dip in claim counts in 2022-2023.

As this chart shows, the "Insurance UST – Closure" claim type has dominated since 2003, but generally slopes modestly downward over time. The second most common claim type, "Remedial UST," appears to also be in slow decline. All other claim types appear to have leveled off by 2020, with the exception of some expected annual volatility, and therefore we anticipate that these claims will continue at roughly the same frequency levels in the future.

Similarly, the following chart shows the historical and projected claim counts by AST claim types:

Projected Reported Claim Counts by Claim Type

X-axis: Report Year (2007–2031)
Y-axis: Reported Claim Counts by Type of Claim (0–25)

Legend: AST Insurance, Remedial AST
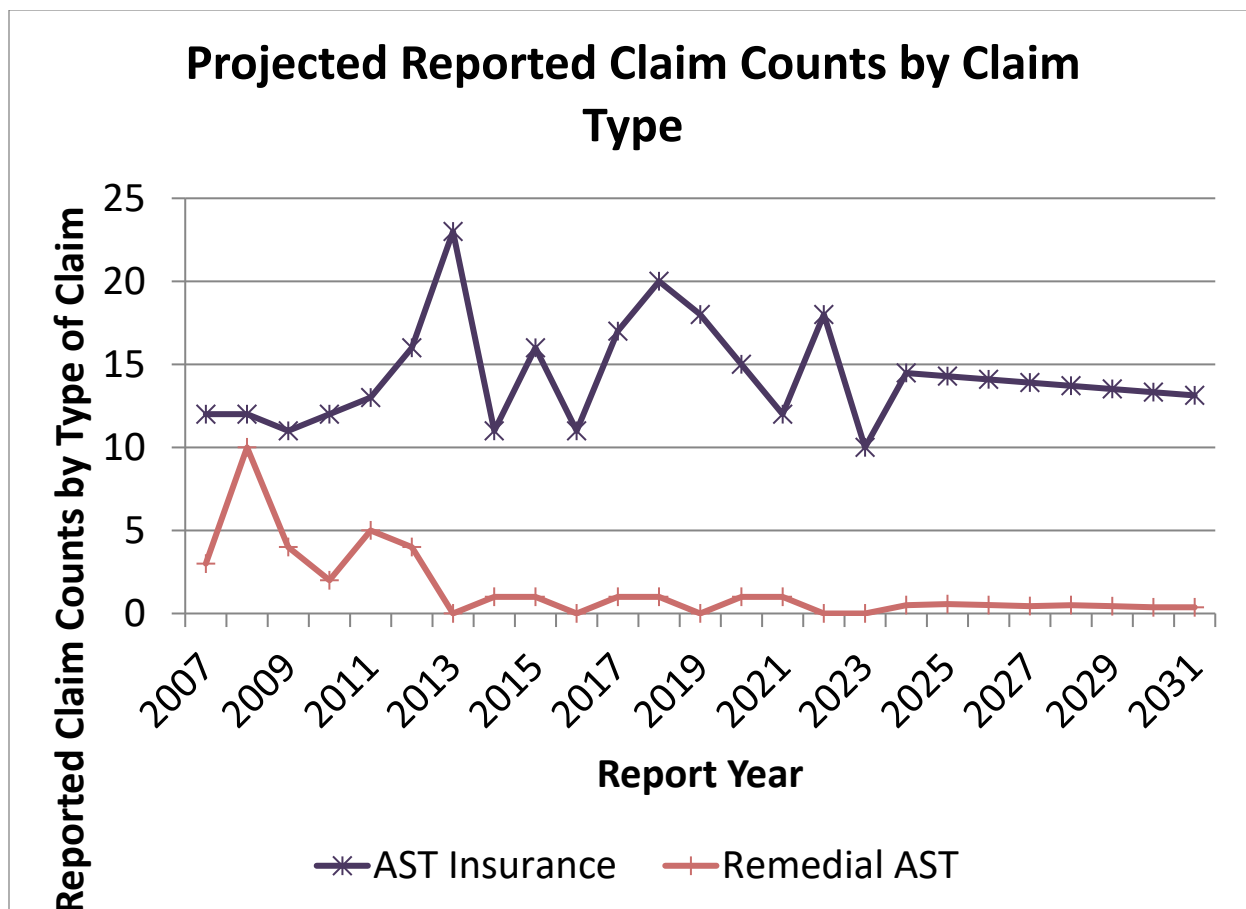
The following chart shows the total claim counts by Report Year:

Total Claim Counts by Report Year
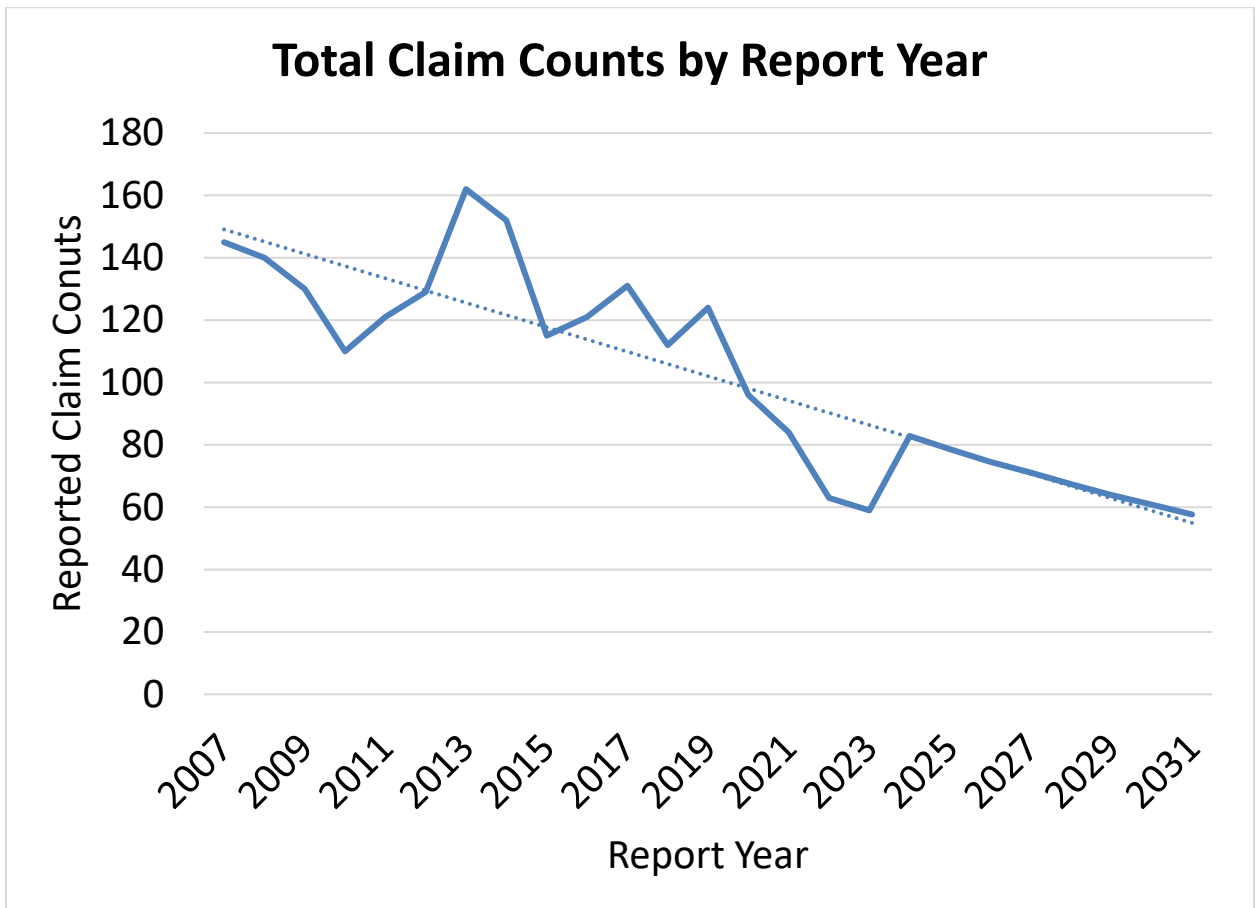
This chart shows some modest if volatile decline in reported claim counts through 2023. As noted above, the 2022-2023 years are outliers in terms of recent years; however, this may change in subsequent years if incident reports are reclassified as insurance claims. Projected future years continue under the assumption of a modest decline in total claim counts.

Projection of Revenues

The PSTIF has two primary sources of revenue: transport load fees ("TLF") and participation fees, which is the actual fee charged to participants for the contractually covered risks.

Transport load fees are charged to transporters of petroleum on a per load basis. TLF make up the majority of the PSTIF revenues. From 2001 until September 1, 2008, TLF fees were $40 for 8,000 gallons of petroleum product transported. On September 1, 2008, the TLF fee was reduced to $20 per 8,000 gallons of petroleum product transported. On January 1, 2019, the TLF was increased to $28 per 8,000 gallons. It was increased again to $32 per 8,000 gallons effective January 1, 2023. Enabling legislation grants PSTIF the authority to raise and lower the TLF as needed, within statutory limits. The overall maximum TLF is set at $60 per 8,000 gallons of petroleum product by legislation.

Participation fees are charged annually to tank owners/operators on the basis of the categories of tanks covered. For USTs, the participation fee is $100 per tank for double-walled tanks, and $125 per tank for single-walled. For ASTs, the fee is $100 per tank for tanks with a capacity less than 25,000 gallons and $200 per tank of 25,000 gallons or more. A "new tank" charge of $100 per tank is a one-time fee in addition to the participation fee for both UST and AST tanks, payable during the first year of contractual coverage with PSTIF.

T&M has relied on projections of future revenues provided by the PSTIF. We have reviewed these projected revenues for reasonableness and found they are reasonable based on current economic conditions. However, T&M has not attempted to quantify the potential impact on PSTIF revenue of the COVID-19 pandemic, its effects on fuel consumption or the economy broadly, or the move to more fuel-efficient vehicles and to alternative vehicle fuels. In addition, no attempt has been made to quantify the impact of significant changes in fuel prices on the TLF revenue stream.

Projection of Future Cash Flows

T&M was asked to project cash flows to the PSTIF to the current proposed sunset date of December 31, 2030, or 7.5 fiscal years. To perform this analysis, we combined projections of future claim frequencies and severities, projections of future revenues, and projections of future expenses associated with the PSTIF's fund administrator.

Future paid losses were simulated based on assumed probability distributions for frequency, severity, and claim payment speeds. Simulated claim payment speeds also affected the payout speeds of unpaid claims from historical Report Years.

The following page shows the projected cash flows from July 1, 2023 through December 31, 2030 assuming no influx of claims due to the sunset of the PSTIF program:

Financial Projections Based on PSTIF 2024 Projections

	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
	Annual Revenues Fiscal Year:	2024	2025	2026	2027	2028	2029	2030	2031 (1/2)	Totals
(1)	Transport load fees	16,500,000	16,450,000	16,400,000	16,350,000	16,300,000	16,250,000	16,200,000	8,075,000	122,525,000
(2)	100 Initial tank fees	12,000	12,000	12,000	12,000	12,000	12,000	12,000	6,000	90,000
(3)	UST participation fees	800,000	800,000	800,000	800,000	800,000	800,000	800,000	400,000	6,000,000
(4)	AST participation fees	315,000	315,000	315,000	315,000	315,000	315,000	315,000	157,500	2,362,500
(5)	Interest income	660,696	666,994	657,287	651,742	643,568	634,237	625,625	306,582	4,846,729
(6)	Total Revenues	18,287,696	18,243,994	18,184,287	18,128,742	18,070,568	18,011,237	17,952,625	8,945,082	135,824,229
	Administrative Expenses Fiscal Year:	2024	2025	2026	2027	2028	2029	2030	2031 (1/2)	Totals
(7)	Contracted Fund Administrator Expenses	1,768,220	1,732,856	1,698,198	1,664,235	1,630,950	1,598,331	1,566,364	767,518	12,426,672
(8)	Contingency & Special Projects	75,000	75,000	75,000	75,000	75,000	75,000	75,000	37,500	562,500
(9)	Office of Administration	125,520	129,286	133,164	137,159	141,274	145,512	149,877	77,187	1,038,979
(10)	OA State Accounting Software	73,176	-	-	-	-	-	-	-	73,176
(11)	Section 319.107 Expenses	10,000	10,300	10,609	10,927	11,255	11,593	11,941	6,149	82,774
(12)	Underwriting	668,992	689,062	709,734	731,026	752,956	775,545	798,811	411,388	5,537,514
(13)	Inspections	457,333	414,090	351,540	472,021	425,122	360,772	478,675	430,890	3,390,444
(14)	Training & Loss Prevention Services	6,000	6,180	6,365	6,556	6,753	6,956	7,164	3,690	49,664
(15)	Other Legal and Litigation Costs	250,000	257,500	265,225	273,182	281,377	289,819	298,513	153,734	2,069,350
(16)	Other Contract Administrative Costs	411,900	424,257	436,985	450,094	463,597	477,505	491,830	253,293	3,409,461
(17)	Audit	21,475	22,119	22,783	23,466	24,170	24,895	25,642	13,206	177,757
(18)	Actuarial Analyses	14,800	15,650	16,500	17,350	18,200	19,050	19,900	20,750	142,200
(19)	Department of Revenue	55,776	57,450	59,173	60,948	62,777	64,660	66,600	34,299	461,684
(20)	Attorney General's Office	49,493	50,977	52,507	54,082	55,704	57,376	59,097	30,435	409,671
(21)	PSTIF Board/Staff	473,217	487,414	502,036	517,097	532,610	548,588	565,046	290,999	3,917,007
(22)	Department of Natural Resources	2,358,252	2,428,999	2,501,869	2,576,925	2,654,233	2,733,860	2,815,876	1,450,176	19,520,189
(23)	Total Administrative Expenses	6,819,154	6,801,139	6,841,688	7,070,069	7,135,979	7,189,462	7,430,337	3,981,214	53,269,042
	Claim Payments Fiscal Year:	2024	2025	2026	2027	2028	2029	2030	2031 (1/2)	Totals
(24)	Average / Expected	12,474,607	11,731,071	11,793,719	11,697,414	11,539,937	11,364,729	11,640,730	5,690,312	87,932,519
(25)	Cash balance @ 6/30/23	44,969,275								
	Funds Available at Fiscal Year-End:	2024	2025	2026	2027	2028	2029	2030	2031 (1/2)	
(26)	Average / Expected	43,963,210	43,674,994	43,223,873	42,585,131	41,979,783	41,436,829	40,318,386	39,591,943	

Notes: Rows (1) through (18) from Financial Projections provided by PSTIF with some minor differences due to rounding.

This chart shows projected revenues, projected expenses, projected claim payments, and projected cash available at year-end. For example, the actuarial central estimate is that $12.5 million in losses will be paid in fiscal year 2024 in addition to $6.8 million in administrative expenses. Revenues are expected to total $18.3 million, leaving a cash balance of $44.0 million at fiscal year-end 2024. As of December 31, 2030, the actuarial central estimate suggests that there will be a remaining cash balance of approximately $39.6 million. This balance assumes that the fund will sunset on December 31, 2030 and that there will be no increase in claim reporting as the fund sunset date approaches.

Exhibit E-20 expands on this chart by showing claim payments and the resulting cash balances at various confidence levels. For example, there is a 50% probability that the cash balance as of December 31, 2030 will be greater than or equal to $40.6 million.

Exhibits E-21 through E-23 show alternative cash flow scenarios based on the possibility that claim reporting will increase if the fund approaches the sunset date. In these cases, we projected increases in remedial, closure, and "other" claims leading to increased claim costs in the first half of the 2030 fiscal year (at which time the fund is projected to be sunset). The financial results of these scenarios are also shown graphically in Exhibits E-17 through E-19.

The "Low Scenario" shown in Exhibit E-21 represents a small amount of claims ramp-up, while the "High Scenario" shown in Exhibit E-23 represents a large amount of claims ramp-up. Note that the payment streams under these scenarios are not markedly different since they reflect an anticipated ramp-up in claim reporting close to the fund sunset date, so there is not

much time for claims to be paid out. Where these scenarios will primarily differ is in the final liability as of the sunset date, for which the ramp-up scenarios will have a higher remaining unpaid liability.

Exhibit E-24 provides the total projected claim payments for future fiscal years assuming no increase in claim activity. The first section of this exhibit displays future anticipated claim payments arising from currently reported claims (i.e., Report Years 2023 and prior). The second section displays claim payments arising from claims that will be reported in the future (Report Years 2023 and after). The third section displays the total of these two amounts.

A notable change in the cash flow projections this year is a shrinking of the range of possible outcomes at the sunset date. This is due to an update in the way that the range of possible losses in a given year was calculated. In previous years, each year was considered independently, so the 90th percentile of losses reflected a situation in which the 90th percentile of losses was observed every year until the sunset date. Statistically, this assumes that the losses in one year are perfectly correlated to the losses in the next year. This year, we updated the statistical analysis to instead assume that losses are uncorrelated: a severe release this year does not imply that there will be a severe release next year. As a result, higher percentiles of loss now appear to be closer to the mean scenario. We believe that this updated analysis provides a more accurate representation of the potential range of future outcomes.

Large Loss Claims

Large loss claims are defined as claims that meet or exceed the level of $250,000. T&M performed several analyses of large loss claims. These analyses included (1) calculation of the amount of time after a claim is reported for it be identified as "large," (i.e., for the sum of paid loss plus case reserves exceed the large claim threshold) (2) consideration of factors that increase the likelihood of a claim being a large claim, (3) consideration of reserving practices for large claims, and (4) consideration of the financial impact of large claims.

Using net incurred losses, T&M examined the current set of claims that have been identified as large. On average, these claims passed the $250,000 incurred threshold between the 7th and 8th years after report. Specifically, the claims were identified as large on average at 86.19 months. The following chart shows the number of large claims by the time it took to identify the claims as "large":

Number of Large Claims by Lag Until Identification
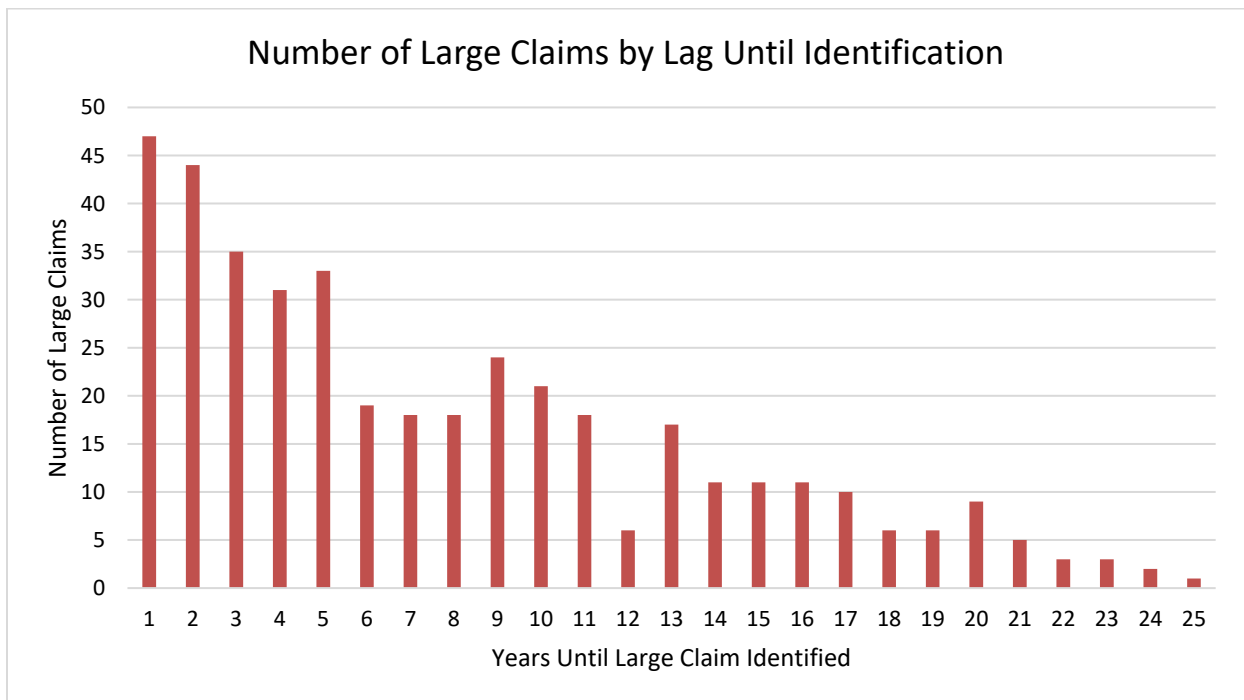
This length of time is not unexpected. Development on storage tank claims is slow as compared with many other insured lines of business. There can be a significant period of gathering more information, remediating, of testing and monitoring sites, of further remediation, of possibly re-opening claims, etc., which can lead to a long time period between the initial report of the claim and a determination of the ultimate liability.

Additionally, it is often the case that reserving is performed based on what is the "most likely" outcome (i.e., the mode of the distribution of potential reserves). As a result of this, initial reserves for any line will tend to resemble the most common claims, with large claims identified only as information allows the adjuster to distinguish less common features of claims that might lead to a large claim. The following chart shows claims currently identified as large as a percent of total reported claims by Report Year:

Missouri Petroleum Storage Tank Insurance Fund
Large Claims as a Percent of Total Claims by Report Year
As of June 30, 2023

Report Year	Total Claims	Large Claims	Percent Large
1993	3	0	0.0%
1994	71	3	4.2%
1995	70	4	7.1%
1996	1,204	83	6.9%
1997	258	18	7.0%
1998	423	28	6.6%
1999	409	28	6.8%
2000	493	39	7.9%
2001	490	22	4.5%
2002	247	12	4.9%
2003	196	13	6.6%
2004	188	17	9.0%
2005	134	10	7.5%
2006	106	7	6.6%
2007	140	11	7.9%
2008	127	10	7.9%
2009	124	2	1.6%

2010	96	6	6.3%
2011	86	10	11.6%
2012	94	6	6.4%
2013	123	8	6.5%
2014	105	8	7.6%
2015	99	8	8.1%
2016	101	11	10.9%
2017	112	10	8.9%
2018	97	10	10.3%
2019	102	13	12.7%
2020	81	2	2.5%
2021	68	5	7.4%
2022	57	6	10.5%
2023	42	2	4.8%
Total	**5,946**	**412**	**6.9%**

Note that this chart does not include incident reports in the total number of claims.

In addition, the following breakdown shows the anticipated large losses and average lag time to identification of the claims as large by claim type:

Missouri Petroleum Storage Tank Insurance Fund **Large Losses by Claim Type as of June 30, 2023**				
Claim Type	**Total Claims**	**Large Claims**	**Percent Large**	**Average Lag**
Insurance UST - Release	337	45	13.4%	64
Insurance UST - Closure	1,777	77	4.3%	82
Insurance UST - Other	605	68	11.2%	120
Remedial UST	2,597	138	5.3%	121
Insurance AST	360	70	19.4%	57
Remedial AST	270	14	5.2%	116
Total	**5,946**	**412**	**6.9%**	**96**

The percentages in the above chart do not necessarily reflect the true risk that a claim may become large over time. For instance, Remedial UST claims make up the largest category of large claims but one of the smallest categories by percentage. This may partly be a reflection

of the fact that many such sites had already been partly remediated before the PSTIF began issuing payments. As a result, the percentage may understate the true riskiness by claim type going forward.

It is anticipated that remediations associated with tank closures ("Insurance UST – Closure") will continue to show relatively low risk of becoming large claims. Newer sites without legacy pollution and for which leak prevention has always been used will tend to have less catastrophic releases (if any) that went undetected. Therefore, tank closures at such sites are unlikely to lead to discovery of large losses. By contrast, many older sites with legacy pollution issues have already undergone remediation efforts since the PSTIF became active. Therefore, tank closures at those sites may be less likely to result in large losses because the site has already been remediated recently.

Large losses account for approximately \$195.4 million in incurred losses, or approximately 48.9% of incurred losses, despite accounting for only 6.9% of claims. These values are slightly higher than those determined at the time of the previous analysis but continue to be consistent with expectations and historical numbers.

Settlement Speed

The Board's staff has undertaken significant efforts to improve the speed with which claims come to closure in recent years. However, because such changes are always incremental in nature, it often takes a long time to see them borne out in data. It is worth noting that the time to settlement is contingent on many factors and several of these factors are outside the control

of the PSTIF. For example, PSTIF does not make the final determination that a cleanup is complete, but rather, this decision is made by the MoDNR.

This year, Taylor & Mulder reviewed the rate at which claims are closed. It is our conclusion that claim closure rates for newly reported claims have generally improved over time.

The following chart shows the percent of claims closed at each maturity for the first 72 months for the most recent eight calendar years (2016 – 2023) and for the preceding eight years (2008 – 2015):

Percent of Total Reported Claims Closed with Payment in First 72 Months After Report
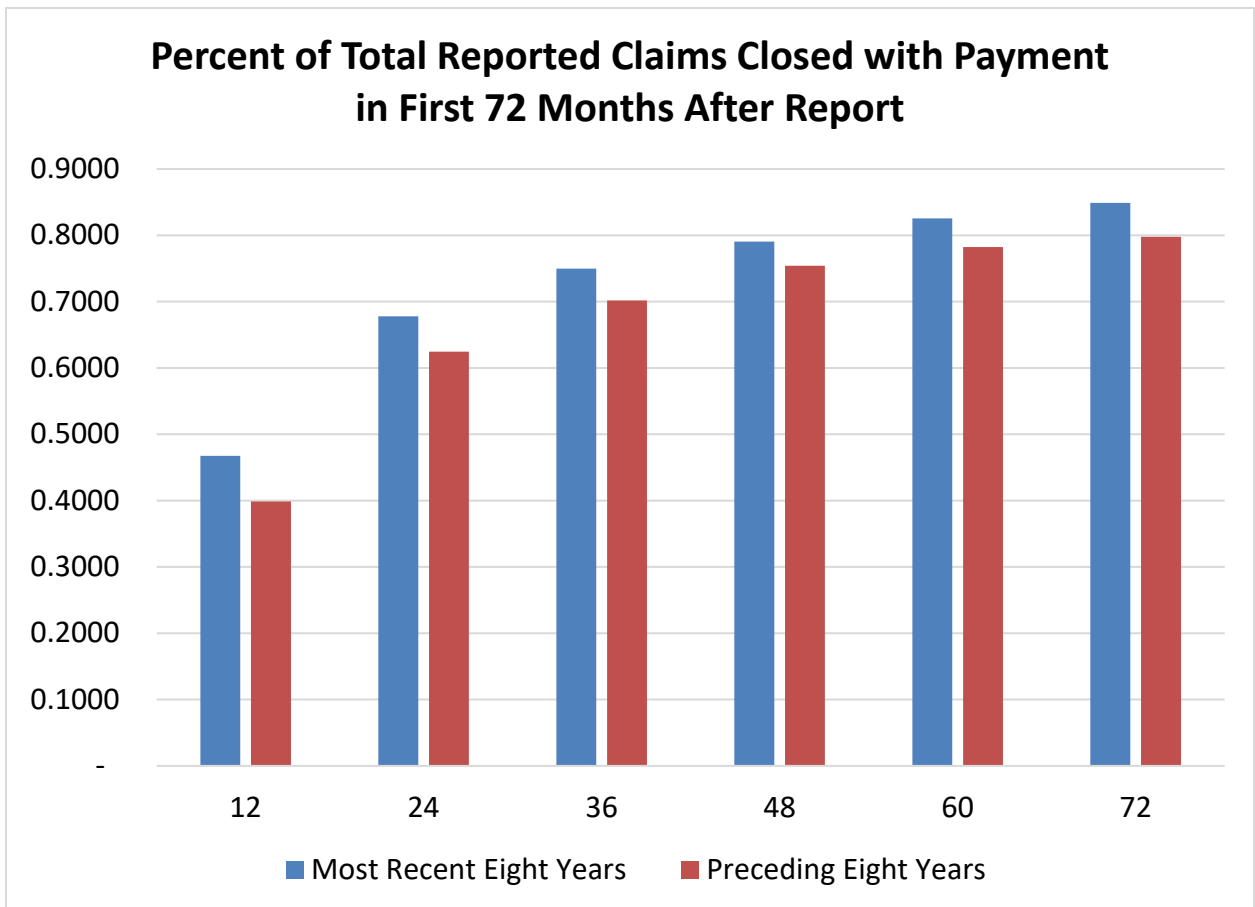
This chart shows that in the most recent eight fiscal years, the percentage of claims closed at each age is higher than for the preceding eight fiscal years.

This speedup in claim closures has apparently accelerated the reduction in open claims over time. The following chart shows the number of open claims by age of release:

Number of Open Claims by Age of Release
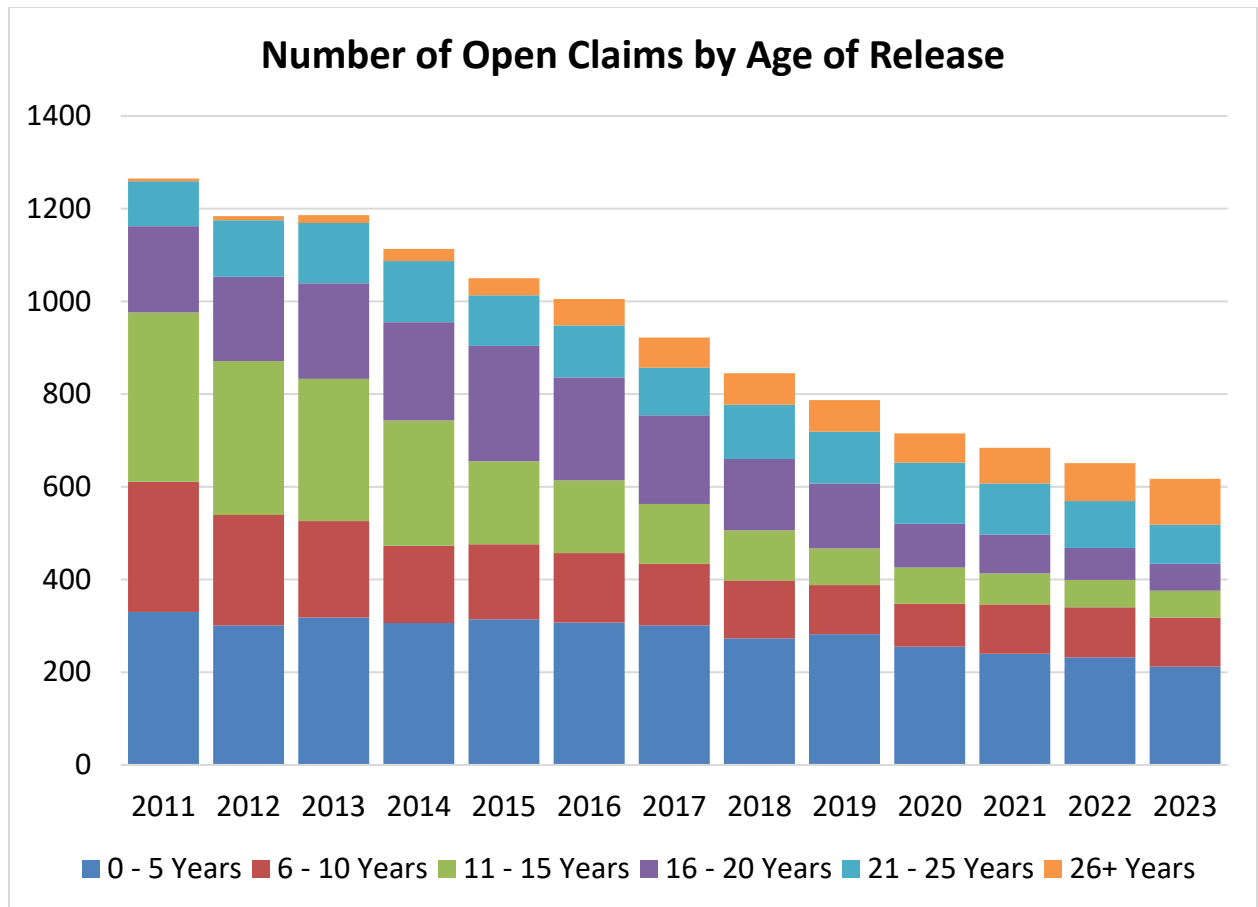
Evidently, the number of claims between 0-5 years old has declined modestly in recent years, as have all categories of claims under 20 years old. However, the number of claims greater than 20 years old has increased modestly over most recent five years, as claims appear to "age into" that category at a rate very slightly faster than the rate at which the claims are closed.

As a result of this decrease in overall volume of open claims, coupled with the stable or slightly growing number of claims greater than 20 years old, the relative proportion of claims greater than 20 years old has increased in recent years:

Percent of Open Claims by Age of Release

Legend: ■ 0 - 5 Years ■ 6 - 10 Years ■ 11 - 15 Years ■ 16 - 20 Years ■ 21 - 25 Years ■ 26+ Years
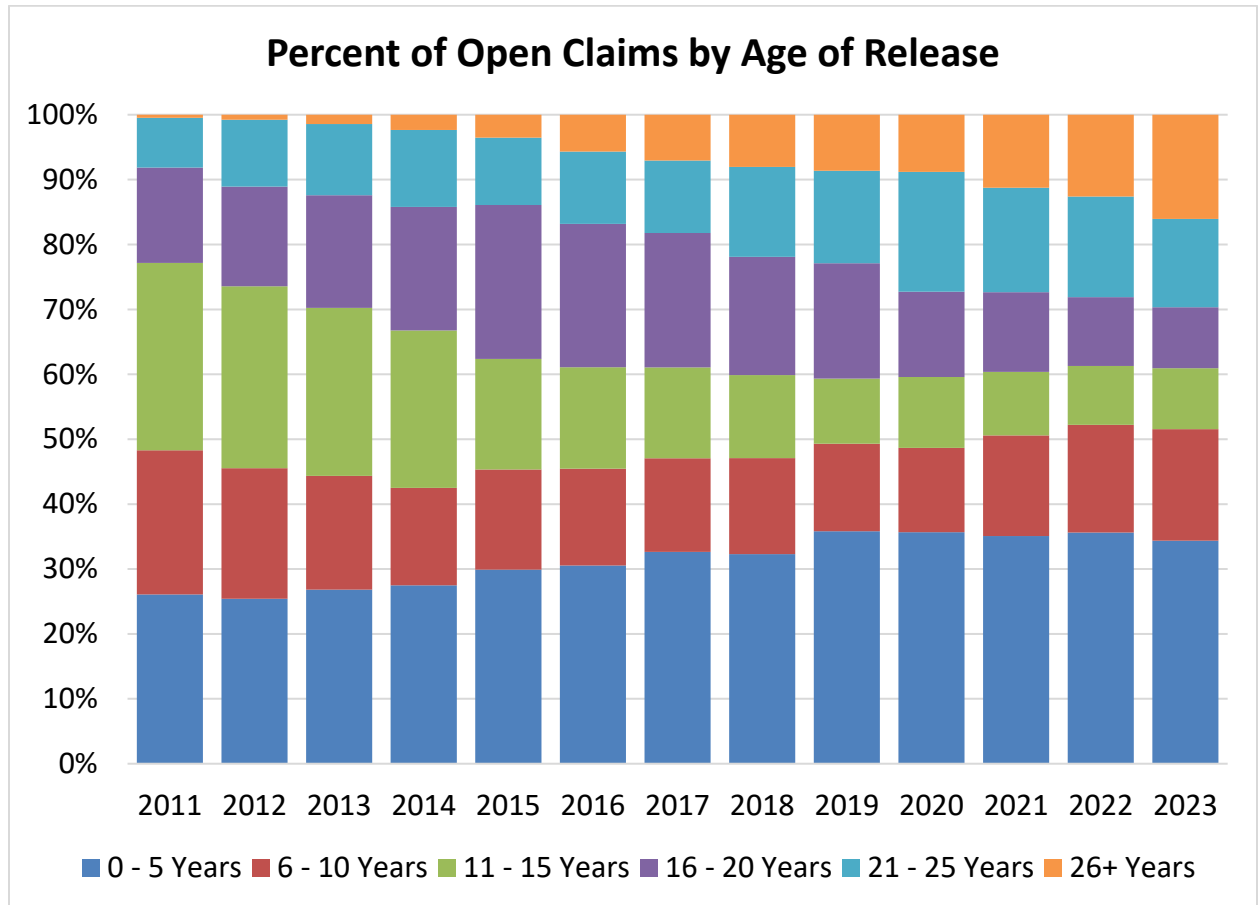
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in any marketing or request for proposal solicitations. In addition, it should be understood that T&M consultants are available to respond to any questions by authorized third parties with respect to this report.

Conditions and Limitations

The analyses contained in this report were performed using accepted loss and loss adjustment expense reserving methods adjusted to the special needs of the PSTIF and in conformance with sound actuarial standards and principles. T&M introduced assumptions and judgments that we considered appropriate in the circumstances.

With regard to projections of ultimate values, it should be understood that the emergence and settlement of claims are subject to uncertainty. While we have used our best professional judgment in all instances, projections of future ultimate losses and loss expenses are inherently uncertain because of the random nature of claims occurrences. They are also dependent upon future contingent events and are affected by many additional factors.

PSTIF claim reserving procedures and settlement philosophy, current and perceived social and economic inflation, current and future court and jury attitudes, legislative changes affecting the PSTIF, improvements in technology, and many other economic, legal, political, legislative and social factors all can have significant effects on ultimate claim costs. Therefore, we cannot warrant that actual developments will not differ from current projections. Such differences could be upward or downward and could be significant.

In summary, the ultimate loss and loss adjustment expense levels estimated in this report are subject to potential variations in estimation due to:

    (1) the fact that the ultimate liability of PSTIF is subject to the outcome of events yet to occur;

    (2) the unanticipated changes in the legal, economic, legislative or claims adjudication environments;

    (3) statistical fluctuation in losses around the estimated or expected values when all other factors remain constant; and

    (4) the fact that the actual future loss and loss payment and reporting patterns may differ from those applied in the determination of the expected losses or there may be unanticipated changes in the loss and expense loss and expense payment and reporting patterns;

Accordingly, no assurance can be given that future loss emergence will not deviate from the estimated ultimate loss and loss adjustment expenses. However, the ultimate loss and loss adjustment expense estimates were based on a reasonable application of generally accepted actuarial procedures and techniques applied to the information available.

We reviewed the information for overall reasonableness and presented any irregularities to the PSTIF contracted fund administrator for edification and clarification.

T&M relied without audit or verification on historical loss, loss adjustment expense, exposure data, and other information provided by the PSTIF and its employees. T&M has relied upon the data provided and on the oral and/or written statements made regarding the quality, accuracy, and completeness of the data and information supplied. Any inaccuracies or inconsistencies in the data could have a significant effect on the conclusions drawn.

Should any inaccuracies be found in the data, T&M should be notified immediately so that the analysis can be adjusted accordingly.

With regard to projections of estimated revenues, it should be understood that the revenue streams are subject to uncertainty. While we have used our best professional judgment in all instances, projections of future revenues are inherently uncertain due to potential changes in technology, the implementation of environmental requirements, the introduction of alternative vehicle fuels, and changes in the economy among others. While T&M has used its best judgment is selecting trend values for each category of revenue, actual revenue collected is dependent upon unknown future events and may be affected by additional factors outside of PSTIF control.

T&M reflected anticipated investment income in the reserves assuming a 1.5% annual rate of return on investments. We did not independently verify the ability of the PSTIF to match this assumed rate.

The analysis in this report was limited to the loss and loss adjustment expense items noted in the scope of this project. This report does not include an examination of the assets of the PSTIF, nor did we form any opinion as to the value or validity of the assets. This report does not include a review or analysis of any income statement or other balance sheet items. This analysis with respect to loss and loss adjustment expense reserves is based upon the assumption that all reserves are backed by valid assets and that these assets reflect suitably scheduled maturities and/or sufficient liquidity to meet cash flow requirements.

This report is limited in scope to the estimate of the level of reserve adequacy at the evaluation date of the report. It also includes projections regarding cash flow of the operations of the PSTIF under certain narrow assumptions and conditions.

This report was prepared for use by persons technically competent in insurance financial matters. Persons receiving this report should be made aware of the availability of T&M, Inc. personnel to answer questions and/or amplify on any matter addressed therein.

Actuarial Analysis

Sources of Data

Data was provided by Ms. Kelley Ogletree with the PSTIF and Ms. Dorcee Lauen with Williams & Company Consulting, Inc., PSTIF's contracted fund administrator, in the form of several files. A full description of the names and contents of these files may be found as an appendix at the end of this report. In addition, we received additional information from interviews with PSTIF management and Williams' personnel, as well as from the PSTIF website, www.pstif.org.

Overall Methodology

Selection of Factors

In each of the methods described below, our selections of development factors were based on the evaluation of the predictive value of the various historical averages and the perceived presence or absence of trends and singularities. Apparent statistical aberrations were eliminated either judgmentally or by selecting a longer experience period to increase the credibility of the experience, whichever we believed more appropriate in the particular circumstances.

Paid Development Method

The paid development method uses historical loss payment patterns to project actual payments as of a given valuation date to ultimate. The PSTIF's historical payment patterns or the fitted loss development factors were relied upon in selecting the expected payment patterns at each evaluation. The difference between the projected ultimate losses and the losses and allocated

loss adjustment expenses paid through the evaluation date is the estimated reserve as of the evaluation date.

Estimates produced using the paid development method are not affected by changes in the case reserve position of the PSTIF which might have occurred during the review period, but may be understated since they ignore large unpaid claims. Also, this method may be susceptible to any changes in case settlement philosophy and/or speed of payment.

Incurred Development Method

The incurred, or reported, development method is similar to the paid development method and uses historical reporting patterns to project actual reported amounts (excluding IBNR) as of a given evaluation date to ultimate. The difference between the projected ultimate losses and the losses paid through the evaluation date is the estimated reserve as of the evaluation date.

In many situations, the incurred development method is preferred over the paid method since large open but unpaid claims are considered. This method is more responsive to changes in the external business environment, since changes in liability laws, legislative changes affecting the PSTIF, court decisions and other external factors are generally reflected in the case reserves as soon as claims management becomes aware of them. As a result, the incurred loss development factors at each stage of development tend to be lower, and more stable, than those of the corresponding paid development method. However, the incurred development method may be affected by changes in case reserving practices over time and, to a lesser extent, also may be affected by changes in claims settlement rates.

Bornhuetter-Ferguson Methods

Loss development methods may be affected by changes in the reporting and payment of claims. Random fluctuations in the reporting and payment of claims (such as may result from a single unusually large claim) are magnified by the development factors, potentially resulting in biased estimates and wide changes in the estimates from one evaluation to the next. To minimize such fluctuations, we applied the Bornhuetter-Ferguson method to incurred losses and to paid losses. The Bornhuetter-Ferguson method is particularly suited for projecting loss reserves for longer-tailed business with volatile or limited development patterns. The Bornhuetter-Ferguson method represents a compromise between traditional loss development methods such as the incurred and paid loss development methods and an expected loss ratio method.

For the incurred Bornhuetter-Ferguson method, initial expected losses are established for each accident year to be consistent with projected pure premium amounts, i.e. projected losses divided by an exposure base (in this case, covered tanks in-force for insurance claims or remaining potential remediation sites for remedial claims). These initial expected losses are then split into two components: expected reported losses and expected unreported losses. The expected unreported losses, which comprise the IBNR and bulk reserves for each accident year, are calculated as a function of the earned premium, the initial expected loss ratio, and the expected portion of ultimate losses that remains unreported or unreserved as of the evaluation date.

For the paid Bornhuetter-Ferguson method, initial expected losses are also derived from projected pure premium amounts. These initial expected losses are then split into two components: expected paid losses and expected unpaid losses. The expected unpaid losses, which comprise the IBNR and case reserves for each accident year, are calculated as a function of the initial expected loss ratio, the initial expected ultimate losses, and the expected portion of ultimate losses that remains unpaid as of the evaluation date.

Projection Methodologies for Cash Flow Analysis

Several overlapping projection methodologies were used to perform the cash flow analysis. First, regression techniques were used to project claim frequency and severity into future periods. These projections were then converted into parameters for a simulation model.

The simulation model used a Poisson distribution to predict the number of claims of each category for each Report Year. For each predicted claim, a lognormal distribution was then generated as the prediction of the ultimate size of that claim. For example, one trial of the simulation might predict that there would be 10 UST Insurance (Release) claims in a given Report Year. Each of those 10 claims would have a simulated claim size drawn from the lognormal distribution.

Repeating this process 10,000 times for each claim type and for each Report Year from 2024 to 2031, we obtained a set of potential ultimate losses that represent a probability distribution of outcomes, where more common answers represent more likely outcomes.

Historical losses were simulated using incurred loss development triangles. For each triangle, the loss development factors were simulated using normal distributions for each development period. The mean for each development period was selected to be the actuarial central estimate, while the standard deviation was selected to be the standard deviation of the historical LDFs.

For both historical and future claims, anticipated future payments by fiscal year were determined by applying fixed projected payment patterns to unpaid losses to determine the anticipated timing of future payments.

Combining these projections, we obtained an estimate of the range of possibilities for loss payments over time. We compared these loss payment projections to revenue projections to obtain an estimate of the range of possible outcomes for cash flows over time.

Methodology by Claim Type

Long-tailed lines of business have some important properties. These are lines of business for which claim payments can extend over a very long period (10 years or more) before closure. As claim payments are made over a long time horizon, the first few years after a claim is reported may have little or no actual claim payments. This produces relatively low paid losses at early maturities, and as a result, payment patterns can be strongly affected by small random fluctuations in payments from year to year.

The long payment pattern has a substantial effect on most categories of PSTIF claims. Paid losses at early maturities have shown extreme volatility, and as a result, paid losses have very low credibility (i.e., statistical stability) for some categories of claims.

By contrast, incurred losses have shown greater stability. When a claim is reported to the PSTIF, a reserve is established based on the expected ultimate loss for the claim. As the claim matures and losses are paid out, the incurred loss may be increased or decreased commensurate with the adjuster's interpretation of the ultimate value of the claim. In this case, the first estimate by the adjusters is close enough to the ultimate loss that development is low when compared to paid losses. Because development patterns for incurred losses were more stable over time, incurred loss development methods received greater relative weight in our analysis.

Incurred loss development, by contrast, is stable. Incurred losses do not undergo the same extreme changes as paid losses, making estimates from incurred losses more credible. In some cases, incurred loss development is modestly negative, implying that early reserve estimates are slightly over-stated. However, these trends seem to reverse at later maturities, returning incurred losses on average to slightly higher than the initial reserves as of 12 months.

When relatively little credibility could be placed in the loss development patterns observed in paid or incurred losses, higher reliance was placed on the Bornhuetter-Ferguson methods. These methods produce estimates that are not as significantly influenced by random variations in claim payout or reporting speeds, but are highly stable from year to year and are a reflection of the overall level of exposure.

Selections of Ultimate Losses

Generally, the selection of ultimate losses was based on selecting incurred loss development method for older years, as this method seemed to give the best result. In years where there was great variability, particularly more recent Report Years, we selected a combination of methods (including the Bornhuetter-Ferguson method) to provide greater stability in results.

Any exceptions to the above description were based on our review of the methods combined with our knowledge of specific accident years and other considerations as described in the background section of our report.

Loss Reserve Discounting

T&M reflected anticipated investment income on reserves using an assumed discount rate of 1.5%. This rate was based on historical yields by the State as of June 30, 2023. We did not independently verify the ability of the PSTIF to match these rates at June 30, 2023.

The undiscounted reserves and the discounted reserves are shown in the summary section of our report. The future payout of the undiscounted recommended reserve from 2024 to 2032 separately and for years subsequent to fiscal year 2032 on a combined basis is also provided in this section.

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
All Claim Types
Executive Summary - Unpaid Losses & ALAE

(1)	(2)	(3)	(4)	(5)	(6)	(7)
				Undiscounted		Discounted
	Case		Unpaid	Unpaid		Unpaid
Claim Type	Reserve	IBNR	ALAE	Loss & ALAE	Discount	Loss & ALAE
Insurance UST - Release	7,697,692	5,390,726	78,020	13,166,438	1,138,278	12,028,160
Insurance UST - Closure	10,775,789	7,674,339	109,980	18,560,108	1,489,340	17,070,768
Insurance UST - Other	5,798,851	5,557,771	67,696	11,424,318	986,010	10,438,308
Remedial UST	16,279,718	3,002,530	114,941	19,397,188	1,778,428	17,618,761
Insurance AST	14,135,152	10,236,537	145,279	24,516,969	2,225,111	22,291,858
Remedial AST	2,164,094	248,779	14,383	2,427,256	227,016	2,200,240
Total	**56,851,296**	**32,110,683**	**530,299**	**89,492,278**	**7,844,183**	**81,648,095**

Notes: Col (5) = (2) + (3) + (4)
        Col (7) = (5) - (6)

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
All Claim Types
Summary of Ultimate Losses

(1)	(2)	(3)	(4)	(5)	(6)
	PAID LDM	INC LDM	PAID BF	INC BF	SELECTED
RY	ULTIMATE	ULTIMATE	ULTIMATE	ULTIMATE	ULTIMATE
1994	4,878,075	4,878,075	-	-	4,878,075
1995	4,387,026	4,387,026	-	-	4,387,026
1996	78,077,569	77,928,807	-	-	78,003,188
1997	19,739,856	19,500,321	-	-	19,533,428
1998	30,860,373	30,549,272	-	-	30,698,803
1999	25,441,547	25,477,938	-	-	25,477,938
2000	34,899,491	34,868,853	-	-	34,868,853
2001	16,751,280	16,687,189	-	-	16,687,189
2002	15,699,156	15,542,229	-	-	15,542,229
2003	12,992,064	12,891,371	-	-	12,891,371
2004	16,193,975	15,992,981	-	-	16,027,954
2005	11,918,664	11,793,876	-	-	11,793,876
2006	8,165,614	8,085,796	-	-	8,085,796
2007	10,531,922	10,207,538	-	-	10,207,538
2008	9,001,011	8,900,624	9,376,975	8,955,129	8,900,624
2009	6,294,273	6,150,449	7,007,306	6,347,976	6,138,159
2010	5,237,767	5,598,554	5,526,678	5,873,249	5,413,868
2011	9,529,891	9,825,184	8,951,661	9,738,965	9,586,819
2012	8,533,048	8,023,819	8,940,338	8,202,599	8,276,921
2013	8,622,107	8,556,875	8,782,027	8,564,392	8,702,432
2014	7,443,883	7,736,455	7,606,203	7,906,095	7,677,505
2015	11,420,867	10,747,431	10,587,186	10,549,858	11,152,205
2016	9,237,788	9,597,239	9,105,577	9,534,950	9,316,749
2017	12,308,506	13,076,611	10,798,890	12,217,289	12,090,935
2018	9,856,518	10,307,255	9,625,612	10,065,420	10,012,364
2019	12,575,039	13,538,799	10,725,903	12,282,837	12,134,338
2020	5,355,637	6,442,007	7,552,103	7,260,333	6,795,823
2021	8,611,378	9,545,971	8,952,340	9,505,882	9,419,304
2022	10,667,058	10,854,572	9,763,517	10,358,688	10,188,485
2023	11,285,121	7,821,927	9,614,147	8,808,867	9,520,908
TOTAL	436,516,501	435,515,046	142,916,463	146,172,528	434,410,702

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
All Claim Types
Summary of Case & IBNR Reserves

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	SELECTED	PAID	INCURRED	CASE	IBNR	UNPAID	PAID	UNPAID	ULTIMATE	ULTIMATE	UNPAID
RY	ULTIMATE	LOSS	LOSS	RESERVE	RESERVE	LOSS	ALAE	ALAE	ALAE	LOSS & ALAE	LOSS & ALAE
1994	4,878,075	4,350,126	4,878,075	527,950	-	527,950	6,986	3,147	10,133	4,888,208	531,097
1995	4,387,026	4,187,026	4,387,026	200,000	-	200,000	9,365	1,192	10,557	4,397,583	201,192
1996	78,003,188	71,621,646	77,928,807	6,307,161	74,381	6,381,542	137,104	38,040	175,144	78,178,332	6,419,582
1997	19,533,428	18,708,847	19,500,321	791,475	33,107	824,581	44,090	4,915	49,005	19,582,433	829,497
1998	30,698,803	28,122,401	30,549,272	2,426,872	149,531	2,576,402	87,202	15,358	102,560	30,801,363	2,591,760
1999	25,477,938	23,990,057	25,435,671	1,445,615	42,267	1,487,881	78,976	8,869	87,845	25,565,783	1,496,751
2000	34,868,853	31,324,891	34,787,374	3,462,483	81,479	3,543,962	91,619	21,125	112,745	34,981,598	3,565,087
2001	16,687,189	14,435,265	16,660,903	2,225,638	26,286	2,251,924	56,050	13,424	69,473	16,756,662	2,265,348
2002	15,542,229	14,284,481	15,463,570	1,179,089	78,659	1,257,748	49,357	7,497	56,854	15,599,083	1,265,245
2003	12,891,371	11,482,581	12,802,843	1,320,262	88,527	1,408,790	56,273	8,398	64,670	12,956,041	1,417,187
2004	16,027,954	14,364,016	15,768,019	1,404,003	259,935	1,663,937	138,568	9,919	148,487	16,176,441	1,673,856
2005	11,793,876	9,824,334	11,548,238	1,723,904	245,638	1,969,541	110,331	11,740	122,072	11,915,947	1,981,282
2006	8,085,796	6,805,676	7,840,929	1,035,253	244,867	1,280,120	66,696	7,631	74,327	8,160,123	1,287,751
2007	10,207,538	9,412,905	9,858,725	445,820	348,813	794,633	98,492	4,737	103,228	10,310,766	799,369
2008	8,900,624	7,992,667	8,500,349	507,682	400,275	907,957	40,410	5,412	45,822	8,946,446	913,369
2009	6,138,159	5,491,076	5,812,077	321,001	326,082	647,083	29,703	3,857	33,560	6,171,719	650,940
2010	5,413,868	3,890,811	5,237,767	1,346,956	176,101	1,523,057	32,169	9,079	41,248	5,455,116	1,532,136
2011	9,586,819	7,072,841	9,013,479	1,940,638	573,340	2,513,978	35,491	14,986	50,477	9,637,296	2,528,964
2012	8,276,921	6,768,029	7,264,273	496,243	1,012,649	1,508,892	33,105	8,994	42,099	8,319,020	1,517,886
2013	8,702,432	6,421,242	7,530,571	1,109,328	1,171,861	2,281,189	29,523	13,598	43,121	8,745,553	2,294,787
2014	7,677,505	4,939,382	6,758,572	1,819,189	918,934	2,738,123	27,828	16,322	44,150	7,721,655	2,754,445
2015	11,152,205	7,584,372	9,216,131	1,631,759	1,936,074	3,567,833	46,376	21,268	67,644	11,219,849	3,589,101
2016	9,316,749	5,825,343	7,861,226	2,035,884	1,455,523	3,491,406	25,609	20,812	46,421	9,363,170	3,512,219
2017	12,090,935	7,114,175	10,320,306	3,206,130	1,770,629	4,976,760	41,279	29,666	70,946	12,161,881	5,006,426
2018	10,012,364	5,500,409	7,897,045	2,396,636	2,115,319	4,511,954	30,775	26,896	57,671	10,070,035	4,538,850
2019	12,134,338	6,004,398	9,858,764	3,854,366	2,275,574	6,129,940	37,685	36,540	74,225	12,208,563	6,166,480
2020	6,795,823	2,114,107	4,435,670	2,321,563	2,360,153	4,681,716	17,153	27,908	45,061	6,840,884	4,709,624
2021	9,419,304	2,702,711	6,070,443	3,367,732	3,348,862	6,716,594	18,345	40,037	58,382	9,477,686	6,756,631
2022	10,188,485	2,399,696	6,215,306	3,815,610	3,973,179	7,788,789	18,537	46,429	64,966	10,253,451	7,835,218
2023	9,520,908	713,212	2,898,267	2,185,055	6,622,641	8,807,696	12,801	52,502	65,303	9,586,211	8,860,198
TOTAL	434,410,702	345,448,723	402,300,019	56,851,296	32,110,683	88,961,979	1,507,896	530,299	2,038,195	436,448,896	89,492,278

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Release
Summary of Ultimate Losses

(1)	(2)	(3)	(4)	(5)	(6)
	PAID LDM	INC LDM	PAID BF	INC BF	SELECTED
RY	ULTIMATE	ULTIMATE	ULTIMATE	ULTIMATE	ULTIMATE
1994	246,661	246,661	-	-	246,661
1995	241,953	241,953	-	-	241,953
1996	2,176,370	2,176,370	-	-	2,176,370
1997	1,995,927	1,995,927	-	-	1,995,927
1998	1,364,705	1,352,666	-	-	1,352,666
1999	142,573	142,573	-	-	142,573
2000	1,817,407	1,817,407	-	-	1,817,407
2001	1,109,531	1,109,531	-	-	1,109,531
2002	713,587	713,587	-	-	713,587
2003	1,980,868	1,980,868	-	-	1,980,868
2004	1,321,855	1,301,747	-	-	1,301,747
2005	1,680,933	1,683,167	-	-	1,683,167
2006	161,243	161,754	-	-	161,754
2007	2,575,132	2,424,070	-	-	2,424,070
2008	2,132,453	2,061,915	2,023,714	2,041,681	2,061,915
2009	894,158	907,611	917,360	912,984	907,611
2010	674,592	711,927	599,397	733,364	679,820
2011	2,448,647	2,318,967	2,221,317	2,256,323	2,311,314
2012	1,146,210	1,007,649	1,166,838	1,027,003	1,086,925
2013	291,701	281,253	537,895	370,294	370,286
2014	1,928,544	1,862,193	1,758,249	1,806,899	1,838,971
2015	3,771,928	3,221,307	2,943,399	3,007,854	3,496,617
2016	1,850,382	1,949,376	1,700,427	1,883,151	1,845,834
2017	1,998,763	1,710,128	1,800,650	1,676,152	1,796,423
2018	1,312,369	1,284,027	1,443,318	1,352,346	1,348,015
2019	658,082	700,449	1,190,210	939,136	871,969
2020	1,296,211	1,685,296	1,548,366	1,690,634	1,555,127
2021	1,576,267	2,037,756	1,723,408	1,951,634	1,822,266
2022	3,415,904	3,561,873	2,162,495	2,840,497	2,854,955
2023	822,247	1,000,810	1,903,331	1,619,071	1,507,737
TOTAL	43,747,203	43,650,818	25,640,374	26,109,022	43,704,066

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Release
Summary of Case & IBNR Reserves

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	SELECTED	PAID	INCURRED	CASE	IBNR	UNPAID
RY	ULTIMATE	LOSS	LOSS	RESERVE	RESERVE	LOSS
1994	246,661	246,661	246,661	-	-	-
1995	241,953	241,953	241,953	-	-	-
1996	2,176,370	1,339,491	2,176,370	836,879	-	836,879
1997	1,995,927	1,995,927	1,995,927	-	-	-
1998	1,352,666	1,338,666	1,352,666	14,000	-	14,000
1999	142,573	142,573	142,573	-	-	-
2000	1,817,407	1,758,542	1,817,407	58,865	-	58,865
2001	1,109,531	1,036,131	1,109,531	73,400	-	73,400
2002	713,587	644,203	713,587	69,383	-	69,383
2003	1,980,868	1,980,868	1,980,868	-	-	-
2004	1,301,747	1,266,265	1,301,747	35,482	-	35,482
2005	1,683,167	1,005,600	1,680,933	675,333	2,234	677,567
2006	161,754	161,243	161,243	-	511	511
2007	2,424,070	2,362,765	2,398,612	35,847	25,458	61,304
2008	2,061,915	1,922,224	2,021,507	99,283	40,408	139,691
2009	907,611	783,624	879,624	96,000	27,987	123,987
2010	679,820	444,452	674,592	230,139	5,228	235,368
2011	2,311,314	2,010,201	2,191,528	181,327	119,786	301,113
2012	1,086,925	886,202	922,671	36,468	164,255	200,723
2013	370,286	220,060	256,528	36,468	113,757	150,226
2014	1,838,971	1,365,417	1,662,972	297,555	175,999	473,554
2015	3,496,617	2,459,229	2,845,588	386,360	651,029	1,037,389
2016	1,845,834	1,155,656	1,690,349	534,693	155,485	690,178
2017	1,796,423	1,182,226	1,414,157	231,931	382,267	614,197
2018	1,348,015	695,089	998,049	302,960	349,966	652,926
2019	871,969	295,247	519,267	224,020	352,702	576,723
2020	1,555,127	493,861	1,193,088	699,226	362,039	1,061,265
2021	1,822,266	488,004	1,331,159	843,154	491,108	1,334,262
2022	2,854,955	672,450	2,056,280	1,383,830	798,675	2,182,505
2023	1,507,737	20,816	335,904	315,088	1,171,833	1,486,921
TOTAL	43,704,066	30,615,648	38,313,340	7,697,692	5,390,726	13,088,418

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Closure
Summary of Ultimate Losses

(1)	(2)	(3)	(4)	(5)	(6)
	PAID LDM	INC LDM	PAID BF	INC BF	SELECTED
RY	ULTIMATE	ULTIMATE	ULTIMATE	ULTIMATE	ULTIMATE
1994	1,128,314	1,128,314	-	-	1,128,314
1995	830,629	830,629	-	-	830,629
1996	3,877,028	3,877,028	-	-	3,877,028
1997	4,621,434	4,620,899	-	-	4,620,899
1998	5,964,476	5,964,476	-	-	5,964,476
1999	9,740,883	9,740,883	-	-	9,740,883
2000	5,621,738	5,578,254	-	-	5,578,254
2001	2,269,296	2,233,022	-	-	2,233,022
2002	4,420,723	4,436,918	-	-	4,436,918
2003	4,166,373	4,188,643	-	-	4,188,643
2004	2,419,322	2,435,081	-	-	2,435,081
2005	2,836,012	2,797,898	-	-	2,797,898
2006	1,780,461	1,826,096	-	-	1,826,096
2007	4,161,602	4,167,682	-	-	4,167,682
2008	3,001,472	3,119,989	2,990,174	3,121,967	3,119,989
2009	2,224,559	2,140,324	2,339,127	2,192,897	2,140,324
2010	2,082,322	2,232,066	2,189,252	2,287,604	2,232,066
2011	1,834,876	1,729,955	2,027,286	1,846,006	1,729,955
2012	2,814,502	2,713,073	2,846,001	2,744,489	2,779,516
2013	3,826,760	4,169,738	3,661,460	4,019,212	3,919,292
2014	3,036,661	3,481,236	3,004,365	3,401,558	3,230,955
2015	2,536,007	2,936,788	2,600,098	2,917,016	2,747,477
2016	2,372,560	2,485,107	2,475,015	2,531,614	2,466,074
2017	2,718,117	2,988,223	2,714,889	2,936,872	2,839,525
2018	3,091,111	3,111,552	2,950,497	3,026,145	3,044,826
2019	2,939,040	3,473,818	2,791,181	3,283,473	3,121,878
2020	925,455	1,055,054	1,690,302	1,439,495	1,394,950
2021	1,430,238	2,114,044	1,967,008	2,243,062	2,108,038
2022	3,640,359	2,561,152	2,792,805	2,515,814	2,623,257
2023	2,395,173	2,558,573	2,402,866	2,457,454	2,472,964
TOTAL	94,707,501	96,696,514	41,442,327	42,964,678	95,796,911

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Closure
Summary of Case & IBNR Reserves

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	SELECTED	PAID	INCURRED	CASE	IBNR	UNPAID
RY	ULTIMATE	LOSS	LOSS	RESERVE	RESERVE	LOSS
1994	1,128,314	777,703	1,128,314	350,611	-	350,611
1995	830,629	830,629	830,629	-	-	-
1996	3,877,028	3,877,028	3,877,028	-	-	-
1997	4,620,899	4,504,990	4,620,899	115,909	-	115,909
1998	5,964,476	5,250,621	5,964,476	713,856	-	713,856
1999	9,740,883	9,423,681	9,740,883	317,202	-	317,202
2000	5,578,254	5,442,164	5,578,254	136,090	-	136,090
2001	2,233,022	2,188,879	2,223,792	34,913	9,230	44,142
2002	4,436,918	4,249,787	4,418,120	168,333	18,798	187,131
2003	4,188,643	3,400,641	4,166,373	765,731	22,270	788,001
2004	2,435,081	2,268,537	2,419,322	150,785	15,759	166,544
2005	2,797,898	2,646,006	2,765,098	119,092	32,800	151,892
2006	1,826,096	1,375,401	1,780,461	405,060	45,635	450,695
2007	4,167,682	3,771,178	4,020,125	248,947	147,557	396,504
2008	3,119,989	2,649,605	3,001,472	351,867	118,517	470,384
2009	2,140,324	1,945,535	2,027,535	82,000	112,790	194,790
2010	2,232,066	1,756,221	2,082,322	326,101	149,744	475,846
2011	1,729,955	1,539,584	1,575,584	36,000	154,372	190,372
2012	2,779,516	2,318,652	2,408,911	90,258	370,605	460,863
2013	3,919,292	3,107,325	3,656,207	548,882	263,085	811,967
2014	3,230,955	2,392,534	3,016,488	623,954	214,467	838,421
2015	2,747,477	1,938,080	2,486,479	548,399	260,998	809,397
2016	2,466,074	1,739,743	2,059,543	319,800	406,531	726,331
2017	2,839,525	1,901,855	2,441,873	540,018	397,652	937,670
2018	3,044,826	2,038,612	2,498,400	459,788	546,426	1,006,214
2019	3,121,878	1,753,565	2,740,228	986,663	381,650	1,368,313
2020	1,394,950	487,443	782,178	294,736	612,772	907,508
2021	2,108,038	542,419	1,430,238	887,819	677,800	1,565,619
2022	2,623,257	1,042,659	1,491,284	448,625	1,131,973	1,580,598
2023	2,472,964	185,707	890,057	704,350	1,582,907	2,287,257
TOTAL	95,796,911	77,346,783	88,122,572	10,775,789	7,674,339	18,450,128

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Other
Summary of Ultimate Losses

(1)	(2)	(3)	(4)	(5)	(6)
	PAID LDM	INC LDM	PAID BF	INC BF	SELECTED
RY	ULTIMATE	ULTIMATE	ULTIMATE	ULTIMATE	ULTIMATE
1994	3,503,101	3,503,101	-	-	3,503,101
1995	3,093,591	3,093,591	-	-	3,093,591
1996	2,547,508	2,547,508	-	-	2,547,508
1997	3,886,235	3,713,448	-	-	3,713,448
1998	3,005,904	3,005,904	-	-	3,005,904
1999	2,722,748	2,722,748	-	-	2,722,748
2000	4,433,658	4,365,025	-	-	4,365,025
2001	1,100,055	1,055,182	-	-	1,055,182
2002	4,617,103	4,565,188	-	-	4,565,188
2003	3,514,265	3,552,440	-	-	3,552,440
2004	4,848,364	4,630,367	-	-	4,630,367
2005	2,250,311	2,211,941	-	-	2,211,941
2006	3,305,070	3,138,809	-	-	3,138,809
2007	977,453	901,197	-	-	901,197
2008	2,528,349	2,308,863	2,458,928	2,296,046	2,308,863
2009	943,108	1,028,381	1,339,876	1,109,397	1,028,381
2010	223,439	244,567	643,114	383,845	244,567
2011	2,233,004	2,457,748	1,935,290	2,392,666	2,457,748
2012	1,177,408	1,194,949	1,311,248	1,238,818	1,194,949
2013	1,338,739	1,131,818	1,401,535	1,178,786	1,262,719
2014	492,142	415,200	846,106	561,461	578,727
2015	2,890,147	2,306,400	2,220,085	2,146,008	2,390,660
2016	1,657,893	1,358,122	1,458,737	1,331,360	1,451,528
2017	2,015,495	1,743,102	1,585,611	1,589,049	1,733,314
2018	1,042,831	1,169,709	1,059,261	1,139,892	1,106,270
2019	2,225,474	2,211,792	1,463,877	1,776,565	1,776,565
2020	719,255	701,364	851,465	790,445	701,364
2021	276,757	288,826	706,608	552,712	706,608
2022	-	-	682,863	431,226	682,863
2023	1,215,391	879,816	760,460	778,091	760,460
TOTAL	64,784,797	62,447,104	20,725,064	19,696,368	63,392,033

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Other
Summary of Case & IBNR Reserves

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	SELECTED	PAID	INCURRED	CASE	IBNR	UNPAID
RY	ULTIMATE	LOSS	LOSS	RESERVE	RESERVE	LOSS
1994	3,503,101	3,325,762	3,503,101	177,339	-	177,339
1995	3,093,591	2,893,591	3,093,591	200,000	-	200,000
1996	2,547,508	2,236,594	2,547,508	310,915	-	310,915
1997	3,713,448	3,678,448	3,713,448	35,000	-	35,000
1998	3,005,904	2,593,088	3,005,904	412,816	-	412,816
1999	2,722,748	2,722,748	2,722,748	-	-	-
2000	4,365,025	4,169,938	4,365,025	195,087	-	195,087
2001	1,055,182	1,026,602	1,055,182	28,580	-	28,580
2002	4,565,188	4,266,556	4,543,316	276,760	21,873	298,632
2003	3,552,440	3,021,286	3,514,265	492,980	38,175	531,155
2004	4,630,367	4,357,924	4,512,461	154,537	117,906	272,443
2005	2,211,941	1,986,936	2,116,804	129,867	95,137	225,005
2006	3,138,809	2,862,716	2,980,385	117,669	158,424	276,093
2007	901,197	826,373	849,275	22,902	51,922	74,824
2008	2,308,863	2,082,101	2,138,633	56,532	170,230	226,762
2009	1,028,381	943,108	943,108	-	85,273	85,273
2010	244,567	223,439	223,439	-	21,128	21,128
2011	2,457,748	1,489,924	2,233,004	743,080	224,744	967,824
2012	1,194,949	834,910	1,076,501	241,590	118,448	360,039
2013	1,262,719	901,545	998,657	97,112	264,063	361,174
2014	578,727	304,917	354,917	50,000	223,810	273,810
2015	2,390,660	1,660,786	1,933,310	272,524	457,350	729,874
2016	1,451,528	893,887	1,083,599	189,713	367,928	557,641
2017	1,733,314	1,022,452	1,295,631	273,179	437,683	710,862
2018	1,106,270	485,126	806,999	321,873	299,271	621,144
2019	1,776,565	865,583	1,430,865	565,282	345,700	910,982
2020	701,364	241,893	413,571	171,679	287,792	459,471
2021	706,608	73,580	155,916	82,336	550,691	633,028
2022	682,863	-	-	-	682,863	682,863
2023	760,460	43,599	223,100	179,501	537,360	716,861
TOTAL	63,392,033	52,035,411	57,834,262	5,798,851	5,557,771	11,356,622

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Remedial UST
Summary of Ultimate Losses

(1)	(2)	(3)	(4)	(5)	(6)
	PAID LDM	INC LDM	PAID BF	INC BF	SELECTED
RY	ULTIMATE	ULTIMATE	ULTIMATE	ULTIMATE	ULTIMATE
1994	-	-	-	-	-
1995	114,027	114,027	-	-	114,027
1996	69,367,207	69,218,445	-	-	69,292,826
1997	9,236,260	9,170,047	-	-	9,203,153
1998	19,384,618	19,085,557	-	-	19,235,087
1999	8,404,554	8,440,945	-	-	8,440,945
2000	16,190,413	16,271,892	-	-	16,271,892
2001	3,389,265	3,406,322	-	-	3,406,322
2002	3,398,921	3,277,715	-	-	3,277,715
2003	1,279,051	1,164,735	-	-	1,164,735
2004	2,506,657	2,597,955	-	-	2,597,955
2005	2,954,385	2,903,847	-	-	2,903,847
2006	715,521	755,818	-	-	755,818
2007	1,602,376	1,498,076	-	-	1,498,076
2008	705,588	769,870	1,157,263	851,724	769,870
2009	982,893	900,929	1,153,546	967,780	900,929
2010	823,409	937,266	1,002,294	1,001,397	823,409
2011	1,772,862	2,037,645	1,496,829	1,946,876	1,827,117
2012	305,720	355,330	712,295	476,828	355,330
2013	1,786,685	1,591,402	1,548,730	1,522,096	1,689,043
2014	1,141,831	1,046,094	1,097,233	1,042,691	1,093,962
2015	180,633	130,995	488,690	277,838	269,539
2016	1,292,250	1,542,435	1,100,396	1,398,005	1,292,250
2017	1,071,047	853,251	935,853	838,175	920,824
2018	1,052,177	1,040,632	879,806	961,665	983,570
2019	655,573	737,647	657,181	716,877	703,366
2020	275,274	388,509	478,594	451,004	451,004
2021	151,100	233,005	430,983	345,241	345,241
2022	607,100	1,000,888	482,916	806,179	482,916
2023	179,002	434,643	445,968	451,639	448,803
TOTAL	151,526,400	151,905,922	14,068,580	14,056,015	151,519,574

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Remedial UST
Summary of Case & IBNR Reserves

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	SELECTED	PAID	INCURRED	CASE	IBNR	UNPAID
RY	ULTIMATE	LOSS	LOSS	RESERVE	RESERVE	LOSS
1994	-	-	-	-	-	-
1995	114,027	114,027	114,027	-	-	-
1996	69,292,826	64,059,077	69,218,445	5,159,367	74,381	5,233,748
1997	9,203,153	8,529,481	9,170,047	640,565	33,107	673,672
1998	19,235,087	17,799,357	19,085,557	1,286,200	149,531	1,435,731
1999	8,440,945	7,668,887	8,398,678	729,791	42,267	772,058
2000	16,271,892	14,148,993	16,190,413	2,041,420	81,479	2,122,899
2001	3,406,322	2,447,144	3,389,265	942,121	17,057	959,178
2002	3,277,715	2,970,446	3,239,727	269,282	37,988	307,269
2003	1,164,735	1,092,445	1,136,652	44,207	28,083	72,290
2004	2,597,955	1,754,136	2,506,657	752,522	91,298	843,820
2005	2,903,847	2,391,427	2,788,380	396,953	115,467	512,420
2006	755,818	410,371	715,521	305,150	40,297	345,447
2007	1,498,076	1,237,230	1,375,354	138,125	122,722	260,847
2008	769,870	705,588	705,588	-	64,281	64,281
2009	900,929	712,041	815,042	103,001	85,887	188,888
2010	823,409	563,408	823,409	260,001	-	260,001
2011	1,827,117	1,077,136	1,772,862	695,725	54,255	749,981
2012	355,330	305,720	305,720	-	49,610	49,610
2013	1,689,043	1,148,079	1,356,966	208,887	332,078	540,965
2014	1,093,962	706,966	879,488	172,521	214,475	386,996
2015	269,539	107,157	107,158	1	162,381	162,382
2016	1,292,250	721,097	1,216,866	495,769	75,384	571,153
2017	920,824	564,063	663,561	99,498	257,263	356,761
2018	983,570	507,450	784,953	277,503	198,618	476,120
2019	703,366	287,383	544,232	256,849	159,134	415,983
2020	451,004	99,099	275,274	176,175	175,730	351,905
2021	345,241	38,178	151,100	112,922	194,141	307,063
2022	482,916	70,940	607,100	536,160	(124,184)	411,976
2023	448,803	-	179,002	179,002	269,801	448,803
TOTAL	151,519,574	132,237,326	148,517,044	16,279,718	3,002,530	19,282,248

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance AST
Summary of Ultimate Losses

(1)	(2)	(3)	(4)	(5)	(6)
	PAID LDM	INC LDM	PAID BF	INC BF	SELECTED
RY	ULTIMATE	ULTIMATE	ULTIMATE	ULTIMATE	ULTIMATE
1994	-	-	-	-	-
1995	-	-	-	-	-
1996	-	-	-	-	-
1997	-	-	-	-	-
1998	478,042	478,042	-	-	478,042
1999	2,689,230	2,689,230	-	-	2,689,230
2000	1,195,793	1,195,793	-	-	1,195,793
2001	6,690,965	6,690,965	-	-	6,690,965
2002	2,309,328	2,309,328	-	-	2,309,328
2003	1,496,283	1,449,461	-	-	1,449,461
2004	2,953,221	2,953,221	-	-	2,953,221
2005	2,117,185	2,117,185	-	-	2,117,185
2006	2,203,318	2,203,318	-	-	2,203,318
2007	1,173,608	1,174,762	-	-	1,174,762
2008	581,362	588,201	686,703	591,925	588,201
2009	1,065,899	977,257	1,063,589	978,291	977,257
2010	1,434,006	1,472,728	1,081,090	1,464,011	1,434,006
2011	1,240,502	1,280,868	1,257,845	1,293,926	1,260,685
2012	3,089,209	2,752,818	2,889,318	2,709,459	2,860,201
2013	1,378,222	1,382,665	1,615,793	1,467,682	1,461,091
2014	844,706	931,732	878,615	1,084,507	934,890
2015	1,886,642	1,933,375	2,154,463	2,030,339	2,092,401
2016	2,064,703	2,262,200	2,342,128	2,375,222	2,261,063
2017	4,445,724	5,695,207	3,670,043	5,100,297	4,727,818
2018	3,358,030	3,701,335	3,256,941	3,566,847	3,529,682
2019	6,096,870	6,415,093	4,585,118	5,545,158	5,660,560
2020	1,942,599	2,414,116	2,884,828	2,744,595	2,496,534
2021	5,102,016	4,750,523	4,067,579	4,315,334	4,315,334
2022	3,003,694	3,730,659	3,591,494	3,735,920	3,515,442
2023	6,673,307	2,948,085	4,045,030	3,460,858	4,281,820
TOTAL	67,514,465	66,498,168	40,070,577	42,464,371	65,658,292

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance AST
Summary of Case & IBNR Reserves

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	SELECTED	PAID	INCURRED	CASE	IBNR	UNPAID
RY	ULTIMATE	LOSS	LOSS	RESERVE	RESERVE	LOSS
1994	-	-	-	-	-	-
1995	-	-	-	-	-	-
1996	-	-	-	-	-	-
1997	-	-	-	-	-	-
1998	478,042	478,042	478,042	-	-	-
1999	2,689,230	2,532,831	2,689,230	156,399	-	156,399
2000	1,195,793	1,195,793	1,195,793	-	-	-
2001	6,690,965	6,169,987	6,690,965	520,978	-	520,978
2002	2,309,328	1,913,996	2,309,328	395,332	-	395,332
2003	1,449,461	1,432,117	1,449,461	17,344	-	17,344
2004	2,953,221	2,780,056	2,953,221	173,165	-	173,165
2005	2,117,185	1,714,527	2,117,185	402,658	-	402,658
2006	2,203,318	1,995,945	2,203,318	207,374	-	207,374
2007	1,174,762	1,173,608	1,173,608	-	1,154	1,154
2008	588,201	581,362	581,362	-	6,839	6,839
2009	977,257	923,112	963,112	40,000	14,146	54,146
2010	1,434,006	903,292	1,434,006	530,714	-	530,714
2011	1,260,685	955,996	1,240,502	284,506	20,183	304,689
2012	2,860,201	2,422,544	2,550,471	127,927	309,730	437,657
2013	1,461,091	1,044,234	1,262,213	217,980	198,878	416,857
2014	934,890	169,547	844,706	675,159	90,184	765,343
2015	2,092,401	1,263,610	1,688,085	424,476	404,316	828,791
2016	2,261,063	1,314,960	1,810,869	495,909	450,194	946,103
2017	4,727,818	2,384,220	4,445,724	2,061,504	282,094	2,343,598
2018	3,529,682	1,774,133	2,808,645	1,034,513	721,037	1,755,550
2019	5,660,560	2,802,620	4,624,173	1,821,552	1,036,387	2,857,939
2020	2,496,534	734,769	1,649,858	915,090	846,676	1,761,766
2021	4,315,334	1,548,565	2,927,030	1,378,465	1,388,305	2,766,769
2022	3,515,442	613,647	2,060,642	1,446,996	1,454,799	2,901,795
2023	4,281,820	463,090	1,270,204	807,114	3,011,616	3,818,731
TOTAL	65,658,292	41,286,602	55,421,754	14,135,152	10,236,537	24,371,690

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Remedial AST
Summary of Ultimate Losses

(1)	(2)	(3)	(4)	(5)	(6)
	PAID LDM	INC LDM	PAID BF	INC BF	SELECTED
RY	ULTIMATE	ULTIMATE	ULTIMATE	ULTIMATE	ULTIMATE
1994	-	-	-	-	-
1995	106,826	106,826	-	-	106,826
1996	109,456	109,456	-	-	109,456
1997	-	-	-	-	-
1998	662,628	662,628	-	-	662,628
1999	1,741,560	1,741,560	-	-	1,741,560
2000	5,640,481	5,640,481	-	-	5,640,481
2001	2,192,168	2,192,168	-	-	2,192,168
2002	239,493	239,493	-	-	239,493
2003	555,224	555,224	-	-	555,224
2004	2,144,554	2,074,609	-	-	2,109,582
2005	79,838	79,838	-	-	79,838
2006	-	-	-	-	-
2007	41,750	41,750	-	-	41,750
2008	51,787	51,787	60,192	51,787	51,787
2009	183,657	195,947	193,808	186,628	183,657
2010	-	-	11,531	3,028	-
2011	-	-	13,094	3,168	-
2012	-	-	14,638	6,002	-
2013	-	-	16,614	6,322	-
2014	-	-	21,636	8,979	-
2015	155,510	218,566	180,451	170,803	155,510
2016	-	-	28,873	15,599	-
2017	59,359	86,700	91,843	76,742	73,030
2018	-	-	35,787	18,524	-
2019	-	-	38,336	21,627	-
2020	196,843	197,669	98,547	144,160	196,843
2021	75,000	121,817	56,755	97,898	121,817
2022	-	-	50,945	29,053	29,053
2023	-	-	56,492	41,755	49,123
TOTAL	14,236,135	14,316,519	969,541	882,074	14,339,826

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Remedial AST
Summary of Case & IBNR Reserves

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	SELECTED	PAID	INCURRED	CASE	IBNR	UNPAID
RY	ULTIMATE	LOSS	LOSS	RESERVE	RESERVE	LOSS
1994	-	-	-	-	-	-
1995	106,826	106,826	106,826	-	-	-
1996	109,456	109,456	109,456	-	-	-
1997	-	-	-	-	-	-
1998	662,628	662,628	662,628	-	-	-
1999	1,741,560	1,499,337	1,741,560	242,223	-	242,223
2000	5,640,481	4,609,460	5,640,481	1,031,021	-	1,031,021
2001	2,192,168	1,566,522	2,192,168	625,646	-	625,646
2002	239,493	239,493	239,493	-	-	-
2003	555,224	555,224	555,224	-	-	-
2004	2,109,582	1,937,099	2,074,609	137,511	34,972	172,483
2005	79,838	79,838	79,838	-	-	-
2006	-	-	-	-	-	-
2007	41,750	41,750	41,750	-	-	-
2008	51,787	51,787	51,787	-	-	-
2009	183,657	183,657	183,657	-	-	-
2010	-	-	-	-	-	-
2011	-	-	-	-	-	-
2012	-	-	-	-	-	-
2013	-	-	-	-	-	-
2014	-	-	-	-	-	-
2015	155,510	155,510	155,510	-	-	-
2016	-	-	-	-	-	-
2017	73,030	59,359	59,359	-	13,671	13,671
2018	-	-	-	-	-	-
2019	-	-	-	-	-	-
2020	196,843	57,042	121,700	64,658	75,143	139,801
2021	121,817	11,965	75,000	63,035	46,817	109,852
2022	29,053	-	-	-	29,053	29,053
2023	49,123	-	-	-	49,123	49,123
TOTAL	14,339,826	11,926,953	14,091,047	2,164,094	248,779	2,412,873

Projected Cash Balance by Fiscal Year at Confidence Levels
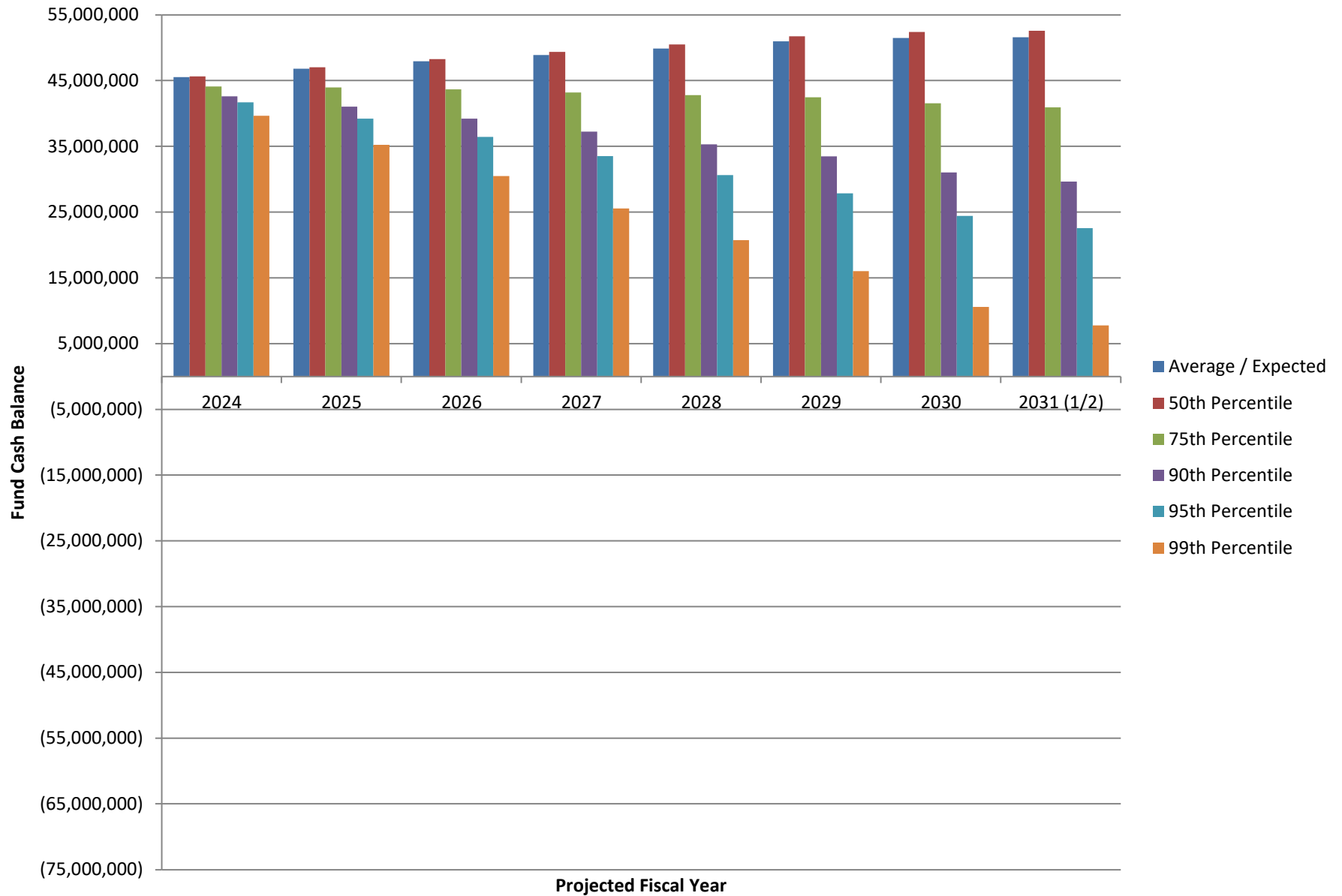
Chart legend:
- Average / Expected
- 50th Percentile
- 75th Percentile
- 90th Percentile
- 95th Percentile
- 99th Percentile

Y-axis: Fund Cash Balance

X-axis: Projected Fiscal Year (2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031 (1/2))

Projected Cash Balance by Fiscal Year at Confidence Levels with Increased Claim Activity due to Fund Sunset; Low Scenario
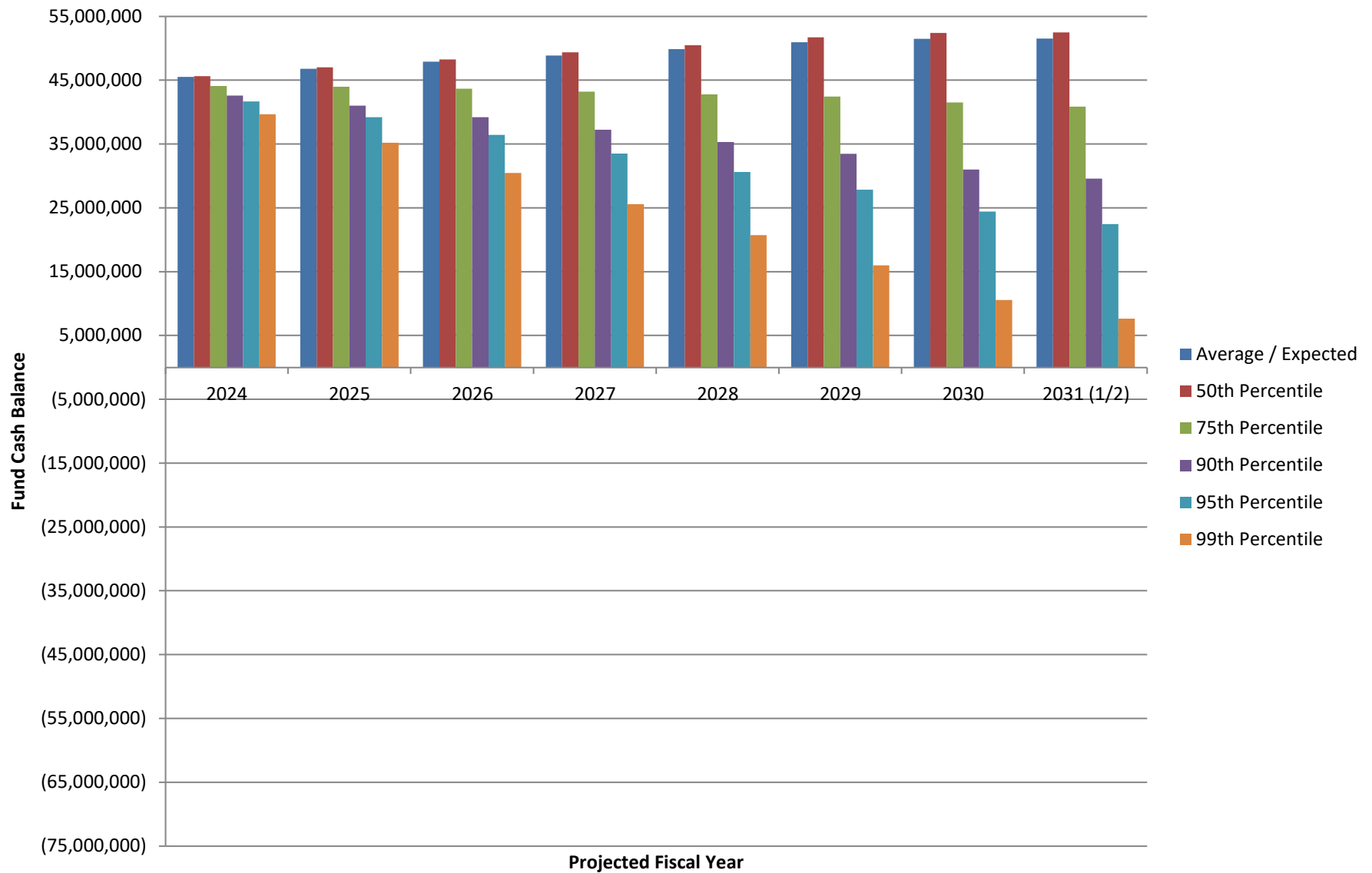
Legend:
- Average / Expected
- 50th Percentile
- 75th Percentile
- 90th Percentile
- 95th Percentile
- 99th Percentile

Y-axis: Fund Cash Balance

X-axis: Projected Fiscal Year (2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031 (1/2))

Projected Cash Balance by Fiscal Year at Confidence Levels with Increased Claim Activity due to Fund Sunset; Middle Scenario
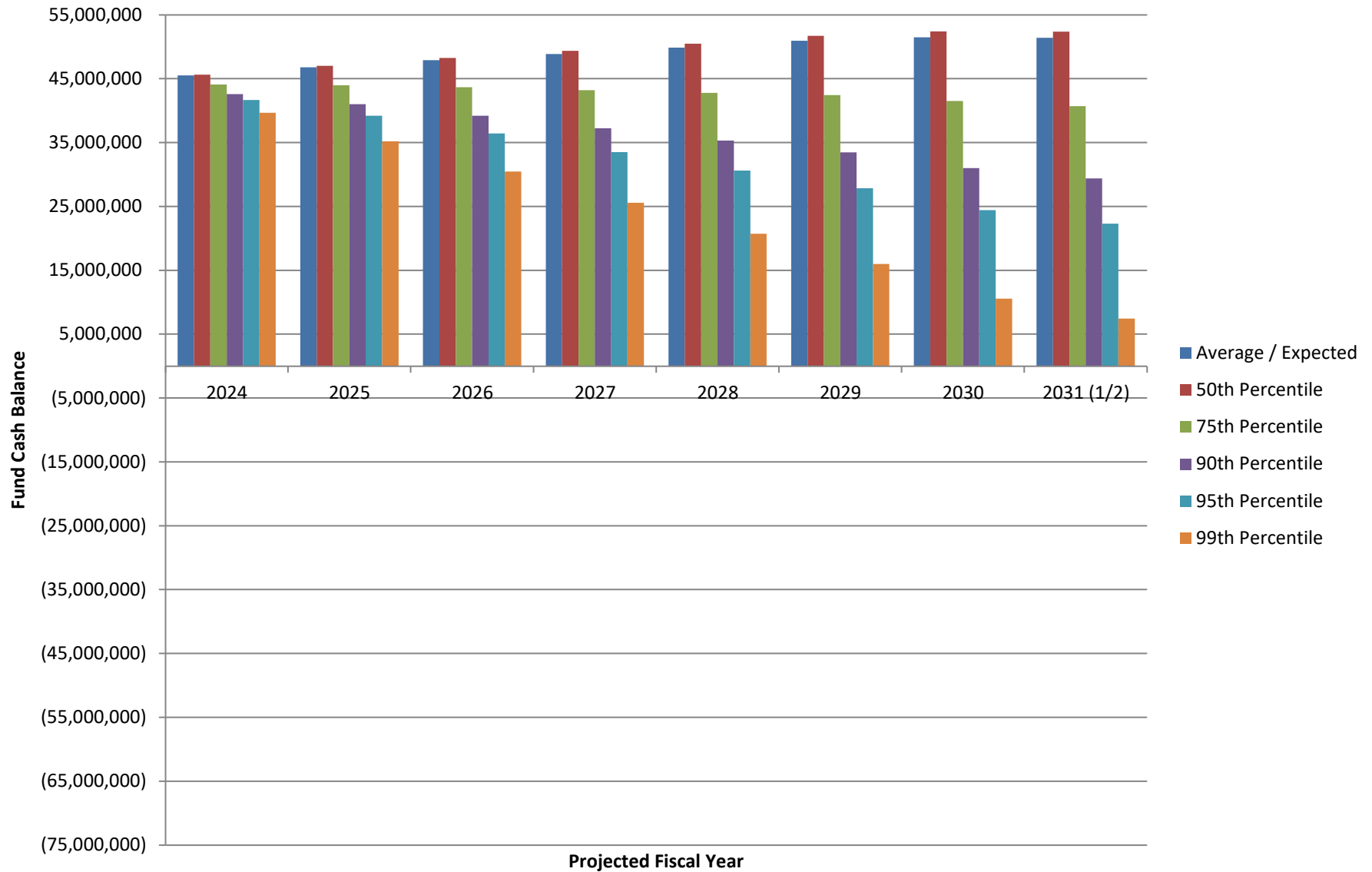
Projected Cash Balance by Fiscal Year at Confidence Levels with Increased Claim Activity due to Fund Sunset; High Scenario

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
All Claim Types
Financial Projections Based on PSTIF 2023 Projections

	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
	Annual Revenues Fiscal Year:	2024	2025	2026	2027	2028	2029	2030	2031 (1/2)	Totals
(1)	Transport load fees	18,057,143	18,000,000	17,942,857	17,885,714	17,828,571	17,771,429	17,714,286	8,828,571	134,028,571
(2)	100 Initial tank fees	12,000	12,000	12,000	12,000	12,000	12,000	12,000	6,000	90,000
(3)	UST participation fees	800,000	800,000	800,000	800,000	800,000	800,000	800,000	400,000	6,000,000
(4)	AST participation fees	315,000	315,000	315,000	315,000	315,000	315,000	315,000	157,500	2,362,500
(5)	Interest income	660,696	678,672	692,356	710,358	725,976	740,685	756,365	384,225	5,349,335
(6)	Total Revenues	19,844,839	19,805,672	19,762,213	19,723,073	19,681,548	19,639,114	19,597,650	9,776,297	147,830,406
	Administrative Expenses Fiscal Year:	2024	2025	2026	2027	2028	2029	2030	2031 (1/2)	Totals
(7)	Contracted Fund Administrator Expenses	1,768,220	1,732,856	1,698,198	1,664,235	1,630,950	1,598,331	1,566,364	767,518	12,426,672
(8)	Contingency & Special Projects	75,000	75,000	75,000	75,000	75,000	75,000	75,000	37,500	562,500
(9)	Office of Administration	125,520	129,286	133,164	137,159	141,274	145,512	149,877	77,187	1,038,979
(10)	OA State Accounting Software	73,176	-	-	-	-	-	-	-	73,176
(11)	Section 319.107 Expenses	10,000	10,300	10,609	10,927	11,255	11,593	11,941	6,149	82,774
(12)	Underwriting	668,992	689,062	709,734	731,026	752,956	775,545	798,811	411,388	5,537,514
(13)	Inspections	457,333	414,090	351,540	472,021	425,122	360,772	478,675	430,890	3,390,444
(14)	Training & Loss Prevention Services	6,000	6,180	6,365	6,556	6,753	6,956	7,164	3,690	49,664
(15)	Other Legal and Litigation Costs	250,000	257,500	265,225	273,182	281,377	289,819	298,513	153,734	2,069,350
(16)	Other Contract Administrative Costs	411,900	424,257	436,985	450,094	463,597	477,505	491,830	253,293	3,409,461
(17)	Audit	21,475	22,119	22,783	23,466	24,170	24,895	25,642	13,206	177,757
(18)	Actuarial Analyses	14,800	15,650	16,500	17,350	18,200	19,050	19,900	20,750	142,200
(19)	Department of Revenue	55,776	57,450	59,173	60,948	62,777	64,660	66,600	34,299	461,684
(20)	Attorney General's Office	49,493	50,977	52,507	54,082	55,704	57,376	59,097	30,435	409,671
(21)	PSTIF Board/Staff	473,217	487,414	502,036	517,097	532,610	548,588	565,046	290,999	3,917,007
(22)	Department of Natural Resources	2,358,252	2,428,999	2,501,869	2,576,925	2,654,233	2,733,860	2,815,876	1,450,176	19,520,189
(23)	Total Administrative Expenses	6,819,154	6,801,139	6,841,688	7,070,069	7,135,979	7,189,462	7,430,337	3,981,214	53,269,042
	Claim Payments Fiscal Year:	2024	2025	2026	2027	2028	2029	2030	2031 (1/2)	Totals
(24)	Average / Expected	12,474,607	11,731,071	11,793,719	11,697,414	11,539,937	11,364,729	11,640,730	5,690,312	87,932,519
(25)	50th Percentile Losses	12,369,758	11,614,640	11,665,578	11,565,461	11,402,902	11,225,649	11,495,893	5,619,279	86,959,160
(26)	75th Percentile Losses	13,909,165	13,121,121	13,222,457	13,121,565	12,962,451	12,773,090	13,092,021	6,400,643	98,602,513
(27)	90th Percentile Losses	15,388,962	14,576,599	14,731,671	14,630,456	14,476,440	14,276,552	14,642,717	7,158,986	109,882,384
(28)	95th Percentile Losses	16,314,918	15,489,610	15,680,154	15,578,618	15,428,123	15,221,537	15,616,859	7,634,665	116,964,485
(29)	99th Percentile Losses	18,341,047	17,438,613	17,670,666	17,558,456	17,397,342	17,160,768	17,606,074	8,605,013	131,777,981
(30)	Cash balance @ 6/30/23	44,969,275								
	Funds Available at Fiscal Year-End:	2024	2025	2026	2027	2028	2029	2030	2031 (1/2)	
(31)	Average / Expected	45,520,353	46,793,816	47,920,621	48,876,211	49,881,842	50,966,765	51,493,348	51,598,120	
(32)	50th Percentile	45,625,202	47,015,096	48,270,043	49,357,585	50,500,252	51,724,255	52,395,675	52,571,479	
(33)	75th Percentile	44,085,795	43,969,207	43,667,276	43,198,714	42,781,832	42,458,395	41,533,686	40,928,126	
(34)	90th Percentile	42,605,998	41,033,932	39,222,786	37,245,333	35,314,462	33,487,562	31,012,158	29,648,255	
(35)	95th Percentile	41,680,042	39,194,965	36,435,336	33,509,722	30,627,167	27,855,283	24,405,736	22,566,154	
(36)	99th Percentile	39,653,913	35,219,833	30,469,692	25,564,240	20,712,466	16,001,350	10,562,589	7,752,659	

Notes: Rows (1) through (18) from Financial Projections provided by PSTIF with some minor differences due to rounding.

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
All Claim Types
Financial Projections Based on PSTIF 2023 Projections w/Increased Activity due to Sunset, Low Scenario

	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
	Annual Revenues Fiscal Year:	2024	2025	2026	2027	2028	2029	2030	2031 (1/2)	Totals
(1)	Transport load fees	18,057,143	18,000,000	17,942,857	17,885,714	17,828,571	17,771,429	17,714,286	8,828,571	134,028,571
(2)	100 Initial tank fees	12,000	12,000	12,000	12,000	12,000	12,000	12,000	6,000	90,000
(3)	UST participation fees	800,000	800,000	800,000	800,000	800,000	800,000	800,000	400,000	6,000,000
(4)	AST participation fees	315,000	315,000	315,000	315,000	315,000	315,000	315,000	157,500	2,362,500
(5)	Interest income	660,696	678,672	692,356	710,358	725,976	740,685	756,365	384,225	5,349,335
(6)	Total Revenues	19,844,839	19,805,672	19,762,213	19,723,073	19,681,548	19,639,114	19,597,650	9,776,297	147,830,406
	Administrative Expenses Fiscal Year:	2024	2025	2026	2027	2028	2029	2030	2031 (1/2)	Totals
(7)	Contracted Fund Administrator Expenses	1,768,220	1,732,856	1,698,198	1,664,235	1,630,950	1,598,331	1,566,364	767,518	12,426,672
(8)	Contingency & Special Projects	75,000	75,000	75,000	75,000	75,000	75,000	75,000	37,500	562,500
(9)	Office of Administration	125,520	129,286	133,164	137,159	141,274	145,512	149,877	77,187	1,038,979
(10)	OA State Accounting Software	73,176								
(11)	Section 319.107 Expenses	10,000	10,300	10,609	10,927	11,255	11,593	11,941	6,149	82,774
(12)	Underwriting	668,992	689,062	709,734	731,026	752,956	775,545	798,811	411,388	5,537,514
(13)	Inspections	457,333	414,090	351,540	472,021	425,122	360,772	478,675	430,890	3,390,444
(14)	Training & Loss Prevention Services	6,000	6,180	6,365	6,556	6,753	6,956	7,164	3,690	49,664
(15)	Other Legal and Litigation Costs	250,000	257,500	265,225	273,182	281,377	289,819	298,513	153,734	2,069,350
(16)	Other Contract Administrative Costs	411,900	424,257	436,985	450,094	463,597	477,505	491,830	253,293	3,409,461
(17)	Audit	21,475	22,119	22,783	23,466	24,170	24,895	25,642	13,206	177,757
(18)	Actuarial Analyses	14,800	15,650	16,500	17,350	18,200	19,050	19,900	20,750	142,200
(19)	Department of Revenue	55,776	57,450	59,173	60,948	62,777	64,660	66,600	34,299	461,684
(20)	Attorney General's Office	49,493	50,977	52,507	54,082	55,704	57,376	59,097	30,435	409,671
(21)	PSTIF Board/Staff	473,217	487,414	502,036	517,097	532,610	548,588	565,046	290,999	3,917,007
(22)	Department of Natural Resources	2,358,252	2,428,999	2,501,869	2,576,925	2,654,233	2,733,860	2,815,876	1,450,176	19,520,189
(23)	Total Administrative Expenses	6,819,154	6,801,139	6,841,688	7,070,069	7,135,979	7,189,462	7,430,337	3,981,214	53,269,042
	Claim Payments Fiscal Year:	2024	2025	2026	2027	2028	2029	2030	2031 (1/2)	Totals
(24)	Average / Expected	12,474,607	11,731,071	11,793,719	11,697,414	11,539,937	11,364,729	11,640,730	5,755,424	87,997,631
(25)	50th Percentile Losses	12,369,758	11,614,640	11,665,578	11,565,461	11,402,902	11,225,649	11,495,893	5,683,470	87,023,351
(26)	75th Percentile Losses	13,909,165	13,121,121	13,222,457	13,121,565	12,962,451	12,773,090	13,092,021	6,474,841	98,676,711
(27)	90th Percentile Losses	15,388,962	14,576,599	14,731,671	14,630,456	14,476,440	14,276,552	14,642,717	7,242,871	109,966,269
(28)	95th Percentile Losses	16,314,918	15,489,610	15,680,154	15,578,618	15,428,123	15,221,537	15,616,859	7,724,573	117,054,393
(29)	99th Percentile Losses	18,341,047	17,438,613	17,670,666	17,558,456	17,397,342	17,160,768	17,606,074	8,706,530	131,879,498
(30)	Cash balance @ 6/30/23	44,969,275								
	Funds Available at Fiscal Year-End:	2024	2025	2026	2027	2028	2029	2030	2031 (1/2)	
(31)	Average / Expected	45,520,353	46,793,816	47,920,621	48,876,211	49,881,842	50,966,765	51,493,348	51,533,008	
(32)	50th Percentile	45,625,202	47,015,096	48,270,043	49,357,585	50,500,252	51,724,255	52,395,675	52,507,289	
(33)	75th Percentile	44,085,795	43,969,207	43,667,276	43,198,714	42,781,832	42,458,395	41,533,686	40,853,928	
(34)	90th Percentile	42,605,998	41,033,932	39,222,786	37,245,333	35,314,462	33,487,562	31,012,158	29,564,371	
(35)	95th Percentile	41,680,042	39,194,965	36,435,336	33,509,722	30,627,167	27,855,283	24,405,736	22,476,246	
(36)	99th Percentile	39,653,913	35,219,833	30,469,692	25,564,240	20,712,466	16,001,350	10,562,589	7,651,142	

Notes: Rows (1) through (18) from Financial Projections provided by PSTIF with some minor differences due to rounding.

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
All Claim Types
Financial Projections Based on PSTIF 2023 Projections w/Increased Activity due to Sunset, Middle Scenario

	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
	Annual Revenues Fiscal Year:	2024	2025	2026	2027	2028	2029	2030	2031 (1/2)	Totals
(1)	Transport load fees	18,057,143	18,000,000	17,942,857	17,885,714	17,828,571	17,771,429	17,714,286	8,828,571	134,028,571
(2)	100 Initial tank fees	12,000	12,000	12,000	12,000	12,000	12,000	12,000	6,000	90,000
(3)	UST participation fees	800,000	800,000	800,000	800,000	800,000	800,000	800,000	400,000	6,000,000
(4)	AST participation fees	315,000	315,000	315,000	315,000	315,000	315,000	315,000	157,500	2,362,500
(5)	Interest income	660,696	678,672	692,356	710,358	725,976	740,685	756,365	384,225	5,349,335
(6)	Total Revenues	19,844,839	19,805,672	19,762,213	19,723,073	19,681,548	19,639,114	19,597,650	9,776,297	147,830,406
	Administrative Expenses Fiscal Year:	2024	2025	2026	2027	2028	2029	2030	2031 (1/2)	Totals
(7)	Contracted Fund Administrator Expenses	1,768,220	1,732,856	1,698,198	1,664,235	1,630,950	1,598,331	1,566,364	767,518	12,426,672
(8)	Contingency & Special Projects	75,000	75,000	75,000	75,000	75,000	75,000	75,000	37,500	562,500
(9)	Office of Administration	125,520	129,286	133,164	137,159	141,274	145,512	149,877	77,187	1,038,979
(10)	OA State Accounting Software	73,176								
(11)	Section 319.107 Expenses	10,000	10,300	10,609	10,927	11,255	11,593	11,941	6,149	82,774
(12)	Underwriting	668,992	689,062	709,734	731,026	752,956	775,545	798,811	411,388	5,537,514
(13)	Inspections	457,333	414,090	351,540	472,021	425,122	360,772	478,675	430,890	3,390,444
(14)	Training & Loss Prevention Services	6,000	6,180	6,365	6,556	6,753	6,956	7,164	3,690	49,664
(15)	Other Legal and Litigation Costs	250,000	257,500	265,225	273,182	281,377	289,819	298,513	153,734	2,069,350
(16)	Other Contract Administrative Costs	411,900	424,257	436,985	450,094	463,597	477,505	491,830	253,293	3,409,461
(17)	Audit	21,475	22,119	22,783	23,466	24,170	24,895	25,642	13,206	177,757
(18)	Actuarial Analyses	14,800	15,650	16,500	17,350	18,200	19,050	19,900	20,750	142,200
(19)	Department of Revenue	55,776	57,450	59,173	60,948	62,777	64,660	66,600	34,299	461,684
(20)	Attorney General's Office	49,493	50,977	52,507	54,082	55,704	57,376	59,097	30,435	409,671
(21)	PSTIF Board/Staff	473,217	487,414	502,036	517,097	532,610	548,588	565,046	290,999	3,917,007
(22)	Department of Natural Resources	2,358,252	2,428,999	2,501,869	2,576,925	2,654,233	2,733,860	2,815,876	1,450,176	19,520,189
(23)	Total Administrative Expenses	6,819,154	6,801,139	6,841,688	7,070,069	7,135,979	7,189,462	7,430,337	3,981,214	53,269,042
	Claim Payments Fiscal Year:	2024	2025	2026	2027	2028	2029	2030	2031 (1/2)	Totals
(24)	Average / Expected	12,474,607	11,731,071	11,793,719	11,697,414	11,539,937	11,364,729	11,640,730	5,885,648	88,127,856
(25)	50th Percentile Losses	12,369,758	11,614,640	11,665,578	11,565,461	11,402,902	11,225,649	11,495,893	5,811,851	87,151,732
(26)	75th Percentile Losses	13,909,165	13,121,121	13,222,457	13,121,565	12,962,451	12,773,090	13,092,021	6,623,237	98,825,107
(27)	90th Percentile Losses	15,388,962	14,576,599	14,731,671	14,630,456	14,476,440	14,276,552	14,642,717	7,410,640	110,134,038
(28)	95th Percentile Losses	16,314,918	15,489,610	15,680,154	15,578,618	15,428,123	15,221,537	15,616,859	7,904,389	117,234,209
(29)	99th Percentile Losses	18,341,047	17,438,613	17,670,666	17,558,456	17,397,342	17,160,768	17,606,074	8,909,564	132,082,532
(30)	Cash balance @ 6/30/23	44,969,275								
	Funds Available at Fiscal Year-End:	2024	2025	2026	2027	2028	2029	2030	2031 (1/2)	
(31)	Average / Expected	45,520,353	46,793,816	47,920,621	48,876,211	49,881,842	50,966,765	51,493,348	51,402,784	
(32)	50th Percentile	45,625,202	47,015,096	48,270,043	49,357,585	50,500,252	51,724,255	52,395,675	52,378,907	
(33)	75th Percentile	44,085,795	43,969,207	43,667,276	43,198,714	42,781,832	42,458,395	41,533,686	40,705,532	
(34)	90th Percentile	42,605,998	41,033,932	39,222,786	37,245,333	35,314,462	33,487,562	31,012,158	29,396,602	
(35)	95th Percentile	41,680,042	39,194,965	36,435,336	33,509,722	30,627,167	27,855,283	24,405,736	22,296,430	
(36)	99th Percentile	39,653,913	35,219,833	30,469,692	25,564,240	20,712,466	16,001,350	10,562,589	7,448,108	

Notes: Rows (1) through (18) from Financial Projections provided by PSTIF with some minor differences due to rounding.

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
All Claim Types
Financial Projections Based on PSTIF 2023 Projections w/Increased Activity due to Sunset, High Scenario

	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
	Annual Revenues Fiscal Year:	2024	2025	2026	2027	2028	2029	2030	2031 (1/2)	Totals
(1)	Transport load fees	18,057,143	18,000,000	17,942,857	17,885,714	17,828,571	17,771,429	17,714,286	8,828,571	134,028,571
(2)	100 Initial tank fees	12,000	12,000	12,000	12,000	12,000	12,000	12,000	6,000	90,000
(3)	UST participation fees	800,000	800,000	800,000	800,000	800,000	800,000	800,000	400,000	6,000,000
(4)	AST participation fees	315,000	315,000	315,000	315,000	315,000	315,000	315,000	157,500	2,362,500
(5)	Interest income	660,696	678,672	692,356	710,358	725,976	740,685	756,365	384,225	5,349,335
(6)	Total Revenues	19,844,839	19,805,672	19,762,213	19,723,073	19,681,548	19,639,114	19,597,650	9,776,297	147,830,406
	Administrative Expenses Fiscal Year:	2024	2025	2026	2027	2028	2029	2030	2031 (1/2)	Totals
(7)	Contracted Fund Administrator Expenses	1,768,220	1,732,856	1,698,198	1,664,235	1,630,950	1,598,331	1,566,364	767,518	12,426,672
(8)	Contingency & Special Projects	75,000	75,000	75,000	75,000	75,000	75,000	75,000	37,500	562,500
(9)	Office of Administration	125,520	129,286	133,164	137,159	141,274	145,512	149,877	77,187	1,038,979
(10)	OA State Accounting Software	73,176								
(11)	Section 319.107 Expenses	10,000	10,300	10,609	10,927	11,255	11,593	11,941	6,149	82,774
(12)	Underwriting	668,992	689,062	709,734	731,026	752,956	775,545	798,811	411,388	5,537,514
(13)	Inspections	457,333	414,090	351,540	472,021	425,122	360,772	478,675	430,890	3,390,444
(14)	Training & Loss Prevention Services	6,000	6,180	6,365	6,556	6,753	6,956	7,164	3,690	49,664
(15)	Other Legal and Litigation Costs	250,000	257,500	265,225	273,182	281,377	289,819	298,513	153,734	2,069,350
(16)	Other Contract Administrative Costs	411,900	424,257	436,985	450,094	463,597	477,505	491,830	253,293	3,409,461
(17)	Audit	21,475	22,119	22,783	23,466	24,170	24,895	25,642	13,206	177,757
(18)	Actuarial Analyses	14,800	15,650	16,500	17,350	18,200	19,050	19,900	20,750	142,200
(19)	Department of Revenue	55,776	57,450	59,173	60,948	62,777	64,660	66,600	34,299	461,684
(20)	Attorney General's Office	49,493	50,977	52,507	54,082	55,704	57,376	59,097	30,435	409,671
(21)	PSTIF Board/Staff	473,217	487,414	502,036	517,097	532,610	548,588	565,046	290,999	3,917,007
(22)	Department of Natural Resources	2,358,252	2,428,999	2,501,869	2,576,925	2,654,233	2,733,860	2,815,876	1,450,176	19,520,189
(23)	Total Administrative Expenses	6,819,154	6,801,139	6,841,688	7,070,069	7,135,979	7,189,462	7,430,337	3,981,214	53,269,042
	Claim Payments Fiscal Year:	2024	2025	2026	2027	2028	2029	2030	2031 (1/2)	Totals
(24)	Average / Expected	12,474,607	11,731,071	11,793,719	11,697,414	11,539,937	11,364,729	11,640,730	6,015,872	88,258,080
(25)	50th Percentile Losses	12,369,758	11,614,640	11,665,578	11,565,461	11,402,902	11,225,649	11,495,893	5,940,232	87,280,113
(26)	75th Percentile Losses	13,909,165	13,121,121	13,222,457	13,121,565	12,962,451	12,773,090	13,092,021	6,771,633	98,973,503
(27)	90th Percentile Losses	15,388,962	14,576,599	14,731,671	14,630,456	14,476,440	14,276,552	14,642,717	7,578,409	110,301,807
(28)	95th Percentile Losses	16,314,918	15,489,610	15,680,154	15,578,618	15,428,123	15,221,537	15,616,859	8,084,206	117,414,026
(29)	99th Percentile Losses	18,341,047	17,438,613	17,670,666	17,558,456	17,397,342	17,160,768	17,606,074	9,112,598	132,285,566
(30)	Cash balance @ 6/30/23	44,969,275								
	Funds Available at Fiscal Year-End:	2024	2025	2026	2027	2028	2029	2030	2031 (1/2)	
(31)	Average / Expected	45,520,353	46,793,816	47,920,621	48,876,211	49,881,842	50,966,765	51,493,348	51,272,560	
(32)	50th Percentile	45,625,202	47,015,096	48,270,043	49,357,585	50,500,252	51,724,255	52,395,675	52,250,526	
(33)	75th Percentile	44,085,795	43,969,207	43,667,276	43,198,714	42,781,832	42,458,395	41,533,686	40,557,136	
(34)	90th Percentile	42,605,998	41,033,932	39,222,786	37,245,333	35,314,462	33,487,562	31,012,158	29,228,833	
(35)	95th Percentile	41,680,042	39,194,965	36,435,336	33,509,722	30,627,167	27,855,283	24,405,736	22,116,614	
(36)	99th Percentile	39,653,913	35,219,833	30,469,692	25,564,240	20,712,466	16,001,350	10,562,589	7,245,074	

Notes: Rows (1) through (18) from Financial Projections provided by PSTIF with some minor differences due to rounding.

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
All Claim Types
Financial Projection Cash Flow Detail

	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
		Claim Payments Arising from Current Reserves (Report Years 2023 and Prior)								
		2024	2025	2026	2027	2028	2029	2030	2031 (1/2)	Totals
(1)	50th Percentile Losses	12,107,935	9,580,172	8,476,066	7,650,304	6,799,058	5,797,207	5,443,367	2,493,799	58,347,909
(2)	75th Percentile Losses	13,605,625	10,762,635	9,526,060	8,586,059	7,630,847	6,487,804	6,086,100	2,783,944	65,469,074
(3)	90th Percentile Losses	15,044,692	11,901,701	10,540,028	9,489,452	8,435,410	7,156,171	6,708,429	3,064,632	72,340,514
(4)	95th Percentile Losses	15,945,086	12,616,041	11,177,024	10,057,166	8,942,109	7,577,257	7,100,744	3,241,529	76,656,955
(5)	99th Percentile Losses	17,921,925	14,182,136	12,568,292	11,305,279	10,055,099	8,509,007	7,971,037	3,636,932	86,149,707
(6)	Mean	12,208,703	9,664,878	8,554,482	7,721,872	6,865,876	5,853,742	5,496,922	2,518,235	58,884,710
		Claim Payments Arising from Future Claims (Report Years 2024 through 12/31/2030)								
		2024	2025	2026	2027	2028	2029	2030	2031 (1/2)	Totals
(7)	50th Percentile Losses	261,823	2,034,468	3,189,512	3,915,157	4,603,844	5,428,443	6,052,525	3,125,480	28,611,251
(8)	75th Percentile Losses	303,540	2,358,486	3,696,397	4,535,506	5,331,604	6,285,286	7,005,921	3,616,700	33,133,439
(9)	90th Percentile Losses	344,271	2,674,898	4,191,644	5,141,005	6,041,030	7,120,381	7,934,288	4,094,354	37,541,870
(10)	95th Percentile Losses	369,832	2,873,569	4,503,130	5,521,452	6,486,014	7,644,280	8,516,115	4,393,136	40,307,530
(11)	99th Percentile Losses	419,122	3,256,478	5,102,374	6,253,177	7,342,244	8,651,761	9,635,038	4,968,081	45,628,274
(12)	Mean	265,904	2,066,193	3,239,238	3,975,542	4,674,060	5,510,988	6,143,808	3,172,076	29,047,809
		Total Projected Claim Payments								
		2024	2025	2026	2027	2028	2029	2030	2031 (1/2)	Totals
(13)	50th Percentile Losses	12,369,758	11,614,640	11,665,578	11,565,461	11,402,902	11,225,649	11,495,893	5,619,279	86,959,160
(14)	75th Percentile Losses	13,909,165	13,121,121	13,222,457	13,121,565	12,962,451	12,773,090	13,092,021	6,400,643	98,602,513
(15)	90th Percentile Losses	15,388,962	14,576,599	14,731,671	14,630,456	14,476,440	14,276,552	14,642,717	7,158,986	109,882,384
(16)	95th Percentile Losses	16,314,918	15,489,610	15,680,154	15,578,618	15,428,123	15,221,537	15,616,859	7,634,665	116,964,485
(17)	99th Percentile Losses	18,341,047	17,438,613	17,670,666	17,558,456	17,397,342	17,160,768	17,606,074	8,605,013	131,777,981
(18)	Mean	12,474,607	11,731,071	11,793,719	11,697,414	11,539,937	11,364,729	11,640,730	5,690,312	87,932,519

Projected Reported Claim Counts by Claim Type

Legend: Insurance UST - Release, Insurance UST - Closure, Insurance UST - Other, Remedial UST
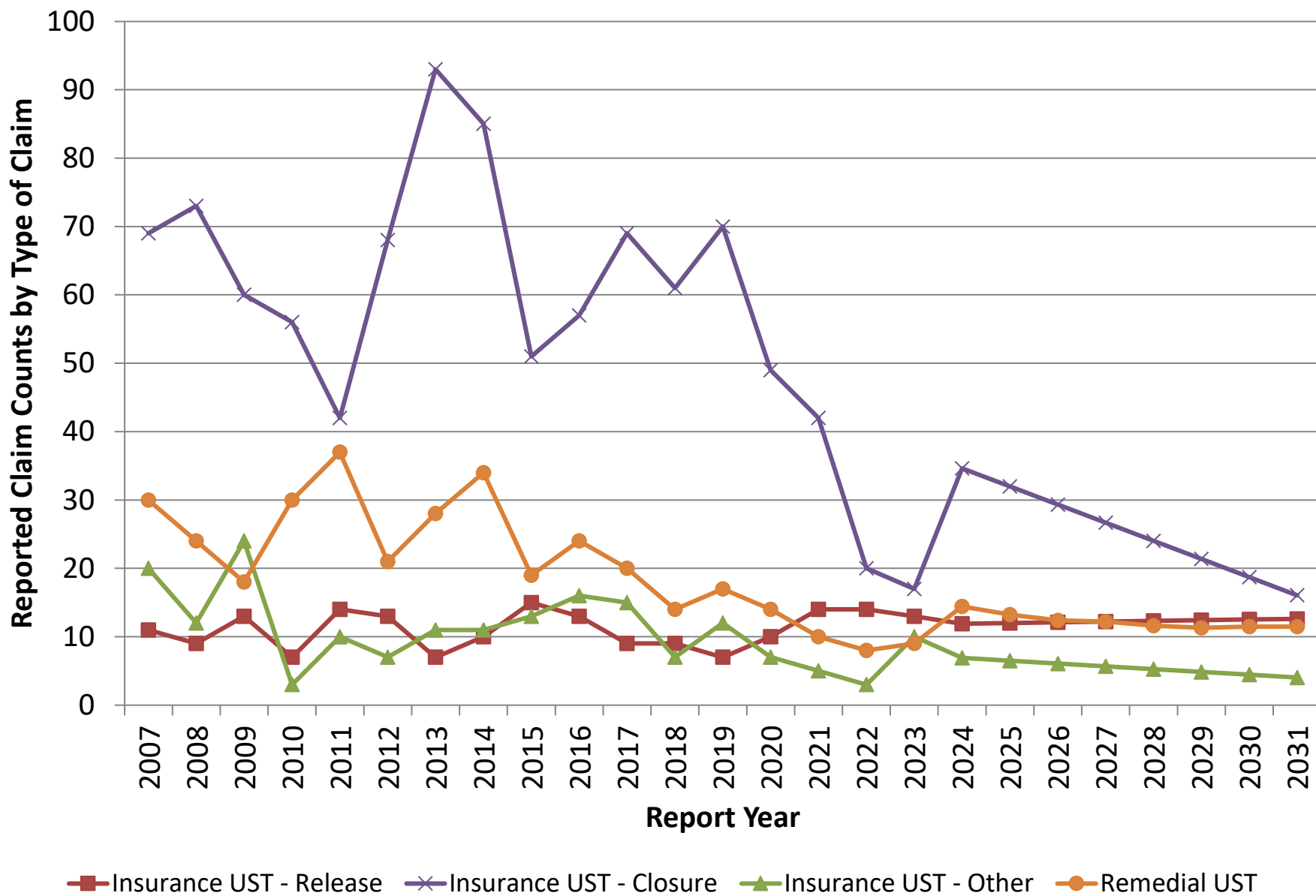
Projected Reported Claim Counts by Claim Type
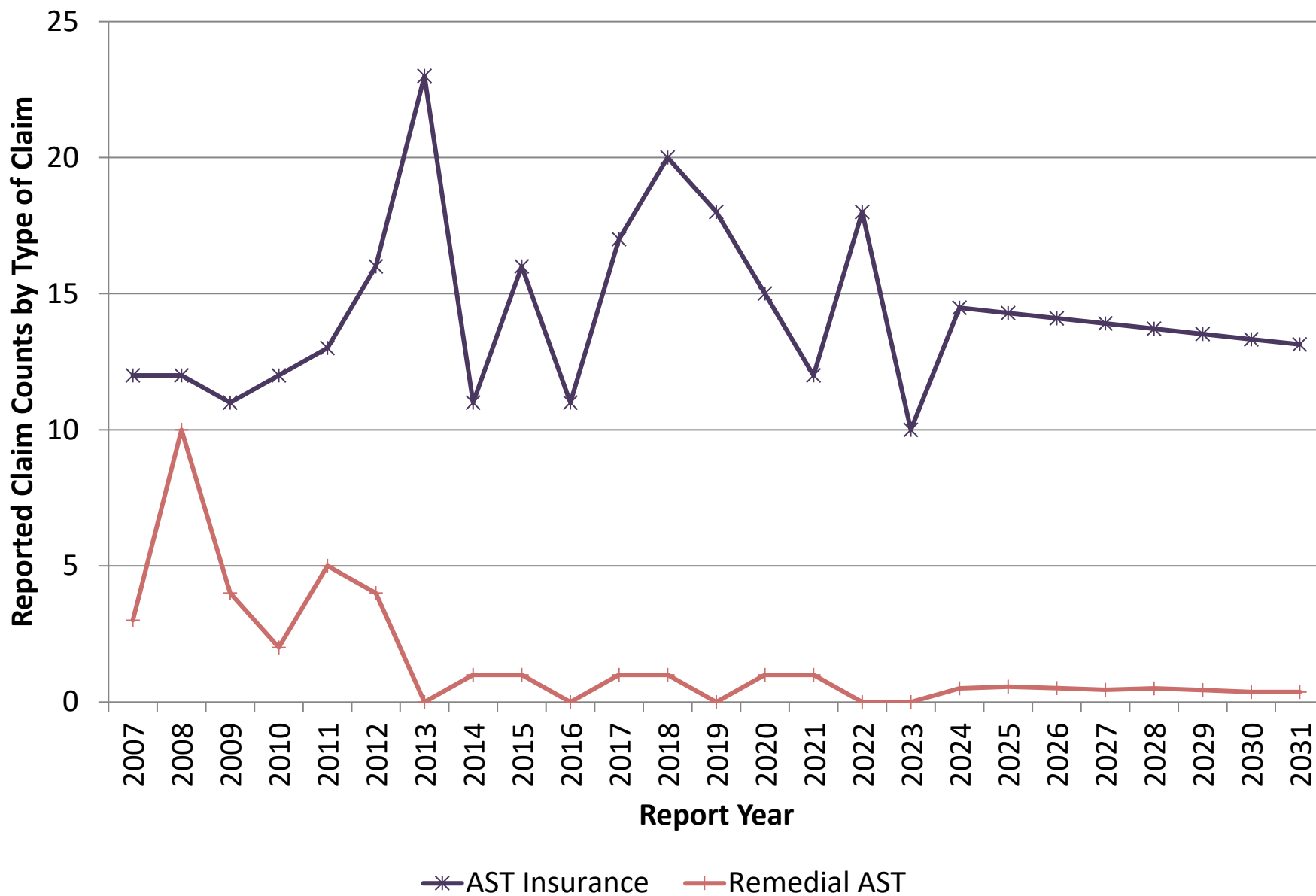
Total Claim Counts by Report Year
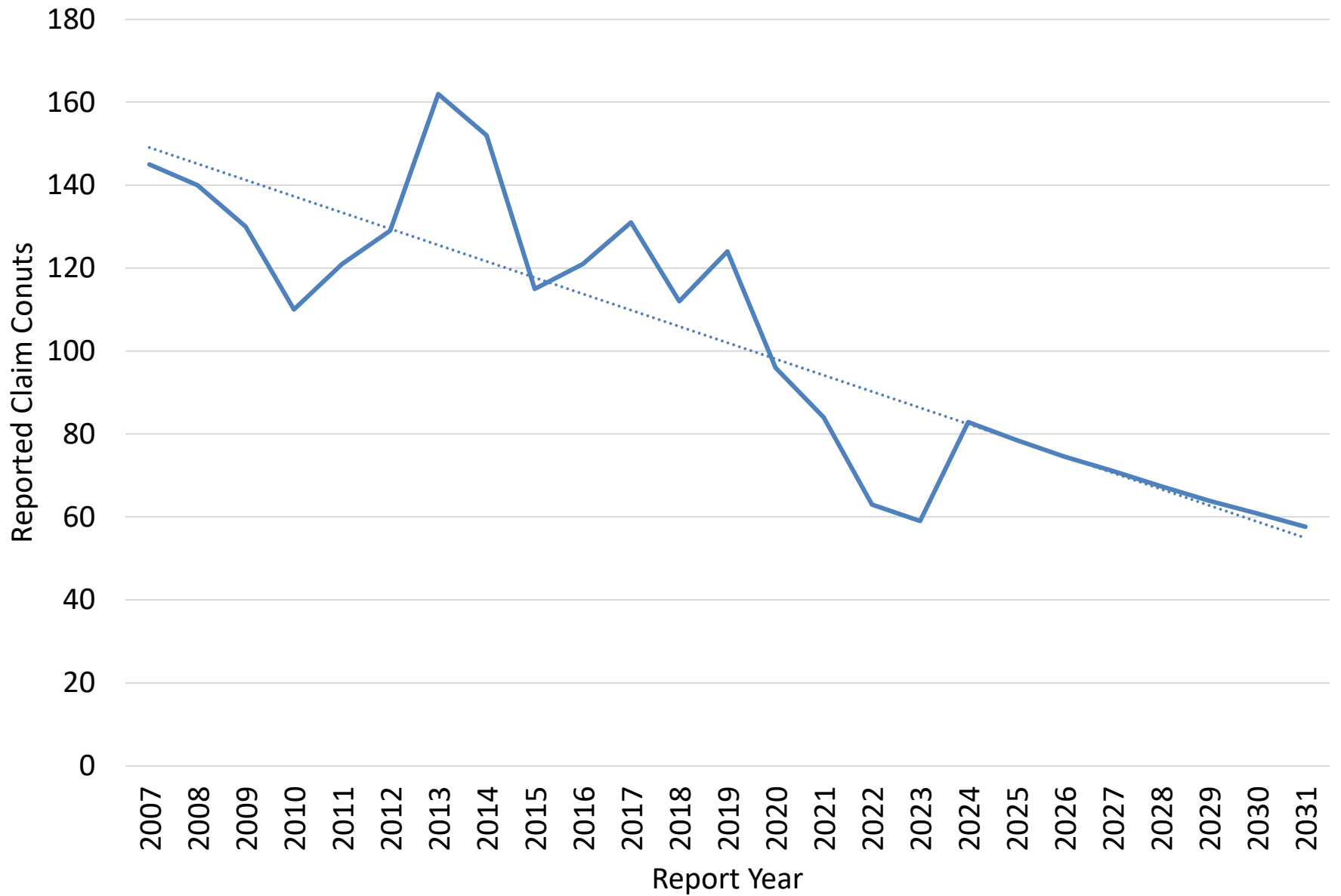
Total Average Severity by Report Year
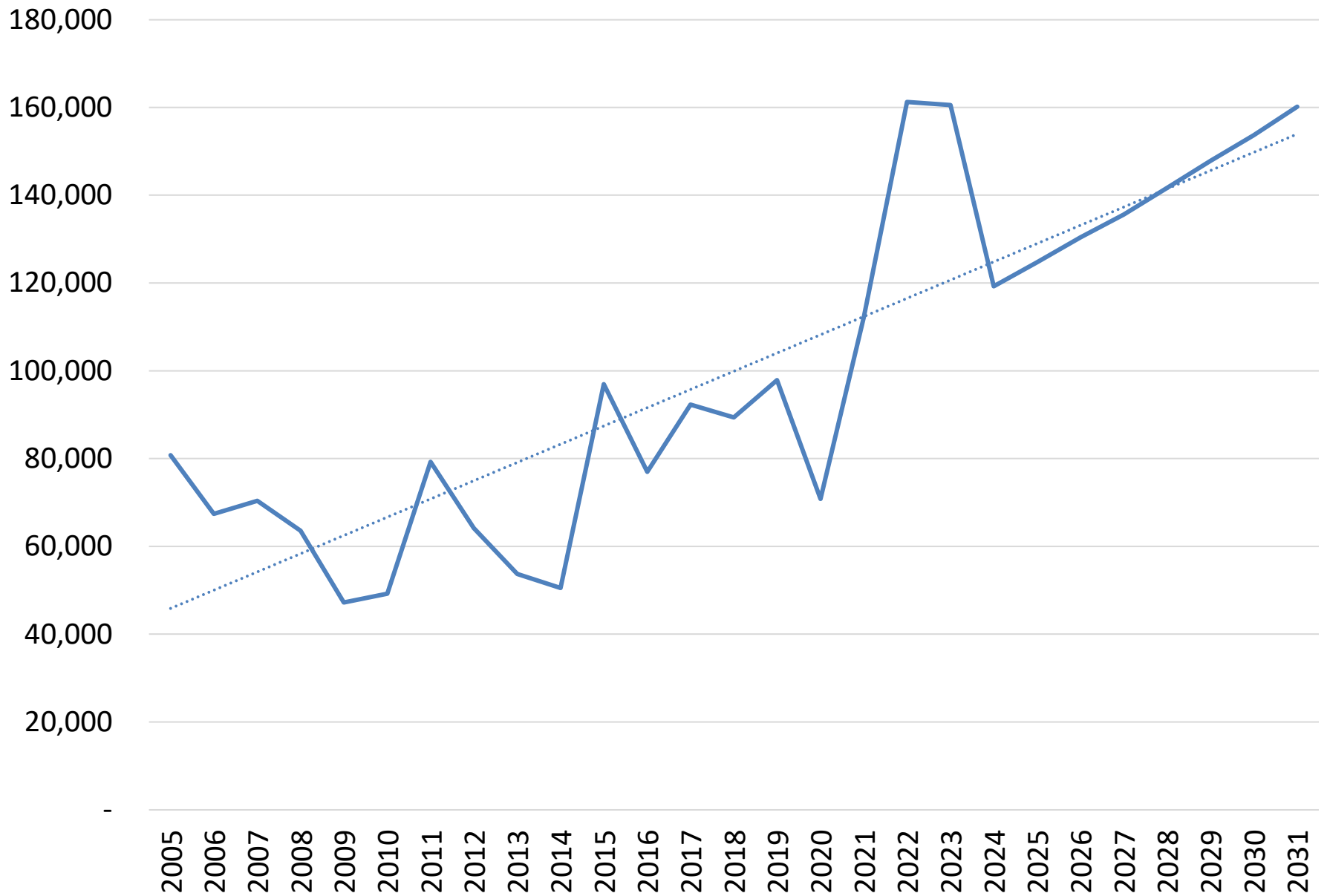
Remedial Claim Severities by Report Year
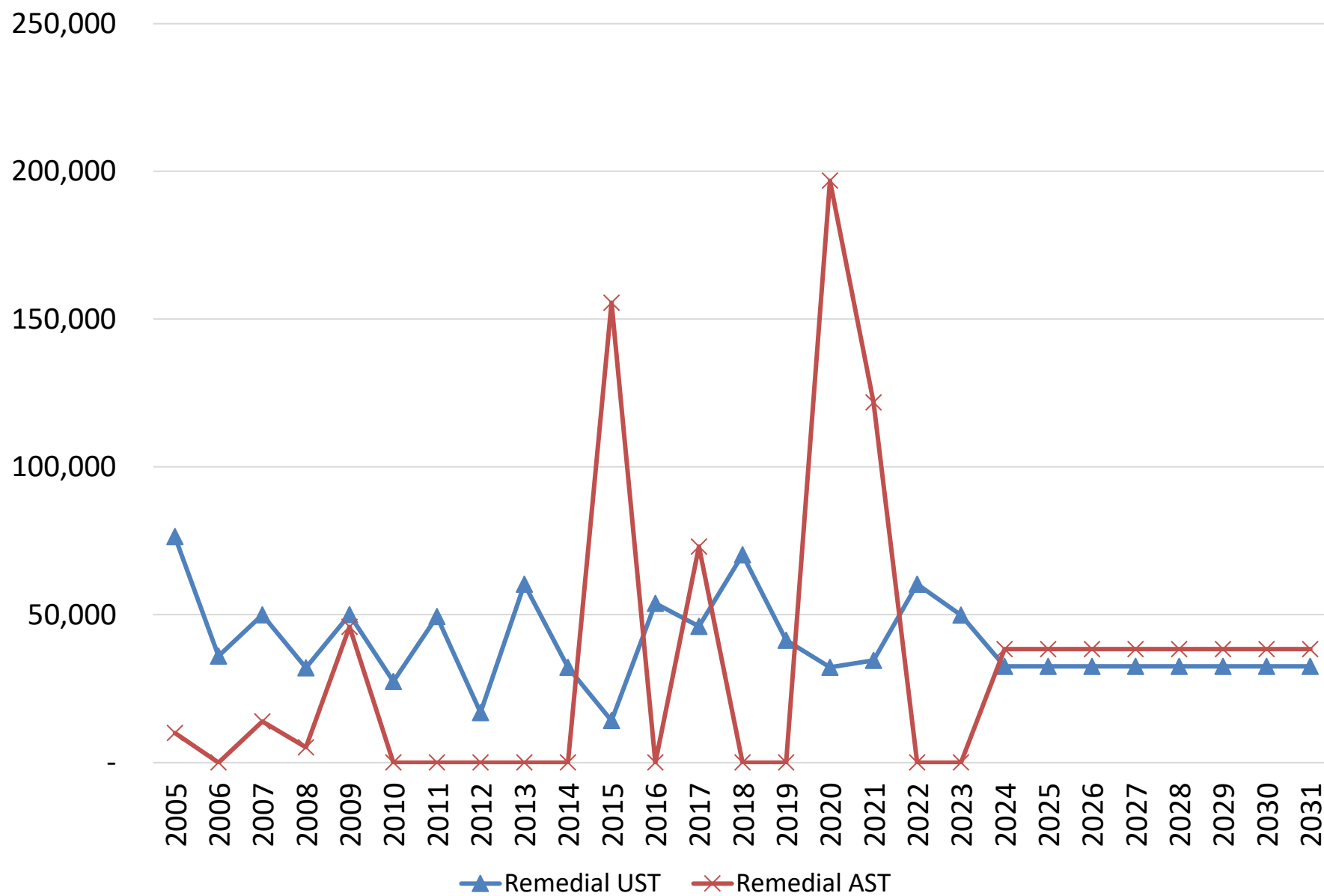
AST Insurance Severity by Report Year

UST Insurance Severities by Report Year
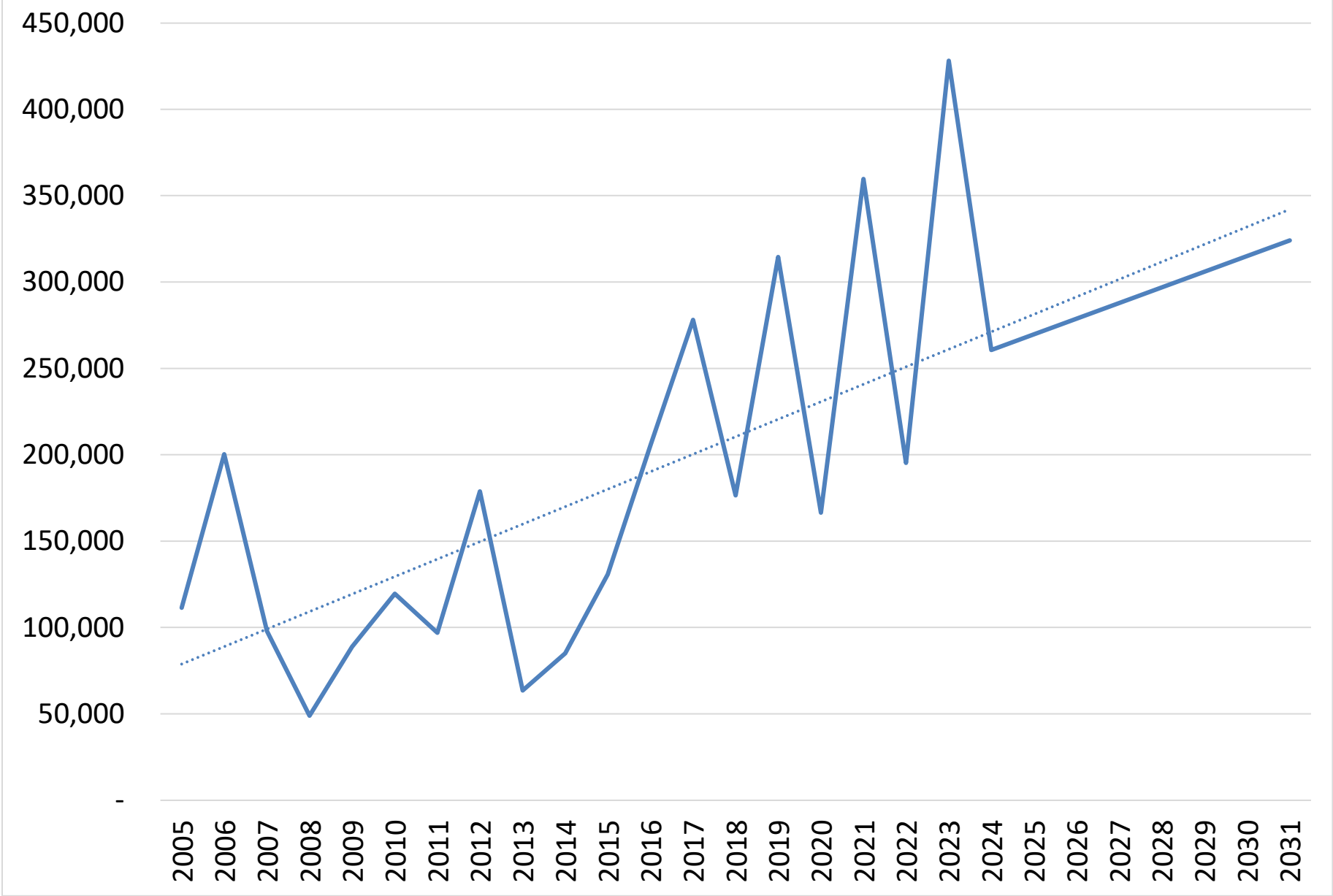
Insurance UST - Release   Insurance UST - Closure   Insurance UST - Other
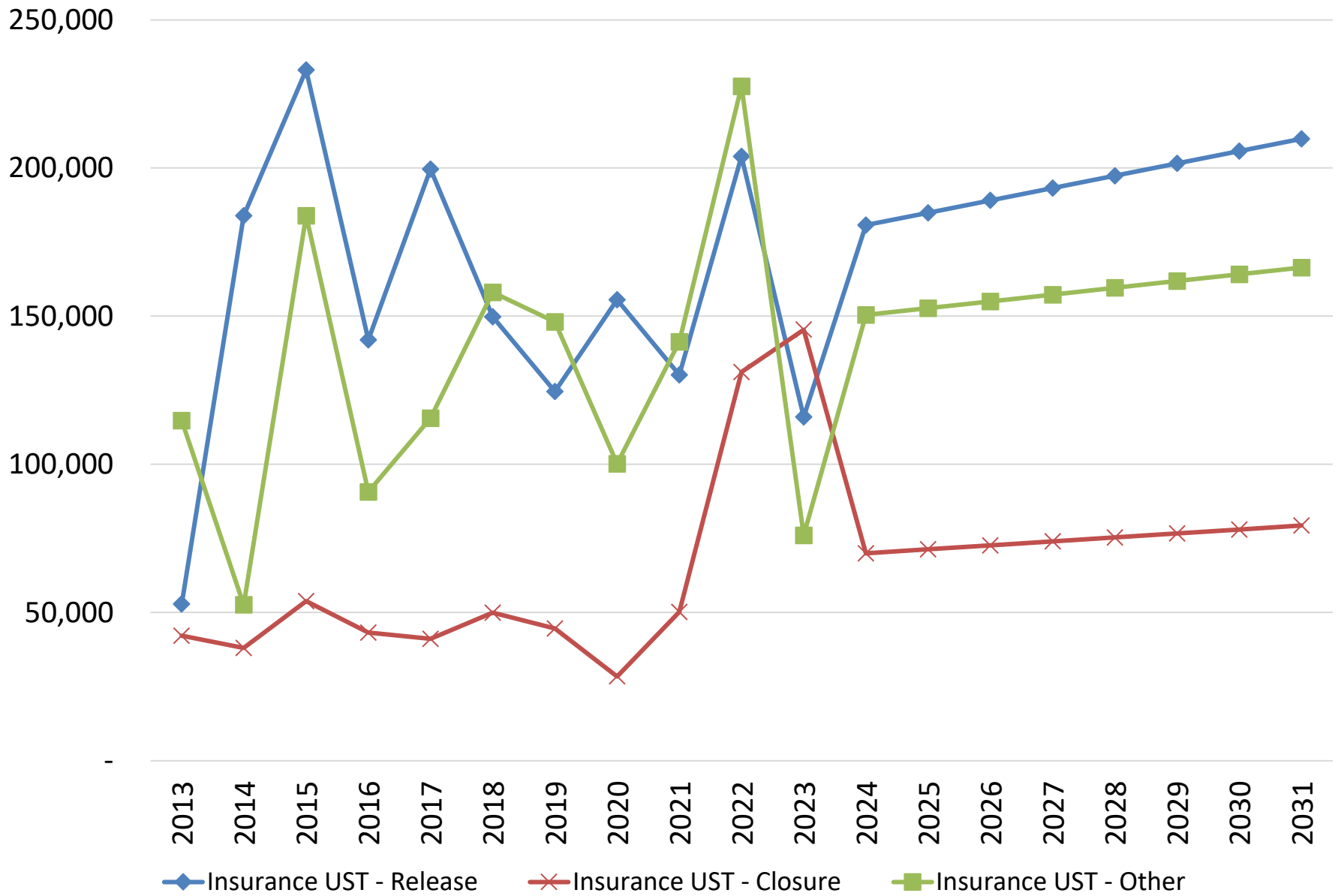
Ultimate Losses Projected Latest Year

	UST				AST	
RY	RELEASE	CLOSURE	OTHER	REMEDIAL	INSURANCE	REMEDIAL
2024	2,152,947	2,424,175	1,037,984	469,103	3,774,570	19,164
2025	2,221,019	2,281,283	991,071	430,564	3,853,901	21,554
2026	2,289,925	2,131,298	942,278	403,325	3,929,745	19,457
2027	2,359,666	1,974,220	891,604	396,865	4,002,100	17,097
2028	2,430,241	1,810,048	839,050	377,518	4,070,966	19,230
2029	2,501,650	1,638,783	784,616	367,858	4,136,345	16,843
2030	2,573,894	1,460,426	728,301	373,125	4,198,235	14,156
2031	1,323,486	637,487	335,053	186,379	2,128,319	7,077

Ultimate Losses Projected Prior Year

	UST				AST	
RY	RELEASE	CLOSURE	OTHER	REMEDIAL	INSURANCE	REMEDIAL
2023	1,911,472	2,272,977	1,205,720	433,787	3,968,029	23,162
2024	2,013,113	2,227,945	1,136,341	421,289	4,206,795	21,423
2025	2,120,134	2,183,359	1,068,668	389,847	4,405,643	24,094
2026	2,232,821	2,139,219	1,002,667	368,418	4,583,720	22,471
2027	2,351,470	2,095,524	938,304	365,230	4,751,006	20,646
2028	2,476,398	2,052,274	875,547	351,194	4,912,693	23,220
2029	2,607,934	2,009,470	814,364	345,873	5,071,480	21,488
2030	1,373,213	983,556	377,361	176,918	2,614,383	9,770

Difference

	UST				AST	
RY	RELEASE	CLOSURE	OTHER	REMEDIAL	INSURANCE	REMEDIAL
2024	139,834	196,230	(98,356)	47,814	(432,226)	(2,259)
2025	100,885	97,924	(77,596)	40,717	(551,741)	(2,540)
2026	57,104	(7,921)	(60,389)	34,907	(653,975)	(3,014)
2027	8,195	(121,304)	(46,700)	31,635	(748,906)	(3,548)
2028	(46,157)	(242,226)	(36,497)	26,324	(841,727)	(3,990)
2029	(34,040)	(549,045)	(86,062)	27,252	(873,245)	(7,332)
2030	(49,727)	(346,069)	(42,308)	9,461	(486,065)	(2,693)

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST Claims
Projection of Future Frequencies and Severities

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	UST POLS	REPORTED CLAIM COUNTS			ULTIMATE LOSS SEVERITY			ULTIMATE LOSSES		
RY	IN FORCE	RELEASE	CLOSURE	OTHER	RELEASE	CLOSURE	OTHER	RELEASE	CLOSURE	OTHER
1998		18	161	39	75,148	37,046	77,074	1,352,666	5,964,476	3,005,904
1999		8	225	20	17,822	43,293	136,137	142,573	9,740,883	2,722,748
2000		26	90	59	69,900	61,981	73,983	1,817,407	5,578,254	4,365,025
2001		23	65	36	48,240	34,354	29,311	1,109,531	2,233,022	1,055,182
2002		19	68	48	37,557	65,249	95,108	713,587	4,436,918	4,565,188
2003		19	73	45	104,256	57,379	78,943	1,980,868	4,188,643	3,552,440
2004		10	68	38	130,175	35,810	121,852	1,301,747	2,435,081	4,630,367
2005		10	53	18	168,317	52,791	122,886	1,683,167	2,797,898	2,211,941
2006		5	54	17	32,351	33,817	184,636	161,754	1,826,096	3,138,809
2007		11	69	20	220,370	60,401	45,060	2,424,070	4,167,682	901,197
2008	2,664	9	73	12	229,102	42,740	192,405	2,061,915	3,119,989	2,308,863
2009	2,662	13	60	24	69,816	35,672	42,849	907,611	2,140,324	1,028,381
2010	2,622	7	56	3	97,117	39,858	81,522	679,820	2,232,066	244,567
2011	2,623	14	42	10	165,094	41,189	245,775	2,311,314	1,729,955	2,457,748
2012	2,617	13	68	7	83,610	40,875	170,707	1,086,925	2,779,516	1,194,949
2013	2,603	7	93	11	52,898	42,143	114,793	370,286	3,919,292	1,262,719
2014	2,573	10	85	11	183,897	38,011	52,612	1,838,971	3,230,955	578,727
2015	2,530	15	51	13	233,108	53,872	183,897	3,496,617	2,747,477	2,390,660
2016	2,509	13	57	16	141,987	43,264	90,720	1,845,834	2,466,074	1,451,528
2017	2,489	9	69	15	199,603	41,153	115,554	1,796,423	2,839,525	1,733,314
2018	2,487	9	61	7	149,779	49,915	158,039	1,348,015	3,044,826	1,106,270
2019	2,413	7	70	12	124,567	44,598	148,047	871,969	3,121,878	1,776,565
2020	2,408	10	49	7	155,513	28,468	100,195	1,555,127	1,394,950	701,364
2021	2,405	14	42	5	130,162	50,191	141,322	1,822,266	2,108,038	706,608
2022	2,371	14	20	3	203,925	131,163	227,621	2,854,955	2,623,257	682,863
2023	2,347	13	17	10	115,980	145,468	76,046	1,507,737	2,472,964	760,460
2024	2,324	12	35	7	180,748	70,003	150,408	2,152,947	2,424,175	1,037,984
2025	2,301	12	32	6	184,905	71,341	152,697	2,221,019	2,281,283	991,071
2026	2,277	12	29	6	189,062	72,678	154,987	2,289,925	2,131,298	942,278
2027	2,254	12	27	6	193,220	74,015	157,276	2,359,666	1,974,220	891,604
2028	2,231	12	24	5	197,377	75,352	159,565	2,430,241	1,810,048	839,050
2029	2,208	12	21	5	201,534	76,690	161,854	2,501,650	1,638,783	784,616
2030	2,185	13	19	4	205,691	78,027	164,144	2,573,894	1,460,426	728,301
2031	2,161	6	8	2	209,848	79,364	166,433	1,323,486	637,487	335,053

Notes: Future RYs for Cols (2), (6), (7), and (8) are linearly interpolated against report year.
          Future RYs for Cols (3), (4), and (5) are linearly interpolated against Col (2).
          Col (9) = (3) x (6);   Col (10) = (4) x (7);   Col (11) = (5) x (8).

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance AST Claims
Projection of Future Frequencies and Severities

(1)	(2)	(3)	(4)	(5)
	AST POLS	REPORTED	ULTIMATE	ULTIMATE
RY	IN FORCE	CLAIMS	SEVERITY	LOSS
1998		1	478,042	478,042
1999		7	384,176	2,689,230
2000		13	91,984	1,195,793
2001		24	278,790	6,690,965
2002		18	128,296	2,309,328
2003		21	69,022	1,449,461
2004		21	140,630	2,953,221
2005		19	111,431	2,117,185
2006		11	200,302	2,203,318
2007		12	97,897	1,174,762
2008	517	12	49,017	588,201
2009	563	11	88,842	977,257
2010	578	12	119,500	1,434,006
2011	810	13	96,976	1,260,685
2012	975	16	178,763	2,860,201
2013	1,003	23	63,526	1,461,091
2014	1,030	11	84,990	934,890
2015	1,021	16	130,775	2,092,401
2016	1,010	11	205,551	2,261,063
2017	1,005	17	278,107	4,727,818
2018	999	20	176,484	3,529,682
2019	989	18	314,476	5,660,560
2020	978	15	166,436	2,496,534
2021	965	12	359,611	4,315,334
2022	942	18	195,302	3,515,442
2023	914	10	428,182	4,281,820
2024	919	14	260,680	3,774,570
2025	907	14	269,744	3,853,901
2026	895	14	278,807	3,929,745
2027	883	14	287,871	4,002,100
2028	870	14	296,935	4,070,966
2029	858	14	305,998	4,136,345
2030	846	13	315,062	4,198,235
2031	834	7	324,125	2,128,319

Notes: Future RYs for Col (2) are increased by a decreasing percentage to a
maximum of 1,027 based on assumptions from PSTIF.
Future RYs for Col (3) are linearly interpolated against Col (2).
Col (5) = (3) x (4).

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Remedial Claims
Projection of Future Frequencies and Severities

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	POTENTIAL SITES		REPORTED CLAIM COUNTS		% REPORTED ON PREV YR		ULTIMATE LOSS SEVERITY		ULTIMATE LOSS	
RY	UST	AST	UST	AST	UST	AST	UST	AST	UST	AST
1998	15,479	2,402	319	12			60,298	55,219	19,235,087	662,628
1999	14,166	2,399	378	11	2.44%	0.46%	22,331	158,324	8,440,945	1,741,560
2000	13,952	2,399	558	50	3.94%	2.08%	29,161	112,810	16,271,892	5,640,481
2001	13,633	2,387	343	204	2.46%	8.50%	9,931	10,746	3,406,322	2,192,168
2002	13,255	2,376	126	18	0.92%	0.75%	26,014	13,305	3,277,715	239,493
2003	12,696	2,327	39	4	0.29%	0.17%	29,865	138,806	1,164,735	555,224
2004	12,354	2,123	62	13	0.49%	0.56%	41,903	162,276	2,597,955	2,109,582
2005	12,228	2,105	38	8	0.31%	0.38%	76,417	9,980	2,903,847	79,838
2006	12,189	2,101	21	12	0.17%	0.57%	35,991	-	755,818	-
2007	12,129	2,088	30	3	0.25%	0.14%	49,936	13,917	1,498,076	41,750
2008	12,021	2,055	24	10	0.20%	0.48%	32,078	5,179	769,870	51,787
2009	12,003	2,051	18	4	0.15%	0.19%	50,052	45,914	900,929	183,657
2010	11,973	2,049	30	2	0.25%	0.10%	27,447	-	823,409	-
2011	11,936	2,044	37	5	0.31%	0.24%	49,382	-	1,827,117	-
2012	11,915	2,040	21	4	0.18%	0.20%	16,920	-	355,330	-
2013	11,887	2,040	28	-	0.23%	0.00%	60,323	-	1,689,043	-
2014	11,853	2,039	34	1	0.29%	0.05%	32,175	-	1,093,962	-
2015	11,834	2,038	19	1	0.16%	0.05%	14,186	155,510	269,539	155,510
2016	11,810	2,038	24	-	0.20%	0.00%	53,844	-	1,292,250	-
2017	11,790	2,037	20	1	0.17%	0.05%	46,041	73,030	920,824	73,030
2018	11,776	2,036	14	1	0.12%	0.05%	70,255	-	983,570	-
2019	11,759	2,036	17	-	0.14%	0.00%	41,374	-	703,366	-
2020	11,745	2,035	14	1	0.12%	0.05%	32,215	196,843	451,004	196,843
2021	11,735	2,034	10	1	0.09%	0.05%	34,524	121,817	345,241	121,817
2022	11,727	2,034	8	-	0.07%	0.00%	60,365	-	482,916	-
2023	11,718	2,034	9	-	0.08%	0.00%	49,867	-	448,803	-
2024	11,704	2,034	14	0	0.12%	0.02%	32,534	38,375	469,103	19,164
2025	11,690	2,033	13	1	0.11%	0.03%	32,534	38,375	430,564	21,554
2026	11,678	2,032	12	1	0.11%	0.02%	32,534	38,375	403,325	19,457
2027	11,666	2,032	12	0	0.10%	0.02%	32,534	38,375	396,865	17,097
2028	11,654	2,031	12	1	0.10%	0.02%	32,534	38,375	377,518	19,230
2029	11,643	2,031	11	0	0.10%	0.02%	32,534	38,375	367,858	16,843
2030	11,631	2,031	11	0	0.10%	0.02%	32,534	38,375	373,125	14,156
2031	11,626	2,030	6	0	0.05%	0.01%	32,534	38,375	186,379	7,077

Notes: Future RYs for Cols (2) and (3) are [prior year sites] x (1 - [% reported from col (6) or (7)])
          Future RYs for Cols (4) and (5) are the change in Cols (2) and (3), respectively.
          Future RYs for Cols (6) and (7) are rolling average of prior 10 years.
          Future RYs for Cols (8) and (9) are long-term averages from 1999-2022

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
All Claim Types
Cash Flow Summary

UNDISCOUNTED VALUE OF CURRENT RESERVES - PAYMENT STREAM

Category	Total	2024	2025	2026	2027	2028	2029	2030	2031	2032	After 2032
Insurance UST - Release	13,088,418	1,786,213	1,432,645	1,263,998	1,190,861	1,073,778	839,191	779,225	743,415	696,853	3,282,240
Insurance UST - Closure	18,450,128	3,370,980	2,385,611	1,943,845	1,660,940	1,302,272	1,032,561	913,349	810,075	743,123	4,287,372
Insurance UST - Other	11,356,622	1,726,423	1,337,198	1,127,191	991,941	909,768	689,768	635,967	559,578	519,117	2,859,671
Remedial UST	19,282,248	2,095,495	1,778,962	1,606,533	1,583,585	1,492,543	1,442,945	1,417,426	1,370,800	1,378,716	5,115,242
Insurance AST	24,371,690	3,148,186	2,569,554	2,400,265	2,081,215	1,874,191	1,622,928	1,518,121	1,325,744	1,206,077	6,625,409
Remedial AST	2,412,873	81,405	160,909	212,650	213,329	213,324	226,348	232,835	226,858	218,097	627,117
Total	88,961,979	12,208,703	9,664,878	8,554,482	7,721,872	6,865,876	5,853,742	5,496,922	5,036,470	4,761,982	22,797,051
Percent of Current Total											
Paid by Year - Undiscounted	100.0%	13.7%	10.9%	9.6%	8.7%	7.7%	6.6%	6.2%	5.7%	5.4%	25.6%

DISCOUNTED VALUE OF CURRENT RESERVES - PAYMENT STREAM

Category	Total	2024	2025	2026	2027	2028	2029	2030	2031	2032	After 2032
Insurance UST - Release	11,956,979	1,772,966	1,401,004	1,217,815	1,130,394	1,004,193	773,211	707,348	664,869	614,016	2,671,163
Insurance UST - Closure	16,970,427	3,345,978	2,332,924	1,872,822	1,576,605	1,217,880	951,376	829,101	724,486	654,786	3,464,469
Insurance UST - Other	10,376,546	1,713,619	1,307,665	1,086,006	941,574	850,812	635,536	577,305	500,455	457,408	2,306,165
Remedial UST	17,513,895	2,079,954	1,739,673	1,547,834	1,503,178	1,395,821	1,329,495	1,286,682	1,225,967	1,214,824	4,190,468
Insurance AST	22,159,313	3,124,837	2,512,804	2,312,566	1,975,540	1,752,736	1,495,327	1,378,088	1,185,671	1,062,707	5,359,036
Remedial AST	2,187,118	80,801	157,355	204,881	202,498	199,500	208,551	211,358	202,889	192,171	527,113
Total	81,164,278	12,118,155	9,451,426	8,241,924	7,329,789	6,420,942	5,393,496	4,989,882	4,504,338	4,195,912	18,518,414
Percent of Current Total											
Paid by Year - Discounted	100.0%	14.9%	11.6%	10.2%	9.0%	7.9%	6.6%	6.1%	5.5%	5.2%	22.8%

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
All Claim Types
ALAE Provision

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	PAID	INCURRED	PAID	ALAE PER $10K	CASE		ALAE	ULTIMATE
RY	LOSS	LOSS	ALAE	PAID LOSS	RESERVE	IBNR	UNPAID	ALAE
1994	4,350,126	4,878,075	6,986	16.06	527,950	-	3,147	10,133
1995	4,187,026	4,387,026	9,365	22.37	200,000	-	1,192	10,557
1996	71,621,646	77,928,807	137,104	19.14	6,307,161	74,381	38,040	175,144
1997	18,708,847	19,500,321	44,090	23.57	791,475	33,107	4,915	49,005
1998	28,122,401	30,549,272	87,202	31.01	2,426,872	149,531	15,358	102,560
1999	23,990,057	25,435,671	78,976	32.92	1,445,615	42,267	8,869	87,845
2000	31,324,891	34,787,374	91,619	29.25	3,462,483	81,479	21,125	112,745
2001	14,435,265	16,660,903	56,050	38.83	2,225,638	26,286	13,424	69,473
2002	14,284,481	15,463,570	49,357	34.55	1,179,089	78,659	7,497	56,854
2003	11,482,581	12,802,843	56,273	49.01	1,320,262	88,527	8,398	64,670
2004	14,364,016	15,768,019	138,568	96.47	1,404,003	259,935	9,919	148,487
2005	9,824,334	11,548,238	110,331	112.30	1,723,904	245,638	11,740	122,072
2006	6,805,676	7,840,929	66,696	98.00	1,035,253	244,867	7,631	74,327
2007	9,412,905	9,858,725	98,492	104.63	445,820	348,813	4,737	103,228
2008	7,992,667	8,500,349	40,410	50.56	507,682	400,275	5,412	45,822
2009	5,491,076	5,812,077	29,703	54.09	321,001	326,082	3,857	33,560
2010	3,890,811	5,237,767	32,169	82.68	1,346,956	176,101	9,079	41,248
2011	7,072,841	9,013,479	35,491	50.18	1,940,638	573,340	14,986	50,477
2012	6,768,029	7,264,273	33,105	48.91	496,243	1,012,649	8,994	42,099
2013	6,421,242	7,530,571	29,523	45.98	1,109,328	1,171,861	13,598	43,121
2014	4,939,382	6,758,572	27,828	56.34	1,819,189	918,934	16,322	44,150
2015	7,584,372	9,216,131	46,376	61.15	1,631,759	1,936,074	21,268	67,644
2016	5,825,343	7,861,226	25,609	43.96	2,035,884	1,455,523	20,812	46,421
2017	7,114,175	10,320,306	41,279	58.02	3,206,130	1,770,629	29,666	70,946
2018	5,500,409	7,897,045	30,775	55.95	2,396,636	2,115,319	26,896	57,671
2019	6,004,398	9,858,764	37,685	62.76	3,854,366	2,275,574	36,540	74,225
2020	2,114,107	4,435,670	17,153	81.14	2,321,563	2,360,153	27,908	45,061
2021	2,702,711	6,070,443	18,345	67.87	3,367,732	3,348,862	40,037	58,382
2022	2,399,696	6,215,306	18,537	77.25	3,815,610	3,973,179	46,429	64,966
2023	713,212	2,898,267	12,801	179.48	2,185,055	6,622,641	52,502	65,303
TOTAL ALL YEARS	345,448,723	402,300,019	1,507,896	43.65	56,851,296	32,110,683	530,299	2,038,195

Wtd. Average 2013-2021	56.96
Wtd. Average 2013-2023	59.61
Straight Average All Years	59.48
Weighted Average All Years	43.65

SELECTED RATIO	**59.61**

Notes:
Col (5) = (4) / (3) x 10,000
Col (8) = [(6) + (7)] x Selected Ratio / 10,000
Col (9) = (8) + (4)

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
All Claim Types
ULAE Provision

(1)	(2)	(3)	(4)
	CONTRACTED	FY	AVERAGE
FISCAL	FUND ADMIN	PAID	FEES PER
YEAR	FEES	LOSS	CY PAID
2006	2,895,762	12,847,713	0.225
2007	3,087,143	12,185,369	0.253
2008	3,124,118	15,806,387	0.198
2009	3,456,283	16,148,518	0.214
2010	3,289,570	14,134,856	0.233
2011	3,185,415	11,632,025	0.274
2012	3,188,828	12,461,529	0.256
2013	3,043,682	10,845,847	0.281
2014	3,116,377	10,116,592	0.308
2015	3,207,502	12,588,056	0.255
2016	3,255,111	13,762,021	0.237
2017	3,325,325	15,115,087	0.220
2018	3,176,324	13,127,399	0.242
2019	3,075,361	13,820,330	0.223
2020	2,835,776	11,260,319	0.252
2021	2,577,708	8,741,496	0.295
2022	2,828,920	8,981,440	0.315
2023	2,814,296	10,252,864	0.299
Total	55,483,503	223,827,847	0.248

(7) 3-Year Average	0.303
(8) 5-Year Average	0.277
(9) 10-Year ex. Hi/Lo	0.264
(10) Selected	0.264
(11) [Case O/S + IBNR] x 70%	62,273,385
(12) ULAE IBNR = (10) x (11)	16,424,823
(13) Discount	1,439,670
(14) Discounted ULAE IBNR = (12) - (13)	14,985,153

Note: Total row in Column (4) reflects a weighted average.
FY 2023 value in Column (4) is adjusted to reflect a full year of data.

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Release
Summary of Paid Development Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	PAID LDM	PAID	INCURRED	CASE	IBNR	UNPAID
RY	ULTIMATE	LOSS	LOSS	RESERVE	RESERVE	LOSS
1994	246,661	246,661	246,661	-	-	-
1995	241,953	241,953	241,953	-	-	-
1996	2,176,370	1,339,491	2,176,370	836,879	-	836,879
1997	1,995,927	1,995,927	1,995,927	-	-	-
1998	1,364,705	1,338,666	1,352,666	14,000	12,039	26,039
1999	142,573	142,573	142,573	-	-	-
2000	1,817,407	1,758,542	1,817,407	58,865	-	58,865
2001	1,109,531	1,036,131	1,109,531	73,400	-	73,400
2002	713,587	644,203	713,587	69,383	-	69,383
2003	1,980,868	1,980,868	1,980,868	-	-	-
2004	1,321,855	1,266,265	1,301,747	35,482	20,108	55,590
2005	1,680,933	1,005,600	1,680,933	675,333	-	675,333
2006	161,243	161,243	161,243	-	-	-
2007	2,575,132	2,362,765	2,398,612	35,847	176,520	212,367
2008	2,132,453	1,922,224	2,021,507	99,283	110,946	210,229
2009	894,158	783,624	879,624	96,000	14,534	110,534
2010	674,592	444,452	674,592	230,139	-	230,139
2011	2,448,647	2,010,201	2,191,528	181,327	257,120	438,446
2012	1,146,210	886,202	922,671	36,468	223,539	260,007
2013	291,701	220,060	256,528	36,468	35,173	71,641
2014	1,928,544	1,365,417	1,662,972	297,555	265,572	563,126
2015	3,771,928	2,459,229	2,845,588	386,360	926,340	1,312,699
2016	1,850,382	1,155,656	1,690,349	534,693	160,033	694,726
2017	1,998,763	1,182,226	1,414,157	231,931	584,607	816,537
2018	1,312,369	695,089	998,049	302,960	314,320	617,280
2019	658,082	295,247	519,267	224,020	138,815	362,836
2020	1,296,211	493,861	1,193,088	699,226	103,123	802,349
2021	1,576,267	488,004	1,331,159	843,154	245,108	1,088,263
2022	3,415,904	672,450	2,056,280	1,383,830	1,359,624	2,743,454
2023	822,247	20,816	335,904	315,088	486,343	801,431
TOTAL	43,747,203	30,615,648	38,313,340	7,697,692	5,433,863	13,131,556

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Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Release
Development of Losses to Ultimate

Development Period in Months — Age-to-Age Development Factors

RY	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-228	228-240	240-252	252-264	264-276	276-288	288-300	300-312	312-324	324-336	336-348	348-360	360-ULT
1994				1.000	1.000	1.000	1.000	1.229	1.242	1.000	1.152	1.218	1.191	1.000	1.191	1.041	1.000	1.124	1.149	1.000	1.091	1.131	1.120	1.000	1.000	1.000	1.000	1.000	1.000	1.019
1995			1.358	1.591	1.565	1.604	1.133	1.194	1.116	1.134	1.276	1.083	1.109	1.066	1.050	1.000	1.082	1.016	1.000	1.044	1.013	1.008	1.000	1.060	1.030	1.005	1.027	1.043	1.045	1.019
1996	2.098	1.106	1.151	1.889	1.193	1.082	1.122	1.025	1.000	1.272	1.000	1.366	1.049	1.032	1.091	1.082	1.016	1.000	1.044	1.013	1.008	1.002	1.044	1.010	1.005	1.027	1.043	1.045	1.045	1.019
1997	2.504	1.377	1.216	1.114	1.250	1.408	1.098	1.091	1.047	1.081	1.048	1.021	1.036	1.015	1.015	1.018	1.008	1.002	1.002	1.044	1.013	1.001	1.005	1.027	1.043	1.045	1.045	1.045	1.000	1.019
1998	2.695	1.438	1.290	1.798	1.112	1.037	1.063	1.235	1.015	1.063	1.019	1.007	1.015	1.003	1.024	1.076	1.009	1.044	1.013	1.005	1.017	1.011	1.005	1.000	1.001	1.000	1.000	1.000	1.000	1.019
1999		1.280	3.009	1.340	1.304	1.130	1.033	1.000	1.000	1.000	1.051	1.338	1.025	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.019
2000		3.172	1.271	1.381	1.569	1.028	1.029	1.000	1.037	1.008	1.014	1.107	1.052	1.000	1.028	1.040	1.000	1.006	1.005	1.008	1.007	1.000	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.019
2001	9.416	1.820	1.430	1.250	1.084	1.030	1.050	1.160	1.000	1.091	1.000	1.010	1.083	1.052	1.040	1.030	1.020	1.017	1.003	1.008	1.002	1.009	1.006	1.001	1.000	1.000	1.000	1.000	1.000	1.019
2002	14.784	1.513	1.247	1.168	1.278	1.063	1.032	1.155	1.050	1.057	1.006	1.070	1.047	1.000	1.003	1.012	1.015	1.002	1.012	1.000	1.015	1.004	1.006	1.001	1.000	1.000	1.000	1.000	1.000	1.019
2003	9.260	1.459	1.219	1.132	1.061	1.379	1.212	1.043	1.504	1.098	1.104	1.046	1.043	1.033	1.064	1.075	1.056	1.037	1.017	1.006	1.006	1.006	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.019
2004	1.643	1.382	1.103	1.442	1.231	1.095	1.286	1.072	1.050	1.255	1.147	1.097	1.229	1.068	1.024	1.022	1.016	1.019	1.006	1.006	1.004	1.006	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.019
2005	1.066	1.671	5.528	1.293	1.177	1.428	1.189	1.256	1.219	1.137	1.032	1.314	1.099	1.031	1.057	1.021	1.034	1.035	1.010	1.006	1.006	1.004	1.006	1.001	1.000	1.000	1.000	1.000	1.000	1.019
2006		1.000	1.000	6.470	1.171	1.049	1.000	1.000	1.369	1.034	1.067	1.211	1.120	1.145	1.000	1.000	1.003	1.004	1.018	1.015	1.010	1.006	1.006	1.004	1.006	1.001	1.000	1.000	1.000	1.019
2007	13.702	1.333	1.254	1.076	1.120	1.072	1.054	1.010	1.170	1.034	1.022	1.013	1.001	1.001	1.007	1.003	1.004	1.018	1.018	1.015	1.015	1.010	1.006	1.006	1.004	1.006	1.001	1.000	1.000	1.019
2008	1.316	1.096	1.028	1.066	1.055	1.037	1.093	1.155	1.059	1.027	1.037	1.009	1.003	1.014	1.015	1.018	1.018	1.015	1.015	1.010	1.006	1.006	1.004	1.006	1.001	1.000	1.000	1.000	1.000	1.019
2009	4.004	1.255	1.467	1.039	1.050	1.036	1.017	1.024	1.055	1.052	1.002	1.000	1.000	1.000	1.029	1.018	1.018	1.018	1.015	1.010	1.006	1.006	1.004	1.006	1.001	1.000	1.000	1.000	1.000	1.019
2010	17.254	1.587	1.461	1.027	1.217	1.072	1.205	1.049	1.050	1.141	1.016	1.266	1.173	1.017	1.029	1.018	1.018	1.018	1.015	1.010	1.006	1.006	1.004	1.006	1.001	1.000	1.000	1.000	1.000	1.019
2011	5.534	1.347	1.215	1.179	1.094	1.119	1.021	1.044	1.031	1.022	1.015	1.004	1.050	1.017	1.029	1.018	1.018	1.018	1.015	1.010	1.006	1.006	1.004	1.006	1.001	1.000	1.000	1.000	1.000	1.019
2012	3.464	2.126	1.414	1.190	1.049	1.087	1.085	1.067	1.011	1.035	1.062	1.050	1.017	1.029	1.018	1.018	1.015	1.010	1.006	1.006	1.004	1.006	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.019
2013	1.409	1.931	1.151	1.115	1.446	1.219	1.045	1.015	1.047	1.025	1.062	1.050	1.017	1.029	1.018	1.018	1.018	1.015	1.010	1.006	1.006	1.004	1.006	1.001	1.000	1.000	1.000	1.000	1.000	1.019
2014	19.137	1.226	1.156	1.068	1.098	1.037	1.024	1.049	1.025	1.066	1.025	1.062	1.050	1.017	1.029	1.018	1.018	1.018	1.015	1.010	1.006	1.006	1.004	1.006	1.001	1.000	1.000	1.000	1.000	1.019
2015	5.264	1.996	1.271	1.149	1.101	1.113	1.056	1.054	1.086	1.066	1.025	1.062	1.050	1.017	1.029	1.018	1.018	1.018	1.015	1.010	1.006	1.006	1.004	1.006	1.001	1.000	1.000	1.000	1.000	1.019
2016	28.197	1.598	1.317	1.397	1.096	1.233	1.068	1.044	1.086	1.066	1.025	1.062	1.050	1.017	1.029	1.018	1.018	1.018	1.015	1.010	1.006	1.006	1.004	1.006	1.001	1.000	1.000	1.000	1.000	1.019
2017	1.359	1.163	1.067	1.041	1.061	1.379	1.212	1.056	1.044	1.086	1.066	1.025	1.062	1.050	1.017	1.029	1.018	1.018	1.018	1.015	1.010	1.006	1.006	1.004	1.006	1.001	1.000	1.000	1.000	1.019
2018	9.001	2.419	1.204	1.233	1.221	1.117	1.056	1.044	1.086	1.066	1.025	1.062	1.050	1.017	1.029	1.018	1.018	1.018	1.015	1.010	1.006	1.006	1.004	1.006	1.001	1.000	1.000	1.000	1.000	1.019
2019	6.552	2.010	1.171	1.112	1.181	1.117	1.056	1.044	1.086	1.066	1.025	1.062	1.050	1.017	1.029	1.018	1.018	1.018	1.015	1.010	1.006	1.006	1.004	1.006	1.001	1.000	1.000	1.000	1.000	1.019
2020	9.425	2.737	1.450	1.178	1.181	1.117	1.056	1.044	1.086	1.066	1.025	1.062	1.050	1.017	1.029	1.018	1.018	1.018	1.015	1.010	1.006	1.006	1.004	1.006	1.001	1.000	1.000	1.000	1.000	1.019
2021		1.642	1.231	1.178	1.181	1.117	1.056	1.044	1.086	1.066	1.025	1.062	1.050	1.017	1.029	1.018	1.018	1.018	1.015	1.010	1.006	1.006	1.004	1.006	1.001	1.000	1.000	1.000	1.000	1.019
2022	2.513	1.573	1.231	1.178	1.181	1.117	1.056	1.044	1.086	1.066	1.025	1.062	1.050	1.017	1.029	1.018	1.018	1.018	1.015	1.010	1.006	1.006	1.004	1.006	1.001	1.000	1.000	1.000	1.000	1.019
2023	7.776	1.573	1.231	1.178	1.181	1.117	1.056	1.044	1.086	1.066	1.025	1.062	1.050	1.017	1.029	1.018	1.018	1.018	1.015	1.010	1.006	1.006	1.004	1.006	1.001	1.000	1.000	1.000	1.000	1.019

Development of Losses to Ultimate — Cumulative Losses

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312	324	336	348	360	ULT
1994				43,694	43,694	43,694	43,694	53,694	66,694	66,694	76,832	93,580	111,486	111,486	132,821	138,273	138,273	155,391	178,532	178,532	194,724	220,213	246,661	246,661	246,661	246,661	246,661	246,661	246,661	251,459
1995			15,175	20,605	32,780	51,312	82,297	93,282	111,991	124,261	140,954	179,922	194,810	216,027	230,340	241,953	241,953	241,953	241,953	241,953	241,953	241,953	241,953	241,953	241,953	241,953	241,953	241,953	241,953	246,659
1996	60,606	127,123	140,605	161,781	305,670	364,732	394,527	442,597	453,495	453,495	576,781	576,781	787,820	826,524	853,309	930,849	1,007,552	1,023,213	1,023,213	1,068,112	1,082,062	1,090,678	1,155,906	1,190,251	1,196,571	1,228,820	1,281,996	1,339,491	1,339,491	1,365,547
1997	150,598	377,057	519,125	631,334	703,267	879,004	1,237,696	1,359,105	1,483,423	1,553,597	1,679,250	1,760,677	1,797,439	1,862,946	1,890,296	1,917,996	1,952,890	1,968,351	1,972,764	1,976,544	1,995,927	1,995,927	1,995,927	1,995,927	1,995,927	1,995,927	1,995,927	1,995,927	1,995,927	2,034,751
1998	71,919	193,815	278,696	359,433	646,106	718,507	745,388	792,136	978,580	992,873	1,055,025	1,075,457	1,082,693	1,099,371	1,103,031	1,129,278	1,215,534	1,226,074	1,280,060	1,296,308	1,296,308	1,318,514	1,332,502	1,338,666	1,338,666	1,338,666	1,338,666	1,338,666	1,338,666	1,364,705
1999		12,585	16,113	48,483	64,952	84,727	95,744	98,894	98,894	98,894	103,769	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	145,346
2000		140,585	445,902	566,818	782,614	1,228,212	1,262,017	1,298,340	1,298,340	1,346,953	1,357,619	1,376,791	1,524,125	1,603,731	1,603,891	1,649,008	1,715,267	1,715,267	1,724,971	1,733,353	1,746,733	1,758,542	1,758,542	1,760,806	1,760,806	1,760,806	1,760,806	1,760,806	1,760,806	1,795,056
2001	16,703	157,277	286,167	409,158	511,400	554,458	571,001	599,455	695,506	726,601	792,933	792,933	801,191	867,543	912,396	948,559	976,545	996,294	1,012,739	1,016,169	1,024,716	1,026,765	1,036,131	1,042,704	1,044,046	1,044,046	1,044,046	1,044,046	1,044,046	1,064,354
2002	9,216	136,257	206,137	257,078	300,195	383,621	407,778	420,844	485,920	509,980	539,053	542,052	580,088	607,282	607,282	609,321	616,509	625,847	627,301	634,837	644,203	646,614	650,716	651,553	651,553	651,553	651,553	651,553	651,553	664,227
2003	21,836	202,209	294,954	359,527	407,049	431,955	595,741	722,007	752,772	1,132,407	1,243,625	1,372,437	1,435,580	1,497,429	1,546,971	1,645,324	1,768,175	1,867,367	1,936,684	1,969,276	1,980,868	1,993,338	2,000,795	2,013,488	2,016,080	2,016,080	2,016,080	2,016,080	2,016,080	2,055,296
2004	71,257	117,103	161,795	178,485	257,392	316,743	346,872	446,145	478,479	536,422	563,361	707,282	811,449	890,246	1,094,026	1,168,164	1,196,043	1,222,862	1,242,288	1,266,265	1,273,987	1,282,007	1,286,804	1,294,967	1,296,634	1,296,634	1,296,634	1,296,634	1,296,634	1,321,855
2005	12,800	13,642	22,790	125,995	162,944	191,715	273,716	325,538	408,831	498,368	566,691	584,630	768,192	844,136	870,365	920,393	939,452	971,431	1,005,600	1,015,612	1,021,806	1,032,085	1,038,633	1,039,970	1,039,970	1,039,970	1,039,970	1,039,970	1,039,970	1,060,199
2006		8,947	8,947	8,947	57,884	67,789	71,084	71,084	71,084	97,281	103,765	125,694	140,820	161,243	161,243	161,243	161,243	163,680	165,309	166,317	167,364	167,991	169,056	169,274	169,274	169,274	169,274	169,274	169,274	172,567
2007	58,988	808,267	1,077,402	1,350,931	1,454,130	1,628,782	1,745,892	1,840,192	1,858,776	2,174,856	2,247,778	2,297,257	2,327,742	2,329,809	2,345,987	2,353,741	2,362,765	2,406,161	2,442,517	2,466,836	2,481,880	2,497,503	2,506,847	2,522,750	2,525,998	2,525,998	2,525,998	2,525,998	2,525,998	2,575,132
2008	750,154	987,266	1,081,739	1,111,591	1,185,280	1,249,946	1,296,178	1,417,026	1,636,341	1,733,534	1,780,630	1,845,959	1,861,871	1,867,753	1,893,642	1,922,224	1,956,593	1,992,529	2,022,635	2,042,773	2,053,231	2,068,169	2,075,907	2,089,076	2,091,765	2,091,765	2,091,765	2,091,765	2,091,765	2,132,453
2009	81,174	324,978	407,777	598,236	621,700	652,756	676,540	688,297	704,856	743,523	781,868	783,624	783,624	783,624	783,624	806,006	820,418	835,486	848,110	856,554	861,778	867,203	870,447	875,969	877,097	877,097	877,097	877,097	877,097	894,158
2010	3,627	62,582	99,320	145,127	148,993	181,398	194,452	234,328	245,727	258,129	294,609	299,192	378,913	444,452	452,005	464,915	473,228	481,919	489,201	494,071	497,085	500,214	502,085	505,270	505,921	505,921	505,921	505,921	505,921	515,762
2011	134,434	743,915	1,002,304	1,217,775	1,435,417	1,569,874	1,756,333	1,793,765	1,872,292	1,930,245	1,973,544	2,002,952	2,010,201	2,110,096	2,145,952	2,207,246	2,246,712	2,287,976	2,322,546	2,345,670	2,359,975	2,374,832	2,383,716	2,398,838	2,401,926	2,401,926	2,401,926	2,401,926	2,401,926	2,448,647
2012	35,519	123,028	261,546	369,814	440,068	617,743	673,028	731,313	793,679	847,115	856,110	886,202	940,973	987,734	1,004,518	1,033,210	1,051,684	1,070,999	1,087,182	1,098,006	1,104,702	1,111,656	1,115,815	1,122,894	1,124,340	1,124,340	1,124,340	1,124,340	1,124,340	1,146,210
2013	32,189	45,369	87,594	100,842	112,450	162,643	198,229	207,067	210,187	210,187	220,060	225,531	239,470	251,370	255,642	262,944	267,645	272,561	276,679	279,434	281,138	282,908	283,966	285,767	286,135	286,135	286,135	286,135	286,135	291,701
2014	37,615	719,825	882,491	1,019,963	1,088,861	1,195,738	1,239,479	1,269,589	1,332,249	1,365,417	1,454,899	1,491,071	1,583,225	1,661,902	1,690,142	1,738,417	1,769,500	1,802,000	1,829,227	1,847,439	1,858,706	1,870,407	1,877,404	1,889,314	1,891,746	1,891,746	1,891,746	1,891,746	1,891,746	1,928,544
2015	117,585	618,928	1,235,365	1,569,832	1,803,486	1,985,126	2,110,171	2,333,718	2,459,229	2,670,541	2,845,554	2,916,300	3,096,539	3,250,419	3,305,652	3,400,070	3,460,863	3,524,427	3,577,679	3,613,300	3,635,336	3,658,221	3,671,907	3,695,201	3,699,958	3,699,958	3,699,958	3,699,958	3,699,958	3,771,928
2016	9,664	272,486	435,421	573,268	800,813	877,440	1,081,888	1,155,656	1,206,415	1,310,078	1,395,934	1,430,639	1,519,059	1,594,547	1,621,642	1,667,961	1,697,784	1,728,966	1,755,090	1,772,564	1,783,374	1,794,601	1,801,315	1,812,742	1,815,076	1,815,076	1,815,076	1,815,076	1,815,076	1,850,382
2017	626,145	851,011	989,479	1,055,893	1,098,659	1,133,161	1,182,226	1,248,327	1,303,158	1,415,133	1,507,873	1,545,362	1,640,872	1,722,413	1,751,681	1,801,714	1,833,929	1,867,612	1,895,830	1,914,706	1,926,383	1,938,509	1,945,762	1,958,106	1,960,626	1,960,626	1,960,626	1,960,626	1,960,626	1,998,763
2018	17,593	158,351	383,046	461,344	569,047	695,089	776,238	819,640	855,641	929,163	990,055	1,014,670	1,077,381	1,130,920	1,150,137	1,182,988	1,204,140	1,226,256	1,244,784	1,257,177	1,264,844	1,272,807	1,277,569	1,285,673	1,287,328	1,287,328	1,287,328	1,287,328	1,287,328	1,312,369
2019	17,223	112,834	226,791	265,564	295,247	348,550	389,242	411,005	429,058	465,925	496,459	508,802	540,248	567,095	576,732	593,205	603,811	614,901	624,192	630,407	634,251	638,244	640,632	644,696	645,526	645,526	645,526	645,526	645,526	658,082
2020	13,204	124,444	340,637	493,861	581,541	686,531	766,681	809,548	845,106	917,723	977,865	1,002,177	1,064,116	1,116,996	1,135,976	1,168,423	1,189,314	1,211,158	1,229,458	1,241,699	1,249,271	1,257,136	1,261,839	1,269,844	1,271,478	1,271,478	1,271,478	1,271,478	1,271,478	1,296,211
2021		297,198	488,004	600,564	707,188	834,861	932,328	984,457	1,027,698	1,116,004	1,189,141	1,218,705	1,294,026	1,358,331	1,381,413	1,420,870	1,446,275	1,472,838	1,495,092	1,509,977	1,519,186	1,528,750	1,534,469	1,544,203	1,546,191	1,546,191	1,546,191	1,546,191	1,546,191	1,576,267
2022	267,545	672,450	1,057,547	1,301,473	1,532,536	1,809,214	2,020,435	2,133,403	2,227,108	2,418,475	2,576,968	2,641,037	2,804,264	2,943,619	2,993,639	3,079,145	3,134,200	3,191,765	3,239,990	3,272,249	3,292,205	3,312,930	3,325,324	3,346,420	3,350,728	3,350,728	3,350,728	3,350,728	3,350,728	3,415,904
2023	20,816	161,866	254,564	313,279	368,899	435,498	486,342	513,534	536,090	582,154	620,306	635,728	675,018	708,563	720,603	741,185	754,438	768,294	779,902	787,668	792,471	797,460	800,443	805,521	806,558	806,558	806,558	806,558	806,558	822,247

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Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Release
Selection of Loss Development Factors

Development Period in Months

RY	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-228	228-240	240-252	252-264	264-276	276-288	288-300	300-312	312-324	324-336	336-348	348-360	TAIL
1994				1.000	1.000	1.000	1.000	1.229	1.242	1.000	1.152	1.218	1.191	1.000	1.191	1.041	1.000	1.124	1.149	1.000	1.091	1.131	1.120	1.000	1.000	1.000	1.000	1.000	1.000	
1995				1.358	1.591	1.565	1.604	1.133	1.194	1.116	1.134	1.276	1.083	1.109	1.066	1.050	1.000	1.000	1.000	1.000	1.000	1.030	1.000	1.000	1.000	1.043	1.045			
1996	2.098	1.106	1.151	1.889	1.193	1.082	1.122	1.025	1.000	1.272	1.000	1.366	1.049	1.032	1.091	1.082	1.016	1.000	1.044	1.013	1.008	1.060	1.005	1.027	1.043	1.045				
1997	2.504	1.377	1.216	1.114	1.250	1.408	1.098	1.091	1.047	1.081	1.048	1.021	1.036	1.015	1.015	1.018	1.008	1.002	1.002	1.010	1.000	1.000	1.000	1.000						
1998	2.695	1.438	1.290	1.798	1.112	1.037	1.063	1.235	1.015	1.063	1.019	1.007	1.015	1.003	1.024	1.076	1.009	1.044	1.013	1.000	1.017	1.011	1.005	1.000	1.000					
1999		1.280	3.009	1.340	1.304	1.130	1.033	1.000	1.000	1.000	1.051	1.338	1.025	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000							
2000		3.172	1.271	1.381	1.569	1.028	1.029	1.000	1.037	1.008	1.014	1.107	1.052	1.000	1.028	1.040	1.000	1.006	1.005	1.008	1.007	1.000	1.000							
2001	9.416	1.820	1.430	1.250	1.084	1.030	1.050	1.160	1.045	1.091	1.000	1.010	1.083	1.052	1.040	1.030	1.020	1.017	1.003	1.008	1.002	1.009								
2002	14.784	1.513	1.247	1.168	1.278	1.063	1.032	1.155	1.050	1.057	1.006	1.070	1.047	1.000	1.003	1.012	1.015	1.002	1.012	1.000	1.015									
2003	9.260	1.459	1.219	1.132	1.061	1.379	1.212	1.043	1.504	1.098	1.104	1.046	1.043	1.033	1.064	1.075	1.056	1.037	1.017	1.006										
2004	1.643	1.382	1.103	1.442	1.231	1.095	1.286	1.072	1.121	1.050	1.255	1.147	1.097	1.229	1.068	1.024	1.022	1.016	1.019											
2005	1.066	1.671	5.528	1.293	1.177	1.428	1.189	1.256	1.219	1.137	1.032	1.314	1.099	1.031	1.057	1.021	1.034	1.035												
2006	1.000	1.000	6.470	1.171	1.049	1.000	1.000	1.369	1.067	1.211	1.120	1.145	1.000	1.000	1.000	1.004														
2007	13.702	1.333	1.254	1.076	1.120	1.072	1.054	1.010	1.170	1.034	1.022	1.013	1.001	1.007	1.003	1.000	1.004													
2008	1.316	1.096	1.028	1.066	1.055	1.037	1.093	1.155	1.059	1.027	1.037	1.009	1.003	1.014	1.015															
2009	4.004	1.255	1.467	1.039	1.050	1.036	1.017	1.024	1.055	1.052	1.002	1.000	1.000	1.000																
2010	17.254	1.587	1.461	1.027	1.217	1.072	1.205	1.049	1.050	1.141	1.016	1.266	1.173																	
2011	5.534	1.347	1.215	1.179	1.094	1.119	1.021	1.044	1.031	1.022	1.015	1.035																		
2012	3.464	2.126	1.414	1.190	1.404	1.089	1.087	1.085	1.067	1.011	1.035																			
2013	1.409	1.931	1.151	1.115	1.446	1.219	1.045	1.015	1.000	1.047																				
2014	19.137	1.226	1.156	1.068	1.098	1.037	1.024	1.049	1.025																					
2015	5.264	1.996	1.271	1.149	1.101	1.113	1.056	1.054																						
2016	28.197	1.598	1.317	1.397	1.096	1.233	1.068																							
2017	1.359	1.163	1.067	1.041	1.031	1.043																								
2018	9.001	2.419	1.204	1.233	1.221																									
2019	6.552	2.010	1.171	1.112																										
2020	9.425	2.737	1.450																											
2021		1.642																												
2022	2.513																													
VOL WTD 3	3.897	1.975	1.284	1.101	1.096	1.120	1.050	1.050	1.037	1.021	1.021	1.028	1.024	1.008	1.008	1.008	1.026	1.030	1.017	1.006	1.007	1.003	1.002	1.000	1.007	1.015	1.032	1.000	1.000	
VOL WTD 5	4.326	1.573	1.200	1.163	1.098	1.104	1.055	1.052	1.035	1.034	1.023	1.018	1.017	1.011	1.025	1.029	1.036	1.025	1.012	1.006	1.009	1.004	1.006	1.001	1.006	1.014	1.032	1.000	1.000	
VOL WTD ALL	3.037	1.471	1.234	1.178	1.148	1.108	1.069	1.074	1.057	1.039	1.062	1.043	1.028	1.034	1.036	1.020	1.019	1.014	1.007	1.008	1.015	1.010	1.001	1.006	1.014	1.015	1.000	1.000		
ARITH 3	5.969	2.130	1.275	1.129	1.116	1.130	1.049	1.039	1.031	1.027	1.022	1.090	1.059	1.007	1.006	1.008	1.019	1.029	1.016	1.005	1.005	1.003	1.002	1.000	1.009	1.014	1.015	1.000	1.000	
ARITH 5	6.873	1.994	1.242	1.186	1.109	1.129	1.056	1.049	1.035	1.055	1.021	1.058	1.064	1.010	1.029	1.025	1.026	1.021	1.011	1.004	1.008	1.004	1.007	1.001	1.005	1.011	1.015	1.000	1.000	
ARITH ALL	7.461	1.642	1.484	1.439	1.189	1.141	1.102	1.107	1.073	1.060	1.122	1.079	1.031	1.047	1.035	1.018	1.024	1.024	1.004	1.015	1.026	1.022	1.001	1.005	1.011	1.015	1.000	1.000		
5 YR HI LO	7.776	2.024	1.231	1.165	1.098	1.125	1.056	1.049	1.035	1.040	1.022	1.009	1.050	1.007	1.025	1.016	1.024	1.023	1.011	1.005	1.008	1.003	1.002	1.000	1.000	1.000	1.000	NA	NA	
7 YR HI LO	6.873	1.933	1.224	1.135	1.184	1.117	1.056	1.044	1.044	1.036	1.025	1.082	1.069	1.017	1.029	1.018	1.018	1.015	1.010	1.004	1.006	1.004	1.007	1.000	1.000	1.000	1.000	NA	NA	
ALL YR HI LO	6.778	1.605	1.329	1.239	1.181	1.127	1.085	1.088	1.091	1.066	1.052	1.114	1.071	1.019	1.040	1.034	1.016	1.016	1.013	1.004	1.007	1.013	1.007	1.000	1.000	1.000	1.000	NA	NA	TAIL
SELECTED	7.776	1.573	1.231	1.178	1.181	1.117	1.056	1.044	1.086	1.066	1.025	1.062	1.050	1.017	1.029	1.018	1.018	1.015	1.010	1.006	1.006	1.004	1.006	1.001	1.000	1.000	1.000	1.000	1.000	1.019

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Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Release
Paid Losses

Development in Months

BY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312	324	336	348	360
1994	-	-	-	43,694	43,694	43,694	43,694	43,694	53,694	66,694	66,694	76,832	93,580	111,486	111,486	132,821	138,273	138,273	155,391	178,532	178,532	194,724	220,213	246,661	246,661	246,661	246,661	246,661	246,661	246,661
1995	-	-	-	15,175	20,605	32,780	51,312	82,297	93,282	111,391	124,261	140,954	179,922	194,810	216,027	230,340	241,953	241,953	241,953	241,953	241,953	241,953	241,953	241,953	241,953	241,953	241,953			
1996	60,606	127,123	140,605	161,781	305,670	364,732	394,527	442,597	453,495	453,495	576,781	576,781	787,820	826,524	853,309	930,849	1,007,552	1,023,213	1,023,213	1,068,112	1,082,062	1,090,678	1,155,906	1,190,251	1,196,571	1,228,820	1,281,996	1,339,491		
1997	150,598	377,057	519,125	631,334	703,267	879,004	1,237,696	1,359,105	1,483,423	1,553,597	1,679,250	1,760,677	1,797,439	1,862,946	1,890,296	1,917,996	1,952,890	1,968,351	1,972,764	1,976,544	1,995,927	1,995,927	1,995,927	1,995,927	1,995,927	1,995,927				
1998	71,919	193,815	278,696	359,433	646,106	718,507	745,388	792,136	978,580	992,873	1,055,025	1,075,457	1,082,693	1,099,371	1,103,031	1,129,278	1,215,534	1,226,074	1,280,060	1,296,308	1,296,308	1,318,514	1,332,502	1,338,666	1,338,666	1,338,666				
1999	-	12,585	16,113	48,483	64,952	84,727	95,744	98,894	98,894	98,894	98,894	103,964	139,096	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573					
2000	-	140,585	445,902	566,818	782,614	1,228,212	1,262,017	1,298,340	1,298,340	1,346,953	1,357,619	1,376,791	1,524,125	1,603,731	1,603,891	1,649,008	1,715,267	1,715,267	1,724,971	1,733,353	1,746,733	1,758,542	1,758,542	1,758,542						
2001	16,703	157,277	286,167	409,158	511,400	554,458	571,001	599,455	695,506	726,601	792,933	792,933	801,191	867,543	912,396	948,559	976,545	996,294	1,012,739	1,016,169	1,024,716	1,026,765	1,036,131							
2002	9,216	136,257	206,137	257,078	300,195	383,621	407,778	420,844	485,920	509,980	539,053	542,052	580,088	607,282	607,282	609,321	616,509	625,847	627,301	634,837	634,837	644,203								
2003	21,836	202,209	294,954	359,527	407,049	431,955	595,741	722,007	752,772	1,132,407	1,243,625	1,372,437	1,435,580	1,497,429	1,546,971	1,645,324	1,768,175	1,867,367	1,936,684	1,969,276	1,980,868									
2004	71,257	117,103	161,795	178,485	257,392	316,743	346,872	446,145	478,479	536,422	563,361	707,282	811,449	890,246	1,094,026	1,168,514	1,196,043	1,222,862	1,242,288	1,266,265										
2005	12,800	13,642	22,790	125,995	162,944	191,715	273,716	325,538	408,831	498,368	566,691	584,630	768,192	844,136	870,365	920,393	939,452	971,431	1,005,600											
2006	-	8,947	8,947	8,947	57,884	67,789	71,084	71,084	71,084	97,281	103,765	125,694	140,820	161,243	161,243	161,243	161,243	161,243												
2007	58,988	808,267	1,077,402	1,350,931	1,454,130	1,628,782	1,745,892	1,840,192	1,858,776	2,174,856	2,247,778	2,297,257	2,327,742	2,329,809	2,345,987	2,353,741	2,362,765													
2008	750,154	987,266	1,081,739	1,111,591	1,185,280	1,249,946	1,296,178	1,417,026	1,636,341	1,733,534	1,780,630	1,845,959	1,861,871	1,867,753	1,893,642	1,922,224														
2009	81,174	324,978	407,777	598,236	621,700	652,756	676,540	688,297	704,856	743,523	781,868	783,624	783,624	783,624	783,624															
2010	3,627	62,582	99,320	145,127	148,993	181,398	194,452	234,328	245,727	258,129	294,609	299,192	378,913	444,452																
2011	134,434	743,915	1,002,304	1,217,775	1,435,417	1,569,874	1,756,333	1,793,765	1,872,292	1,930,245	1,973,544	2,002,952	2,010,201																	
2012	35,519	123,028	261,546	369,814	440,068	617,743	673,028	731,313	793,679	847,115	856,110	886,202																		
2013	32,189	45,369	87,594	100,842	112,450	162,643	198,229	207,067	210,187	210,187	220,060																			
2014	37,615	719,825	882,491	1,019,963	1,088,861	1,195,738	1,239,479	1,269,589	1,332,249	1,365,417																				
2015	117,585	618,928	1,235,365	1,569,832	1,803,486	1,985,126	2,210,171	2,333,718	2,459,229																					
2016	9,664	272,486	435,421	573,268	800,813	877,440	1,081,888	1,155,656																						
2017	626,145	851,011	989,479	1,055,893	1,098,659	1,133,161	1,182,226																							
2018	17,593	158,351	383,046	461,344	569,047	695,089																								
2019	17,223	112,834	226,791	265,564	295,247																									
2020	13,204	124,444	340,637	493,861																										
2021	-	297,198	488,004																											
2022	267,545	672,450																												
2023	20,816																													

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Release
Summary of Incurred Development Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	INC LDM	PAID	INCURRED	CASE	IBNR	UNPAID
RY	ULTIMATE	LOSS	LOSS	RESERVE	RESERVE	LOSS
1994	246,661	246,661	246,661	-	-	-
1995	241,953	241,953	241,953	-	-	-
1996	2,176,370	1,339,491	2,176,370	836,879	-	836,879
1997	1,995,927	1,995,927	1,995,927	-	-	-
1998	1,352,666	1,338,666	1,352,666	14,000	-	14,000
1999	142,573	142,573	142,573	-	-	-
2000	1,817,407	1,758,542	1,817,407	58,865	-	58,865
2001	1,109,531	1,036,131	1,109,531	73,400	-	73,400
2002	713,587	644,203	713,587	69,383	-	69,383
2003	1,980,868	1,980,868	1,980,868	-	-	-
2004	1,301,747	1,266,265	1,301,747	35,482	-	35,482
2005	1,683,167	1,005,600	1,680,933	675,333	2,234	677,567
2006	161,754	161,243	161,243	-	511	511
2007	2,424,070	2,362,765	2,398,612	35,847	25,458	61,304
2008	2,061,915	1,922,224	2,021,507	99,283	40,408	139,691
2009	907,611	783,624	879,624	96,000	27,987	123,987
2010	711,927	444,452	674,592	230,139	37,336	267,475
2011	2,318,967	2,010,201	2,191,528	181,327	127,440	308,766
2012	1,007,649	886,202	922,671	36,468	84,978	121,446
2013	281,253	220,060	256,528	36,468	24,725	61,193
2014	1,862,193	1,365,417	1,662,972	297,555	199,221	496,776
2015	3,221,307	2,459,229	2,845,588	386,360	375,719	762,078
2016	1,949,376	1,155,656	1,690,349	534,693	259,026	793,720
2017	1,710,128	1,182,226	1,414,157	231,931	295,971	527,902
2018	1,284,027	695,089	998,049	302,960	285,979	588,939
2019	700,449	295,247	519,267	224,020	181,182	405,202
2020	1,685,296	493,861	1,193,088	699,226	492,208	1,191,435
2021	2,037,756	488,004	1,331,159	843,154	706,597	1,549,752
2022	3,561,873	672,450	2,056,280	1,383,830	1,505,593	2,889,423
2023	1,000,810	20,816	335,904	315,088	664,906	979,994
TOTAL	43,650,818	30,615,648	38,313,340	7,697,692	5,337,478	13,035,171

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Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Release
Development of Losses to Ultimate

Development Period in Months

RY	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - 276	276 - 288	288 - 300	300 - 312	312 - 324	324 - 336	336 - 348	348 - 360	360 - ULT
1994	1.240	1.000	1.210	1.000	1.021	1.000	1.000	1.000	1.249	1.000	1.033	1.269	1.000	1.157	1.115	1.000	1.000	1.378	1.010	1.000	1.000	1.040	1.091	0.986	1.000	1.000	1.000	1.000	1.000	1.000
1995	1.000	1.000	1.813	1.217	0.548	1.278	1.777	0.919	0.822	1.000	1.000	1.143	1.107	1.000	1.000	0.923	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1996	1.474	1.153	0.784	3.459	1.255	0.930	0.978	1.000	0.819	1.012	1.000	1.041	1.000	1.017	1.385	0.988	1.000	1.000	1.000	1.000	1.000	1.110	1.041	1.310	1.000	1.000	1.052	1.000	1.000	1.000
1997	1.213	1.080	1.386	1.059	1.155	1.093	1.198	0.957	0.995	0.995	1.000	1.032	1.000	1.000	1.000	1.006	1.000	1.000	1.000	0.935	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1998	1.576	1.426	1.285	1.532	1.012	1.102	0.971	1.005	1.018	1.004	0.968	1.033	0.947	1.005	1.021	1.014	1.000	0.988	1.000	1.030	1.000	0.978	1.000	1.001	1.000	1.000	1.000	1.000	1.000	1.000
1999	0.594	1.000	1.738	1.000	0.952	0.795	0.854	1.000	1.000	1.202	1.256	1.000	0.948	1.000	1.000	1.000	1.000	1.000	1.009	1.000	1.02	0.819	0.999	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2000	1.189	1.625	1.185	0.983	0.923	1.013	0.886	1.000	1.022	1.002	0.982	1.121	0.992	1.241	1.000	0.993	1.031	1.000	1.000	1.009	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2001	0.559	0.945	1.079	0.779	1.080	0.964	1.027	1.153	1.000	0.959	1.018	1.000	1.077	1.000	1.019	0.990	1.000	1.000	1.000	1.000	1.000	1.026	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2002	1.176	1.166	0.926	1.000	0.907	0.955	1.108	1.007	0.802	1.027	1.043	1.000	0.987	1.000	1.027	1.000	1.000	1.000	1.000	1.000	1.000	0.992	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2003	0.950	0.919	1.209	0.949	1.229	1.139	1.028	1.018	1.184	1.050	1.000	1.018	1.033	0.993	1.061	0.930	1.005	0.996	0.996	0.969	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2004	0.824	0.891	0.981	1.381	1.024	1.650	1.000	1.033	1.449	1.000	0.960	1.000	1.013	1.114	1.000	1.017	0.951	0.980	1.015	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2005	0.907	1.000	0.996	1.014	0.958	2.418	1.079	1.031	1.029	1.004	0.998	1.215	1.016	1.422	1.031	0.985	1.004	0.999	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2006	0.750	1.000	1.349	1.586	1.000	0.942	1.000	1.410	1.000	1.000	1.000	0.790	1.000	1.000	1.000	1.000	1.000	0.958	1.002	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2007	2.668	1.000	0.995	0.975	1.248	1.011	1.060	1.025	1.000	1.027	1.000	0.964	1.000	1.000	1.000	1.000	1.007	1.002	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2008	1.023	0.933	1.022	1.075	1.010	0.987	1.031	1.128	1.054	1.008	1.007	0.984	1.000	1.000	0.993	1.009	1.007	1.002	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2009	0.617	0.966	1.049	1.000	0.980	1.478	0.965	1.000	0.994	1.004	0.788	0.897	1.000	1.000	1.012	1.009	1.007	1.002	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2010	0.722	1.118	0.966	1.165	1.131	0.914	1.000	1.000	1.171	1.041	1.101	1.594	0.997	1.023	1.012	1.009	1.007	1.002	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2011	1.634	1.105	1.092	0.992	0.995	1.011	1.030	0.998	1.000	1.064	1.000	1.000	1.003	1.023	1.012	1.009	1.007	1.002	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2012	1.001	1.386	1.428	1.273	1.096	0.860	1.036	1.000	1.000	1.019	0.955	1.032	1.003	1.023	1.012	1.009	1.007	1.002	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2013	0.652	0.774	1.000	1.456	1.099	1.108	1.000	1.000	1.000	1.000	1.004	1.032	1.003	1.023	1.012	1.009	1.007	1.002	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2014	1.087	1.038	1.086	1.054	1.027	0.940	1.070	1.023	1.000	1.021	1.004	1.032	1.003	1.023	1.012	1.009	1.007	1.002	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2015	1.869	1.252	1.024	1.185	0.966	1.049	1.039	0.995	1.011	1.021	1.004	1.032	1.003	1.023	1.012	1.009	1.007	1.002	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2016	1.555	1.006	1.138	1.012	1.103	1.140	1.202	1.019	1.011	1.021	1.004	1.032	1.003	1.023	1.012	1.009	1.007	1.002	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2017	1.144	1.037	0.917	0.984	1.021	1.000	1.049	1.019	1.011	1.021	1.004	1.032	1.003	1.023	1.012	1.009	1.007	1.002	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2018	2.028	1.405	1.210	0.916	1.000	1.064	1.049	1.019	1.011	1.021	1.004	1.032	1.003	1.023	1.012	1.009	1.007	1.002	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2019	1.314	0.959	1.090	1.000	1.048	1.064	1.049	1.019	1.011	1.021	1.004	1.032	1.003	1.023	1.012	1.009	1.007	1.002	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2020	1.602	1.577	1.024	1.047	1.048	1.064	1.049	1.019	1.011	1.021	1.004	1.032	1.003	1.023	1.012	1.009	1.007	1.002	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2021	2.464	0.915	1.084	1.047	1.048	1.064	1.049	1.019	1.011	1.021	1.004	1.032	1.003	1.023	1.012	1.009	1.007	1.002	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2022	2.101	1.132	1.084	1.047	1.048	1.064	1.049	1.019	1.011	1.021	1.004	1.032	1.003	1.023	1.012	1.009	1.007	1.002	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2023	1.720	1.132	1.084	1.047	1.048	1.064	1.049	1.019	1.011	1.021	1.004	1.032	1.003	1.023	1.012	1.009	1.007	1.002	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312	324	336	348	360	ULT
1994	50,001	62,000	62,000	75,000	75,000	75,000	75,000	75,000	93,694	93,694	96,832	122,832	122,832	142,070	158,405	158,405	158,405	218,273	220,532	220,532	229,333	250,213	246,661	246,661	246,661	246,661	246,661	246,661	246,661	246,661	246,661
1995	100,005	100,005	100,005	181,297	220,697	120,868	154,430	274,384	252,195	207,200	207,200	207,200	236,757	262,200	262,200	262,200	262,200	241,953	241,953	241,953	241,953	241,953	241,953	241,953	241,953	241,953	241,953	241,953	241,953	241,953	241,953
1996	216,462	319,010	367,737	288,272	997,058	1,251,389	1,163,182	1,137,140	1,137,140	931,235	942,582	942,582	980,842	980,842	997,795	1,382,410	1,366,007	1,366,007	1,366,007	1,366,007	1,516,413	1,579,163	2,069,209	2,069,209	2,069,209	2,176,370	2,176,370	2,176,370	2,176,370	2,176,370	2,176,370
1997	746,677	906,062	978,833	1,356,420	1,436,651	1,659,199	1,813,028	2,172,721	2,079,080	2,067,828	2,057,038	2,057,038	2,121,861	2,122,127	2,122,127	2,122,127	2,135,701	2,135,701	2,135,701	1,995,927	1,995,927	1,995,927	1,995,927	1,995,927	1,995,927	1,995,927	1,995,927	1,995,927	1,995,927	1,995,927	1,995,927
1998	280,352	441,921	629,991	809,760	1,240,170	1,255,103	1,382,637	1,342,716	1,349,223	1,373,262	1,378,815	1,334,952	1,378,952	1,305,491	1,311,491	1,339,090	1,358,000	1,358,000	1,341,060	1,341,060	1,381,308	1,381,308	1,351,348	1,351,348	1,351,348	1,352,666	1,352,666	1,352,666	1,352,666	1,352,666	1,352,666
1999	148,000	87,973	87,973	152,864	152,864	145,514	115,744	98,894	98,894	118,894	149,287	150,410	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573
2000	830,009	986,785	1,603,954	1,900,891	1,868,003	1,724,741	1,747,051	1,548,700	1,548,700	1,582,140	1,585,805	1,557,714	1,746,592	1,731,797	2,148,891	2,133,481	2,199,740	2,199,740	2,219,267	2,223,018	1,820,018	1,817,407	1,817,407	1,817,407	1,817,407	1,817,407	1,817,407	1,817,407	1,817,407	1,817,407	1,817,407
2001	1,862,012	1,040,851	983,642	1,061,656	827,034	892,953	860,467	883,417	1,018,928	1,018,928	977,435	995,386	995,386	1,071,788	1,071,788	1,092,066	1,081,236	1,081,236	1,081,236	1,081,236	1,081,236	1,109,531	1,109,531	1,109,531	1,109,531	1,109,531	1,109,531	1,109,531	1,109,531	1,109,531	1,109,531
2002	674,164	792,896	924,518	855,817	855,481	775,594	741,003	821,003	826,548	662,748	680,698	709,949	709,949	700,590	700,590	719,666	719,666	719,666	719,666	719,666	713,587	713,587	713,587	713,587	713,587	713,587	713,587	713,587	713,587	713,587	713,587
2003	1,091,012	1,036,470	952,537	1,151,270	1,092,375	1,342,039	1,528,804	1,571,990	1,599,735	1,894,459	1,989,626	1,989,626	2,025,726	2,092,214	2,078,460	2,205,077	2,051,262	2,061,011	2,052,007	2,044,371	1,980,868	1,980,868	1,980,868	1,980,868	1,980,868	1,980,868	1,980,868	1,980,868	1,980,868	1,980,868	1,980,868
2004	496,850	409,451	364,653	357,620	494,041	505,771	834,635	834,631	861,768	1,248,642	1,248,642	1,199,204	1,199,204	1,215,087	1,353,628	1,353,628	1,376,628	1,308,781	1,283,109	1,301,747	1,301,747	1,301,747	1,301,747	1,301,747	1,301,747	1,301,747	1,301,747	1,301,747	1,301,747	1,301,747	1,301,747
2005	386,006	350,003	350,003	348,601	353,601	338,873	819,445	884,264	911,289	937,852	941,848	940,095	1,141,835	1,160,547	1,650,304	1,701,055	1,675,074	1,682,156	1,680,933	1,683,167	1,683,167	1,683,167	1,683,167	1,683,167	1,683,167	1,683,167	1,683,167	1,683,167	1,683,167	1,683,167	1,683,167
2006	100,001	75,001	75,001	101,150	160,447	160,447	151,084	151,084	213,084	213,084	213,084	213,084	168,243	168,243	168,243	168,243	161,243	161,540	161,754	161,754	161,754	161,754	161,754	161,754	161,754	161,754	161,754	161,754	161,754	161,754	161,754
2007	682,440	1,820,729	1,821,179	1,812,130	1,767,555	2,205,757	2,230,289	2,364,750	2,424,277	2,424,277	2,488,778	2,488,778	2,398,612	2,398,612	2,398,612	2,398,612	2,416,413	2,420,852	2,424,070	2,424,070	2,424,070	2,424,070	2,424,070	2,424,070	2,424,070	2,424,070	2,424,070	2,424,070	2,424,070	2,424,070	2,424,070
2008	1,588,551	1,624,832	1,516,553	1,550,168	1,666,353	1,682,424	1,660,446	1,711,851	1,930,604	2,035,727	2,052,177	2,067,463	2,034,991	2,034,991	2,034,991	2,034,991	2,021,507	2,040,260	2,055,402	2,059,178	2,061,915	2,061,915	2,061,915	2,061,915	2,061,915	2,061,915	2,061,915	2,061,915	2,061,915	2,061,915	2,061,915
2009	1,426,176	879,758	849,967	891,837	891,837	874,344	1,292,547	1,247,747	1,247,747	1,240,247	1,244,606	980,624	879,624	879,624	879,624	889,824	898,079	904,744	906,406	907,611	907,611	907,611	907,611	907,611	907,611	907,611	907,611	907,611	907,611	907,611	907,611
2010	337,003	243,262	272,086	262,819	306,255	346,255	316,478	316,478	316,478	370,478	385,727	424,609	676,953	674,592	689,975	697,976	704,451	709,679	710,983	711,927	711,927	711,927	711,927	711,927	711,927	711,927	711,927	711,927	711,927	711,927	711,927
2011	1,018,742	1,664,572	1,839,853	2,009,107	1,993,817	1,983,357	2,004,595	2,064,707	2,060,317	2,060,317	2,191,528	2,191,528	2,191,528	2,197,353	2,247,460	2,273,522	2,294,613	2,311,643	2,315,889	2,318,967	2,318,967	2,318,967	2,318,967	2,318,967	2,318,967	2,318,967	2,318,967	2,318,967	2,318,967	2,318,967	2,318,967
2012	385,065	385,438	534,218	762,801	970,701	1,063,470	914,659	948,028	948,028	948,028	966,601	922,671	952,273	954,804	976,577	987,902	997,966	1,004,466	1,006,311	1,007,649	1,007,649	1,007,649	1,007,649	1,007,649	1,007,649	1,007,649	1,007,649	1,007,649	1,007,649	1,007,649	1,007,649
2013	287,002	187,000	144,674	144,674	210,713	231,563	256,528	256,528	256,528	256,528	257,534	265,797	266,503	272,580	275,741	278,299	280,365	280,880	281,253	281,253	281,253	281,253	281,253	281,253	281,253	281,253	281,253	281,253	281,253	281,253	281,253
2014	1,217,768	1,324,230	1,374,411	1,493,061	1,573,979	1,616,609	1,519,369	1,626,355	1,662,972	1,662,972	1,698,489	1,705,148	1,759,856	1,764,534	1,804,771	1,825,700	1,842,636	1,856,312	1,859,722	1,862,193	1,862,193	1,862,193	1,862,193	1,862,193	1,862,193	1,862,193	1,862,193	1,862,193	1,862,193	1,862,193	1,862,193
2015	956,615	1,788,319	2,238,470	2,292,173	2,716,546	2,625,210	2,752,754	2,859,888	2,845,588	2,876,685	2,938,124	2,949,644	3,044,279	3,052,371	3,121,975	3,158,178	3,187,476	3,211,132	3,217,031	3,221,307	3,221,307	3,221,307	3,221,307	3,221,307	3,221,307	3,221,307	3,221,307	3,221,307	3,221,307	3,221,307	3,221,307
2016	621,267	965,820	971,174	1,104,759	1,118,562	1,233,642	1,406,288	1,690,349	1,722,009	1,740,828	1,778,007	1,784,978	1,842,247	1,847,144	1,889,265	1,911,173	1,928,903	1,943,218	1,946,788	1,949,376	1,949,376	1,949,376	1,949,376	1,949,376	1,949,376	1,949,376	1,949,376	1,949,376	1,949,376	1,949,376	1,949,376
2017	1,293,564	1,479,562	1,534,500	1,407,449	1,384,975	1,414,084	1,414,157	1,482,892	1,510,666	1,527,175	1,559,792	1,565,907	1,616,147	1,620,443	1,657,395	1,676,614	1,692,168	1,704,727	1,707,858	1,710,128	1,710,128	1,710,128	1,710,128	1,710,128	1,710,128	1,710,128	1,710,128	1,710,128	1,710,128	1,710,128	1,710,128
2018	316,005	641,000	900,447	1,089,911	998,234	998,049	1,061,801	1,113,410	1,134,264	1,146,660	1,171,150	1,175,741	1,213,463	1,216,689	1,244,433	1,258,864	1,270,542	1,279,972	1,282,323	1,284,027	1,284,027	1,284,027	1,284,027	1,284,027	1,284,027	1,284,027	1,284,027	1,284,027	1,284,027	1,284,027	1,284,027
2019	378,200	496,923	476,353	519,267	519,267	544,445	579,223	607,376	618,752	625,514	638,873	641,378	661,956	663,715	678,850	686,722	693,093	698,237	699,519	700,449	700,449	700,449	700,449	700,449	700,449	700,449	700,449	700,449	700,449	700,449	700,449
2020	461,334	739,254	1,165,059	1,193,088	1,249,369	1,309,947	1,393,622	1,461,360	1,488,731	1,505,000	1,537,143	1,543,169	1,592,680	1,596,913	1,633,329	1,652,269	1,667,597	1,679,973	1,683,059	1,685,296	1,685,296	1,685,296	1,685,296	1,685,296	1,685,296	1,685,296	1,685,296	1,685,296	1,685,296	1,685,296	1,685,296
2021	590,411	1,454,650	1,331,159	1,442,608	1,510,659	1,583,907	1,685,022	1,766,986	1,800,081	1,819,753	1,858,618	1,865,905	1,925,770	1,930,889	1,974,920	1,997,822	2,016,355	2,031,320	2,035,051	2,037,756	2,037,756	2,037,756	2,037,756	2,037,756	2,037,756	2,037,756	2,037,756	2,037,756	2,037,756	2,037,756	2,037,756
2022	978,786	2,056,280	2,326,784	2,521,591	2,640,540	2,768,573	2,945,421	3,088,583	3,146,432	3,180,817	3,248,751	3,261,488	3,366,129	3,375,076	3,452,040	3,492,070	3,524,466	3,550,623	3,557,145	3,561,873	3,561,873	3,561,873	3,561,873	3,561,873	3,561,873	3,561,873	3,561,873	3,561,873	3,561,873	3,561,873	3,561,873
2023	335,904	577,771	653,776	708,513	741,935	777,910	827,600	867,826	884,080	893,741	912,829	916,408	945,810	948,324	969,949	981,197	990,299	997,649	999,482	1,000,810	1,000,810	1,000,810	1,000,810	1,000,810	1,000,810	1,000,810	1,000,810	1,000,810	1,000,810	1,000,810	1,000,810

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Release
Selection of Loss Development Factors

RY	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-228	228-240	240-252	252-264	264-276	276-288	288-300	300-312	312-324	324-336	336-348	348-360	Tail
1994	1.240	1.000	1.210	1.000	1.000	1.000	1.000	1.000	1.249	1.000	1.033	1.269	1.000	1.157	1.115	1.000	1.000	1.378	1.010	1.000	1.040	1.091	0.986	1.000	1.000	1.000	1.000	1.000	1.000	
1995	1.000	1.000	1.813	1.217	0.548	1.278	1.777	0.919	0.822	1.000	1.000	1.143	1.107	1.000	1.000	1.000	0.923	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000			
1996	1.474	1.153	0.784	3.459	1.255	0.930	0.978	1.000	0.819	1.012	1.000	1.041	1.000	1.017	1.385	0.988	1.000	1.000	1.000	1.000	1.110	1.041	1.310	1.000	1.000	1.052	1.000			
1997	1.213	1.080	1.386	1.059	1.155	1.093	1.198	0.957	0.995	0.995	1.000	1.032	1.000	1.000	1.000	1.006	1.000	1.000	1.000	0.935	1.000	1.000	1.000	1.000	1.000	1.000				
1998	1.576	1.426	1.285	1.532	1.012	1.102	0.971	1.005	1.018	1.004	0.968	1.033	0.947	1.005	1.021	1.014	1.000	0.988	1.000	1.030	1.000	0.978	1.000	1.000	1.000					
1999	0.594	1.000	1.738	1.000	0.952	0.795	0.854	1.000	1.000	1.202	1.256	1.008	0.948	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.001					
2000	1.189	1.625	1.185	0.983	0.923	1.013	0.886	1.000	1.022	1.002	0.982	1.121	0.992	1.241	0.993	1.031	1.000	1.009	1.002	0.819	0.999	1.000	1.000							
2001	0.559	0.945	1.079	0.779	1.080	0.964	1.027	1.153	1.000	0.959	1.018	1.000	1.077	1.000	1.019	0.990	1.000	1.000	1.000	1.000	1.000	1.026								
2002	1.176	1.166	0.926	1.000	0.907	0.955	1.108	1.007	0.802	1.027	1.043	1.000	0.987	1.000	1.027	1.000	1.000	1.000	1.000	1.000	0.992									
2003	0.950	0.919	1.209	0.949	1.229	1.139	1.028	1.018	1.184	1.050	1.000	1.018	1.033	0.993	1.061	0.930	1.005	0.996	0.996	0.969										
2004	0.824	0.891	0.981	1.381	1.024	1.650	1.000	1.033	1.449	1.000	0.960	1.000	1.013	1.114	1.000	1.017	0.951	0.980	1.015											
2005	0.907	1.000	0.996	1.014	0.958	2.418	1.079	1.031	1.029	1.004	0.998	1.215	1.016	1.422	1.031	0.985	1.004	0.999												
2006	0.750	1.000	1.349	1.586	1.000	0.942	1.000	1.410	1.000	1.000	1.000	1.000	0.790	1.000	1.000	1.000	0.958													
2007	2.668	1.000	0.995	0.975	1.248	1.011	1.060	1.025	1.000	1.027	1.000	0.964	1.000	1.000	1.000	0.993														
2008	1.023	0.933	1.022	1.075	1.010	0.987	1.031	1.128	1.054	1.008	1.007	0.984	1.000	1.000																
2009	0.617	0.966	1.049	1.000	0.980	1.478	0.965	1.000	0.994	1.004	0.788	0.897	1.000	1.000																
2010	0.722	1.118	0.966	1.165	1.131	0.914	1.000	1.000	1.171	1.041	1.101	1.594	0.997																	
2011	1.634	1.105	1.092	0.992	0.995	1.011	1.030	0.998	1.000	1.064	1.000	1.000																		
2012	1.001	1.386	1.428	1.273	1.096	0.860	1.036	1.000	1.000	1.019	0.955																			
2013	0.652	0.774	1.000	1.456	1.099	1.108	1.000	1.000	1.000	1.000																				
2014	1.087	1.038	1.086	1.054	1.027	0.940	1.070	1.023																						
2015	1.869	1.252	1.024	1.185	0.966	1.049	1.039	0.995																						
2016	1.555	1.006	1.138	1.012	1.103	1.140	1.202																							
2017	1.144	1.037	0.917	0.984	1.021	1.000																								
2018	2.028	1.405	1.210	0.916	1.000																									
2019	1.314	0.959	1.090	1.000																										
2020	1.602	1.577	1.024																											
2021	2.464	0.915																												
2022	2.101																													
VOL WTD 3	2.093	1.105	1.102	0.962	1.041	1.057	1.088	1.005	1.000	1.046	0.999	1.042	0.999	1.000	0.997	0.994	0.979	0.993	1.003	0.983	0.998	1.009	1.000	1.000	1.000	1.025	1.000	1.000	1.000	
VOL WTD 5	1.977	1.124	1.053	1.051	1.012	1.032	1.078	1.002	1.010	1.035	0.963	1.004	0.992	1.074	1.005	0.980	0.990	0.995	1.002	0.925	0.998	1.000	1.071	1.000	1.000	1.024	1.000	1.000	1.000	
VOL WTD ALL	1.248	1.096	1.089	1.080	1.045	1.064	1.044	1.019	1.022	1.016	0.986	1.032	1.003	1.058	1.033	0.995	0.995	1.002	1.001	0.951	1.017	1.010	1.066	1.000	1.000	1.024	1.000	1.000	1.000	
ARITH 3	2.056	1.150	1.108	0.967	1.041	1.063	1.104	1.006	1.000	1.028	1.018	1.164	0.999	1.000	0.998	0.995	0.971	0.992	1.004	0.990	0.997	1.009	1.000	1.000	1.017	1.000	1.000	1.000		
ARITH 5	1.902	1.178	1.076	1.020	1.023	1.047	1.070	1.003	1.034	1.026	0.970	1.088	0.957	1.084	1.005	0.986	0.984	0.995	1.002	0.958	0.998	1.001	1.062	1.000	1.000	1.013	1.000	1.000	1.000	
ARITH ALL	1.274	1.096	1.147	1.029	1.194	1.116	1.058	1.032	1.029	1.021	1.006	1.073	0.994	1.059	1.043	0.997	0.988	1.029	1.002	0.975	1.016	1.042	1.000	1.000	1.013	1.000	1.000	1.000		
5 YR HI LO	1.911	1.133	1.084	0.999	1.016	1.052	1.049	0.999	1.000	1.021	0.987	0.983	0.999	1.000	1.000	0.995	0.988	0.998	1.001	0.990	1.000	1.000	1.000	1.000	1.000	1.000	NA	NA		
7 YR HI LO	1.720	1.132	1.072	1.047	1.048	1.021	1.035	1.002	1.011	1.020	0.992	1.033	1.002	1.023	1.012	0.995	0.993	0.999	1.000	0.981	1.005	1.000	1.000	1.000	1.000	1.000	NA	NA		
ALL YR HI LO	1.248	1.088	1.135	1.117	1.040	1.071	1.034	1.019	1.019	1.014	1.004	1.052	1.001	1.038	1.021	1.000	0.992	0.999	1.001	0.988	1.005	1.011	1.000	1.000	1.000	1.000	NA	NA		
SELECTED	1.720	1.132	1.084	1.047	1.048	1.064	1.049	1.019	1.011	1.021	1.004	1.032	1.003	1.023	1.012	1.009	1.007	1.002	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000		1.000

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Release
Incurred Losses

Development in Months

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312	324	336	348	360
1994	50,001	62,000	62,000	75,000	75,000	75,000	75,000	75,000	75,000	93,694	93,694	96,832	122,832	122,832	142,070	158,405	158,405	218,273	220,532	220,532	229,333	250,213	246,661	246,661	246,661	246,661	246,661	246,661	246,661	246,661
1995	100,005	100,005	100,005	181,297	220,697	120,868	154,430	274,384	252,195	207,200	207,200	207,200	236,757	262,200	262,200	262,200	262,200	241,953	241,953	241,953	241,953	241,953	241,953	241,953	241,953	241,953	241,953	241,953	241,953	
1996	216,462	319,010	367,737	288,272	997,058	1,251,389	1,163,182	1,137,140	1,137,140	931,235	942,582	942,582	980,842	980,842	997,795	1,382,410	1,366,007	1,366,007	1,366,007	1,366,007	1,366,007	1,516,413	1,579,163	2,069,209	2,069,209	2,069,209	2,176,370	2,176,370		
1997	746,677	906,062	978,833	1,356,420	1,436,651	1,659,199	1,813,028	2,172,721	2,079,080	2,067,828	2,057,038	2,057,038	2,121,861	2,122,127	2,122,127	2,122,127	2,135,701	2,135,701	2,135,701	2,135,701	1,995,927	1,995,927	1,995,927	1,995,927	1,995,927	1,995,927	1,995,927			
1998	280,352	441,921	629,991	809,760	1,240,170	1,255,103	1,382,637	1,342,716	1,349,223	1,373,262	1,378,815	1,334,952	1,378,952	1,305,491	1,311,491	1,339,090	1,358,000	1,358,000	1,341,060	1,341,060	1,381,308	1,381,308	1,351,348	1,351,348	1,351,348	1,352,666				
1999	148,000	87,973	87,973	152,864	152,864	145,514	115,744	98,894	98,894	98,894	118,894	149,287	150,410	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573	142,573					
2000	830,009	986,785	1,603,954	1,900,891	1,868,003	1,724,741	1,747,051	1,548,700	1,548,700	1,582,140	1,585,805	1,557,714	1,746,592	1,731,797	2,148,891	2,133,481	2,199,740	2,199,740	2,219,267	2,223,018	1,820,018	1,817,407	1,817,407	1,817,407						
2001	1,862,012	1,040,851	983,642	1,061,656	827,034	892,953	860,467	883,417	1,018,928	1,018,928	977,435	995,386	995,386	1,071,788	1,071,788	1,092,066	1,081,236	1,081,236	1,081,236	1,081,236	1,081,236	1,081,236	1,109,531							
2002	674,164	792,896	924,518	855,817	855,481	775,594	741,003	821,003	826,548	662,748	680,698	709,949	709,949	700,590	700,590	719,666	719,666	719,666	719,666	719,666	719,666	713,587								
2003	1,091,012	1,036,470	952,537	1,151,270	1,092,375	1,342,039	1,528,804	1,571,990	1,599,735	1,894,459	1,989,626	1,989,626	2,025,726	2,092,214	2,078,460	2,205,077	2,051,262	2,061,011	2,052,007	2,044,371	1,980,868									
2004	496,850	409,451	364,653	357,620	494,041	505,771	834,631	834,631	861,768	1,248,642	1,248,642	1,199,204	1,199,204	1,215,087	1,353,628	1,353,628	1,376,628	1,308,781	1,283,109	1,301,747										
2005	386,006	350,003	350,003	348,601	353,601	338,873	819,445	884,264	911,289	937,852	941,848	940,095	1,141,835	1,160,547	1,650,304	1,701,055	1,675,074	1,682,156	161,243											
2006	100,001	75,001	75,001	101,150	160,447	160,447	151,084	151,084	213,084	213,084	213,084	213,084	168,243	168,243	168,243	168,243	168,243	1,680,933												
2007	682,440	1,820,729	1,821,179	1,812,130	1,767,555	2,205,757	2,230,289	2,364,750	2,424,277	2,424,277	2,488,778	2,488,778	2,398,612	2,398,612	2,398,612	2,398,612	2,398,612													
2008	1,588,551	1,624,832	1,516,553	1,550,168	1,666,353	1,682,424	1,660,446	1,711,851	1,930,604	2,035,727	2,052,177	2,067,463	2,034,991	2,034,991	2,034,991	2,021,507														
2009	1,426,176	879,758	849,967	891,837	891,837	874,344	1,292,547	1,247,747	1,247,747	1,240,247	1,244,606	980,624	879,624	879,624	879,624															
2010	337,003	243,262	272,086	262,819	306,255	346,255	316,478	316,478	316,478	370,478	385,727	424,609	676,953	674,592																
2011	1,018,742	1,664,572	1,839,853	2,009,107	1,993,817	1,983,357	2,004,595	2,064,707	2,060,317	2,060,317	2,191,528	2,191,528	2,191,528																	
2012	385,065	385,438	534,218	762,801	970,701	1,063,470	914,659	948,028	948,028	948,028	966,601	922,671																		
2013	287,002	187,000	144,674	144,674	210,713	231,563	256,528	256,528	256,528	256,528	256,528																			
2014	1,217,768	1,324,230	1,374,411	1,493,061	1,573,979	1,616,609	1,519,369	1,626,355	1,662,972	1,662,972																				
2015	956,615	1,788,319	2,238,470	2,292,173	2,716,546	2,625,210	2,752,754	2,859,888	2,845,588																					
2016	621,267	965,820	971,174	1,104,759	1,118,562	1,233,642	1,406,288	1,690,349																						
2017	1,293,564	1,479,562	1,534,500	1,407,449	1,384,975	1,414,084	1,414,157																							
2018	316,005	641,000	900,447	1,089,911	998,234	998,049																								
2019	378,200	496,923	476,353	519,267	519,267																									
2020	461,334	739,254	1,165,659	1,193,088																										
2021	590,411	1,454,650	1,331,159																											
2022	978,786	2,056,280																												
2023	335,904																													

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Release
Determination of Pure Premium

(1)	(2) PAID LDM ULTIMATE	(3) INC LDM ULTIMATE	(4) SELECTED ULTIMATE	(5) POLICIES IN FORCE	(6) PURE PREMIUM
RY					
1994					
1995					
1996					
1997					
1998					
1999					
2000					
2001					
2002					
2003					
2004					
2005					
2006					
2007					
2008	2,132,453	2,061,915	2,097,184	2,664	787
2009	894,158	907,611	900,884	2,662	338
2010	674,592	711,927	693,260	2,622	264
2011	2,448,647	2,318,967	2,383,807	2,623	909
2012	1,146,210	1,007,649	1,076,929	2,617	412
2013	291,701	281,253	286,477	2,603	110
2014	1,928,544	1,862,193	1,895,369	2,573	737
2015	3,771,928	3,221,307	3,496,617	2,530	1,382
2016	1,850,382	1,949,376	1,899,879	2,509	757
2017	1,998,763	1,710,128	1,854,446	2,489	745
2018	1,312,369	1,284,027	1,298,198	2,487	522
2019	658,082	700,449	679,266	2,413	282
2020	1,296,211	1,685,296	1,490,753	2,408	619
2021	1,576,267	2,037,756	1,807,012	2,405	751
2022	3,415,904	3,561,873	3,488,889	2,371	1,471
2023	822,247	1,000,810	1,000,810	2,347	426
TOTAL	26,218,458	26,302,538	26,349,779	40,323	653

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Release
Paid Bornhuetter-Ferguson Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	POLICIES	PROJECTED	TRENDED	DETRENDED	EXPECTED	PERCENT	EXPECTED	PAID	INDICATED	INCURRED	IBNR	CASE	ULTIMATE
RY	IN FORCE	PURE PREM	PURE PREM	PURE PREM	LOSSES	UNPAID	UNPAID	LOSSES	ULTIMATE	LOSSES	RESERVE	RESERVE	PURE PREM
1994													
1995													
1996													
1997													
1998													
1999													
2000													
2001													
2002													
2003													
2004													
2005													
2006													
2007													
2008	2,664	787	1,676	386	1,029,460	9.9%	101,490	1,922,224	2,023,714	2,021,507	2,207	99,283	760
2009	2,662	338	685	406	1,081,855	12.4%	133,736	783,624	917,360	879,624	37,736	96,000	345
2010	2,622	264	509	427	1,120,674	13.8%	154,945	444,452	599,397	674,592	(75,194)	230,139	229
2011	2,623	909	1,664	450	1,179,046	17.9%	211,116	2,010,201	2,221,317	2,191,528	29,789	181,327	847
2012	2,617	412	716	473	1,237,149	22.7%	280,636	886,202	1,166,838	922,671	244,168	36,468	446
2013	2,603	110	182	497	1,294,131	24.6%	317,835	220,060	537,895	256,528	281,366	36,468	207
2014	2,573	737	1,159	523	1,345,332	29.2%	392,831	1,365,417	1,758,249	1,662,972	95,276	297,555	683
2015	2,530	1,382	2,068	550	1,391,220	34.8%	484,170	2,459,229	2,943,399	2,845,588	97,810	386,360	1,163
2016	2,509	757	1,078	578	1,450,981	37.5%	544,771	1,155,656	1,700,427	1,690,349	10,078	534,693	678
2017	2,489	745	1,008	608	1,513,812	40.9%	618,424	1,182,226	1,800,650	1,414,157	386,493	231,931	723
2018	2,487	522	672	640	1,590,774	47.0%	748,230	695,089	1,443,318	998,049	445,269	302,960	580
2019	2,413	282	344	673	1,623,214	55.1%	894,964	295,247	1,190,210	519,267	670,943	224,020	493
2020	2,408	619	720	707	1,703,573	61.9%	1,054,505	493,861	1,548,366	1,193,088	355,279	699,226	643
2021	2,405	751	831	744	1,789,390	69.0%	1,235,404	488,004	1,723,408	1,331,159	392,249	843,154	717
2022	2,371	1,471	1,548	782	1,855,270	80.3%	1,490,044	672,450	2,162,495	2,056,280	106,215	1,383,830	912
2023	2,347	426	426	823	1,931,410	97.5%	1,882,514	20,816	1,903,331	335,904	1,567,427	315,088	811
TOTAL	40,323				23,137,291		10,545,615	15,094,759	25,640,374	20,993,262	4,647,112	5,898,503	636

Pure Premium Selection		Trend =	1.052
3-Year Average x Latest	1,033		
5-Year Average x Latest	823		
All Year Average x Latest	991		
Selected Pure Premium	823		

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Release
Incurred Bornhuetter-Ferguson Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	POLICIES	PROJECTED	TRENDED	DETRENDED	EXPECTED	PERCENT	EXPECTED	INCURRED	INDICATED	PAID	UNPAID	CASE	ULTIMATE
RY	IN FORCE	PURE PREM	PURE PREM	PURE PREM	LOSSES	IBNR	IBNR	LOSSES	ULTIMATE	LOSSES	LOSS	RESERVE	PURE PREM
1994													
1995													
1996													
1997													
1998													
1999													
2000													
2001													
2002													
2003													
2004													
2005													
2006													
2007													
2008	2,664	787	1,676	386	1,029,460	2.0%	20,175	2,021,507	2,041,681	1,922,224	119,457	99,283	766
2009	2,662	338	685	406	1,081,855	3.1%	33,360	879,624	912,984	783,624	129,360	96,000	343
2010	2,622	264	509	427	1,120,674	5.2%	58,772	674,592	733,364	444,452	288,911	230,139	280
2011	2,623	909	1,664	450	1,179,046	5.5%	64,795	2,191,528	2,256,323	2,010,201	246,122	181,327	860
2012	2,617	412	716	473	1,237,149	8.4%	104,333	922,671	1,027,003	886,202	140,801	36,468	392
2013	2,603	110	182	497	1,294,131	8.8%	113,766	256,528	370,294	220,060	150,234	36,468	142
2014	2,573	737	1,159	523	1,345,332	10.7%	143,926	1,662,972	1,806,899	1,365,417	441,481	297,555	702
2015	2,530	1,382	2,068	550	1,391,220	11.7%	162,266	2,845,588	3,007,854	2,459,229	548,625	386,360	1,189
2016	2,509	757	1,078	578	1,450,981	13.3%	192,802	1,690,349	1,883,151	1,155,656	727,495	534,693	751
2017	2,489	745	1,008	608	1,513,812	17.3%	261,995	1,414,157	1,676,152	1,182,226	493,926	231,931	673
2018	2,487	522	672	640	1,590,774	22.3%	354,297	998,049	1,352,346	695,089	657,257	302,960	544
2019	2,413	282	344	673	1,623,214	25.9%	419,869	519,267	939,136	295,247	643,889	224,020	389
2020	2,408	619	720	707	1,703,573	29.2%	497,546	1,193,088	1,690,634	493,861	1,196,773	699,226	702
2021	2,405	751	831	744	1,789,390	34.7%	620,476	1,331,159	1,951,634	488,004	1,463,630	843,154	811
2022	2,371	1,471	1,548	782	1,855,270	42.3%	784,217	2,056,280	2,840,497	672,450	2,168,047	1,383,830	1,198
2023	2,347	426	426	823	1,931,410	66.4%	1,283,167	335,904	1,619,071	20,816	1,598,255	315,088	690
TOTAL	40,323				23,137,291		5,115,760	20,993,262	26,109,022	15,094,759	11,014,264	5,898,503	647

Pure Premium Selection		Trend =	1.052
3-Year Average x Latest	1,033		
5-Year Average x Latest	823		
All Year Average x Latest	991		
Selected Pure Premium	823		

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Closure
Summary of Paid Development Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	PAID LDM	PAID	INCURRED	CASE	IBNR	UNPAID
RY	ULTIMATE	LOSS	LOSS	RESERVE	RESERVE	LOSS
1994	1,128,314	777,703	1,128,314	350,611	-	350,611
1995	830,629	830,629	830,629	-	-	-
1996	3,877,028	3,877,028	3,877,028	-	-	-
1997	4,621,434	4,504,990	4,620,899	115,909	534	116,443
1998	5,964,476	5,250,621	5,964,476	713,856	-	713,856
1999	9,740,883	9,423,681	9,740,883	317,202	-	317,202
2000	5,621,738	5,442,164	5,578,254	136,090	43,484	179,574
2001	2,269,296	2,188,879	2,223,792	34,913	45,504	80,417
2002	4,420,723	4,249,787	4,418,120	168,333	2,604	170,936
2003	4,166,373	3,400,641	4,166,373	765,731	-	765,731
2004	2,419,322	2,268,537	2,419,322	150,785	-	150,785
2005	2,836,012	2,646,006	2,765,098	119,092	70,913	190,005
2006	1,780,461	1,375,401	1,780,461	405,060	-	405,060
2007	4,161,602	3,771,178	4,020,125	248,947	141,476	390,423
2008	3,001,472	2,649,605	3,001,472	351,867	-	351,867
2009	2,224,559	1,945,535	2,027,535	82,000	197,025	279,025
2010	2,082,322	1,756,221	2,082,322	326,101	-	326,101
2011	1,834,876	1,539,584	1,575,584	36,000	259,292	295,292
2012	2,814,502	2,318,652	2,408,911	90,258	405,591	495,849
2013	3,826,760	3,107,325	3,656,207	548,882	170,553	719,435
2014	3,036,661	2,392,534	3,016,488	623,954	20,173	644,127
2015	2,536,007	1,938,080	2,486,479	548,399	49,528	597,927
2016	2,372,560	1,739,743	2,059,543	319,800	313,017	632,817
2017	2,718,117	1,901,855	2,441,873	540,018	276,244	816,262
2018	3,091,111	2,038,612	2,498,400	459,788	592,711	1,052,499
2019	2,939,040	1,753,565	2,740,228	986,663	198,812	1,185,475
2020	925,455	487,443	782,178	294,736	143,276	438,012
2021	1,430,238	542,419	1,430,238	887,819	-	887,819
2022	3,640,359	1,042,659	1,491,284	448,625	2,149,076	2,597,701
2023	2,395,173	185,707	890,057	704,350	1,505,116	2,209,466
TOTAL	94,707,501	77,346,783	88,122,572	10,775,789	6,584,929	17,360,718

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Closure
Development of Losses to Ultimate

Development Period in Months

RY	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - 276	276 - 288	288 - 300	300 - 312	312 - 324	324 - 336	336 - 348	348 - 360	360 - ULT
1994	1.590	1.284	2.725	1.390	1.000	1.129	1.360	1.656	1.129	1.207	1.047	1.079	1.019	1.004	1.102	1.083	1.001	1.059	1.031	1.000	1.046	1.003	1.000	1.000	1.009	1.000	1.047	1.000	1.016	1.026
1995	1.931	1.289	1.132	1.533	1.023	1.266	1.393	1.005	1.040	1.013	1.043	1.008	1.000	1.010	1.000	1.000	1.028	1.000	1.000	1.036	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.026
1996	1.951	1.854	1.381	1.832	1.102	1.078	1.026	1.059	1.034	1.034	1.022	1.015	1.052	1.015	1.018	1.008	1.011	1.004	1.023	1.022	1.009	1.008	1.007	1.001	1.000	1.000	1.000	1.000	1.000	1.026
1997	5.819	1.948	1.614	1.305	1.186	1.276	1.075	1.043	1.055	1.059	1.023	1.040	1.051	1.045	1.016	1.014	1.016	1.051	1.021	1.014	1.007	1.007	1.007	1.000	1.007	1.006	1.000	1.000	1.000	1.026
1998	5.396	1.373	1.182	1.137	1.047	1.093	1.057	1.077	1.068	1.091	1.022	1.062	1.028	1.009	1.026	1.015	1.047	1.054	1.027	1.025	1.014	1.015	1.002	1.010	1.002	1.000	1.000	1.000	1.000	1.026
1999	3.145	1.413	1.151	1.230	1.119	1.083	1.082	1.054	1.045	1.051	1.035	1.034	1.044	1.017	1.015	1.021	1.022	1.010	1.010	1.005	1.008	1.003	1.004	1.001	1.001	1.003	1.000	1.000	1.000	1.026
2000	2.794	1.171	1.209	1.059	1.096	1.051	1.035	1.083	1.030	1.048	1.022	1.069	1.019	1.023	1.018	1.027	1.028	1.013	1.007	1.012	1.001	1.000	1.003	1.004	1.003	1.001	1.003	1.000	1.000	1.026
2001	1.379	1.610	1.131	1.121	1.052	1.061	1.021	1.044	1.031	1.037	1.057	1.024	1.013	1.024	1.018	1.023	1.030	1.022	1.006	1.000	1.000	1.000	1.004	1.003	1.001	1.003	1.000	1.000	1.000	1.026
2002	2.952	1.311	1.160	1.055	1.048	1.343	1.023	1.026	1.012	1.018	1.028	1.020	1.012	1.019	1.032	1.000	1.004	1.002	1.002	1.000	1.001	1.003	1.004	1.003	1.001	1.003	1.000	1.000	1.000	1.026
2003	2.242	1.245	1.134	1.118	1.091	1.096	1.060	1.025	1.029	1.042	1.015	1.027	1.006	1.016	1.044	1.039	1.017	1.023	1.011	1.017	1.006	1.003	1.004	1.003	1.001	1.003	1.000	1.000	1.000	1.026
2004	6.475	1.290	1.079	1.064	1.094	1.117	1.039	1.023	1.013	1.082	1.016	1.028	1.024	1.007	1.008	1.013	1.004	1.000	1.047	1.012	1.006	1.003	1.004	1.003	1.001	1.003	1.000	1.000	1.000	1.026
2005	2.800	1.295	1.163	1.080	1.079	1.006	1.039	1.058	1.049	1.027	1.016	1.110	1.038	1.035	1.034	1.013	1.044	1.012	1.012	1.012	1.006	1.003	1.004	1.003	1.001	1.003	1.000	1.000	1.000	1.026
2006	3.574	1.540	1.136	1.366	1.032	1.073	1.086	1.027	1.001	1.027	1.000	1.003	1.037	1.040	1.017	1.000	1.008	1.012	1.012	1.012	1.006	1.003	1.004	1.003	1.001	1.003	1.000	1.000	1.000	1.026
2007	4.897	1.574	1.091	1.110	1.096	1.059	1.011	1.071	1.089	1.037	1.041	1.041	1.022	1.009	1.009	1.010	1.017	1.012	1.012	1.012	1.006	1.003	1.004	1.003	1.001	1.003	1.000	1.000	1.000	1.026
2008	3.181	1.294	1.214	1.216	1.094	1.068	1.037	1.047	1.057	1.049	1.012	1.030	1.010	1.016	1.014	1.015	1.017	1.012	1.012	1.012	1.006	1.003	1.004	1.003	1.001	1.003	1.000	1.000	1.000	1.026
2009	4.550	1.176	1.057	1.032	1.024	1.028	1.025	1.018	1.008	1.059	1.002	1.009	1.000	1.000	1.021	1.015	1.017	1.012	1.012	1.012	1.006	1.003	1.004	1.003	1.001	1.003	1.000	1.000	1.000	1.026
2010	9.898	1.200	1.190	1.142	1.092	1.042	1.038	1.055	1.049	1.051	1.032	1.009	1.080	1.019	1.021	1.021	1.017	1.012	1.012	1.012	1.006	1.003	1.004	1.003	1.001	1.003	1.000	1.000	1.000	1.026
2011	2.092	1.360	1.105	1.049	1.034	1.106	1.077	1.034	1.022	1.002	1.005	1.005	1.023	1.019	1.021	1.021	1.015	1.017	1.012	1.012	1.012	1.006	1.003	1.004	1.003	1.001	1.003	1.000	1.000	1.026
2012	2.259	1.678	1.189	1.204	1.119	1.072	1.056	1.017	1.030	1.022	1.015	1.019	1.023	1.019	1.021	1.015	1.017	1.012	1.012	1.012	1.006	1.003	1.004	1.003	1.001	1.003	1.000	1.000	1.000	1.026
2013	2.154	1.421	1.329	1.240	1.184	1.078	1.052	1.045	1.023	1.019	1.015	1.019	1.023	1.021	1.021	1.015	1.017	1.012	1.012	1.012	1.006	1.003	1.004	1.003	1.001	1.003	1.000	1.000	1.000	1.026
2014	7.132	1.486	1.179	1.112	1.200	1.049	1.007	1.033	1.030	1.031	1.015	1.019	1.019	1.021	1.021	1.015	1.017	1.012	1.012	1.012	1.006	1.003	1.004	1.003	1.001	1.003	1.000	1.000	1.000	1.026
2015	10.893	2.283	1.132	1.105	1.104	1.028	1.011	1.000	1.031	1.031	1.015	1.019	1.023	1.019	1.021	1.015	1.017	1.012	1.012	1.012	1.006	1.003	1.004	1.003	1.001	1.003	1.000	1.000	1.000	1.026
2016	3.832	1.726	1.334	1.117	1.061	1.101	1.016	1.042	1.031	1.031	1.015	1.019	1.023	1.019	1.021	1.015	1.017	1.012	1.012	1.012	1.006	1.003	1.004	1.003	1.001	1.003	1.000	1.000	1.000	1.026
2017	3.572	1.541	1.247	1.138	1.075	1.052	1.048	1.042	1.031	1.031	1.015	1.019	1.023	1.019	1.021	1.015	1.017	1.012	1.012	1.012	1.006	1.003	1.004	1.003	1.001	1.003	1.000	1.000	1.000	1.026
2018	4.370	1.506	1.246	1.088	1.079	1.061	1.048	1.042	1.031	1.031	1.015	1.019	1.023	1.019	1.021	1.015	1.017	1.012	1.012	1.012	1.006	1.003	1.004	1.003	1.001	1.003	1.000	1.000	1.000	1.026
2019	7.572	1.468	1.191	1.192	1.105	1.061	1.048	1.042	1.031	1.031	1.015	1.019	1.023	1.019	1.021	1.015	1.017	1.012	1.012	1.012	1.006	1.003	1.004	1.003	1.001	1.003	1.000	1.000	1.000	1.026
2020	3.890	1.683	1.218	1.133	1.105	1.061	1.048	1.042	1.031	1.031	1.015	1.019	1.023	1.019	1.021	1.015	1.017	1.012	1.012	1.012	1.006	1.003	1.004	1.003	1.001	1.003	1.000	1.000	1.000	1.026
2021	1.802	2.322	1.216	1.133	1.105	1.061	1.048	1.042	1.031	1.031	1.015	1.019	1.023	1.019	1.021	1.015	1.017	1.012	1.012	1.012	1.006	1.003	1.004	1.003	1.001	1.003	1.000	1.000	1.000	1.026
2022	4.759	1.512	1.216	1.133	1.105	1.061	1.048	1.042	1.031	1.031	1.015	1.019	1.023	1.019	1.021	1.015	1.017	1.012	1.012	1.012	1.006	1.003	1.004	1.003	1.001	1.003	1.000	1.000	1.000	1.026
2023	3.694	1.512	1.216	1.133	1.105	1.061	1.048	1.042	1.031	1.031	1.015	1.019	1.023	1.019	1.021	1.015	1.017	1.012	1.012	1.012	1.006	1.003	1.004	1.003	1.001	1.003	1.000	1.000	1.000	1.026

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312	324	336	348	360	ULT
1994	17,096	27,184	34,895	95,084	132,148	132,148	149,193	202,874	336,027	379,362	457,817	479,155	517,191	527,042	529,376	583,342	631,688	632,598	669,990	690,824	690,824	722,650	724,556	724,556	731,314	731,314	765,504	765,504	777,703	777,703	797,805
1995	89,034	171,911	221,544	250,710	384,248	393,149	497,892	693,726	697,392	725,043	734,723	766,019	772,311	772,311	779,668	779,668	779,668	801,569	801,569	801,569	830,629	830,629	830,629	830,629	830,629	830,629	830,629	830,629	830,629	830,629	852,099
1996	248,435	484,694	898,742	1,241,483	2,274,586	2,506,109	2,700,383	2,769,493	2,933,288	3,033,001	3,134,874	3,203,100	3,252,258	3,422,969	3,474,090	3,537,955	3,565,408	3,605,861	3,620,092	3,703,617	3,785,792	3,818,767	3,847,779	3,874,358	3,877,028	3,877,028	3,877,028	3,877,028	3,877,028	3,877,028	3,977,240
1997	72,267	420,516	818,971	1,322,050	1,725,175	2,046,286	2,611,320	2,806,731	2,927,033	3,087,166	3,270,647	3,346,153	3,480,934	3,657,844	3,823,868	3,884,517	3,938,233	4,000,871	4,203,519	4,290,460	4,351,204	4,383,540	4,415,705	4,446,446	4,446,446	4,476,358	4,504,990	4,504,990	4,504,990	4,504,990	4,621,434
1998	244,191	1,317,603	1,808,685	2,137,859	2,431,813	2,545,169	2,781,548	2,941,195	3,167,671	3,383,414	3,689,967	3,771,262	4,003,931	4,114,580	4,152,017	4,258,947	4,324,127	4,527,913	4,773,615	4,900,838	5,023,106	5,095,402	5,174,038	5,186,048	5,238,246	5,250,621	5,267,413	5,267,413	5,267,413	5,267,413	5,403,563
1999	786,810	2,474,382	3,496,322	4,023,648	4,948,985	5,540,026	6,001,712	6,496,501	6,850,066	7,158,107	7,522,683	7,784,778	8,050,943	8,403,872	8,550,000	8,674,731	8,858,161	9,049,576	9,137,364	9,232,961	9,275,507	9,349,792	9,373,987	9,412,640	9,423,681	9,431,102	9,461,264	9,461,264	9,461,264	9,461,264	9,705,815
2000	738,273	2,062,618	2,415,497	2,919,665	3,092,893	3,389,522	3,561,543	3,685,610	3,990,320	4,108,957	4,305,211	4,399,521	4,703,612	4,793,636	4,902,861	4,988,988	5,122,239	5,263,743	5,331,739	5,370,653	5,436,106	5,442,164	5,442,164	5,442,164	5,458,322	5,462,620	5,480,090	5,480,090	5,480,090	5,480,090	5,621,738
2001	493,157	680,163	1,095,144	1,238,075	1,388,175	1,460,247	1,549,347	1,581,683	1,652,001	1,702,772	1,766,170	1,865,996	1,911,094	1,936,133	1,983,119	2,018,978	2,065,730	2,128,279	2,174,973	2,188,879	2,188,879	2,188,879	2,196,809	2,203,331	2,205,066	2,212,118	2,212,118	2,212,118	2,212,118	2,212,118	2,269,296
2002	523,306	1,545,046	2,024,839	2,349,790	2,479,316	2,598,612	3,489,397	3,570,739	3,663,170	3,707,244	3,775,271	3,880,256	3,958,320	4,004,981	4,079,843	4,208,501	4,208,501	4,225,838	4,233,790	4,243,920	4,249,787	4,264,066	4,279,513	4,292,219	4,295,599	4,309,337	4,309,337	4,309,337	4,309,337	4,309,337	4,420,723
2003	558,641	1,252,492	1,559,919	1,768,858	1,977,267	2,157,660	2,363,773	2,505,098	2,568,104	2,643,427	2,753,678	2,796,043	2,871,359	2,887,346	2,934,085	3,063,698	3,182,240	3,235,238	3,308,507	3,345,219	3,400,641	3,420,579	3,432,072	3,444,505	3,454,732	3,457,452	3,468,510	3,468,510	3,468,510	3,468,510	3,558,162
2004	143,829	931,294	1,201,475	1,296,399	1,379,054	1,509,347	1,686,522	1,752,111	1,791,788	1,815,522	1,963,819	1,994,768	2,050,897	2,099,609	2,113,648	2,130,676	2,158,476	2,166,165	2,166,165	2,268,537	2,295,378	2,308,836	2,324,986	2,331,889	2,333,725	2,341,188	2,341,188	2,341,188	2,341,188	2,341,188	2,401,703
2005	337,211	944,193	1,222,262	1,421,775	1,535,499	1,656,178	1,665,460	1,730,844	1,831,040	1,920,466	1,971,656	2,004,142	2,224,850	2,309,907	2,389,815	2,471,917	2,503,065	2,614,037	2,646,006	2,678,765	2,710,460	2,726,351	2,735,512	2,745,422	2,753,573	2,755,741	2,764,554	2,764,554	2,764,554	2,764,554	2,836,012
2006	114,292	408,515	629,120	714,825	976,707	1,008,090	1,081,296	1,174,274	1,206,522	1,207,387	1,239,850	1,239,850	1,243,210	1,289,388	1,340,833	1,364,261	1,364,261	1,375,401	1,391,930	1,409,162	1,425,836	1,434,195	1,439,014	1,444,227	1,448,515	1,449,655	1,454,292	1,454,292	1,454,292	1,454,292	1,491,882
2007	249,922	1,223,865	1,926,859	2,102,500	2,334,792	2,559,689	2,711,518	2,740,693	2,935,041	3,195,238	3,312,186	3,449,564	3,591,451	3,670,807	3,702,436	3,734,150	3,771,178	3,836,679	3,882,785	3,930,856	3,977,366	4,000,685	4,014,127	4,028,669	4,040,630	4,043,812	4,056,744	4,056,744	4,056,744	4,056,744	4,161,602
2008	285,783	909,119	1,176,822	1,428,082	1,736,851	1,899,675	2,029,161	2,105,246	2,203,792	2,328,660	2,441,800	2,471,712	2,544,896	2,570,798	2,612,744	2,649,605	2,689,826	2,736,545	2,769,400	2,803,717	2,836,891	2,853,523	2,863,111	2,873,483	2,882,014	2,884,284	2,893,508	2,893,508	2,893,508	2,893,508	2,968,298
2009	281,383	1,280,215	1,505,006	1,590,623	1,641,266	1,680,809	1,727,791	1,771,068	1,803,131	1,818,009	1,925,581	1,929,070	1,945,535	1,945,535	1,945,535	1,985,718	2,015,861	2,050,874	2,075,520	2,101,215	2,126,077	2,138,542	2,145,728	2,153,501	2,159,894	2,161,595	2,168,508	2,168,508	2,168,508	2,168,508	2,224,559
2010	70,430	697,094	836,490	995,262	1,136,718	1,241,412	1,293,850	1,342,840	1,416,703	1,486,360	1,561,464	1,611,644	1,625,448	1,756,221	1,789,134	1,826,087	1,853,806	1,886,005	1,908,669	1,932,299	1,955,163	1,966,625	1,973,233	1,980,382	1,986,261	1,987,825	1,994,183	1,994,183	1,994,183	1,994,183	2,045,728
2011	354,238	741,233	1,008,015	1,114,183	1,168,623	1,208,286	1,336,441	1,439,764	1,488,452	1,521,528	1,524,576	1,532,420	1,539,584	1,575,209	1,604,729	1,637,873	1,662,736	1,691,616	1,711,944	1,733,139	1,753,646	1,763,927	1,769,854	1,776,265	1,781,539	1,782,942	1,788,644	1,788,644	1,788,644	1,788,644	1,834,876
2012	308,780	696,402	1,168,776	1,389,447	1,672,985	1,872,897	2,007,539	2,119,951	2,155,353	2,220,037	2,268,503	2,318,652	2,361,555	2,416,199	2,461,481	2,512,320	2,550,457	2,594,756	2,625,937	2,658,447	2,689,903	2,705,673	2,714,764	2,724,599	2,732,688	2,734,840	2,743,586	2,743,586	2,743,586	2,743,586	2,814,502
2013	420,803	906,448	1,288,052	1,711,865	2,123,471	2,514,517	2,709,963	2,851,670	2,979,573	3,047,996	3,107,325	3,152,574	3,210,907	3,285,205	3,346,772	3,415,897	3,467,750	3,527,980	3,570,377	3,614,579	3,657,348	3,678,790	3,691,151	3,704,522	3,715,521	3,718,447	3,730,339	3,730,339	3,730,339	3,730,339	3,826,760
2014	127,794	911,475	1,354,211	1,596,521	1,774,763	2,129,113	2,232,987	2,247,675	2,321,900	2,392,534	2,465,765	2,501,672	2,547,961	2,606,919	2,655,775	2,710,627	2,751,774	2,799,570	2,833,212	2,868,289	2,902,227	2,919,242	2,929,051	2,939,661	2,948,389	2,950,711	2,960,148	2,960,148	2,960,148	2,960,148	3,036,661
2015	54,289	591,352	1,349,945	1,527,986	1,687,938	1,864,127	1,916,105	1,938,080	1,938,080	1,998,077	2,059,235	2,089,222	2,127,880	2,177,117	2,217,918	2,263,727	2,298,090	2,338,005	2,366,101	2,395,395	2,423,737	2,437,947	2,446,139	2,455,000	2,462,289	2,464,228	2,472,109	2,472,109	2,472,109	2,472,109	2,536,007
2016	148,859	570,416	984,252	1,312,538	1,465,936	1,555,593	1,711,971	1,739,743	1,813,169	1,869,300	1,926,516	1,954,570	1,990,736	2,036,800	2,074,972	2,117,828	2,149,977	2,187,319	2,213,605	2,241,010	2,267,526	2,280,820	2,288,484	2,296,774	2,303,593	2,305,407	2,312,780	2,312,780	2,312,780	2,312,780	2,372,560
2017	215,178	768,576	1,184,057	1,476,912	1,681,453	1,808,008	1,901,855	1,993,132	2,077,253	2,141,559	2,207,108	2,239,249	2,280,682	2,333,455	2,377,186	2,426,284	2,463,115	2,505,897	2,536,010	2,567,407	2,597,785	2,613,016	2,621,795	2,631,293	2,639,105	2,641,184	2,649,630	2,649,630	2,649,630	2,649,630	2,718,117
2018	211,847	925,703	1,393,959	1,736,597	1,889,816	2,038,612	2,162,837	2,266,640	2,362,304	2,435,434	2,509,979	2,546,530	2,593,648	2,653,663	2,703,395	2,759,231	2,801,116	2,849,768	2,884,014	2,919,720	2,954,266	2,971,587	2,981,571	2,992,372	3,001,257	3,003,620	3,013,226	3,013,226	3,013,226	3,013,226	3,091,111
2019	111,087	841,196	1,235,233	1,470,814	1,753,565	1,938,320	2,056,434	2,155,130	2,246,088	2,315,620	2,386,498	2,421,250	2,466,051	2,523,113	2,570,399	2,623,488	2,663,312	2,709,571	2,742,132	2,776,081	2,808,928	2,825,396	2,834,890	2,845,159	2,853,606	2,855,853	2,864,987	2,864,987	2,864,987	2,864,987	2,939,040
2020	61,138	237,826	400,210	487,443	552,168	610,345	647,537	678,614	707,256	729,150	751,468	762,411	776,518	794,486	809,376	826,092	838,632	853,199	863,452	874,141	884,484	889,670	892,659	895,893	898,553	899,261	902,137	902,137	902,137	902,137	925,455
2021	129,624	233,590	542,419	659,662	747,256	825,987	876,320	918,378	957,138	986,768	1,016,972	1,031,781	1,050,872	1,075,189	1,095,338	1,117,962	1,134,932	1,154,645	1,168,520	1,182,987	1,196,984	1,204,002	1,208,047	1,212,424	1,216,023	1,216,981	1,220,873	1,220,873	1,220,873	1,220,873	1,252,430
2022	219,104	1,042,659	1,576,615	1,917,400	2,172,004	2,400,846	2,547,144	2,669,391	2,782,054	2,868,178	2,955,968	2,999,014	3,054,505	3,125,184	3,183,752	3,249,510	3,298,831	3,356,134	3,396,465	3,438,515	3,479,200	3,499,597	3,511,356	3,524,076	3,534,539	3,537,323	3,548,636	3,548,636	3,548,636	3,548,636	3,640,359
2023	185,707	686,017	1,037,333	1,261,552	1,429,069	1,579,635	1,675,892	1,756,325	1,830,451	1,887,116	1,944,878	1,973,200	2,009,710	2,056,213	2,094,748	2,138,013	2,170,468	2,208,167	2,234,703	2,262,369	2,289,138	2,302,559	2,310,295	2,318,665	2,325,549	2,327,380	2,334,823	2,334,823	2,334,823	2,334,823	2,395,173

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Closure
Selection of Loss Development Factors

Development Period in Months

RY	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-228	228-240	240-252	252-264	264-276	276-288	288-300	300-312	312-324	324-336	336-348	348-360	Tail
1994	1.590	1.284	2.725	1.390	1.000	1.129	1.360	1.656	1.129	1.207	1.047	1.079	1.019	1.004	1.102	1.083	1.001	1.059	1.031	1.000	1.046	1.003	1.000	1.009	1.000	1.047	1.000	1.016	1.000	
1995	1.931	1.289	1.132	1.533	1.023	1.266	1.393	1.005	1.040	1.013	1.043	1.008	1.000	1.010	1.000	1.000	1.028	1.000	1.000	1.036	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000		
1996	1.951	1.854	1.381	1.832	1.102	1.078	1.026	1.059	1.034	1.034	1.022	1.015	1.052	1.015	1.018	1.008	1.011	1.004	1.023	1.022	1.009	1.008	1.007	1.001	1.000	1.000	1.000			
1997	5.819	1.948	1.614	1.305	1.186	1.276	1.075	1.043	1.055	1.059	1.023	1.040	1.051	1.045	1.016	1.014	1.016	1.051	1.021	1.014	1.007	1.007	1.007	1.000	1.007	1.006				
1998	5.396	1.373	1.182	1.137	1.047	1.093	1.057	1.077	1.068	1.091	1.022	1.062	1.028	1.009	1.026	1.015	1.021	1.047	1.054	1.027	1.025	1.014	1.015	1.002	1.010	1.002				
1999	3.145	1.413	1.151	1.230	1.119	1.083	1.082	1.054	1.045	1.051	1.035	1.034	1.044	1.017	1.015	1.021	1.022	1.010	1.010	1.005	1.008	1.003	1.004	1.001						
2000	2.794	1.171	1.209	1.059	1.096	1.051	1.035	1.083	1.030	1.048	1.022	1.069	1.019	1.023	1.018	1.027	1.028	1.013	1.007	1.012	1.001	1.000	1.000							
2001	1.379	1.610	1.131	1.121	1.052	1.061	1.021	1.044	1.031	1.037	1.057	1.024	1.013	1.024	1.018	1.023	1.030	1.022	1.006	1.000	1.000	1.000								
2002	2.952	1.311	1.160	1.055	1.048	1.343	1.023	1.026	1.012	1.018	1.028	1.020	1.012	1.019	1.032	1.000	1.004	1.002	1.002	1.000	1.001									
2003	2.242	1.245	1.134	1.118	1.091	1.096	1.060	1.025	1.029	1.042	1.015	1.027	1.006	1.016	1.044	1.039	1.017	1.023	1.011	1.017										
2004	6.475	1.290	1.079	1.064	1.094	1.117	1.039	1.023	1.013	1.082	1.016	1.028	1.024	1.007	1.008	1.013	1.004	1.000	1.047											
2005	2.800	1.295	1.163	1.080	1.079	1.006	1.039	1.058	1.049	1.027	1.016	1.110	1.038	1.035	1.034	1.013	1.044	1.012												
2006	3.574	1.540	1.136	1.366	1.032	1.073	1.086	1.027	1.001	1.027	1.000	1.003	1.037	1.040	1.017	1.000	1.008													
2007	4.897	1.574	1.091	1.110	1.096	1.059	1.011	1.071	1.089	1.037	1.041	1.041	1.022	1.009	1.009	1.010														
2008	3.181	1.294	1.214	1.216	1.094	1.068	1.037	1.047	1.057	1.049	1.012	1.030	1.010	1.016	1.014															
2009	4.550	1.176	1.057	1.032	1.024	1.028	1.025	1.018	1.008	1.059	1.002	1.009	1.000	1.000																
2010	9.898	1.200	1.190	1.142	1.092	1.042	1.038	1.055	1.049	1.051	1.032	1.009	1.080																	
2011	2.092	1.360	1.105	1.049	1.034	1.106	1.077	1.034	1.022	1.002	1.005	1.005																		
2012	2.259	1.678	1.189	1.204	1.119	1.072	1.056	1.017	1.030	1.022	1.022																			
2013	2.154	1.421	1.329	1.240	1.184	1.078	1.052	1.045	1.023	1.019																				
2014	7.132	1.486	1.179	1.112	1.200	1.049	1.007	1.033	1.030																					
2015	10.893	2.283	1.132	1.105	1.104	1.028	1.011	1.000																						
2016	3.832	1.726	1.334	1.117	1.061	1.101	1.016																							
2017	3.572	1.541	1.247	1.138	1.075	1.052																								
2018	4.370	1.506	1.246	1.088	1.079																									
2019	7.572	1.468	1.191	1.192																										
2020	3.890	1.683	1.218																											
2021	1.802	2.322																												
2022	4.759																													
VOL WTD 3	3.694	1.659	1.220	1.137	1.072	1.058	1.011	1.029	1.027	1.016	1.020	1.007	1.026	1.009	1.012	1.009	1.022	1.013	1.015	1.006	1.001	1.001	1.003	1.003	1.003	1.003	1.000	1.008	1.000	
VOL WTD 5	4.477	1.582	1.248	1.127	1.105	1.061	1.030	1.027	1.030	1.029	1.015	1.023	1.026	1.017	1.016	1.017	1.015	1.011	1.012	1.007	1.006	1.005	1.004	1.003	1.003	1.006	1.000	1.008	1.000	
VOL WTD ALL	3.322	1.434	1.189	1.163	1.095	1.094	1.048	1.047	1.039	1.044	1.025	1.036	1.029	1.019	1.021	1.017	1.022	1.019	1.015	1.012	1.007	1.005	1.004	1.003	1.002	1.006	1.000	1.008	1.000	
ARITH 3	3.484	1.824	1.218	1.140	1.072	1.060	1.011	1.026	1.028	1.014	1.020	1.007	1.030	1.008	1.013	1.008	1.019	1.012	1.020	1.006	1.001	1.001	1.002	1.004	1.003	1.002	1.000	1.008	1.000	
ARITH 5	4.479	1.704	1.247	1.128	1.104	1.061	1.029	1.026	1.031	1.031	1.015	1.019	1.030	1.020	1.017	1.015	1.015	1.012	1.015	1.007	1.005	1.005	1.004	1.002	1.002	1.013	1.000	1.008	1.000	
ARITH ALL	4.100	1.512	1.256	1.194	1.085	1.098	1.071	1.068	1.040	1.049	1.024	1.034	1.027	1.018	1.025	1.019	1.020	1.021	1.017	1.013	1.010	1.004	1.003	1.004	1.002	1.013	1.000	1.008	1.000	
5 YR HI LO	4.339	1.576	1.237	1.120	1.086	1.059	1.027	1.028	1.028	1.031	1.013	1.016	1.023	1.020	1.013	1.012	1.010	1.012	1.008	1.006	1.004	1.003	1.004	1.001	1.001	1.003	1.000	NA	NA	
7 YR HI LO	4.084	1.748	1.216	1.133	1.112	1.070	1.035	1.029	1.031	1.035	1.015	1.019	1.026	1.016	1.021	1.012	1.017	1.012	1.012	1.010	1.005	1.004	1.003	1.003	1.001	1.003	1.000	NA	NA	
ALL YR HI LO	3.949	1.494	1.205	1.174	1.084	1.091	1.058	1.042	1.038	1.042	1.024	1.031	1.025	1.017	1.021	1.015	1.019	1.019	1.015	1.012	1.006	1.003	1.003	1.003	1.001	1.003	1.000	NA	NA	Tail
SELECTED	3.694	1.512	1.216	1.133	1.105	1.061	1.048	1.042	1.031	1.031	1.015	1.019	1.023	1.019	1.021	1.015	1.017	1.012	1.012	1.012	1.006	1.003	1.004	1.003	1.001	1.003	1.000	1.000	1.000	1.026

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Closure
Paid Losses

Development in Months

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312	324	336	348	360
1994	17,096	27,184	34,895	95,084	132,148	132,148	149,193	202,874	336,027	379,362	457,817	479,155	517,191	527,042	529,376	583,342	631,688	632,598	669,990	690,824	690,824	722,650	724,556	724,556	731,314	731,314	765,504	765,504	777,703	777,703
1995	89,034	171,911	221,544	250,710	384,248	393,149	497,892	693,726	697,392	725,043	734,723	766,019	772,311	772,311	779,668	779,668	779,668	801,569	801,569	801,569	830,629	830,629	830,629	830,629	830,629	830,629	830,629	830,629	830,629	
1996	248,435	484,694	898,742	1,241,483	2,274,586	2,506,109	2,700,383	2,769,493	2,933,288	3,033,001	3,134,874	3,203,100	3,252,258	3,422,969	3,474,090	3,537,955	3,565,408	3,605,861	3,620,092	3,703,617	3,785,792	3,818,767	3,847,779	3,874,358	3,877,028	3,877,028	3,877,028	3,877,028		
1997	72,267	420,516	818,971	1,322,050	1,725,175	2,046,286	2,611,320	2,806,731	2,927,033	3,087,166	3,270,647	3,346,153	3,480,934	3,657,844	3,823,868	3,884,517	3,938,233	4,000,871	4,203,519	4,290,460	4,351,204	4,383,540	4,415,705	4,446,446	4,446,446	4,476,358	4,504,990			
1998	244,191	1,317,603	1,808,685	2,137,859	2,431,813	2,545,169	2,781,548	2,941,195	3,167,671	3,383,414	3,689,967	3,771,262	4,003,931	4,114,580	4,152,017	4,258,947	4,324,127	4,527,913	4,773,615	4,900,838	5,023,106	5,095,402	5,174,038	5,186,048	5,238,246	5,250,621				
1999	786,810	2,474,382	3,496,322	4,023,648	4,948,985	5,540,026	6,001,712	6,496,501	6,850,066	7,158,107	7,522,683	7,784,778	8,050,943	8,403,872	8,550,000	8,674,731	8,858,161	9,049,576	9,137,364	9,232,961	9,275,507	9,349,792	9,373,987	9,412,640	9,423,681					
2000	738,273	2,062,618	2,415,497	2,919,665	3,092,893	3,389,522	3,561,543	3,685,610	3,990,320	4,108,957	4,305,211	4,399,521	4,703,612	4,793,636	4,902,861	4,988,988	5,122,239	5,263,743	5,331,739	5,370,653	5,436,106	5,442,164	5,442,164	5,442,164						
2001	493,157	680,163	1,095,144	1,238,075	1,388,175	1,460,247	1,549,347	1,581,683	1,652,001	1,702,772	1,766,170	1,865,996	1,911,094	1,936,133	1,983,119	2,018,978	2,065,730	2,128,279	2,174,973	2,188,879	2,188,879	2,188,879	2,188,879							
2002	523,306	1,545,046	2,024,839	2,349,790	2,479,316	2,598,612	3,489,397	3,570,739	3,663,170	3,707,244	3,775,271	3,880,256	3,958,320	4,004,981	4,079,843	4,208,501	4,208,501	4,225,838	4,233,790	4,243,920	4,243,920	4,249,787								
2003	558,641	1,252,492	1,559,919	1,768,858	1,977,267	2,157,660	2,363,773	2,505,098	2,568,104	2,643,427	2,753,678	2,796,043	2,871,359	2,887,346	2,934,085	3,063,698	3,182,240	3,235,238	3,308,507	3,345,219	3,400,641									
2004	143,829	931,294	1,201,475	1,296,399	1,379,054	1,509,347	1,686,522	1,752,111	1,791,788	1,815,522	1,963,819	1,994,768	2,050,897	2,099,609	2,113,648	2,130,676	2,158,476	2,166,165	2,166,165	2,268,537										
2005	337,211	944,193	1,222,262	1,421,775	1,535,499	1,656,178	1,665,460	1,730,844	1,831,040	1,920,466	1,971,656	2,004,142	2,224,850	2,309,907	2,389,815	2,471,917	2,503,065	2,614,037	2,646,006											
2006	114,292	408,515	629,120	714,825	976,707	1,008,090	1,081,296	1,174,274	1,206,522	1,207,387	1,239,850	1,239,850	1,243,210	1,289,388	1,340,833	1,364,261	1,364,261	1,375,401												
2007	249,922	1,223,865	1,926,859	2,102,500	2,334,792	2,559,689	2,711,518	2,740,693	2,935,041	3,195,238	3,312,186	3,449,564	3,591,451	3,670,807	3,702,436	3,734,150	3,771,178													
2008	285,783	909,119	1,176,822	1,428,082	1,736,851	1,899,675	2,029,161	2,105,246	2,203,792	2,328,660	2,441,800	2,471,712	2,544,896	2,570,798	2,612,744	2,649,605														
2009	281,383	1,280,215	1,505,006	1,590,623	1,641,266	1,680,809	1,727,791	1,771,068	1,803,131	1,818,009	1,925,581	1,929,070	1,945,535	1,945,535	1,945,535															
2010	70,430	697,094	836,490	995,262	1,136,718	1,241,412	1,293,850	1,342,840	1,416,703	1,486,360	1,561,464	1,611,644	1,625,448	1,756,221																
2011	354,238	741,233	1,008,015	1,114,183	1,168,623	1,208,286	1,336,441	1,439,764	1,488,452	1,521,528	1,524,576	1,532,420	1,539,584																	
2012	308,280	696,402	1,168,776	1,389,447	1,672,985	1,872,897	2,007,539	2,119,951	2,155,353	2,220,037	2,268,503	2,318,652																		
2013	420,803	906,448	1,288,052	1,711,865	2,123,471	2,514,517	2,709,963	2,851,670	2,979,573	3,047,996	3,107,325																			
2014	127,794	911,475	1,354,211	1,596,521	1,774,763	2,129,113	2,232,987	2,247,675	2,321,900	2,392,534																				
2015	54,289	591,352	1,349,945	1,527,986	1,687,938	1,864,127	1,916,105	1,938,080	1,938,080																					
2016	148,859	570,416	984,252	1,312,538	1,465,936	1,555,593	1,711,971	1,739,743																						
2017	215,178	768,576	1,184,057	1,476,912	1,681,453	1,808,008	1,901,855																							
2018	211,847	925,703	1,393,959	1,736,597	1,889,816	2,038,612																								
2019	111,087	841,196	1,235,233	1,470,814	1,753,565																									
2020	61,138	237,826	400,210	487,443																										
2021	129,624	233,590	542,419																											
2022	219,104	1,042,659																												
2023	185,707																													

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Closure
Summary of Incurred Development Method

(1) RY	(2) INC LDM ULTIMATE	(3) PAID LOSS	(4) INCURRED LOSS	(5) CASE RESERVE	(6) IBNR RESERVE	(7) UNPAID LOSS
1994	1,128,314	777,703	1,128,314	350,611	-	350,611
1995	830,629	830,629	830,629	-	-	-
1996	3,877,028	3,877,028	3,877,028	-	-	-
1997	4,620,899	4,504,990	4,620,899	115,909	-	115,909
1998	5,964,476	5,250,621	5,964,476	713,856	-	713,856
1999	9,740,883	9,423,681	9,740,883	317,202	-	317,202
2000	5,578,254	5,442,164	5,578,254	136,090	-	136,090
2001	2,233,022	2,188,879	2,223,792	34,913	9,230	44,142
2002	4,436,918	4,249,787	4,418,120	168,333	18,798	187,131
2003	4,188,643	3,400,641	4,166,373	765,731	22,270	788,001
2004	2,435,081	2,268,537	2,419,322	150,785	15,759	166,544
2005	2,797,898	2,646,006	2,765,098	119,092	32,800	151,892
2006	1,826,096	1,375,401	1,780,461	405,060	45,635	450,695
2007	4,167,682	3,771,178	4,020,125	248,947	147,557	396,504
2008	3,119,989	2,649,605	3,001,472	351,867	118,517	470,384
2009	2,140,324	1,945,535	2,027,535	82,000	112,790	194,790
2010	2,232,066	1,756,220	2,082,322	326,101	149,744	475,846
2011	1,729,955	1,539,584	1,575,584	36,000	154,372	190,372
2012	2,713,073	2,318,652	2,408,911	90,258	304,162	394,420
2013	4,169,738	3,107,325	3,656,207	548,882	513,530	1,062,413
2014	3,481,236	2,392,534	3,016,488	623,954	464,748	1,088,702
2015	2,936,788	1,938,080	2,486,479	548,399	450,309	998,708
2016	2,485,107	1,739,743	2,059,543	319,800	425,564	745,364
2017	2,988,223	1,901,855	2,441,873	540,018	546,349	1,086,368
2018	3,111,552	2,038,612	2,498,400	459,788	613,152	1,072,940
2019	3,473,818	1,753,565	2,740,228	986,663	733,590	1,720,253
2020	1,055,054	487,443	782,178	294,736	272,876	567,612
2021	2,114,044	542,419	1,430,238	887,819	683,806	1,571,625
2022	2,561,152	1,042,659	1,491,284	448,625	1,069,868	1,518,493
2023	2,558,573	185,707	890,057	704,350	1,668,516	2,372,866
TOTAL	96,696,514	77,346,783	88,122,572	10,775,789	8,573,942	19,349,731

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Closure
Development of Losses to Ultimate

Development Period in Months

RY	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - 276	276 - 288	288 - 300	300 - 312	312 - 324	324 - 336	336 - 348	348 - 360	360 - ULT
1994	1.748	1.035	1.099	1.064	1.087	1.000	1.188	1.063	1.046	1.136	1.039	0.962	0.938	1.054	1.022	1.352	0.998	1.000	1.000	1.000	0.994	1.000	1.288	1.000	1.000	1.000	1.000	1.000		1.000
1995	1.568	0.944	0.990	1.403	1.380	1.130	1.006	1.003	1.165	0.948	0.989	0.963	1.000	1.033	0.953	1.000	1.000	1.025	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1996	1.115	1.062	1.088	1.277	0.983	1.123	0.973	1.014	0.948	1.021	1.057	0.930	1.031	1.011	1.011	1.001	1.010	0.996	1.014	1.035	1.000	1.000	0.999	1.003	0.995	1.000	1.000	1.000	1.000	1.000
1997	1.376	1.029	1.122	1.191	0.932	1.009	1.006	0.951	1.008	0.949	1.007	1.030	1.036	1.012	1.022	1.005	1.040	1.023	1.004	0.982	1.007	1.002	1.017	1.000	0.985	1.000	1.000	1.000	1.000	1.000
1998	0.968	1.227	0.936	1.000	1.053	1.001	0.983	1.009	1.012	1.045	1.014	1.016	1.012	1.008	0.997	0.993	1.066	1.050	1.011	1.007	0.999	1.001	1.115	0.998	1.000	1.000	1.000	1.000	1.000	1.000
1999	1.380	1.175	1.037	1.067	1.059	1.019	1.058	0.998	1.115	1.039	1.005	1.043	0.997	1.000	1.009	1.002	0.974	0.971	0.999	1.003	1.010	1.000	0.999	1.008	1.000	1.000	1.000	1.000	1.000	1.000
2000	1.307	1.026	1.352	1.020	0.960	1.014	0.989	0.994	1.014	1.019	1.004	1.023	1.021	1.000	1.039	1.011	1.018	1.002	0.995	0.990	0.996	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2001	0.774	1.045	1.094	0.950	1.013	1.048	0.988	1.032	1.007	1.037	1.006	1.014	0.990	1.000	1.031	1.000	1.011	0.996	0.990	1.000	1.000	1.000	1.004	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2002	1.086	1.231	1.061	0.999	1.008	1.176	0.980	1.001	1.007	1.022	1.019	0.998	0.985	1.015	1.013	0.987	1.000	1.000	1.002	1.005	1.000	1.000	1.004	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2003	0.866	1.069	1.034	1.077	0.986	0.979	0.990	0.992	1.055	0.996	1.003	1.003	1.011	1.035	1.060	1.024	0.994	1.034	1.000	1.172	1.001	1.000	1.004	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2004	0.726	1.002	0.957	1.153	0.996	0.915	1.012	1.022	1.037	1.008	1.020	1.029	1.000	0.997	0.997	0.984	1.034	1.000	1.035	1.001	1.001	1.000	1.004	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2005	0.999	1.065	0.965	0.916	1.003	0.977	1.047	1.044	0.963	0.984	1.044	1.127	0.982	1.023	1.010	0.999	1.004	1.000	1.005	1.001	1.001	1.000	1.004	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2006	0.697	0.925	1.016	1.121	0.979	0.945	0.958	1.009	0.962	0.985	1.000	1.105	1.020	1.126	0.988	1.000	1.000	1.014	1.005	1.001	1.001	1.000	1.004	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2007	1.129	0.948	0.943	0.962	1.063	1.019	1.010	1.028	1.090	1.012	1.005	1.033	1.014	1.000	1.022	1.000	1.011	1.014	1.005	1.001	1.001	1.000	1.004	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2008	0.720	0.880	1.052	1.089	1.010	1.024	0.994	1.105	1.066	1.000	0.983	0.996	1.012	1.011	1.010	1.003	1.011	1.014	1.005	1.001	1.001	1.000	1.004	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2009	0.825	0.842	0.957	1.023	0.974	1.022	0.998	1.008	1.073	1.018	1.000	0.965	1.020	1.016	1.003	1.011	1.011	1.014	1.005	1.001	1.001	1.000	1.004	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2010	0.696	0.928	0.970	1.076	1.062	1.073	1.007	0.983	0.992	0.985	1.091	1.000	1.071	1.015	1.016	1.003	1.011	1.014	1.005	1.001	1.001	1.000	1.004	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2011	0.832	1.000	1.031	0.966	1.093	1.020	1.004	0.991	0.999	0.998	1.000	0.994	1.000	1.024	1.015	1.016	1.003	1.011	1.014	1.005	1.001	1.000	1.004	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2012	0.858	0.963	1.329	1.028	0.996	1.035	0.984	0.844	0.992	1.000	1.009	1.024	1.024	1.015	1.016	1.003	1.011	1.014	1.005	1.001	1.001	1.000	1.004	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2013	0.764	1.126	1.009	0.996	1.083	1.028	1.028	1.024	1.029	1.003	1.059	1.013	1.026	1.024	1.015	1.016	1.003	1.011	1.014	1.005	1.001	1.001	1.000	1.004	1.000	1.000	1.000	1.000	1.000	1.000
2014	0.746	1.098	0.950	1.204	0.985	0.982	1.044	1.028	1.003	1.012	1.013	1.026	1.024	1.015	1.016	1.003	1.011	1.014	1.005	1.001	1.001	1.000	1.004	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2015	2.616	1.627	1.100	1.101	0.994	0.987	1.163	1.004	1.023	1.012	1.013	1.026	1.024	1.015	1.016	1.003	1.011	1.014	1.005	1.001	1.001	1.000	1.004	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2016	2.752	1.370	1.064	0.912	0.987	1.098	0.991	1.022	1.023	1.012	1.013	1.026	1.024	1.015	1.016	1.003	1.011	1.014	1.005	1.001	1.001	1.000	1.004	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2017	2.579	1.003	1.096	1.040	1.033	1.019	1.014	1.022	1.023	1.012	1.013	1.026	1.024	1.015	1.016	1.003	1.011	1.014	1.005	1.001	1.001	1.000	1.004	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2018	1.754	1.190	1.050	1.029	1.005	1.018	1.014	1.022	1.023	1.012	1.013	1.026	1.024	1.015	1.016	1.003	1.011	1.014	1.005	1.001	1.001	1.000	1.004	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2019	3.047	1.145	1.173	1.001	1.018	1.018	1.014	1.022	1.023	1.012	1.013	1.026	1.024	1.015	1.016	1.003	1.011	1.014	1.005	1.001	1.001	1.000	1.004	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2020	0.901	0.926	0.998	1.064	1.018	1.018	1.014	1.022	1.023	1.012	1.013	1.026	1.024	1.015	1.016	1.003	1.011	1.014	1.005	1.001	1.001	1.000	1.004	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2021	1.219	1.545	1.096	1.064	1.018	1.018	1.014	1.022	1.023	1.012	1.013	1.026	1.024	1.015	1.016	1.003	1.011	1.014	1.005	1.001	1.001	1.000	1.004	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2022	1.749	1.162	1.096	1.064	1.018	1.018	1.014	1.022	1.023	1.012	1.013	1.026	1.024	1.015	1.016	1.003	1.011	1.014	1.005	1.001	1.001	1.000	1.004	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2023	1.674	1.162	1.096	1.064	1.018	1.018	1.014	1.022	1.023	1.012	1.013	1.026	1.024	1.015	1.016	1.003	1.011	1.014	1.005	1.001	1.001	1.000	1.004	1.000	1.000	1.000	1.000	1.000	1.000	1.000

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312	324	336	348	360	ULT
1994	187,103	327,100	338,664	372,338	396,280	430,925	430,925	512,003	544,249	569,328	646,825	671,833	646,361	606,161	639,180	653,025	882,676	881,282	881,282	881,282	881,282	875,960	875,960	875,960	875,960	1,128,314	1,128,314	1,128,314	1,128,314	1,128,314	1,128,314
1995	229,050	359,228	339,169	335,712	470,908	649,998	734,664	739,266	741,392	863,373	854,043	822,060	822,060	849,516	809,668	809,668	809,668	829,668	829,668	829,668	830,629	830,629	830,629	830,629	830,629	830,629	830,629	830,629	830,629	830,629	830,629
1996	2,074,608	2,312,993	2,456,425	2,673,073	3,413,485	3,354,566	3,767,622	3,665,813	3,718,947	3,524,021	3,596,366	3,799,750	3,534,045	3,643,349	3,685,176	3,687,940	3,723,882	3,707,363	3,757,936	3,887,596	3,887,613	3,883,098	3,896,281	3,877,028	3,877,028	3,877,028	3,877,028	3,877,028	3,877,028	3,877,028	3,877,028
1997	2,396,340	3,296,691	3,392,394	3,805,286	4,531,604	4,223,037	4,260,238	4,287,861	4,079,282	4,113,314	3,902,281	3,929,176	4,047,234	4,192,485	4,241,564	4,333,493	4,357,186	4,532,100	4,636,226	4,652,717	4,571,271	4,603,339	4,610,824	4,690,855	4,690,855	4,620,899	4,620,899	4,620,899	4,620,899	4,620,899	4,620,899
1998	3,675,965	3,559,113	4,365,735	4,088,438	4,086,851	4,304,774	4,307,747	4,235,040	4,274,042	4,324,783	4,519,773	4,581,805	4,653,835	4,710,482	4,749,789	4,737,115	4,702,682	5,014,309	5,265,050	5,323,794	5,363,065	5,355,706	5,358,491	5,975,720	5,964,475	5,964,476	5,964,476	5,964,476	5,964,476	5,964,476	5,964,476
1999	4,037,062	5,571,871	6,545,350	6,787,456	7,241,227	7,671,357	7,817,662	8,271,935	8,254,562	9,206,158	9,560,694	9,605,100	10,021,467	9,989,020	9,992,011	10,080,720	10,105,116	9,843,136	9,558,326	9,546,992	9,578,572	9,674,953	9,674,953	9,666,343	9,740,883	9,740,883	9,740,883	9,740,883	9,740,883	9,740,883	9,740,883
2000	2,762,343	3,611,594	3,705,600	5,011,259	5,112,429	4,908,784	4,977,899	4,921,943	4,894,275	4,961,257	5,054,309	5,076,112	5,193,017	5,303,446	5,303,354	5,511,724	5,574,262	5,673,733	5,687,601	5,658,501	5,602,232	5,578,254	5,578,254	5,578,254	5,578,254	5,578,254	5,578,254	5,578,254	5,578,254	5,578,254	5,578,254
2001	2,251,558	1,743,446	1,822,201	1,993,523	1,894,340	1,918,963	2,011,132	1,987,488	2,052,066	2,067,276	2,144,617	2,157,214	2,187,052	2,164,958	2,164,958	2,231,893	2,231,893	2,255,449	2,246,989	2,223,792	2,223,792	2,223,792	2,233,022	2,233,022	2,233,022	2,233,022	2,233,022	2,233,022	2,233,022	2,233,022	2,233,022
2002	2,542,017	2,760,461	3,397,838	3,606,278	3,602,481	3,629,619	4,269,535	4,184,966	4,189,633	4,220,328	4,314,840	4,395,247	4,388,354	4,323,344	4,389,340	4,444,852	4,388,828	4,388,828	4,388,828	4,395,828	4,418,120	4,418,120	4,418,579	4,436,918	4,436,918	4,436,918	4,436,918	4,436,918	4,436,918	4,436,918	4,436,918
2003	2,947,566	2,552,226	2,729,345	2,821,402	3,038,665	2,996,630	2,935,032	2,905,668	2,883,632	3,043,090	3,031,155	3,041,419	3,049,245	3,081,544	3,188,294	3,379,908	3,460,316	3,438,965	3,555,208	3,555,208	4,166,373	4,170,896	4,171,330	4,188,643	4,188,643	4,188,643	4,188,643	4,188,643	4,188,643	4,188,643	4,188,643
2004	2,784,076	2,021,523	2,025,941	1,938,585	2,234,615	2,224,836	2,035,592	2,059,706	2,105,619	2,182,954	2,200,007	2,244,932	2,310,707	2,310,706	2,304,759	2,298,878	2,262,131	2,338,322	2,338,322	2,419,322	2,422,134	2,424,764	2,425,016	2,435,081	2,435,081	2,435,081	2,435,081	2,435,081	2,435,081	2,435,081	2,435,081
2005	2,418,554	2,416,450	2,572,849	2,483,026	2,274,631	2,281,970	2,229,537	2,333,344	2,437,114	2,347,584	2,309,022	2,411,172	2,717,437	2,667,437	2,729,436	2,755,939	2,754,019	2,765,098	2,765,098	2,779,791	2,783,022	2,786,044	2,786,333	2,797,898	2,797,898	2,797,898	2,797,898	2,797,898	2,797,898	2,797,898	2,797,898
2006	2,279,915	1,590,227	1,471,489	1,494,938	1,675,834	1,640,664	1,549,814	1,484,507	1,497,613	1,440,812	1,418,755	1,568,383	1,600,382	1,802,384	1,780,461	1,780,461	1,780,461	1,804,689	1,814,279	1,816,388	1,818,360	1,818,549	1,826,096	1,826,096	1,826,096	1,826,096	1,826,096	1,826,096	1,826,096	1,826,096	1,826,096
2007	3,104,642	3,506,428	3,324,034	3,133,446	3,015,593	3,206,641	3,266,444	3,297,905	3,388,641	3,693,115	3,736,832	3,754,548	3,878,579	3,932,825	3,932,825	4,020,125	4,020,125	4,063,529	4,118,825	4,140,711	4,145,524	4,150,024	4,150,456	4,167,682	4,167,682	4,167,682	4,167,682	4,167,682	4,167,682	4,167,682	4,167,682
2008	3,378,033	2,432,035	2,139,716	2,250,962	2,450,839	2,475,575	2,534,647	2,518,897	2,784,301	2,969,033	2,968,102	2,916,589	2,905,922	2,941,629	2,972,885	3,001,472	3,009,526	3,042,019	3,083,414	3,099,798	3,103,401	3,106,770	3,107,093	3,119,989	3,119,989	3,119,989	3,119,989	3,119,989	3,119,989	3,119,989	3,119,989
2009	2,770,198	2,286,030	1,923,883	1,840,582	1,883,630	1,833,921	1,873,872	1,869,496	1,884,955	2,023,386	2,059,214	2,059,214	1,987,951	2,027,535	2,027,535	2,059,021	2,064,546	2,086,836	2,115,233	2,126,473	2,128,945	2,131,276	2,131,478	2,140,324	2,140,324	2,140,324	2,140,324	2,140,324	2,140,324	2,140,324	2,140,324
2010	2,399,535	1,670,654	1,551,137	1,504,347	1,618,767	1,718,575	1,843,937	1,857,606	1,825,960	1,811,019	1,783,637	1,945,713	1,945,107	2,082,322	2,114,442	2,147,278	2,153,040	2,176,286	2,205,900	2,217,622	2,220,199	2,222,610	2,222,841	2,232,066	2,232,066	2,232,066	2,232,066	2,232,066	2,232,066	2,232,066	2,232,066
2011	1,730,234	1,440,222	1,440,536	1,484,741	1,433,817	1,567,380	1,598,788	1,605,837	1,590,668	1,588,365	1,584,634	1,584,634	1,575,584	1,613,897	1,638,791	1,664,241	1,668,706	1,686,723	1,709,675	1,718,760	1,720,758	1,722,626	1,722,805	1,729,955	1,729,955	1,729,955	1,729,955	1,729,955	1,729,955	1,729,955	1,729,955
2012	2,490,976	2,137,662	2,058,476	2,735,440	2,811,353	2,799,426	2,897,254	2,851,986	2,405,715	2,386,551	2,386,388	2,408,911	2,470,973	2,531,059	2,570,101	2,610,013	2,617,016	2,645,271	2,681,267	2,695,515	2,698,648	2,701,578	2,701,859	2,713,073	2,713,073	2,713,073	2,713,073	2,713,073	2,713,073	2,713,073	2,713,073
2013	3,392,371	2,592,125	2,918,959	2,945,843	2,934,795	3,178,441	3,266,982	3,343,869	3,441,847	3,452,011	3,656,207	3,702,269	3,797,654	3,890,000	3,950,003	4,011,344	4,022,108	4,065,533	4,120,856	4,142,753	4,147,568	4,152,071	4,152,503	4,169,738	4,169,738	4,169,738	4,169,738	4,169,738	4,169,738	4,169,738	4,169,738
2014	3,096,607	2,310,421	2,536,205	2,408,839	2,899,099	2,854,689	2,802,533	2,926,238	3,008,322	3,016,488	3,052,499	3,090,955	3,170,590	3,247,688	3,297,784	3,348,996	3,357,982	3,394,237	3,440,425	3,458,707	3,462,727	3,466,486	3,481,236	3,481,236	3,481,236	3,481,236	3,481,236	3,481,236	3,481,236	3,481,236	3,481,236
2015	421,275	1,102,257	1,793,275	1,972,587	2,171,046	2,157,798	2,129,592	2,477,479	2,486,479	2,544,725	2,575,103	2,607,545	2,674,725	2,739,766	2,782,027	2,825,230	2,832,811	2,863,396	2,902,360	2,917,783	2,921,174	2,924,345	2,924,649	2,936,788	2,936,788	2,936,788	2,936,788	2,936,788	2,936,788	2,936,788	2,936,788
2016	524,435	1,443,017	1,977,045	2,103,420	1,917,742	1,892,215	2,077,388	2,059,543	2,104,056	2,153,343	2,179,050	2,206,502	2,318,387	2,354,148	2,390,707	2,397,122	2,423,003	2,455,974	2,469,025	2,471,894	2,474,578	2,474,835	2,485,107	2,485,107	2,485,107	2,485,107	2,485,107	2,485,107	2,485,107	2,485,107	2,485,107
2017	786,588	2,028,990	2,036,039	2,230,762	2,320,748	2,396,824	2,441,873	2,476,502	2,530,027	2,589,293	2,620,204	2,653,214	2,721,570	2,787,750	2,830,751	2,874,711	2,882,425	2,913,545	2,968,885	2,972,335	2,975,562	2,975,872	2,988,223	2,988,223	2,988,223	2,988,223	2,988,223	2,988,223	2,988,223	2,988,223	2,988,223
2018	1,101,481	1,931,507	2,298,304	2,413,915	2,484,981	2,498,400	2,542,653	2,578,712	2,634,445	2,696,157	2,728,344	2,762,716	2,833,894	2,902,805	2,947,581	2,993,355	3,001,387	3,033,792	3,075,075	3,091,415	3,095,008	3,098,368	3,098,691	3,111,552	3,111,552	3,111,552	3,111,552	3,111,552	3,111,552	3,111,552	3,111,552
2019	668,550	2,037,158	2,332,992	2,737,603	2,740,228	2,789,279	2,838,685	2,878,941	2,941,164	3,010,061	3,045,994	3,084,369	3,163,834	3,240,767	3,290,757	3,341,860	3,350,827	3,387,005	3,433,095	3,451,337	3,455,348	3,459,100	3,459,460	3,473,818	3,473,818	3,473,818	3,473,818	3,473,818	3,473,818	3,473,818	3,473,818
2020	938,865	846,081	783,580	782,178	832,251	847,149	862,154	874,381	893,279	914,204	925,117	936,772	960,907	984,273	999,456	1,014,977	1,017,700	1,028,688	1,042,686	1,048,227	1,049,445	1,050,584	1,050,693	1,055,054	1,055,054	1,055,054	1,055,054	1,055,054	1,055,054	1,055,054	1,055,054
2021	759,215	925,850	1,430,238	1,567,274	1,667,607	1,697,457	1,727,524	1,752,023	1,789,889	1,831,817	1,853,685	1,877,039	1,925,398	1,972,217	2,002,639	2,033,739	2,039,196	2,061,212	2,089,261	2,102,804	2,105,286	2,114,044	2,114,044	2,114,044	2,114,044	2,114,044	2,114,044	2,114,044	2,114,044	2,114,044	2,114,044
2022	852,511	1,491,284	1,732,725	1,898,744	2,020,296	2,056,460	2,092,886	2,122,566	2,168,441	2,219,237	2,245,730	2,274,022	2,332,609	2,389,331	2,426,186	2,463,863	2,470,475	2,497,147	2,531,128	2,544,578	2,547,535	2,550,301	2,550,566	2,561,152	2,561,152	2,561,152	2,561,152	2,561,152	2,561,152	2,561,152	2,561,152
2023	890,057	1,489,782	1,730,980	1,896,832	2,018,262	2,054,389	2,090,778	2,120,428	2,166,257	2,217,002	2,243,468	2,271,732	2,330,260	2,386,924	2,423,743	2,461,382	2,467,987	2,494,633	2,528,579	2,542,015	2,544,970	2,547,733	2,547,998	2,558,573	2,558,573	2,558,573	2,558,573	2,558,573	2,558,573	2,558,573	2,558,573

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Closure
Selection of Loss Development Factors

Development Period in Months

RY	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - 276	276 - 288	288 - 300	300 - 312	312 - 324	324 - 336	336 - 348	TAIL
1994	1.748	1.035	1.099	1.064	1.087	1.000	1.188	1.063	1.046	1.136	1.039	0.962	0.938	1.054	1.022	1.352	0.998	1.000	1.000	1.000	0.994	1.000	1.000	1.000	1.288	1.000	1.000	1.000	
1995	1.568	0.944	0.990	1.403	1.380	1.130	1.006	1.003	1.165	0.989	0.963	1.000	1.033	0.953	1.000	1.000	1.025	1.000	1.000	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000		
1996	1.115	1.062	1.088	1.277	0.983	1.123	0.973	1.014	0.948	1.021	1.057	0.930	1.031	1.011	1.001	1.010	0.996	1.014	1.035	1.000	1.000	0.999	1.003	0.995	1.000	1.000			
1997	1.376	1.029	1.122	1.191	0.932	1.009	1.006	0.951	1.008	0.949	1.007	1.030	1.036	1.012	1.022	1.005	1.040	1.023	1.004	0.982	1.007	1.002	1.017	1.000	0.985	1.000			
1998	0.968	1.227	0.936	1.000	1.053	1.001	0.983	1.009	1.012	1.045	1.014	1.016	1.012	1.008	0.997	0.993	1.066	1.050	1.011	1.007	0.999	1.001	1.115	0.998	1.000				
1999	1.380	1.175	1.037	1.067	1.059	1.019	1.058	0.998	1.115	1.039	1.005	1.043	0.997	1.000	1.009	1.002	0.974	0.971	0.999	1.003	1.010	1.000	0.999	1.008					
2000	1.307	1.026	1.352	1.020	0.960	1.014	0.989	0.994	1.014	1.019	1.004	1.023	1.021	1.000	1.039	1.011	1.018	1.002	0.995	0.990	0.996	1.000	1.000						
2001	0.774	1.045	1.094	0.950	1.013	1.048	0.988	1.032	1.007	1.037	1.006	1.014	0.990	1.000	1.031	1.000	1.011	0.996	0.990	1.000	1.000	1.000							
2002	1.086	1.231	1.061	0.999	1.008	1.176	0.980	1.001	1.022	1.019	0.998	0.985	1.015	1.013	0.987	1.000	1.000	1.002	1.005	1.000	1.000								
2003	0.866	1.069	1.034	1.077	0.986	0.979	0.990	0.992	1.055	0.996	1.003	1.003	1.011	1.035	1.060	1.024	0.994	1.034	1.000	1.172									
2004	0.726	1.002	0.957	1.153	0.996	0.915	1.012	1.022	1.037	1.008	1.020	1.029	1.000	0.997	0.997	0.984	1.034	1.000	1.035										
2005	0.999	1.065	0.965	0.916	1.003	0.977	1.047	1.044	0.963	0.984	1.044	1.127	0.982	1.023	1.010	0.999	1.004	1.000											
2006	0.697	0.925	1.016	1.121	0.979	0.945	0.958	1.009	0.962	0.985	1.000	1.105	1.020	1.126	0.988	1.000	1.000												
2007	1.129	0.948	0.943	0.962	1.063	1.019	1.010	1.028	1.090	1.012	1.005	1.033	1.014	1.000	1.022	1.010													
2008	0.720	0.880	1.052	1.089	1.010	1.024	0.994	1.105	1.066	1.000	0.983	0.996	1.012	1.011	1.010														
2009	0.825	0.842	0.957	1.023	0.974	1.022	0.998	1.008	1.073	1.018	1.000	0.965	1.020	1.000															
2010	0.696	0.928	0.970	1.076	1.062	1.073	1.007	0.983	0.992	0.985	1.091	1.000	1.071																
2011	0.832	1.000	1.031	0.966	1.093	1.020	1.004	0.991	0.999	0.998	1.000	0.994																	
2012	0.858	0.963	1.329	1.028	0.996	1.035	0.984	0.844	0.992	1.000	1.009																		
2013	0.764	1.126	1.009	0.996	1.083	1.028	1.024	1.029	1.003	1.059																			
2014	0.746	1.098	0.950	1.204	0.985	0.982	1.044	1.028	1.003																				
2015	2.616	1.627	1.100	1.101	0.994	0.987	1.163	1.004																					
2016	2.752	1.370	1.064	0.912	0.987	1.098	0.991																						
2017	2.579	1.003	1.096	1.040	1.033	1.019																							
2018	1.754	1.190	1.050	1.029	1.005																								
2019	3.047	1.145	1.173	1.001																									
2020	0.901	0.926	0.998																										
2021	1.219	1.545																											
2022	1.749																												
VOL WTD 3	1.279	1.194	1.096	1.022	1.010	1.031	1.065	1.022	1.000	1.027	1.032	0.986	1.031	1.004	1.011	1.000	1.013	1.014	1.009	1.062	0.998	1.000	1.030	1.003	0.995	1.000	1.000	1.000	NA
VOL WTD 5	1.674	1.143	1.089	1.015	1.001	1.019	1.037	0.979	0.999	1.015	1.013	1.003	1.024	1.022	1.008	1.003	1.005	1.007	1.002	1.024	1.002	1.000	1.024	1.002	1.011	1.000	1.000	1.000	NA
VOL WTD ALL	1.056	1.080	1.057	1.052	1.013	1.026	1.012	1.002	1.029	1.015	1.013	1.018	1.010	1.011	1.016	1.006	1.009	1.005	1.005	1.014	1.002	1.000	1.023	1.002	1.011	1.000	1.000	1.000	NA
ARITH 3	1.290	1.205	1.074	1.024	1.008	1.035	1.066	1.020	0.999	1.019	1.033	0.986	1.034	1.004	1.007	1.000	1.013	1.011	1.012	1.059	0.999	1.000	1.038	1.002	0.995	1.000	1.000	1.000	NA
ARITH 5	1.734	1.162	1.076	1.017	1.001	1.023	1.041	0.979	0.998	1.012	1.017	0.998	1.027	1.032	1.005	1.001	1.006	1.006	1.004	1.034	1.001	1.000	1.027	1.000	1.055	1.000	1.000	1.000	NA
ARITH ALL	1.304	1.087	1.055	1.064	1.029	1.027	1.017	1.007	1.027	1.015	1.014	1.015	1.010	1.015	1.015	1.026	1.012	1.008	1.006	1.016	1.001	1.000	1.019	1.000	1.055	1.000	1.000	1.000	NA
5 YR HI LO	1.574	1.113	1.070	1.024	0.995	1.011	1.020	1.007	0.998	1.005	1.003	0.997	1.018	1.011	1.006	1.000	1.001	1.000	0.999	1.003	1.000	1.000	1.007	0.999	1.000	1.000	1.000	NA	NA
7 YR HI LO	2.011	1.251	1.062	1.034	1.003	1.018	1.014	1.003	1.013	1.005	1.003	1.026	1.013	1.014	1.010	0.997	1.006	1.000	1.001	1.001	1.001	1.000	1.004	1.000	1.000	1.000	1.000	NA	NA
ALL YR HI LO	1.261	1.075	1.047	1.056	1.018	1.025	1.012	1.010	1.023	1.012	1.013	1.013	1.011	1.012	1.013	1.003	1.011	1.007	1.005	1.001	1.000	1.000	1.004	1.000	1.000	1.000	1.000	NA	NA
SELECTED	1.674	1.162	1.096	1.064	1.018	1.018	1.014	1.022	1.023	1.012	1.013	1.026	1.024	1.015	1.016	1.003	1.011	1.014	1.005	1.001	1.001	1.000	1.004	1.000	1.000	1.000	1.000	1.000	1.000

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Closure
Incurred Losses

Development in Months

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312	324	336	348	360
1994	187,103	327,100	338,664	372,338	396,280	430,925	430,925	512,003	544,249	569,328	646,825	671,833	646,361	606,161	639,180	653,025	882,676	881,282	881,282	881,282	881,282	875,960	875,960	875,960	875,960	1,128,314	1,128,314	1,128,314	1,128,314	1,128,314
1995	229,050	359,228	339,169	335,712	470,908	649,998	734,664	739,266	741,392	863,373	854,043	822,060	822,060	849,516	809,668	809,668	809,668	829,668	829,668	830,629	830,629	830,629	830,629	830,629	830,629	830,629	830,629	830,629		
1996	2,074,608	2,312,993	2,456,425	2,673,073	3,413,485	3,354,566	3,767,622	3,665,813	3,718,947	3,524,021	3,596,366	3,799,750	3,534,045	3,643,349	3,685,176	3,687,940	3,723,882	3,707,363	3,757,936	3,887,596	3,887,596	3,887,613	3,883,098	3,896,281	3,877,028	3,877,028	3,877,028			
1997	2,396,340	3,296,691	3,392,934	3,805,286	4,531,604	4,223,037	4,260,238	4,287,861	4,079,282	4,113,314	3,902,281	3,929,176	4,047,234	4,192,485	4,241,564	4,333,493	4,357,186	4,532,100	4,636,226	4,652,717	4,571,271	4,602,339	4,610,824	4,690,855	4,690,855	4,620,899	4,620,899			
1998	3,675,965	3,559,113	4,365,735	4,088,438	4,086,851	4,304,774	4,307,747	4,235,040	4,274,042	4,324,783	4,519,773	4,581,805	4,653,835	4,710,482	4,749,789	4,737,115	4,702,682	5,014,309	5,265,050	5,323,794	5,363,065	5,355,706	5,358,491	5,975,720	5,964,475	5,964,476				
1999	4,037,062	5,571,871	6,545,350	6,787,456	7,241,227	7,671,357	7,817,662	8,271,935	8,254,562	9,206,158	9,560,694	9,605,104	10,021,467	9,989,020	9,992,011	10,080,720	10,105,116	9,843,136	9,558,326	9,546,992	9,578,572	9,674,953	9,674,953	9,666,343	9,740,883	5,578,254				
2000	2,762,343	3,611,594	3,705,600	5,011,259	5,112,429	4,908,784	4,977,899	4,921,943	4,894,275	4,961,257	5,054,309	5,076,112	5,193,017	5,303,446	5,303,354	5,511,724	5,574,262	5,673,733	5,687,601	5,658,501	5,602,232	5,578,254	5,578,254	5,578,254						
2001	2,251,558	1,743,446	1,822,201	1,993,512	1,894,340	1,918,963	2,011,132	1,987,488	2,052,066	2,067,276	2,144,617	2,157,214	2,187,052	2,164,958	2,164,958	2,231,893	2,231,893	2,255,449	2,246,989	2,223,792	2,223,792	2,223,792	2,223,792							
2002	2,542,017	2,760,461	3,397,838	3,606,278	3,602,481	3,629,619	4,269,535	4,184,966	4,189,633	4,220,328	4,314,840	4,395,247	4,388,354	4,323,344	4,389,340	4,444,852	4,388,828	4,388,828	4,395,828	4,418,120	4,418,120									
2003	2,947,566	2,552,226	2,729,345	2,821,402	3,038,665	2,996,630	2,935,032	2,905,668	2,883,632	3,043,090	3,031,155	3,041,419	3,049,245	3,081,544	3,188,294	3,379,908	3,460,316	3,438,965	3,555,208	3,555,208	4,166,373									
2004	2,784,076	2,021,523	2,025,941	1,938,585	2,234,615	2,224,836	2,035,592	2,059,706	2,105,619	2,182,954	2,200,007	2,244,932	2,310,707	2,310,706	2,304,759	2,298,878	2,262,131	2,338,322	2,338,322	2,419,322										
2005	2,418,554	2,416,450	2,572,849	2,483,026	2,274,631	2,281,970	2,229,537	2,333,344	2,437,114	2,347,584	2,309,022	2,411,172	2,717,437	2,667,437	2,729,436	2,755,939	2,754,019	2,765,098	2,765,098											
2006	2,279,915	1,590,227	1,471,489	1,494,938	1,675,834	1,640,664	1,549,814	1,484,507	1,497,613	1,440,812	1,418,755	1,418,755	1,568,383	1,600,382	1,802,384	1,780,461	1,780,461													
2007	3,104,642	3,506,428	3,324,034	3,133,446	3,015,593	3,206,641	3,266,444	3,297,905	3,388,641	3,693,115	3,736,832	3,754,548	3,878,579	3,932,825	3,932,825	4,020,125	4,020,125													
2008	3,378,033	2,432,035	2,139,716	2,250,962	2,450,839	2,475,575	2,534,647	2,518,897	2,784,301	2,969,033	2,968,102	2,916,589	2,905,922	2,941,629	2,972,885	3,001,472														
2009	2,770,198	2,286,030	1,923,883	1,840,582	1,883,630	1,833,921	1,873,872	1,869,496	1,884,955	2,023,386	2,059,214	2,059,214	1,987,951	2,027,535	2,027,535															
2010	2,399,535	1,670,654	1,551,137	1,504,347	1,618,767	1,718,575	1,843,937	1,857,606	1,825,960	1,811,019	1,783,637	1,945,713	1,945,107	2,082,322																
2011	1,730,234	1,440,222	1,440,536	1,484,741	1,433,817	1,567,380	1,598,788	1,605,837	1,590,668	1,588,365	1,584,634	1,584,634	1,575,584																	
2012	2,490,976	2,137,662	2,058,476	2,735,440	2,811,353	2,799,426	2,897,254	2,851,986	2,405,715	2,386,551	2,386,388	2,408,911																		
2013	3,392,371	2,592,125	2,918,959	2,945,843	2,934,795	3,178,441	3,266,982	3,343,869	3,441,847	3,452,011	3,656,207																			
2014	3,096,607	2,310,421	2,536,205	2,408,839	2,899,099	2,854,689	2,802,533	2,926,238	3,008,322	3,016,488																				
2015	421,275	1,102,581	1,793,275	1,972,587	2,171,046	2,157,798	2,129,592	2,477,479	2,486,479																					
2016	524,435	1,443,017	1,977,045	2,103,420	1,917,742	1,892,215	2,077,388	2,059,543																						
2017	786,588	2,028,990	2,036,039	2,230,762	2,320,748	2,396,824	2,441,873																							
2018	1,101,481	1,931,507	2,298,304	2,413,915	2,484,981	2,498,400																								
2019	668,550	2,037,158	2,332,992	2,737,603	2,740,228																									
2020	938,865	846,081	783,580	782,178																										
2021	759,215	925,850	1,430,238																											
2022	852,511	1,491,284																												
2023	890,057																													

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Closure
Determination of Pure Premium

(1)	(2)	(3)	(4)	(5)	(6)
	PAID LDM	INC LDM	SELECTED	POLICIES	PURE
RY	ULTIMATE	ULTIMATE	ULTIMATE	IN FORCE	PREMIUM
1994					
1995					
1996					
1997					
1998					
1999					
2000					
2001					
2002					
2003					
2004					
2005					
2006					
2007					
2008	3,001,472	3,119,989	3,060,731	2,664	1,149
2009	2,224,559	2,140,324	2,182,442	2,662	820
2010	2,082,322	2,232,066	2,157,194	2,622	823
2011	1,834,876	1,729,955	1,782,416	2,623	680
2012	2,814,502	2,713,073	2,763,787	2,617	1,056
2013	3,826,760	4,169,738	3,998,249	2,603	1,536
2014	3,036,661	3,481,236	3,258,948	2,573	1,267
2015	2,536,007	2,936,788	2,736,398	2,530	1,082
2016	2,372,560	2,485,107	2,428,833	2,509	968
2017	2,718,117	2,988,223	2,853,170	2,489	1,146
2018	3,091,111	3,111,552	3,101,331	2,487	1,247
2019	2,939,040	3,473,818	3,206,429	2,413	1,329
2020	925,455	1,055,054	990,254	2,408	411
2021	1,430,238	2,114,044	1,772,141	2,405	737
2022	3,640,359	2,561,152	3,100,756	2,371	1,308
2023	2,395,173	2,558,573	2,476,873	2,347	1,055
TOTAL	40,869,212	42,870,692	41,869,952	40,323	1,038

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Closure
Paid Bornhuetter-Ferguson Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	POLICIES	PROJECTED	TRENDED	DETRENDED	EXPECTED	PERCENT	EXPECTED	PAID	INDICATED	INCURRED	IBNR	CASE	ULTIMATE
RY	IN FORCE	PURE PREM	PURE PREM	PURE PREM	LOSSES	UNPAID	UNPAID	LOSSES	ULTIMATE	LOSSES	RESERVE	RESERVE	PURE PREM
1994													
1995													
1996													
1997													
1998													
1999													
2000													
2001													
2002													
2003													
2004													
2005													
2006													
2007													
2008	2,664	1,149	988	1,191	3,172,046	10.7%	340,569	2,649,605	2,990,174	3,001,472	(11,298)	351,867	1,122
2009	2,662	820	712	1,179	3,137,968	12.5%	393,593	1,945,535	2,339,127	2,027,535	311,593	82,000	879
2010	2,622	823	722	1,167	3,059,908	14.2%	433,032	1,756,221	2,189,252	2,082,322	106,930	326,101	835
2011	2,623	680	602	1,155	3,030,464	16.1%	487,702	1,539,584	2,027,286	1,575,584	451,702	36,000	773
2012	2,617	1,056	946	1,144	2,993,297	17.6%	527,349	2,318,652	2,846,001	2,408,911	437,091	90,258	1,088
2013	2,603	1,536	1,389	1,132	2,947,511	18.8%	554,135	3,107,325	3,661,460	3,656,207	5,253	548,882	1,407
2014	2,573	1,267	1,157	1,121	2,884,405	21.2%	611,831	2,392,534	3,004,365	3,016,488	(12,123)	623,954	1,168
2015	2,530	1,082	998	1,110	2,807,839	23.6%	662,018	1,938,080	2,600,098	2,486,479	113,619	548,399	1,028
2016	2,509	968	902	1,099	2,756,687	26.7%	735,272	1,739,743	2,475,015	2,059,543	415,472	319,800	986
2017	2,489	1,146	1,079	1,088	2,707,366	30.0%	813,033	1,901,855	2,714,889	2,441,873	273,015	540,018	1,091
2018	2,487	1,247	1,186	1,077	2,678,138	34.0%	911,885	2,038,612	2,950,497	2,498,400	452,097	459,788	1,186
2019	2,413	1,329	1,276	1,066	2,572,467	40.3%	1,037,616	1,753,565	2,791,181	2,740,228	50,953	986,663	1,157
2020	2,408	411	399	1,055	2,541,465	47.3%	1,202,860	487,443	1,690,302	782,178	908,124	294,736	702
2021	2,405	737	722	1,045	2,512,916	56.7%	1,424,589	542,419	1,967,008	1,430,238	536,770	887,819	818
2022	2,371	1,308	1,295	1,034	2,452,616	71.4%	1,750,146	1,042,659	2,792,805	1,491,284	1,301,521	448,625	1,178
2023	2,347	1,055	1,055	1,024	2,403,512	92.2%	2,217,158	185,707	2,402,866	890,057	1,512,808	704,350	1,024
TOTAL	40,323				44,658,606		14,102,789	27,339,538	41,442,327	34,588,798	6,853,529	7,249,260	1,028

Pure Premium Selection		Trend =	0.990
3-Year Average	1,024		
5-Year Average	950		
All Year Average	964		
Selected Pure Premium	1,024		

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Closure
Incurred Bornhuetter-Ferguson Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	POLICIES	PROJECTED	TRENDED	DETRENDED	EXPECTED	PERCENT	EXPECTED	INCURRED	INDICATED	PAID	UNPAID	CASE	ULTIMATE
RY	IN FORCE	PURE PREM	PURE PREM	PURE PREM	LOSSES	IBNR	IBNR	LOSSES	ULTIMATE	LOSSES	LOSS	RESERVE	PURE PREM
1994													
1995													
1996													
1997													
1998													
1999													
2000													
2001													
2002													
2003													
2004													
2005													
2006													
2007													
2008	2,664	1,149	988	1,191	3,172,046	3.8%	120,495	3,001,472	3,121,967	2,649,605	472,362	351,867	1,172
2009	2,662	820	712	1,179	3,137,968	5.3%	165,363	2,027,535	2,192,897	1,945,535	247,363	82,000	824
2010	2,622	823	722	1,167	3,059,908	6.7%	205,282	2,082,322	2,287,604	1,756,221	531,384	326,101	872
2011	2,623	680	602	1,155	3,030,464	8.9%	270,422	1,575,584	1,846,006	1,539,584	306,422	36,000	704
2012	2,617	1,056	946	1,144	2,993,297	11.2%	335,578	2,408,911	2,744,489	2,318,652	425,836	90,258	1,049
2013	2,603	1,536	1,389	1,132	2,947,511	12.3%	363,005	3,656,207	4,019,212	3,107,325	911,887	548,882	1,544
2014	2,573	1,267	1,157	1,121	2,884,405	13.4%	385,070	3,016,488	3,401,558	2,392,534	1,009,025	623,954	1,322
2015	2,530	1,082	998	1,110	2,807,839	15.3%	430,537	2,486,479	2,917,016	1,938,080	978,936	548,399	1,153
2016	2,509	968	902	1,099	2,756,687	17.1%	472,071	2,059,543	2,531,614	1,739,743	791,871	319,800	1,009
2017	2,489	1,146	1,079	1,088	2,707,366	18.3%	494,999	2,441,873	2,936,872	1,901,855	1,035,017	540,018	1,180
2018	2,487	1,247	1,186	1,077	2,678,138	19.7%	527,745	2,498,400	3,026,145	2,038,612	987,533	459,788	1,217
2019	2,413	1,329	1,276	1,066	2,572,467	21.1%	543,246	2,740,228	3,283,473	1,753,565	1,529,908	986,663	1,361
2020	2,408	411	399	1,055	2,541,465	25.9%	657,317	782,178	1,439,495	487,443	952,052	294,736	598
2021	2,405	737	722	1,045	2,512,916	32.3%	812,825	1,430,238	2,243,062	542,419	1,700,644	887,819	933
2022	2,371	1,308	1,295	1,034	2,452,616	41.8%	1,024,530	1,491,284	2,515,814	1,042,659	1,473,155	448,625	1,061
2023	2,347	1,055	1,055	1,024	2,403,512	65.2%	1,567,396	890,057	2,457,454	185,707	2,271,746	704,350	1,047
TOTAL	40,323				44,658,606		8,375,879	34,588,798	42,964,678	27,339,538	15,625,140	7,249,260	1,066

Pure Premium Selection		Trend =	0.990
3-Year Average	1,024		
5-Year Average	950		
All Year Average	964		
Selected Pure Premium	1,024		

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Other
Summary of Paid Development Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	PAID LDM	PAID	INCURRED	CASE	IBNR	UNPAID
RY	ULTIMATE	LOSS	LOSS	RESERVE	RESERVE	LOSS
1994	3,503,101	3,325,762	3,503,101	177,339	-	177,339
1995	3,093,591	2,893,591	3,093,591	200,000	-	200,000
1996	2,547,508	2,236,594	2,547,508	310,915	-	310,915
1997	3,886,235	3,678,448	3,713,448	35,000	172,788	207,788
1998	3,005,904	2,593,088	3,005,904	412,816	-	412,816
1999	2,722,748	2,722,748	2,722,748	-	-	-
2000	4,433,658	4,169,938	4,365,025	195,087	68,633	263,720
2001	1,100,055	1,026,602	1,055,182	28,580	44,873	73,452
2002	4,617,103	4,266,556	4,543,316	276,760	73,788	350,547
2003	3,514,265	3,021,286	3,514,265	492,980	-	492,980
2004	4,848,364	4,357,924	4,512,461	154,537	335,903	490,440
2005	2,250,311	1,986,936	2,116,804	129,867	133,507	263,375
2006	3,305,070	2,862,716	2,980,385	117,669	324,685	442,355
2007	977,453	826,373	849,275	22,902	128,178	151,080
2008	2,528,349	2,082,101	2,138,633	56,532	389,716	446,248
2009	943,108	943,108	943,108	-	-	-
2010	223,439	223,439	223,439	-	-	-
2011	2,233,004	1,489,924	2,233,004	743,080	-	743,080
2012	1,177,408	834,910	1,076,501	241,590	100,907	342,497
2013	1,338,739	901,545	998,657	97,112	340,082	437,194
2014	492,142	304,917	354,917	50,000	137,224	187,224
2015	2,890,147	1,660,786	1,933,310	272,524	956,837	1,229,361
2016	1,657,893	893,887	1,083,599	189,713	574,293	764,006
2017	2,015,495	1,022,452	1,295,631	273,179	719,864	993,043
2018	1,042,831	485,126	806,999	321,873	235,833	557,705
2019	2,225,474	865,583	1,430,865	565,282	794,609	1,359,891
2020	719,255	241,893	413,571	171,679	305,683	477,362
2021	276,757	73,580	155,916	82,336	120,841	203,177
2022	-	-	-	-	-	-
2023	1,215,391	43,599	223,100	179,501	992,291	1,171,792
TOTAL	64,784,797	52,035,411	57,834,262	5,798,851	6,950,535	12,749,386

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Other
Development of Losses to Ultimate

Development Period in Months

RY	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-228	228-240	240-252	252-264	264-276	276-288	288-300	300-312	312-324	324-336	336-348	348-360	360-ULT
1994		1.566	2.122	1.438	1.840	1.224	1.340	1.256	1.374	1.033	1.027	1.066	1.045	1.062	1.057	1.055	1.027	1.035	1.030	1.016	1.043	1.010	1.020	1.018	1.006	1.004	1.004	1.009	1.135	1.052
1995	3.760	1.734	1.593	1.161	1.131	1.269	1.382	1.086	1.093	1.276	1.062	1.051	1.033	1.037	1.032	1.021	1.022	1.024	1.014	1.015	1.001	1.012	1.007	1.007	1.000	1.004	1.003	1.000	1.000	1.052
1996		2.391	4.177	1.897	1.678	1.269	1.332	1.060	1.130	1.071	1.029	1.053	1.054	1.140	1.002	1.054	1.034	1.094	1.043	1.081	1.007	1.000	1.017	1.000	1.004	1.009	1.007	1.000	1.000	1.052
1997	520.511	1.681	1.601	1.318	1.251	1.227	1.559	1.139	1.061	1.178	1.027	1.023	1.046	1.081	1.029	1.026	1.015	1.005	1.008	1.010	1.009	1.012	1.002	1.000	1.000	1.000	1.004	1.000	1.000	1.052
1998	18.330	1.363	1.853	1.780	1.198	1.171	1.075	1.059	1.104	1.156	1.118	1.118	1.199	1.046	1.167	1.015	1.092	1.081	1.015	1.038	1.023	1.006	1.002	1.001	1.000	1.003	1.004	1.000	1.000	1.052
1999	3.453	1.116	1.035	1.044	1.071	1.044	1.043	1.153	1.042	1.074	1.049	1.032	1.027	1.020	1.019	1.012	1.004	1.002	1.006	1.012	1.007	1.007	1.000	1.000	1.003	1.004	1.000	1.000	1.000	1.052
2000	8.917	1.206	1.216	1.172	1.090	1.079	1.091	1.076	1.157	1.053	1.017	1.032	1.036	1.009	1.034	1.025	1.024	1.028	1.012	1.097	1.016	1.015	1.010	1.002	1.001	1.003	1.004	1.000	1.000	1.052
2001	1.729	1.108	1.687	1.112	1.158	1.220	1.100	1.171	1.005	1.045	1.023	1.028	1.025	1.010	1.033	1.097	1.051	1.044	1.036	1.015	1.008	1.000	1.008	1.002	1.002	1.003	1.004	1.000	1.000	1.052
2002	3.256	2.453	2.032	1.367	1.642	1.240	1.180	1.126	1.054	1.044	1.077	1.079	1.065	1.072	1.035	1.077	1.032	1.026	1.020	1.005	1.013	1.010	1.008	1.002	1.001	1.003	1.004	1.000	1.000	1.052
2003	3.629	2.485	1.410	1.189	1.228	1.199	1.072	1.100	1.068	1.027	1.049	1.080	1.108	1.059	1.037	1.014	1.019	1.014	1.020	1.003	1.012	1.010	1.008	1.002	1.001	1.003	1.004	1.000	1.000	1.052
2004	6.103	1.809	1.261	1.316	1.260	1.135	1.132	1.107	1.123	1.052	1.041	1.049	1.023	1.044	1.027	1.011	1.015	1.001	1.004	1.016	1.012	1.010	1.008	1.002	1.001	1.003	1.004	1.000	1.000	1.052
2005	5.222	2.259	1.250	1.104	1.109	1.018	1.046	1.033	1.054	1.103	1.033	1.092	1.032	1.053	1.025	1.019	1.016	1.027	1.018	1.016	1.012	1.010	1.008	1.002	1.001	1.003	1.004	1.000	1.000	1.052
2006	100.428	1.629	1.471	1.443	1.147	1.195	1.128	1.059	1.101	1.326	1.291	1.157	1.015	1.007	1.000	1.003	1.012	1.025	1.019	1.018	1.016	1.012	1.010	1.008	1.002	1.001	1.003	1.004	1.000	1.052
2007		1.733	1.075	1.017	1.041	1.044	1.029	1.102	1.029	1.011	1.015	1.033	1.000	1.000	1.006	1.012	1.025	1.019	1.018	1.016	1.012	1.010	1.008	1.002	1.001	1.003	1.004	1.000	1.000	1.052
2008	45.101	1.535	1.328	1.727	1.493	1.274	1.276	1.178	1.118	1.138	1.053	1.049	1.077	1.009	1.010	1.027	1.027	1.025	1.019	1.018	1.016	1.012	1.010	1.008	1.002	1.001	1.003	1.004	1.000	1.052
2009	2.291	1.458	1.263	1.107	1.204	1.079	1.036	1.033	1.004	1.008	1.020	1.000	1.000	1.000	1.027	1.027	1.025	1.019	1.018	1.016	1.012	1.010	1.008	1.002	1.001	1.003	1.004	1.000	1.000	1.052
2010		2.208	2.273	1.135	1.042	1.130	1.052	1.017	1.040	1.000	1.000	1.000	1.000	1.036	1.027	1.027	1.025	1.019	1.018	1.016	1.012	1.010	1.008	1.002	1.001	1.003	1.004	1.000	1.000	1.052
2011	2.002	2.024	1.869	1.704	1.133	1.260	1.127	1.089	1.266	1.256	1.161	1.023	1.039	1.036	1.027	1.027	1.025	1.019	1.018	1.016	1.012	1.010	1.008	1.002	1.001	1.003	1.004	1.000	1.000	1.052
2012	6.056	2.029	1.627	1.289	1.221	1.139	1.025	1.143	1.020	1.041	1.101	1.051	1.039	1.036	1.027	1.027	1.025	1.019	1.018	1.016	1.012	1.010	1.008	1.002	1.001	1.003	1.004	1.000	1.000	1.052
2013		2.029	1.850	2.184	1.178	1.014	1.069	1.032	1.008	1.000	1.053	1.051	1.039	1.036	1.027	1.027	1.025	1.019	1.018	1.016	1.012	1.010	1.008	1.002	1.001	1.003	1.004	1.000	1.000	1.052
2014		3.013	1.147	1.138	1.313	1.128	1.116	1.046	1.013	1.087	1.053	1.051	1.039	1.036	1.027	1.027	1.025	1.019	1.018	1.016	1.012	1.010	1.008	1.002	1.001	1.003	1.004	1.000	1.000	1.052
2015	5.351	1.634	1.133	1.044	1.107	1.042	1.013	1.062	1.078	1.087	1.053	1.051	1.039	1.036	1.027	1.027	1.025	1.019	1.018	1.016	1.012	1.010	1.008	1.002	1.001	1.003	1.004	1.000	1.000	1.052
2016	4.953	1.891	1.395	1.131	1.324	1.102	1.052	1.066	1.078	1.087	1.053	1.051	1.039	1.036	1.027	1.027	1.025	1.019	1.018	1.016	1.012	1.010	1.008	1.002	1.001	1.003	1.004	1.000	1.000	1.052
2017		2.180	1.523	1.277	1.064	1.139	1.063	1.066	1.078	1.087	1.053	1.051	1.039	1.036	1.027	1.027	1.025	1.019	1.018	1.016	1.012	1.010	1.008	1.002	1.001	1.003	1.004	1.000	1.000	1.052
2018	6.785	1.824	1.256	1.116	1.161	1.090	1.063	1.066	1.078	1.087	1.053	1.051	1.039	1.036	1.027	1.027	1.025	1.019	1.018	1.016	1.012	1.010	1.008	1.002	1.001	1.003	1.004	1.000	1.000	1.052
2019	1.510	1.163	1.068	1.077	1.196	1.090	1.063	1.066	1.078	1.087	1.053	1.051	1.039	1.036	1.027	1.027	1.025	1.019	1.018	1.016	1.012	1.010	1.008	1.002	1.001	1.003	1.004	1.000	1.000	1.052
2020		5.505	1.220	1.157	1.196	1.090	1.063	1.066	1.078	1.087	1.053	1.051	1.039	1.036	1.027	1.027	1.025	1.019	1.018	1.016	1.012	1.010	1.008	1.002	1.001	1.003	1.004	1.000	1.000	1.052
2021		1.211	1.265	1.157	1.196	1.090	1.063	1.066	1.078	1.087	1.053	1.051	1.039	1.036	1.027	1.027	1.025	1.019	1.018	1.016	1.012	1.010	1.008	1.002	1.001	1.003	1.004	1.000	1.000	1.052
2022		1.828	1.265	1.157	1.196	1.090	1.063	1.066	1.078	1.087	1.053	1.051	1.039	1.036	1.027	1.027	1.025	1.019	1.018	1.016	1.012	1.010	1.008	1.002	1.001	1.003	1.004	1.000	1.000	1.052
2023	4.054	1.828	1.265	1.157	1.196	1.090	1.063	1.066	1.078	1.087	1.053	1.051	1.039	1.036	1.027	1.027	1.025	1.019	1.018	1.016	1.012	1.010	1.008	1.002	1.001	1.003	1.004	1.000	1.000	1.052

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312	324	336	348	360	ULT
1994		67,556	105,762	224,445	322,720	593,891	727,102	973,960	1,223,383	1,680,534	1,736,151	1,783,144	1,901,121	1,985,974	2,108,783	2,229,646	2,353,177	2,416,592	2,500,825	2,575,464	2,617,719	2,729,017	2,757,576	2,813,689	2,862,976	2,879,778	2,892,953	2,904,608	2,930,701	3,325,762	3,498,694
1995	57,146	214,861	372,610	593,564	689,047	779,151	988,375	1,365,685	1,483,319	1,621,206	2,068,109	2,195,718	2,307,489	2,384,650	2,474,037	2,554,120	2,607,829	2,663,932	2,728,277	2,767,464	2,808,933	2,811,884	2,845,490	2,864,027	2,884,276	2,884,276	2,893,591	2,893,591	2,893,591	3,044,051
1996		17,700	42,316	176,760	335,328	562,825	713,987	950,907	1,008,006	1,138,950	1,219,963	1,255,045	1,321,564	1,392,644	1,587,262	1,590,384	1,676,801	1,734,357	1,897,262	1,979,584	2,139,915	2,154,274	2,154,274	2,220,428	2,236,594	2,236,594	2,236,594	2,236,594	2,236,594	2,352,891
1997	439	228,598	384,266	615,310	810,739	1,014,623	1,245,366	1,941,775	2,211,344	2,345,205	2,763,348	2,836,923	2,901,679	3,033,730	3,280,943	3,376,266	3,462,906	3,516,084	3,532,892	3,559,664	3,594,408	3,626,458	3,669,572	3,678,448	3,678,448	3,678,448	3,678,448	3,678,448	3,886,235	
1998	6,465	118,511	161,556	299,311	532,819	638,505	747,760	804,023	851,858	940,596	1,087,209	1,215,530	1,359,258	1,629,754	1,704,629	1,989,855	2,018,841	2,204,678	2,382,158	2,418,884	2,510,541	2,568,757	2,584,769	2,590,454	2,593,088	2,593,088	2,601,658	2,612,762	2,612,762	2,612,762	2,748,620
1999	357,471	1,234,237	1,376,895	1,425,317	1,488,590	1,594,064	1,663,943	1,736,098	2,001,842	2,085,194	2,238,708	2,349,101	2,424,075	2,490,058	2,539,119	2,586,804	2,618,422	2,627,746	2,634,286	2,650,903	2,683,553	2,702,953	2,722,748	2,722,748	2,725,620	2,734,628	2,746,300	2,746,300	2,746,300	2,889,102
2000	114,187	1,018,212	1,227,935	1,493,269	1,750,358	1,908,405	2,059,006	2,247,037	2,418,072	2,797,305	2,945,750	2,995,139	3,091,814	3,203,887	3,233,491	3,344,627	3,426,721	3,508,911	3,605,836	3,649,865	4,003,655	4,067,021	4,126,675	4,169,938	4,178,369	4,182,777	4,196,601	4,214,513	4,214,513	4,214,513	4,433,658
2001	104,196	180,134	199,654	336,731	374,550	433,710	529,272	581,958	681,517	684,727	715,780	732,297	752,978	771,454	779,324	805,227	883,218	928,198	968,904	1,003,341	1,018,271	1,026,602	1,034,622	1,036,713	1,037,807	1,041,237	1,045,681	1,045,681	1,045,681	1,100,055
2002	39,750	129,433	317,549	645,166	881,959	1,448,299	1,795,420	2,119,144	2,385,722	2,515,613	2,626,157	2,827,608	3,051,616	3,249,469	3,483,473	3,604,079	3,881,563	4,004,641	4,106,762	4,189,494	4,210,452	4,266,556	4,308,812	4,342,472	4,351,251	4,355,842	4,370,238	4,388,891	4,388,891	4,617,103
2003	70,930	257,387	639,714	902,054	1,072,965	1,317,164	1,579,451	1,692,868	1,861,811	1,989,247	2,043,300	2,143,512	2,315,479	2,565,592	2,717,089	2,817,658	2,856,078	2,910,296	2,950,945	3,011,404	3,021,286	3,057,272	3,087,552	3,111,671	3,117,962	3,121,252	3,131,567	3,144,933	3,144,933	3,308,463
2004	90,918	554,838	1,003,934	1,265,633	1,665,587	2,099,306	2,382,002	2,697,142	2,987,009	3,355,323	3,528,803	3,673,274	3,851,449	3,939,069	4,112,757	4,223,202	4,271,607	4,334,593	4,338,651	4,357,924	4,427,522	4,480,259	4,524,632	4,559,977	4,569,196	4,574,017	4,589,134	4,608,721	4,608,721	4,848,364
2005	64,509	336,850	760,805	951,148	1,049,818	1,164,238	1,184,748	1,238,896	1,279,491	1,348,838	1,487,208	1,535,671	1,677,117	1,731,576	1,823,327	1,868,233	1,903,410	1,933,923	1,986,936	2,022,679	2,054,982	2,079,459	2,100,054	2,116,459	2,120,738	2,122,976	2,129,992	2,139,083	2,139,083	2,250,311
2006	2,233	224,299	365,337	537,313	775,151	888,935	1,062,080	1,197,945	1,268,221	1,395,888	1,851,282	2,389,601	2,764,255	2,804,645	2,823,843	2,824,736	2,833,223	2,862,716	2,918,248	2,970,743	3,018,187	3,054,137	3,084,386	3,108,480	3,114,765	3,118,051	3,128,356	3,141,708	3,141,708	3,305,070
2007	7,065	318,642	552,262	593,816	603,938	628,469	656,318	675,212	744,229	765,632	774,413	785,680	811,327	811,327	811,327	816,275	826,373	846,630	863,053	878,578	892,609	903,241	912,187	919,313	921,172	922,143	925,191	929,140	929,140	977,453
2008		134,080	205,854	273,370	472,091	704,738	898,168	1,146,107	1,350,478	1,510,195	1,717,896	1,809,564	1,898,415	2,044,361	2,062,340	2,082,101	2,137,555	2,189,951	2,232,433	2,272,591	2,308,886	2,336,387	2,359,527	2,377,959	2,382,766	2,385,281	2,393,164	2,403,378	2,403,378	2,528,349
2009	140,844	322,681	470,506	594,291	657,716	792,191	854,383	884,880	913,849	917,398	924,493	943,108	943,108	943,108	943,108	968,210	993,997	1,018,362	1,038,117	1,056,791	1,073,669	1,086,457	1,097,218	1,105,789	1,108,024	1,109,193	1,112,859	1,117,609	1,117,609	1,175,722
2010		29,916	66,069	150,177	170,474	177,574	200,650	211,147	214,795	223,439	223,439	223,439	223,439	223,439	231,573	237,737	244,069	250,051	254,902	259,487	263,631	266,771	269,414	271,518	272,067	272,354	273,254	274,421	274,421	288,690
2011	34,886	69,855	141,373	264,278	450,244	510,173	642,965	724,726	789,478	999,155	1,254,601	1,456,728	1,489,924	1,548,024	1,604,381	1,647,083	1,690,951	1,732,400	1,766,006	1,797,774	1,826,485	1,848,241	1,866,546	1,881,127	1,884,930	1,886,919	1,893,155	1,901,236	1,901,236	2,000,096
2012	17,882	108,288	209,139	340,184	438,523	535,264	609,736	624,675	714,076	728,666	758,294	834,910	877,082	911,284	944,460	969,598	995,422	1,019,822	1,039,605	1,058,306	1,075,208	1,088,015	1,098,790	1,107,374	1,109,613	1,110,783	1,114,454	1,119,211	1,119,211	1,177,408
2013		82,788	168,015	310,824	678,846	799,890	810,824	866,715	894,386	901,545	901,545	949,312	997,262	1,036,151	1,073,872	1,102,455	1,131,817	1,159,560	1,182,054	1,203,318	1,222,535	1,237,097	1,249,349	1,259,109	1,261,654	1,262,986	1,267,160	1,272,568	1,272,568	1,338,739
2014		44,273	133,385	153,017	174,091	228,658	257,829	287,806	301,110	304,917	331,422	348,982	366,609	380,906	394,773	405,280	416,074	426,273	434,542	442,359	449,423	454,777	459,281	462,868	463,804	464,294	465,828	467,816	467,816	492,142
2015	129,482	692,863	1,132,035	1,282,058	1,339,001	1,482,178	1,544,354	1,564,169	1,660,786	1,790,655	1,946,308	2,049,429	2,152,946	2,236,902	2,318,398	2,380,245	2,443,432	2,503,326	2,551,886	2,597,792	2,639,280	2,670,716	2,697,167	2,718,237	2,723,732	2,726,606	2,735,618	2,747,294	2,747,294	2,890,147
2016	39,426	195,261	369,308	515,059	582,529	770,994	849,586	893,887	952,687	1,027,184	1,116,473	1,175,627	1,235,008	1,283,168	1,329,883	1,365,279	1,401,641	1,435,998	1,463,854	1,490,187	1,513,986	1,532,020	1,547,193	1,559,279	1,562,431	1,564,080	1,569,249	1,575,947	1,575,947	1,657,893
2017		199,097	434,059	660,895	843,710	897,982	1,022,452	1,086,695	1,158,178	1,248,745	1,357,292	1,429,206	1,501,395	1,559,943	1,616,734	1,659,765	1,703,971	1,745,739	1,779,603	1,811,616	1,840,548	1,862,471	1,880,917	1,895,611	1,899,443	1,901,447	1,907,731	1,915,874	1,915,874	2,015,495
2018	24,088	163,397	298,091	374,370	417,839	485,126	529,024	562,264	599,250	646,109	702,272	739,481	776,832	807,125	836,509	858,774	881,646	903,257	920,779	937,343	952,312	963,656	973,200	980,802	982,785	983,822	987,079	991,286	991,286	1,042,831
2019	428,443	647,159	752,622	804,016	865,583	1,035,292	1,128,973	1,199,909	1,278,840	1,378,842	1,498,698	1,578,103	1,657,814	1,722,461	1,785,169	1,832,683	1,881,494	1,927,613	1,965,006	2,000,354	2,032,306	2,056,507	2,076,875	2,093,099	2,097,331	2,099,544	2,106,483	2,115,474	2,115,474	2,225,474
2020		36,025	198,330	241,893	279,749	334,598	364,875	387,801	413,311	445,630	484,367	510,030	535,792	556,685	576,952	592,308	608,083	622,989	635,074	646,498	656,823	664,646	671,229	676,473	677,840	678,555	680,798	683,704	683,704	719,255
2021		60,751	73,580	93,076	107,643	128,748	140,398	149,219	159,035	171,471	186,376	196,251	206,164	214,203	222,001	227,910	233,980	239,715	244,366	248,761	252,734	255,745	258,277	260,295	260,821	261,096	261,959	263,077	263,077	276,757
2022																														
2023	43,599	176,767	323,129	408,749	472,718	565,401	616,563	655,303	698,409	753,023	818,479	861,845	905,377	940,683	974,929	1,000,878	1,027,535	1,052,722	1,073,143	1,092,447	1,109,894	1,123,114	1,134,238	1,143,098	1,145,409	1,146,618	1,150,407	1,155,317	1,155,317	1,215,391

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Other
Selection of Loss Development Factors

Development Period in Months

RY	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - 276	276 - 288	288 - 300	300 - 312	312 - 324	324 - 336	336 - 348	348 - 360	TAIL
1994		1.566	2.122	1.438	1.840	1.224	1.340	1.256	1.374	1.033	1.027	1.066	1.045	1.062	1.057	1.055	1.027	1.035	1.030	1.016	1.043	1.010	1.020	1.018	1.006	1.004	1.004	1.009	1.135	
1995	3.760	1.734	1.593	1.161	1.131	1.269	1.382	1.086	1.093	1.276	1.062	1.051	1.033	1.037	1.032	1.021	1.022	1.024	1.014	1.015	1.001	1.012	1.007	1.007	1.000	1.003	1.000			
1996		2.391	4.177	1.897	1.678	1.269	1.332	1.060	1.130	1.071	1.029	1.053	1.054	1.140	1.002	1.054	1.034	1.094	1.043	1.081	1.007	1.000	1.017	1.000	1.004	1.009	1.007			
1997	520.511	1.681	1.601	1.318	1.251	1.227	1.559	1.139	1.061	1.178	1.027	1.023	1.046	1.081	1.029	1.026	1.015	1.005	1.008	1.010	1.009	1.012	1.002	1.000	1.000	1.000				
1998	18.330	1.363	1.853	1.780	1.198	1.171	1.075	1.059	1.104	1.156	1.118	1.118	1.199	1.046	1.167	1.015	1.092	1.081	1.015	1.038	1.023	1.006	1.002	1.001	1.000					
1999	3.453	1.116	1.035	1.044	1.071	1.044	1.043	1.153	1.076	1.042	1.074	1.049	1.032	1.027	1.020	1.019	1.012	1.024	1.025	1.024	1.028	1.012	1.097	1.016						
2000	8.917	1.206	1.216	1.172	1.090	1.079	1.091	1.157	1.053	1.017	1.032	1.036	1.009	1.034	1.025	1.024	1.028	1.012	1.097	1.016	1.015	1.008	1.000							
2001	1.729	1.108	1.687	1.112	1.158	1.220	1.100	1.171	1.005	1.045	1.023	1.028	1.025	1.010	1.033	1.097	1.051	1.044	1.036	1.015	1.008	1.000								
2002	3.256	2.453	2.032	1.367	1.642	1.240	1.180	1.126	1.054	1.044	1.077	1.079	1.065	1.072	1.035	1.077	1.032	1.026	1.020	1.005	1.013									
2003	3.629	2.485	1.410	1.189	1.228	1.199	1.072	1.100	1.068	1.027	1.049	1.080	1.108	1.059	1.037	1.014	1.019	1.014	1.020	1.003										
2004	6.103	1.809	1.261	1.316	1.260	1.135	1.132	1.107	1.123	1.052	1.041	1.049	1.023	1.044	1.027	1.011	1.015	1.001	1.004											
2005	5.222	2.259	1.250	1.104	1.109	1.018	1.046	1.033	1.054	1.103	1.033	1.092	1.032	1.053	1.025	1.019	1.016	1.027												
2006	100.428	1.629	1.471	1.443	1.147	1.195	1.128	1.059	1.101	1.326	1.291	1.157	1.015	1.007	1.000	1.003	1.010													
2007	45.101	1.733	1.075	1.017	1.041	1.044	1.029	1.102	1.029	1.011	1.015	1.033	1.000	1.000	1.006	1.012														
2008		1.535	1.328	1.727	1.493	1.274	1.276	1.178	1.118	1.138	1.053	1.049	1.077	1.009	1.010															
2009	2.291	1.458	1.263	1.107	1.204	1.079	1.036	1.033	1.004	1.008	1.020	1.000	1.000	1.000																
2010		2.208	2.273	1.135	1.042	1.130	1.052	1.017	1.040	1.000	1.000	1.000	1.000																	
2011	2.002	2.024	1.869	1.704	1.133	1.260	1.127	1.089	1.266	1.256	1.161	1.023																		
2012	6.056	1.931	1.627	1.289	1.221	1.139	1.025	1.143	1.020	1.041	1.101																			
2013		2.029	1.850	2.184	1.178	1.014	1.069	1.032	1.008	1.000																				
2014		3.013	1.147	1.138	1.313	1.128	1.116	1.046	1.013																					
2015	5.351	1.634	1.133	1.044	1.107	1.042	1.013	1.062																						
2016	4.953	1.891	1.395	1.131	1.324	1.102	1.052																							
2017		2.180	1.523	1.277	1.064	1.139																								
2018	6.785	1.824	1.256	1.116	1.161																									
2019	1.510	1.163	1.068	1.077																										
2020		5.505	1.220																											
2021		1.211																												
2022																														
VOL WTD 3	NA	1.377	1.137	1.157	1.168	1.084	1.035	1.051	1.013	1.108	1.125	1.013	1.048	1.005	1.004	1.010	1.014	1.011	1.014	1.006	1.014	1.010	1.005	1.000	1.001	1.003	1.004	1.005	1.135	
VOL WTD 5	2.005	1.588	1.265	1.113	1.151	1.073	1.040	1.072	1.084	1.077	1.080	1.028	1.028	1.015	1.016	1.011	1.019	1.017	1.015	1.030	1.014	1.010	1.006	1.002	1.002	1.004	1.004	1.005	1.135	
VOL WTD ALL	4.054	1.582	1.325	1.232	1.209	1.139	1.143	1.102	1.097	1.098	1.063	1.058	1.048	1.043	1.033	1.029	1.025	1.026	1.016	1.029	1.014	1.009	1.008	1.004	1.002	1.004	1.004	1.005	1.135	
ARITH 3	NA	2.626	1.181	1.156	1.183	1.094	1.060	1.047	1.014	1.099	1.087	1.008	1.026	1.003	1.005	1.011	1.014	1.014	1.015	1.008	1.012	1.007	1.004	1.000	1.001	1.004	1.004	1.004	1.135	
ARITH 5	4.148	2.377	1.292	1.129	1.194	1.085	1.055	1.074	1.069	1.061	1.067	1.021	1.018	1.014	1.013	1.012	1.018	1.022	1.019	1.026	1.014	1.008	1.007	1.002	1.002	1.004	1.004	1.004	1.135	
ARITH ALL	39.441	1.934	1.583	1.319	1.243	1.152	1.142	1.097	1.089	1.095	1.063	1.054	1.046	1.041	1.034	1.031	1.028	1.032	1.019	1.029	1.014	1.008	1.008	1.004	1.002	1.002	1.004	1.004	1.135	
5 YR HI LO	NA	1.739	1.290	1.108	1.194	1.090	1.049	1.066	1.024	1.016	1.058	1.018	1.005	1.005	1.013	1.012	1.017	1.022	1.018	1.011	1.012	1.008	1.005	1.000	1.001	1.004	1.004	NA	NA	
7 YR HI LO	4.953	1.748	1.230	1.148	1.196	1.110	1.063	1.052	1.040	1.039	1.070	1.039	1.014	1.023	1.020	1.027	1.021	1.019	1.015	1.016	1.011	1.007	1.008	1.002	1.001	1.004	1.004	NA	NA	
ALL YR HI LO	13.374	1.828	1.501	1.295	1.226	1.152	1.129	1.093	1.078	1.087	1.053	1.051	1.039	1.036	1.027	1.028	1.024	1.029	1.018	1.024	1.012	1.008	1.008	1.002	1.001	1.004	1.004	NA	NA	
SELECTED	4.054	1.828	1.265	1.157	1.196	1.090	1.063	1.066	1.078	1.087	1.053	1.051	1.039	1.036	1.027	1.027	1.025	1.019	1.018	1.016	1.012	1.010	1.008	1.002	1.001	1.003	1.004	1.000	1.000	1.052

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Other
Paid Losses

Development in Months

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312	324	336	348	360
1994	-	67,556	105,762	224,445	322,720	593,891	727,102	973,960	1,223,383	1,680,534	1,736,151	1,783,144	1,901,121	1,985,974	2,108,783	2,229,646	2,353,177	2,416,592	2,500,825	2,575,464	2,617,719	2,729,017	2,757,576	2,813,689	2,862,976	2,879,778	2,892,263	2,904,608	2,930,701	3,325,762
1995	57,146	214,861	372,610	593,564	689,047	779,151	988,375	1,365,685	1,483,319	1,621,206	2,068,109	2,195,718	2,307,489	2,384,650	2,474,037	2,554,120	2,607,829	2,663,932	2,728,277	2,767,464	2,808,933	2,811,884	2,845,490	2,864,027	2,884,276	2,884,276	2,893,591	2,893,591	2,893,591	
1996	-	17,700	42,316	176,760	335,328	562,825	713,987	950,907	1,008,006	1,138,950	1,219,963	1,255,045	1,321,564	1,392,644	1,587,262	1,590,384	1,676,801	1,734,357	1,897,262	1,979,584	2,139,915	2,154,274	2,154,274	2,191,849	2,191,849	2,200,780	2,220,428	2,236,594		
1997	439	228,598	384,266	615,310	810,739	1,014,623	1,245,366	1,941,775	2,211,344	2,345,205	2,763,348	2,836,923	2,901,679	3,033,730	3,280,943	3,376,266	3,462,906	3,516,084	3,532,892	3,559,664	3,594,408	3,626,458	3,669,572	3,678,448	3,678,448	3,678,448	3,678,448			
1998	6,465	118,511	161,556	299,311	532,819	638,505	747,760	804,023	851,858	940,596	1,087,299	1,215,530	1,359,258	1,629,754	1,704,629	1,989,855	2,018,841	2,204,678	2,382,158	2,418,884	2,510,541	2,568,757	2,584,769	2,590,454	2,593,088					
1999	357,471	1,234,237	1,376,895	1,425,317	1,488,590	1,594,064	1,663,943	1,736,098	2,001,842	2,085,194	2,238,708	2,349,101	2,424,075	2,490,058	2,539,119	2,586,804	2,618,422	2,627,746	2,634,286	2,650,903	2,683,553	2,702,953	2,722,748	2,722,748	2,722,748					
2000	114,187	1,018,212	1,227,935	1,493,269	1,750,358	1,908,405	2,059,006	2,247,037	2,418,072	2,797,305	2,945,750	2,995,139	3,091,814	3,203,887	3,233,491	3,344,627	3,426,721	3,508,911	3,605,836	3,649,865	4,003,655	4,067,021	4,126,675	4,169,938						
2001	104,196	180,134	199,654	336,731	374,550	433,710	529,272	581,958	681,517	684,727	715,780	732,297	752,978	771,454	779,324	805,227	883,218	928,198	968,904	1,003,341	1,018,271	1,026,602	1,026,602							
2002	39,750	129,433	317,549	645,166	881,959	1,448,299	1,795,420	2,119,144	2,385,722	2,515,613	2,626,157	2,827,608	3,051,616	3,249,469	3,483,473	3,604,479	3,881,563	4,004,641	4,106,762	4,189,494	4,210,452	4,266,556								
2003	70,930	257,387	639,714	902,054	1,072,965	1,317,164	1,579,451	1,692,868	1,861,811	1,989,247	2,043,300	2,143,512	2,315,479	2,565,592	2,717,089	2,817,658	2,856,078	2,910,296	2,950,945	3,011,404	3,021,286									
2004	90,918	554,838	1,003,934	1,265,633	1,665,587	2,099,306	2,382,002	2,697,142	2,987,009	3,355,323	3,528,803	3,673,274	3,851,449	3,939,069	4,112,757	4,223,202	4,271,607	4,334,593	4,338,651	4,357,924										
2005	64,509	336,850	760,805	951,148	1,049,818	1,164,238	1,184,748	1,238,896	1,279,491	1,348,838	1,487,208	1,535,671	1,677,117	1,731,576	1,823,327	1,868,233	1,903,410	1,933,923	1,986,936											
2006	2,233	224,299	365,337	537,313	775,151	888,935	1,062,080	1,197,945	1,268,221	1,395,888	1,851,282	2,389,601	2,764,255	2,804,645	2,823,843	2,824,736	2,833,223	2,862,716												
2007	7,065	318,642	552,262	593,816	603,938	628,469	656,318	675,212	744,229	765,632	774,413	785,680	811,327	811,327	811,327	816,275	826,373													
2008	-	134,080	205,854	273,370	472,091	704,738	898,168	1,146,107	1,350,478	1,510,195	1,717,896	1,809,564	1,898,415	2,044,361	2,062,340	2,082,101														
2009	140,848	322,681	470,506	594,291	657,716	792,191	854,383	884,880	913,849	917,398	924,493	943,108	943,108	943,108	943,108															
2010	-	29,916	66,069	150,177	170,474	177,574	200,650	211,147	214,795	223,439	223,439	223,439	223,439																	
2011	34,886	69,855	141,373	264,278	450,244	510,173	642,965	724,726	789,478	999,155	1,254,601	1,456,728	1,489,924																	
2012	17,882	108,288	209,139	340,184	438,523	535,264	609,736	624,675	714,076	728,666	758,294	834,910																		
2013	-	82,788	168,015	310,824	678,846	799,890	810,824	866,715	894,386	901,545	901,545																			
2014	-	44,273	133,385	153,017	174,091	228,658	257,829	287,806	301,110	304,917																				
2015	129,482	692,863	1,132,035	1,282,058	1,339,001	1,482,178	1,544,354	1,564,169	1,660,786																					
2016	39,426	195,261	369,308	515,059	582,529	770,994	849,586	893,887																						
2017	-	199,097	434,059	660,895	843,710	897,982	1,022,452																							
2018	24,083	163,397	298,091	374,370	417,839	485,126																								
2019	428,443	647,159	752,622	804,016	865,583																									
2020	-	36,025	198,330	241,893																										
2021	-	60,751	73,580																											
2022	-	-																												
2023	43,599																													

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Other
Summary of Incurred Development Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	INC LDM	PAID	INCURRED	CASE	IBNR	UNPAID
RY	ULTIMATE	LOSS	LOSS	RESERVE	RESERVE	LOSS
1994	3,503,101	3,325,762	3,503,101	177,339	-	177,339
1995	3,093,591	2,893,591	3,093,591	200,000	-	200,000
1996	2,547,508	2,236,594	2,547,508	310,915	-	310,915
1997	3,713,448	3,678,448	3,713,448	35,000	-	35,000
1998	3,005,904	2,593,088	3,005,904	412,816	-	412,816
1999	2,722,748	2,722,748	2,722,748	-	-	-
2000	4,365,025	4,169,938	4,365,025	195,087	-	195,087
2001	1,055,182	1,026,602	1,055,182	28,580	-	28,580
2002	4,565,188	4,266,556	4,543,316	276,760	21,873	298,632
2003	3,552,440	3,021,286	3,514,265	492,980	38,175	531,155
2004	4,630,367	4,357,924	4,512,461	154,537	117,906	272,443
2005	2,211,941	1,986,936	2,116,804	129,867	95,137	225,005
2006	3,138,809	2,862,716	2,980,385	117,669	158,424	276,093
2007	901,197	826,373	849,275	22,902	51,922	74,824
2008	2,308,863	2,082,101	2,138,633	56,532	170,230	226,762
2009	1,028,381	943,108	943,108	-	85,273	85,273
2010	244,567	223,439	223,439	-	21,128	21,128
2011	2,457,748	1,489,924	2,233,004	743,080	224,744	967,824
2012	1,194,949	834,910	1,076,501	241,590	118,448	360,039
2013	1,131,818	901,545	998,657	97,112	133,161	230,273
2014	415,200	304,917	354,917	50,000	60,283	110,283
2015	2,306,400	1,660,786	1,933,310	272,524	373,090	645,614
2016	1,358,122	893,887	1,083,599	189,713	274,522	464,235
2017	1,743,102	1,022,452	1,295,631	273,179	447,471	720,650
2018	1,169,709	485,126	806,999	321,873	362,710	684,583
2019	2,211,792	865,583	1,430,865	565,282	780,928	1,346,209
2020	701,364	241,893	413,571	171,679	287,792	459,471
2021	288,826	73,580	155,916	82,336	132,910	215,246
2022	-					-
2023	879,816	43,599	223,100	179,501	656,716	836,217
TOTAL	62,447,104	52,035,411	57,834,262	5,798,851	4,612,843	10,411,693

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Other
Development of Losses to Ultimate

Development Period in Months

RY	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - 276	276 - 288	288 - 300	300 - 312	312 - 324	324 - 336	336 - 348	348 - 360	360 - ULT
1994	15.451	1.018	1.063	1.379	1.386	1.238	0.981	1.166	1.020	0.997	0.872	1.009	1.044	0.997	1.047	0.992	1.021	1.045	1.023	1.052	1.008	0.962	1.000	1.000	1.000	1.000	1.138	1.004	1.013	1.000
1995	1.245	0.927	1.155	0.988	1.043	1.069	1.204	0.975	1.001	1.145	0.992	1.010	1.043	0.997	1.033	1.005	1.012	0.983	1.008	1.000	1.002	1.012	1.000	1.001	1.000	1.060	1.000	1.070	1.000	1.000
1996	0.783	1.411	1.368	1.380	1.056	1.117	1.105	1.027	1.010	0.884	0.936	1.043	1.017	1.103	1.016	1.097	0.999	1.028	1.181	1.000	1.000	1.015	1.000	1.000	1.070	1.000	1.000	1.000	1.000	1.000
1997	1.860	1.230	1.198	1.413	1.137	1.171	1.111	1.037	1.003	1.089	1.016	0.971	1.034	1.005	1.005	1.002	1.014	1.002	1.001	0.997	1.003	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1998	1.032	0.989	1.073	1.294	1.108	1.049	1.241	1.024	1.091	0.997	1.032	0.982	1.077	1.312	1.061	1.018	1.079	1.017	1.023	1.000	1.002	1.010	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1999	1.034	1.090	1.052	1.039	1.011	0.999	1.185	1.022	1.029	1.061	1.028	0.999	0.956	1.005	0.996	0.999	0.997	1.000	1.000	0.991	1.000	0.999	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2000	1.255	1.096	1.119	1.055	1.021	1.029	1.063	1.049	1.044	1.051	1.024	1.025	1.000	1.014	0.998	1.028	1.002	0.979	0.998	1.085	1.018	1.040	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2001	0.974	0.874	1.046	1.005	1.062	1.075	0.986	1.015	0.991	1.000	1.020	1.034	1.000	1.109	1.000	1.000	1.035	1.000	0.953	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2002	1.015	1.073	0.969	1.211	1.074	1.037	1.026	1.103	1.039	1.026	1.089	1.034	1.015	1.024	1.015	1.041	1.001	1.015	1.000	1.000	1.003	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2003	0.931	1.129	1.067	0.881	1.164	1.048	1.003	1.017	0.993	1.093	1.063	1.007	0.996	1.012	1.024	0.999	1.003	1.009	1.033	1.045	1.006	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2004	0.775	1.030	1.089	1.071	1.138	1.004	1.096	1.069	1.092	1.005	1.022	0.997	1.008	1.025	1.007	1.036	0.999	1.000	1.015	1.006	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2005	1.822	1.024	1.042	0.960	0.988	1.032	1.023	1.000	1.013	1.029	1.038	1.054	1.034	1.001	1.052	0.997	1.008	1.018	1.018	1.015	1.006	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2006	1.152	1.011	1.056	1.179	0.992	1.005	1.068	1.082	1.148	1.060	1.015	1.002	0.998	1.006	0.970	1.016	1.000	1.008	1.018	1.015	1.006	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2007	0.859	0.861	0.898	1.026	1.003	1.019	1.041	1.139	1.000	1.000	1.000	0.963	1.000	1.000	1.000	1.016	1.008	1.008	1.018	1.015	1.006	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2008	1.310	1.076	1.062	1.284	1.133	1.178	1.124	1.113	1.056	1.015	1.013	1.016	1.009	1.000	1.004	1.017	1.008	1.008	1.018	1.015	1.006	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2009	0.838	0.960	1.065	1.041	1.068	1.009	0.984	0.981	1.000	1.011	0.996	1.000	1.000	1.000	1.010	1.017	1.008	1.008	1.018	1.015	1.006	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2010	1.292	1.275	1.339	1.000	1.000	1.038	1.037	0.947	0.994	1.000	1.000	1.000	1.004	1.010	1.017	1.008	1.008	1.008	1.018	1.015	1.006	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2011	1.186	0.941	2.132	1.086	1.074	1.630	0.747	1.074	1.007	1.246	1.000	1.107	1.006	1.004	1.010	1.017	1.008	1.008	1.018	1.015	1.006	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2012	1.319	1.158	1.159	1.093	1.463	0.990	1.158	1.000	1.000	1.000	1.055	1.009	1.006	1.004	1.010	1.017	1.008	1.008	1.018	1.015	1.006	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2013	1.390	0.989	1.040	1.623	0.957	0.959	1.062	1.000	0.991	1.000	1.021	1.009	1.006	1.004	1.010	1.017	1.008	1.008	1.018	1.015	1.006	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2014	1.602	0.891	1.000	1.121	1.000	1.101	1.191	1.000	0.845	1.032	1.021	1.009	1.006	1.004	1.010	1.017	1.008	1.008	1.018	1.015	1.006	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2015	1.817	1.132	0.979	0.937	1.026	1.074	1.000	1.052	1.020	1.032	1.021	1.009	1.006	1.004	1.010	1.017	1.008	1.008	1.018	1.015	1.006	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2016	0.838	1.184	1.170	1.082	1.013	1.031	1.000	1.051	1.020	1.032	1.021	1.009	1.006	1.004	1.010	1.017	1.008	1.008	1.018	1.015	1.006	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2017	2.792	1.314	1.247	0.979	1.011	1.036	1.073	1.051	1.020	1.032	1.021	1.009	1.006	1.004	1.010	1.017	1.008	1.008	1.018	1.015	1.006	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2018	3.151	1.170	1.056	1.026	1.021	1.077	1.073	1.051	1.020	1.032	1.021	1.009	1.006	1.004	1.010	1.017	1.008	1.008	1.018	1.015	1.006	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2019	1.422	0.953	0.979	1.011	1.066	1.077	1.073	1.051	1.020	1.032	1.021	1.009	1.006	1.004	1.010	1.017	1.008	1.008	1.018	1.015	1.006	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2020	1.172	1.426	0.916	1.097	1.066	1.077	1.073	1.051	1.020	1.032	1.021	1.009	1.006	1.004	1.010	1.017	1.008	1.008	1.018	1.015	1.006	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2021	0.512	1.000	1.092	1.097	1.066	1.077	1.073	1.051	1.020	1.032	1.021	1.009	1.006	1.004	1.010	1.017	1.008	1.008	1.018	1.015	1.006	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2022		1.173	1.092	1.097	1.066	1.077	1.073	1.051	1.020	1.032	1.021	1.009	1.006	1.004	1.010	1.017	1.008	1.008	1.018	1.015	1.006	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2023	1.815	1.173	1.092	1.097	1.066	1.077	1.073	1.051	1.020	1.032	1.021	1.009	1.006	1.004	1.010	1.017	1.008	1.008	1.018	1.015	1.006	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312	324	336	348	360	ULT
1994	65,047	1,005,018	1,023,016	1,087,349	1,499,341	2,078,139	2,573,685	2,525,449	2,944,082	3,003,278	2,995,177	2,924,889	2,550,436	2,574,369	2,688,316	2,614,164	2,736,632	2,714,782	2,772,423	2,896,698	2,962,023	3,116,839	3,142,787	3,022,670	3,022,670	3,022,670	3,025,330	3,443,682	3,458,682	3,503,101	3,503,101
1995	1,345,826	1,675,949	1,553,606	1,794,446	1,772,905	1,849,070	1,976,684	2,379,084	2,318,512	2,321,479	2,657,629	2,635,614	2,661,105	2,775,105	2,766,065	2,856,864	2,870,975	2,906,668	2,855,886	2,879,342	2,878,011	2,883,696	2,917,052	2,917,052	2,919,348	2,919,348	2,919,348	3,093,591	3,093,591	3,093,591	3,093,591
1996	634,958	497,443	701,793	959,776	1,324,610	1,399,259	1,562,675	1,726,825	1,773,459	1,791,890	1,583,674	1,482,276	1,546,632	1,573,321	1,734,904	1,761,831	1,933,421	1,932,111	1,985,403	2,344,436	2,344,436	2,344,436	2,380,349	2,380,349	2,380,349	2,547,508	2,547,508	2,547,508	2,547,508	2,547,508	2,547,508
1997	502,583	935,032	1,150,245	1,378,150	1,947,336	2,214,227	2,591,866	2,880,119	2,986,984	2,997,120	3,265,114	3,318,830	3,221,107	3,492,440	3,610,025	3,626,882	3,643,635	3,651,096	3,700,587	3,708,217	3,713,372	3,703,945	3,713,968	3,713,448	3,713,448	3,713,448	3,713,448	3,713,448	3,713,448	3,713,448	3,713,448
1998	752,604	776,480	767,994	823,905	1,066,204	1,181,568	1,239,878	1,538,625	1,576,160	1,719,015	1,713,432	1,768,332	1,735,967	1,869,464	2,452,683	2,602,586	2,649,256	2,857,819	2,905,273	2,970,679	2,971,774	2,976,737	3,005,904	3,005,904	3,005,904	3,005,904	3,005,904	3,005,904	3,005,904	3,005,904	3,005,904
1999	1,712,508	1,770,639	1,930,013	2,030,050	2,108,225	2,131,472	2,129,530	2,523,004	2,577,625	2,653,444	2,814,130	2,892,443	2,889,189	2,760,814	2,773,420	2,761,910	2,758,547	2,750,103	2,750,103	2,750,103	2,724,553	2,724,553	2,722,748	2,722,748	2,722,748	2,722,748	2,722,748	2,722,748	2,722,748	2,722,748	2,722,748
2000	1,698,608	2,131,795	2,337,379	2,616,121	2,758,703	2,816,918	2,899,853	3,083,798	3,236,082	3,377,793	3,550,236	3,636,238	3,726,564	3,725,592	3,779,290	3,772,662	3,878,829	3,886,359	3,805,884	3,798,781	4,123,209	4,199,099	4,365,025	4,365,025	4,365,025	4,365,025	4,365,025	4,365,025	4,365,025	4,365,025	4,365,025
2001	903,017	879,435	768,432	803,398	807,374	857,373	921,857	909,006	922,903	914,707	914,707	932,652	964,133	964,133	1,069,609	1,069,609	1,107,092	1,107,092	1,055,182	1,055,182	1,055,182	1,055,182	1,055,182	1,055,182	1,055,182	1,055,182	1,055,182	1,055,182	1,055,182	1,055,182	1,055,182
2002	2,103,792	2,136,359	2,292,076	2,220,507	2,690,036	2,888,001	2,995,721	3,073,653	3,390,124	3,520,988	3,614,155	3,934,639	4,066,718	4,119,846	4,218,927	4,281,991	4,459,410	4,464,352	4,530,974	4,530,974	4,531,430	4,543,316	4,565,188	4,565,188	4,565,188	4,565,188	4,565,188	4,565,188	4,565,188	4,565,188	4,565,188
2003	2,188,347	2,037,947	2,300,433	2,453,916	2,162,594	2,516,185	2,638,216	2,645,657	2,689,486	2,669,997	2,918,788	3,102,947	3,124,594	3,111,514	3,149,028	3,223,096	3,218,366	3,228,365	3,256,297	3,362,272	3,514,265	3,535,420	3,552,440	3,552,440	3,552,440	3,552,440	3,552,440	3,552,440	3,552,440	3,552,440	3,552,440
2004	3,003,287	2,327,925	2,398,477	2,611,344	2,796,197	3,183,380	3,197,130	3,503,732	3,744,551	4,090,314	4,110,662	4,200,197	4,188,550	4,221,388	4,327,913	4,360,336	4,516,782	4,512,461	4,512,461	4,512,461	4,580,609	4,608,182	4,630,367	4,630,367	4,630,367	4,630,367	4,630,367	4,630,367	4,630,367	4,630,367	4,630,367
2005	855,094	1,558,332	1,595,861	1,662,314	1,596,329	1,577,303	1,627,822	1,664,850	1,665,200	1,687,550	1,736,223	1,801,967	1,899,621	1,963,983	1,965,504	2,067,863	2,061,727	2,078,924	2,116,804	2,155,617	2,188,171	2,201,343	2,211,941	2,211,941	2,211,941	2,211,941	2,211,941	2,211,941	2,211,941	2,211,941	2,211,941
2006	1,458,736	1,680,496	1,698,579	1,793,328	2,114,309	2,096,877	2,106,813	2,250,803	2,435,160	2,795,151	2,963,704	3,008,941	3,014,915	3,007,529	3,026,063	2,933,956	2,979,449	2,980,385	3,003,806	3,058,883	3,105,079	3,123,770	3,138,809	3,138,809	3,138,809	3,138,809	3,138,809	3,138,809	3,138,809	3,138,809	3,138,809
2007	1,049,030	901,475	776,584	697,298	715,705	717,904	731,520	761,453	867,453	867,453	867,453	835,778	835,778	835,778	835,778	849,275	855,712	862,436	878,250	891,513	896,880	901,197	901,197	901,197	901,197	901,197	901,197	901,197	901,197	901,197	901,197
2008	596,136	781,142	840,868	893,113	1,147,030	1,299,395	1,530,368	1,720,312	1,915,158	2,021,967	2,051,978	2,077,957	2,111,568	2,129,799	2,138,633	2,175,838	2,192,328	2,209,557	2,250,071	2,284,051	2,297,800	2,308,863	2,308,863	2,308,863	2,308,863	2,308,863	2,308,863	2,308,863	2,308,863	2,308,863	2,308,863
2009	1,008,223	844,876	811,301	864,241	899,372	960,149	968,896	953,538	935,849	935,849	946,493	943,108	943,108	943,108	952,560	969,131	976,476	984,150	1,002,195	1,017,330	1,023,454	1,028,381	1,028,381	1,028,381	1,028,381	1,028,381	1,028,381	1,028,381	1,028,381	1,028,381	1,028,381
2010	100,002	129,253	164,798	220,645	220,645	220,645	228,932	237,342	224,795	223,439	223,439	223,439	223,439	224,288	226,535	230,476	232,223	234,048	238,339	241,939	243,395	244,567	244,567	244,567	244,567	244,567	244,567	244,567	244,567	244,567	244,567
2011	443,503	526,138	494,996	1,055,259	1,146,204	1,230,702	2,005,572	1,497,560	1,608,103	1,619,827	2,017,512	2,017,508	2,233,004	2,245,423	2,253,953	2,276,541	2,316,145	2,333,699	2,352,038	2,395,165	2,431,337	2,445,972	2,457,748	2,457,748	2,457,748	2,457,748	2,457,748	2,457,748	2,457,748	2,457,748	2,457,748
2012	314,431	414,642	480,020	556,332	607,983	889,634	880,779	1,020,206	1,020,206	1,020,206	1,020,206	1,076,501	1,085,679	1,091,717	1,095,864	1,106,847	1,126,102	1,134,637	1,143,553	1,164,521	1,182,108	1,189,224	1,194,949	1,194,949	1,194,949	1,194,949	1,194,949	1,194,949	1,194,949	1,194,949	1,194,949
2013	445,007	618,612	611,639	636,393	1,032,995	989,033	948,554	1,007,339	1,007,339	998,657	998,657	1,019,627	1,028,321	1,034,040	1,037,968	1,048,370	1,066,609	1,074,692	1,083,138	1,102,998	1,119,655	1,126,395	1,131,818	1,131,818	1,131,818	1,131,818	1,131,818	1,131,818	1,131,818	1,131,818	1,131,818
2014	200,006	320,413	285,522	285,522	320,154	320,154	352,358	419,807	419,807	354,917	366,351	374,044	377,233	379,331	380,772	384,588	391,279	394,244	397,342	404,628	410,738	413,211	415,200	415,200	415,200	415,200	415,200	415,200	415,200	415,200	415,200
2015	883,506	1,605,384	1,817,239	1,779,882	1,667,846	1,711,516	1,838,141	1,838,141	1,933,310	1,971,534	2,035,046	2,077,780	2,095,496	2,107,150	2,115,154	2,136,352	2,173,518	2,189,990	2,207,200	2,247,671	2,281,615	2,295,350	2,306,400	2,306,400	2,306,400	2,306,400	2,306,400	2,306,400	2,306,400	2,306,400	2,306,400
2016	825,404	691,547	818,967	958,451	1,037,429	1,050,982	1,083,599	1,083,599	1,138,428	1,160,936	1,198,335	1,223,499	1,233,931	1,240,793	1,245,507	1,257,989	1,279,874	1,289,574	1,299,708	1,323,539	1,343,527	1,351,615	1,358,122	1,358,122	1,358,122	1,358,122	1,358,122	1,358,122	1,358,122	1,358,122	1,358,122
2017	276,255	771,193	1,013,157	1,263,398	1,236,321	1,250,328	1,295,631	1,390,762	1,461,133	1,490,021	1,538,021	1,570,318	1,583,707	1,592,515	1,598,565	1,614,585	1,642,674	1,655,123	1,668,130	1,698,716	1,724,370	1,734,750	1,743,102	1,743,102	1,743,102	1,743,102	1,743,102	1,743,102	1,743,102	1,743,102	1,743,102
2018	198,003	624,000	730,228	770,772	790,771	806,999	869,434	933,271	980,493	999,879	1,032,090	1,053,762	1,062,747	1,068,658	1,072,717	1,083,468	1,102,317	1,110,671	1,119,399	1,139,924	1,157,139	1,164,105	1,169,709	1,169,709	1,169,709	1,169,709	1,169,709	1,169,709	1,169,709	1,169,709	1,169,709
2019	1,067,059	1,517,150	1,445,774	1,415,866	1,430,865	1,525,946	1,644,004	1,764,715	1,854,006	1,890,663	1,951,569	1,992,550	2,020,715	2,028,392	2,048,719	2,084,361	2,100,157	2,116,661	2,155,472	2,188,024	2,201,195	2,211,792	2,211,792	2,211,792	2,211,792	2,211,792	2,211,792	2,211,792	2,211,792	2,211,792	2,211,792
2020	270,001	316,500	451,429	413,571	453,730	483,881	521,317	559,595	587,909	599,533	618,846	631,842	637,229	640,773	643,207	649,653	660,955	665,964	671,198	683,505	693,827	698,003	701,364	701,364	701,364	701,364	701,364	701,364	701,364	701,364	701,364
2021	304,601	155,916	155,916	170,311	186,849	199,265	214,682	230,445	242,105	246,892	254,845	260,196	262,415	263,874	264,877	267,531	272,186	274,248	276,404	281,472	285,722	287,442	288,826	288,826	288,826	288,826	288,826	288,826	288,826	288,826	288,826
2022	88,001																														
2023	223,100	405,021	474,949	518,799	569,175	606,997	653,959	701,976	737,494	752,076	776,303	792,605	799,363	803,809	806,862	814,948	829,126	835,410	841,975	857,413	870,362	875,601	879,816	879,816	879,816	879,816	879,816	879,816	879,816	879,816	879,816

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Other
Selection of Loss Development Factors

Development Period in Months

RY	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-228	228-240	240-252	252-264	264-276	276-288	288-300	300-312	312-324	324-336	336-348	348-360	TAIL
1994	15.451	1.018	1.063	1.379	1.386	1.238	0.981	1.166	1.020	0.997	0.977	0.872	1.009	1.044	0.972	1.047	0.992	1.021	1.045	1.023	1.052	1.008	0.962	1.000	1.000	1.001	1.138	1.004	1.013	
1995	1.245	0.927	1.155	0.988	1.043	1.069	1.204	0.975	1.001	1.145	0.992	1.010	1.043	0.997	1.033	1.005	1.012	0.983	1.008	1.000	1.002	1.012	1.000	1.001	1.000	1.000	1.060	1.000		
1996	0.783	1.411	1.368	1.380	1.043	1.056	1.117	1.105	1.027	1.010	0.884	0.936	1.043	1.017	1.103	1.016	1.097	0.999	1.028	1.181	1.000	1.000	1.000	1.000	1.015	1.000	1.000	1.070		
1997	1.860	1.230	1.198	1.413	1.137	1.171	1.111	1.037	1.003	1.089	1.016	0.971	1.084	1.034	1.005	1.005	1.002	1.014	1.002	1.001	0.997	1.003	1.000	1.000	1.000	1.000				
1998	1.032	0.989	1.073	1.294	1.108	1.049	1.241	1.024	1.091	0.997	1.032	0.982	1.077	1.312	1.061	1.018	1.079	1.017	1.023	1.000	1.002	1.010	1.000	1.000	1.000					
1999	1.034	1.090	1.052	1.039	1.011	0.999	1.185	1.022	1.029	1.061	1.028	0.999	0.956	1.005	0.996	0.999	0.997	1.000	1.000	0.991	1.000	0.999	1.000	1.000						
2000	1.255	1.096	1.119	1.055	1.021	1.029	1.063	1.049	1.044	1.051	1.024	1.025	1.000	1.014	0.998	1.028	1.002	0.979	0.998	1.085	1.018	1.040	1.000							
2001	0.974	0.874	1.046	1.005	1.062	1.075	0.986	1.015	0.991	1.000	1.020	1.034	1.000	1.109	1.000	1.000	1.035	1.000	0.953	1.000	1.000	1.000								
2002	1.015	1.073	0.969	1.211	1.074	1.037	1.026	1.103	1.039	1.026	1.089	1.034	1.013	1.024	1.015	1.041	1.001	1.015	1.000	1.000	1.003									
2003	0.931	1.129	1.067	0.881	1.164	1.048	1.003	1.017	0.993	1.093	1.063	1.007	0.996	1.012	1.024	0.999	1.003	1.009	1.033	1.045										
2004	0.775	1.030	1.089	1.071	1.138	1.004	1.096	1.069	1.092	1.005	1.022	0.997	1.008	1.025	1.007	1.036	0.999	1.000	1.000											
2005	1.822	1.024	1.042	0.960	0.988	1.032	1.004	1.023	1.000	1.013	1.029	1.038	1.054	1.034	1.001	1.052	0.997	1.008	1.018											
2006	1.152	1.011	1.056	1.179	0.992	1.005	1.068	1.082	1.148	1.060	1.015	1.002	0.998	1.006	0.970	1.016	1.000													
2007	0.859	0.861	0.898	1.026	1.003	1.019	1.041	1.139	1.000	1.000	1.000	0.963	1.000	1.000	1.000	1.004														
2008	1.310	1.076	1.062	1.284	1.133	1.178	1.124	1.113	1.056	1.015	1.013	1.016	1.009	1.000	1.000															
2009	0.838	0.960	1.065	1.041	1.068	1.009	0.984	0.981	1.000	1.011	0.996	1.000	1.000	1.000																
2010	1.292	1.275	1.339	1.000	1.000	1.038	1.037	0.947	0.994	1.000	1.000	1.000	1.000																	
2011	1.186	0.941	2.132	1.086	1.074	1.630	0.747	1.074	1.007	1.246	1.000	1.107																		
2012	1.319	1.158	1.159	1.093	1.463	0.990	1.158	1.000	1.000	1.000	1.055																			
2013	1.390	0.989	1.040	1.623	0.957	0.959	1.062	1.000	0.991	1.000																				
2014	1.602	0.891	1.000	1.121	1.000	1.101	1.191	1.000	0.845																					
2015	1.817	1.132	0.979	0.937	1.026	1.074	1.000	1.052																						
2016	0.838	1.184	1.170	1.082	1.013	1.031	1.000																							
2017	2.792	1.314	1.247	0.979	1.011	1.036																								
2018	3.151	1.170	1.056	1.026	1.021																									
2019	1.422	0.953	0.979	1.011																										
2020	1.172	1.426	0.916																											
2021	0.512	1.000																												
2022																														
VOL WTD 3	0.713	1.032	0.990	1.002	1.014	1.051	1.021	1.029	0.970	1.109	1.017	1.068	1.006	1.000	0.986	1.009	1.001	1.007	1.009	1.017	1.009	1.021	1.000	1.000	1.000	1.000	1.091	1.002	1.013	
VOL WTD 5	1.356	1.122	1.081	0.996	1.017	1.037	1.052	1.036	0.985	1.085	1.013	1.035	1.002	1.002	1.004	1.015	1.002	1.009	1.003	1.029	1.006	1.014	1.000	1.003	1.000	1.000	1.091	1.002	1.013	
VOL WTD ALL	1.176	1.060	1.089	1.097	1.078	1.077	1.057	1.051	1.033	1.042	1.021	1.004	1.015	1.035	1.009	1.022	1.008	1.006	1.018	1.017	1.009	1.011	0.995	1.002	1.000	1.000	1.091	1.002	1.013	
ARITH 3	0.842	1.126	0.984	1.005	1.015	1.047	1.064	1.017	0.946	1.082	1.018	1.036	1.003	1.000	0.991	1.010	1.003	1.009	1.011	1.015	1.007	1.013	1.000	1.000	1.000	1.000	1.089	1.002	1.013	
ARITH 5	1.564	1.173	1.074	1.007	1.014	1.040	1.082	1.025	0.968	1.051	1.013	1.017	1.001	1.001	1.007	1.013	1.002	1.008	0.997	1.024	1.005	1.010	1.000	1.003	1.000	1.000	1.089	1.002	1.013	
ARITH ALL	1.815	1.080	1.124	1.122	1.078	1.081	1.062	1.041	1.018	1.035	1.017	1.006	1.014	1.043	1.010	1.022	1.010	1.007	1.022	1.015	1.008	1.009	0.995	1.003	1.000	1.000	1.089	1.002	1.013	
5 YR HI LO	1.297	1.161	1.068	1.005	1.015	1.047	1.073	1.017	0.995	1.004	1.004	1.005	1.000	1.000	1.004	1.010	1.002	1.008	0.999	1.015	1.001	1.004	1.000	1.000	1.000	1.000	1.070	NA	NA	
7 YR HI LO	1.556	1.160	1.037	1.044	1.014	1.046	1.051	1.007	0.999	1.005	1.006	1.014	1.003	1.004	1.010	1.013	1.003	1.005	1.004	1.009	1.001	1.005	1.000	1.000	1.000	1.000	1.070	NA	NA	
ALL YR HI LO	1.341	1.075	1.092	1.111	1.066	1.061	1.069	1.039	1.020	1.032	1.017	1.009	1.014	1.027	1.009	1.017	1.005	1.008	1.012	1.009	1.004	1.005	1.000	1.000	1.000	1.000	1.070	NA	NA	
SELECTED	1.815	1.173	1.092	1.097	1.066	1.077	1.073	1.051	1.020	1.032	1.021	1.009	1.006	1.004	1.010	1.017	1.008	1.008	1.018	1.015	1.006	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Other
Incurred Losses

Development in Months

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312	324	336	348	360
1994	65,047	1,005,018	1,023,016	1,087,349	1,499,341	2,078,139	2,573,685	2,525,449	2,944,082	3,003,278	2,995,177	2,924,889	2,550,436	2,574,369	2,688,316	2,614,164	2,736,632	2,714,782	2,772,423	2,896,698	2,962,023	3,116,839	3,142,787	3,022,670	3,022,670	3,022,670	3,025,330	3,443,682	3,458,682	3,503,101
1995	1,345,826	1,675,949	1,553,606	1,794,446	1,772,905	1,849,070	1,976,684	2,379,084	2,318,512	2,321,479	2,657,629	2,635,614	2,661,105	2,775,105	2,766,065	2,856,864	2,870,975	2,906,668	2,855,886	2,879,342	2,878,011	2,883,696	2,917,052	2,917,052	2,919,348	2,919,348	2,919,348	3,093,591	3,093,591	
1996	634,958	497,443	701,793	959,776	1,324,610	1,399,259	1,562,675	1,726,825	1,773,459	1,791,890	1,583,674	1,482,276	1,546,632	1,573,321	1,734,904	1,761,831	1,933,421	1,932,111	1,985,403	2,344,436	2,344,436	2,344,436	2,344,436	2,380,349	2,380,349	2,380,349	2,547,508			
1997	502,583	935,032	1,150,245	1,378,150	1,947,336	2,214,227	2,591,866	2,880,119	2,986,984	2,997,120	3,265,114	3,318,830	3,221,107	3,492,440	3,610,025	3,626,882	3,643,635	3,651,096	3,700,587	3,708,217	3,713,372	3,703,945	3,713,968	3,713,448	3,713,448	3,713,448	3,713,448			
1998	752,604	776,480	767,994	823,905	1,066,204	1,181,568	1,239,878	1,538,625	1,576,160	1,719,015	1,713,432	1,768,332	1,735,967	1,869,464	2,452,683	2,602,586	2,649,256	2,857,819	2,905,273	2,970,679	2,971,774	2,976,737	3,005,904	3,005,904	3,005,904					
1999	1,712,508	1,770,639	1,930,013	2,030,050	2,108,225	2,131,472	2,129,530	2,523,004	2,577,625	2,653,444	2,814,130	2,892,443	2,889,189	2,760,814	2,773,420	2,761,910	2,758,547	2,750,103	2,750,103	2,750,103	2,724,553	2,724,553	2,722,748	2,722,748						
2000	1,698,608	2,131,795	2,337,379	2,616,121	2,758,703	2,816,918	2,899,853	3,083,798	3,236,082	3,377,793	3,550,236	3,636,238	3,726,564	3,725,592	3,779,290	3,772,662	3,878,829	3,886,359	3,805,884	3,798,781	4,123,209	4,199,099	4,365,025	4,365,025						
2001	903,017	879,435	768,432	803,398	807,374	857,373	921,857	909,006	922,903	914,707	914,707	932,652	964,133	964,133	1,069,609	1,069,609	1,069,609	1,107,092	1,107,092	1,055,182	1,055,182	1,055,182								
2002	2,103,792	2,136,359	2,292,076	2,220,507	2,690,036	2,888,001	2,995,721	3,073,653	3,390,124	3,520,988	3,614,155	3,934,639	4,066,718	4,119,846	4,218,927	4,281,991	4,459,410	4,464,352	4,530,974	4,530,974	4,531,430	4,543,316								
2003	2,188,347	2,037,947	2,300,433	2,453,916	2,162,594	2,516,185	2,638,216	2,645,657	2,689,486	2,669,997	2,918,788	3,102,947	3,124,594	3,111,514	3,149,028	3,223,096	3,218,366	3,228,365	3,256,297	3,362,272	3,514,265									
2004	3,003,287	2,327,925	2,398,477	2,611,344	2,796,197	3,183,380	3,197,130	3,503,732	3,744,551	4,090,314	4,110,662	4,200,197	4,188,550	4,221,388	4,327,913	4,360,336	4,516,782	4,512,461	4,512,461	4,512,461										
2005	855,094	1,558,332	1,595,861	1,662,314	1,596,329	1,577,303	1,627,822	1,664,850	1,665,200	1,687,550	1,736,223	1,801,967	1,899,621	1,963,983	1,965,504	2,067,863	2,061,727	2,078,924	2,116,804											
2006	1,458,736	1,680,496	1,698,579	1,793,328	2,114,309	2,096,877	2,106,813	2,250,803	2,435,160	2,795,151	2,963,704	3,008,941	3,014,915	3,007,529	3,026,063	2,933,956	2,979,449	2,980,385												
2007	1,049,030	901,475	776,584	697,298	715,705	717,904	731,520	761,453	867,453	867,453	867,453	867,453	835,778	835,778	835,778	835,778	849,275													
2008	596,136	781,142	840,868	893,113	1,147,030	1,299,395	1,530,368	1,720,312	1,915,158	2,021,967	2,051,978	2,077,957	2,111,568	2,129,799	2,129,799	2,138,633														
2009	1,008,223	844,876	811,301	864,241	899,372	960,149	968,896	953,538	935,849	935,849	946,493	943,108	943,108	943,108	943,108															
2010	100,002	129,253	164,798	220,645	220,645	220,645	228,932	237,342	224,795	223,439	223,439	223,439	223,439																	
2011	443,503	526,138	494,996	1,055,259	1,146,204	1,230,702	2,005,572	1,497,560	1,608,103	1,619,827	2,017,512	2,017,508	2,233,004																	
2012	314,431	414,642	480,020	556,332	607,983	889,634	880,779	1,020,206	1,020,206	1,020,206	1,020,206	1,076,501																		
2013	445,007	618,612	611,639	636,393	1,032,995	989,033	948,554	1,007,339	1,007,339	998,657	998,657																			
2014	200,006	320,413	285,522	285,522	320,154	352,358	419,807	419,807	419,807	354,917																				
2015	883,506	1,605,384	1,817,239	1,779,882	1,667,846	1,711,516	1,838,141	1,838,141	1,933,310																					
2016	825,404	691,547	818,967	958,451	1,037,429	1,050,982	1,083,599	1,083,599																						
2017	276,255	771,193	1,013,157	1,236,321	1,250,328	1,295,631																								
2018	198,003	624,000	730,228	770,771	790,771	806,999																								
2019	1,067,059	1,517,150	1,445,774	1,415,866	1,430,865																									
2020	270,001	316,500	451,429	413,571																										
2021	304,601	155,916	155,916																											
2022	88,001	-																												
2023	223,100																													

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Other
Determination of Pure Premium

(1) RY	(2) PAID LDM ULTIMATE	(3) INC LDM ULTIMATE	(4) SELECTED ULTIMATE	(5) POLICIES IN FORCE	(6) PURE PREMIUM
1994					
1995					
1996					
1997					
1998					
1999					
2000					
2001					
2002					
2003					
2004					
2005					
2006					
2007					
2008	2,528,349	2,308,863	2,418,606	2,664	908
2009	943,108	1,028,381	985,745	2,662	370
2010	223,439	244,567	234,003	2,622	89
2011	2,233,004	2,457,748	2,345,376	2,623	894
2012	1,177,408	1,194,949	1,186,178	2,617	453
2013	1,338,739	1,131,818	1,235,278	2,603	475
2014	492,142	415,200	453,671	2,573	176
2015	2,890,147	2,306,400	2,598,273	2,530	1,027
2016	1,657,893	1,358,122	1,358,122	2,509	541
2017	2,015,495	1,743,102	1,743,102	2,489	700
2018	1,042,831	1,169,709	1,169,709	2,487	470
2019	2,225,474	2,211,792	2,211,792	2,413	917
2020	719,255	701,364	701,364	2,408	291
2021	276,757	288,826	288,826	2,405	120
2022	-	-	-	2,371	-
2023	1,215,391	879,816	879,816	2,347	375
TOTAL	20,979,430	19,440,656	19,809,861	40,323	491

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Other
Paid Bornhuetter-Ferguson Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	POLICIES	PROJECTED	TRENDED	DETRENDED	EXPECTED	PERCENT	EXPECTED	PAID	INDICATED	INCURRED	IBNR	CASE	ULTIMATE
RY	IN FORCE	PURE PREM	PURE PREM	PURE PREM	LOSSES	UNPAID	UNPAID	LOSSES	ULTIMATE	LOSSES	RESERVE	RESERVE	PURE PREM
1994													
1995													
1996													
1997													
1998													
1999													
2000													
2001													
2002													
2003													
2004													
2005													
2006													
2007													
2008	2,664	908	359	801	2,135,028	17.6%	376,827	2,082,101	2,458,928	2,138,633	320,296	56,532	923
2009	2,662	370	156	753	2,005,420	19.8%	396,768	943,108	1,339,876	943,108	396,768	-	503
2010	2,622	89	40	708	1,856,769	22.6%	419,676	223,439	643,114	223,439	419,676	-	245
2011	2,623	894	426	666	1,746,028	25.5%	445,366	1,489,924	1,935,290	2,233,004	(297,714)	743,080	738
2012	2,617	453	229	626	1,637,512	29.1%	476,337	834,910	1,311,248	1,076,501	234,747	241,590	501
2013	2,603	475	256	588	1,531,027	32.7%	499,990	901,545	1,401,535	998,657	402,878	97,112	538
2014	2,573	176	101	553	1,422,579	38.0%	541,188	304,917	846,106	354,917	491,188	50,000	329
2015	2,530	1,027	626	520	1,314,876	42.5%	559,299	1,660,786	2,220,085	1,933,310	286,775	272,524	878
2016	2,509	541	351	489	1,225,725	46.1%	564,850	893,887	1,458,737	1,083,599	375,137	189,713	581
2017	2,489	700	483	459	1,142,997	49.3%	563,159	1,022,452	1,585,611	1,295,631	289,980	273,179	637
2018	2,487	470	345	432	1,073,554	53.5%	574,135	485,126	1,059,261	806,999	252,263	321,873	426
2019	2,413	917	716	406	979,114	61.1%	598,294	865,583	1,463,877	1,430,865	33,012	565,282	607
2020	2,408	291	242	381	918,460	66.4%	609,572	241,893	851,465	413,571	437,894	171,679	354
2021	2,405	120	106	359	862,277	73.4%	633,028	73,580	706,608	155,916	550,691	82,336	294
2022	2,371	-	-	337	799,081	85.5%	682,863	-	682,863	-	682,863	-	288
2023	2,347	375	375	317	743,533	96.4%	716,861	43,599	760,460	223,100	537,360	179,501	324
TOTAL	40,323				21,393,977		8,658,214	12,066,850	20,725,064	15,311,250	5,413,814	3,244,400	514

Pure Premium Selection		Trend =	0.940
3-Year Average x Latest	355		
5-Year Average x Latest	378		
All Year Average x Latest	317		
Selected Pure Premium	317		

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Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance UST - Other
Incurred Bornhuetter-Ferguson Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	POLICIES	PROJECTED	TRENDED	DETRENDED	EXPECTED	PERCENT	EXPECTED	INCURRED	INDICATED	PAID	UNPAID	CASE	ULTIMATE
RY	IN FORCE	PURE PREM	PURE PREM	PURE PREM	LOSSES	IBNR	IBNR	LOSSES	ULTIMATE	LOSSES	LOSS	RESERVE	PURE PREM
1994													
1995													
1996													
1997													
1998													
1999													
2000													
2001													
2002													
2003													
2004													
2005													
2006													
2007													
2008	2,664	908	359	801	2,135,028	7.4%	157,413	2,138,633	2,296,046	2,082,101	213,945	56,532	862
2009	2,662	370	156	753	2,005,420	8.3%	166,288	943,108	1,109,397	943,108	166,288	-	417
2010	2,622	89	40	708	1,856,769	8.6%	160,406	223,439	383,845	223,439	160,406	-	146
2011	2,623	894	426	666	1,746,028	9.1%	159,662	2,233,004	2,392,666	1,489,924	902,742	743,080	912
2012	2,617	453	229	626	1,637,512	9.9%	162,317	1,076,501	1,238,818	834,910	403,907	241,590	473
2013	2,603	475	256	588	1,531,027	11.8%	180,129	998,657	1,178,786	901,545	277,241	97,112	453
2014	2,573	176	101	553	1,422,579	14.5%	206,544	354,917	561,461	304,917	256,544	50,000	218
2015	2,530	1,027	626	520	1,314,876	16.2%	212,698	1,933,310	2,146,008	1,660,786	485,222	272,524	848
2016	2,509	541	351	489	1,225,725	20.2%	247,760	1,083,599	1,331,360	893,887	437,473	189,713	531
2017	2,489	700	483	459	1,142,997	25.7%	293,418	1,295,631	1,589,049	1,022,452	566,597	273,179	638
2018	2,487	470	345	432	1,073,554	31.0%	332,894	806,999	1,139,892	485,126	654,766	321,873	458
2019	2,413	917	716	406	979,114	35.3%	345,700	1,430,865	1,776,565	865,583	910,982	565,282	736
2020	2,408	291	242	381	918,460	41.0%	376,874	413,571	790,445	241,893	548,553	171,679	328
2021	2,405	120	106	359	862,277	46.0%	396,796	155,916	552,712	73,580	479,132	82,336	230
2022	2,371	-	-	337	799,081	54.0%	431,226	-	431,226	-	431,226	-	182
2023	2,347	375	375	317	743,533	74.6%	554,991	223,100	778,091	43,599	734,492	179,501	332
TOTAL	40,323				21,393,977		4,385,118	15,311,250	19,696,368	12,066,850	7,629,518	3,244,400	488

Pure Premium Selection		Trend =	0.940
3-Year Average x Latest	355		
5-Year Average x Latest	378		
All Year Average x Latest	317		
Selected Pure Premium	317		

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Remedial UST
Summary of Paid Development Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	PAID LDM	PAID	INCURRED	CASE	IBNR	UNPAID
RY	ULTIMATE	LOSS	LOSS	RESERVE	RESERVE	LOSS
1994	-	-	-	-	-	-
1995	114,027	114,027	114,027	-	-	-
1996	69,367,207	64,059,077	69,218,445	5,159,367	148,762	5,308,129
1997	9,236,260	8,529,481	9,170,047	640,565	66,213	706,779
1998	19,384,618	17,799,357	19,085,557	1,286,200	299,061	1,585,261
1999	8,404,554	7,668,887	8,398,678	729,791	5,876	735,667
2000	16,190,413	14,148,993	16,190,413	2,041,420	-	2,041,420
2001	3,389,265	2,447,144	3,389,265	942,121	-	942,121
2002	3,398,921	2,970,446	3,239,727	269,282	159,194	428,476
2003	1,279,051	1,092,445	1,136,652	44,207	142,399	186,606
2004	2,506,657	1,754,136	2,506,657	752,522	-	752,522
2005	2,954,385	2,391,427	2,788,380	396,953	166,005	562,958
2006	715,521	410,371	715,521	305,150	-	305,150
2007	1,602,376	1,237,230	1,375,354	138,125	227,022	365,147
2008	705,588	705,588	705,588	-	-	-
2009	982,893	712,041	815,042	103,001	167,851	270,852
2010	823,409	563,408	823,409	260,001	-	260,001
2011	1,772,862	1,077,136	1,772,862	695,725	-	695,725
2012	305,720	305,720	305,720	-	-	-
2013	1,786,685	1,148,079	1,356,966	208,887	429,719	638,606
2014	1,141,831	706,966	879,488	172,521	262,343	434,864
2015	180,633	107,157	107,158	1	73,474	73,475
2016	1,292,250	721,097	1,216,866	495,769	75,384	571,153
2017	1,071,047	564,063	663,561	99,498	407,486	506,983
2018	1,052,177	507,450	784,953	277,503	267,224	544,727
2019	655,573	287,383	544,232	256,849	111,341	368,190
2020	275,274	99,099	275,274	176,175	-	176,175
2021	151,100	38,178	151,100	112,922	-	112,922
2022	607,100	70,940	607,100	536,160	-	536,160
2023	179,002	-	179,002	179,002	-	179,002
TOTAL	151,526,400	132,237,326	148,517,044	16,279,718	3,009,356	19,289,074

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Remedial UST
Development of Losses to Ultimate

Development Period in Months

RY	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-228	228-240	240-252	252-264	264-276	276-288	288-300	300-312	312-324	324-336	336-348	348-360	360-ULT
1994																														1.083
1995								9.287	1.127	1.000	1.241	1.000	1.041	1.014	1.069	1.000	1.000	1.000	1.021	1.035	1.021	1.023	1.023	1.020	1.011	1.008	1.006	1.008	1.000	1.083
1996	20.724	3.266	2.407	2.036	1.409	1.264	1.161	1.143	1.103	1.082	1.072	1.051	1.076	1.061	1.043	1.032	1.031	1.021	1.035	1.021	1.023	1.023	1.020	1.011	1.008	1.006	1.008	1.000	1.000	1.083
1997	16.969	2.041	1.600	1.265	1.152	1.071	1.019	1.041	1.041	1.021	1.095	1.027	1.040	1.046	1.019	1.013	1.006	1.012	1.012	1.008	1.029	1.015	1.014	1.012	1.000	1.006	1.006	1.000	1.000	1.083
1998	12.647	2.010	1.342	1.146	1.074	1.053	1.029	1.071	1.035	1.080	1.051	1.056	1.031	1.025	1.017	1.018	1.019	1.010	1.012	1.018	1.031	1.016	1.004	1.006	1.001	1.006	1.000	1.000	1.000	1.083
1999	4.821	1.254	1.276	1.187	1.132	1.024	1.044	1.039	1.066	1.103	1.056	1.032	1.019	1.020	1.016	1.012	1.013	1.023	1.018	1.017	1.009	1.005	1.004	1.017	1.006	1.006	1.000	1.000	1.000	1.083
2000	2.319	1.409	1.202	1.169	1.115	1.077	1.140	1.034	1.054	1.044	1.028	1.027	1.031	1.030	1.030	1.027	1.025	1.030	1.036	1.028	1.023	1.017	1.015	1.010	1.006	1.006	1.000	1.000	1.000	1.083
2001		3.234	1.268	1.346	1.120	1.179	1.166	1.155	1.112	1.047	1.052	1.037	1.017	1.018	1.009	1.043	1.065	1.056	1.023	1.035	1.016	1.010	1.015	1.010	1.006	1.006	1.000	1.000	1.000	1.083
2002	10.139	2.111	1.125	1.147	1.072	1.092	1.039	1.043	1.094	1.033	1.046	1.078	1.043	1.070	1.090	1.065	1.041	1.023	1.011	1.002	1.006	1.019	1.015	1.010	1.006	1.006	1.000	1.000	1.000	1.083
2003	2.817	1.576	1.195	1.149	1.129	1.151	1.063	1.049	1.089	1.032	1.076	1.029	1.063	1.058	1.049	1.046	1.039	1.032	1.030	1.022	1.023	1.019	1.015	1.010	1.006	1.006	1.000	1.000	1.000	1.083
2004	4.773	1.326	1.368	1.217	1.136	1.111	1.059	1.037	1.046	1.032	1.043	1.015	1.037	1.036	1.053	1.030	1.011	1.007	1.053	1.023	1.023	1.023	1.019	1.015	1.010	1.006	1.006	1.000	1.000	1.083
2005	3.426	1.446	1.590	1.161	1.212	1.132	1.037	1.039	1.095	1.041	1.261	1.036	1.008	1.010	1.007	1.003	1.004	1.000	1.032	1.023	1.023	1.019	1.015	1.010	1.006	1.006	1.000	1.000	1.000	1.083
2006	4.337	3.865	1.419	1.348	1.051	1.042	1.000	1.000	1.000	1.000	1.000	1.000	1.218	1.000	1.120	1.000	1.023	1.032	1.023	1.023	1.019	1.015	1.010	1.006	1.006	1.000	1.000	1.000	1.000	1.083
2007	41.628	3.049	1.218	1.215	1.257	1.101	1.081	1.141	1.098	1.002	1.068	1.033	1.000	1.047	1.011	1.019	1.025	1.023	1.032	1.023	1.023	1.019	1.015	1.010	1.006	1.006	1.000	1.000	1.000	1.083
2008	4.194	1.048	1.204	1.247	1.256	1.030	1.086	1.045	1.015	1.032	1.084	1.033	1.014	1.010	1.000	1.041	1.025	1.023	1.032	1.023	1.023	1.019	1.015	1.010	1.006	1.006	1.000	1.000	1.000	1.083
2009	3.022	1.570	1.139	1.055	1.015	1.097	1.034	1.018	1.058	1.024	1.022	1.000	1.031	1.000	1.034	1.024	1.041	1.025	1.023	1.032	1.023	1.023	1.019	1.015	1.010	1.006	1.006	1.000	1.000	1.083
2010		1.835	1.081	1.363	1.047	1.069	1.179	1.088	1.045	1.028	1.074	1.000	1.036	1.005	1.034	1.024	1.041	1.025	1.023	1.032	1.023	1.023	1.019	1.015	1.010	1.006	1.006	1.000	1.000	1.083
2011	2.766	1.844	1.117	1.100	1.081	1.076	1.034	1.028	1.041	1.053	1.020	1.036	1.000	1.005	1.034	1.024	1.041	1.025	1.023	1.032	1.023	1.023	1.019	1.015	1.010	1.006	1.006	1.000	1.000	1.083
2012	13.380	1.407	1.134	1.101	1.063	1.086	1.061	1.033	1.028	1.000	1.000	1.027	1.020	1.034	1.024	1.041	1.025	1.023	1.032	1.023	1.023	1.019	1.015	1.010	1.006	1.006	1.000	1.000	1.000	1.083
2013	5.111	1.534	1.499	1.181	1.057	1.336	1.065	1.139	1.045	1.065	1.040	1.027	1.020	1.034	1.024	1.041	1.025	1.023	1.032	1.023	1.023	1.019	1.015	1.010	1.006	1.006	1.000	1.000	1.000	1.083
2014	13.888	1.678	1.154	1.132	1.060	1.043	1.052	1.029	1.077	1.038	1.040	1.027	1.020	1.034	1.024	1.041	1.025	1.023	1.032	1.023	1.023	1.019	1.015	1.010	1.006	1.006	1.000	1.000	1.000	1.083
2015		2.243	1.078	1.144	1.026	1.000	1.000	1.000	1.044	1.038	1.040	1.027	1.020	1.034	1.024	1.041	1.025	1.023	1.032	1.023	1.023	1.019	1.015	1.010	1.006	1.006	1.000	1.000	1.000	1.083
2016		1.274	1.172	1.204	1.173	1.122	1.108	1.063	1.044	1.038	1.040	1.027	1.020	1.034	1.024	1.041	1.025	1.023	1.032	1.023	1.023	1.019	1.015	1.010	1.006	1.006	1.000	1.000	1.000	1.083
2017	2.086	1.438	1.159	1.075	1.018	1.066	1.043	1.044	1.038	1.040	1.027	1.020	1.034	1.024	1.041	1.025	1.023	1.032	1.023	1.023	1.019	1.015	1.010	1.006	1.006	1.000	1.000	1.000	1.000	1.083
2018	3.476	1.240	1.157	1.186	1.166	1.092	1.060	1.063	1.044	1.038	1.040	1.027	1.020	1.034	1.024	1.041	1.025	1.023	1.032	1.023	1.023	1.019	1.015	1.010	1.006	1.006	1.000	1.000	1.000	1.083
2019		1.558	1.266	1.247	1.100	1.092	1.060	1.063	1.044	1.038	1.040	1.027	1.020	1.034	1.024	1.041	1.025	1.023	1.032	1.023	1.023	1.019	1.015	1.010	1.006	1.006	1.000	1.000	1.000	1.083
2020	4.771	1.258	1.912	1.183	1.100	1.092	1.060	1.063	1.044	1.038	1.040	1.027	1.020	1.034	1.024	1.041	1.025	1.023	1.032	1.023	1.023	1.019	1.015	1.010	1.006	1.006	1.000	1.000	1.000	1.083
2021		2.665	1.283	1.183	1.100	1.092	1.060	1.063	1.044	1.038	1.040	1.027	1.020	1.034	1.024	1.041	1.025	1.023	1.032	1.023	1.023	1.019	1.015	1.010	1.006	1.006	1.000	1.000	1.000	1.083
2022	3.621	1.554	1.283	1.183	1.100	1.092	1.060	1.063	1.044	1.038	1.040	1.027	1.020	1.034	1.024	1.041	1.025	1.023	1.032	1.023	1.023	1.019	1.015	1.010	1.006	1.006	1.000	1.000	1.000	1.083
2023	4.902	1.554	1.283	1.183	1.100	1.092	1.060	1.063	1.044	1.038	1.040	1.027	1.020	1.034	1.024	1.041	1.025	1.023	1.032	1.023	1.023	1.019	1.015	1.010	1.006	1.006	1.000	1.000	1.000	1.083

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312	324	336	348	360	ULT
1994																															123,476
1995								7,781	72,262	81,424	81,424	101,034	101,034	105,196	106,705	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	123,476
1996	40,315	835,499	2,728,718	6,568,305	13,373,754	18,845,618	23,820,837	27,664,147	31,626,348	34,871,004	37,747,448	40,455,899	42,534,558	45,765,782	48,568,937	50,658,185	52,285,341	53,882,728	55,011,326	56,923,526	58,124,590	59,473,654	60,816,782	62,003,446	62,680,269	63,188,205	63,545,512	64,059,077	64,059,077	64,059,077	69,367,207
1997	61,400	1,041,894	2,126,620	3,402,864	4,304,438	4,959,870	5,311,545	5,412,008	5,631,204	5,859,361	5,980,682	6,550,759	6,730,658	7,001,728	7,322,383	7,463,064	7,561,344	7,606,213	7,693,757	7,786,570	7,847,588	8,076,143	8,200,584	8,314,134	8,400,063	8,432,328	8,529,481	8,529,481	8,529,481	9,236,260	
1998	239,795	3,032,700	6,094,264	8,178,370	9,375,140	10,068,643	10,602,282	10,912,410	11,684,792	12,096,844	13,060,306	13,727,870	14,499,065	14,951,449	15,319,415	15,575,277	15,862,219	16,158,393	16,312,830	16,500,587	16,792,391	17,314,252	17,590,047	17,668,757	17,779,349	17,799,357	17,901,265	17,901,265	17,901,265	19,384,618	
1999	436,835	2,105,831	2,641,761	3,370,046	3,998,601	4,527,780	4,638,276	4,843,173	5,032,565	5,366,728	5,917,688	6,249,511	6,450,553	6,574,295	6,705,452	6,809,966	6,893,063	6,982,923	7,144,639	7,276,048	7,401,552	7,470,931	7,507,360	7,539,042	7,668,887	7,717,235	7,761,419	7,761,419	7,761,419	8,404,554	
2000	1,404,622	3,256,938	4,590,454	5,519,248	6,451,995	7,193,747	7,750,786	8,836,291	9,135,094	9,627,642	10,050,268	10,330,492	10,607,398	10,934,896	11,265,746	11,608,205	11,922,692	12,218,748	12,583,946	13,033,082	13,401,053	13,707,066	13,940,368	14,148,993	14,286,465	14,376,533	14,458,844	14,458,844	14,458,844	15,656,948	
2001		147,472	476,981	604,628	813,801	911,192	1,074,243	1,252,777	1,447,406	1,609,378	1,685,756	1,773,480	1,839,082	1,870,679	1,904,981	1,922,955	2,005,524	2,135,112	2,253,770	2,305,160	2,384,844	2,422,364	2,447,144	2,483,830	2,507,963	2,523,774	2,538,223	2,538,223	2,538,223	2,538,223	2,748,548
2002	47,379	480,361	1,014,084	1,140,741	1,308,579	1,402,608	1,531,018	1,591,392	1,659,124	1,814,667	1,875,002	1,960,925	2,114,181	2,204,070	2,358,085	2,569,598	2,737,830	2,849,874	2,914,700	2,946,891	2,951,515	2,970,446	3,026,197	3,071,564	3,101,407	3,120,960	3,138,829	3,138,829	3,138,829	3,398,921	
2003	71,422	201,172	317,027	378,728	435,080	491,064	565,402	600,804	630,373	686,253	708,407	762,255	784,155	833,873	881,870	925,066	967,687	1,005,806	1,037,603	1,068,824	1,092,445	1,117,811	1,138,791	1,155,863	1,167,093	1,174,451	1,181,175	1,181,175	1,181,175	1,279,051	
2004	84,160	401,722	532,740	728,973	887,261	1,008,297	1,120,106	1,186,075	1,229,393	1,286,274	1,327,154	1,384,142	1,404,444	1,456,535	1,508,295	1,588,561	1,635,498	1,654,081	1,666,236	1,754,136	1,793,750	1,835,400	1,869,848	1,897,880	1,916,320	1,928,401	1,939,442	1,939,442	1,939,442	2,100,150	
2005	115,085	394,303	570,217	906,812	1,053,062	1,275,950	1,444,651	1,497,871	1,556,506	1,704,631	1,773,966	2,236,223	2,315,908	2,334,050	2,357,368	2,374,726	2,382,660	2,391,427	2,391,427	2,467,630	2,523,358	2,581,949	2,630,409	2,669,842	2,695,782	2,712,778	2,728,309	2,728,309	2,728,309	2,954,385	
2006	8,574	37,183	143,721	203,989	274,938	288,877	300,938	300,938	300,938	300,938	300,938	300,938	366,445	366,445	410,371	410,371	419,670	433,043	442,823	453,105	461,609	468,529	473,082	476,064	478,790	478,790	478,790	478,790	478,790	518,464	
2007	2,861	119,076	363,029	442,068	537,077	674,872	743,159	803,483	916,913	1,006,421	1,008,109	1,076,420	1,112,466	1,146,136	1,200,201	1,213,637	1,237,230	1,268,302	1,297,044	1,338,374	1,368,599	1,400,377	1,426,661	1,448,048	1,462,117	1,471,335	1,479,759	1,479,759	1,479,759	1,602,376	
2008	60,614	254,231	266,381	320,759	400,143	502,530	517,750	562,296	587,385	596,073	615,335	666,862	688,613	698,412	705,588	705,588	729,237	734,301	752,743	769,801	794,331	812,270	831,130	846,730	859,423	867,773	873,244	878,244	878,244	878,244	951,018
2009	93,362	282,127	442,836	504,349	532,197	540,101	592,613	612,576	623,399	659,857	675,804	690,692	690,692	712,041	712,041	729,237	758,913	777,973	795,603	820,954	839,495	858,987	875,109	888,228	896,858	902,512	907,680	907,680	907,680	982,893	
2010		125,006	229,422	248,031	338,015	353,987	378,531	446,308	485,492	507,551	521,824	560,509	560,509	563,408	582,692	596,765	621,049	636,647	651,074	671,820	686,993	702,944	716,137	726,873	733,936	738,563	742,791	742,791	742,791	742,791	804,341
2011	120,046	332,076	612,202	684,075	752,341	813,135	874,773	904,905	930,473	968,523	1,019,798	1,040,105	1,077,136	1,098,888	1,136,501	1,163,949	1,211,314	1,241,736	1,269,875	1,310,340	1,339,932	1,371,045	1,396,777	1,417,717	1,431,491	1,440,516	1,448,764	1,448,764	1,448,764	1,568,813	
2012	9,999	133,785	188,289	213,486	235,093	249,801	271,398	287,908	297,472	305,720	305,720	314,112	320,455	331,423	339,427	353,240	362,112	370,318	382,118	390,747	399,820	407,324	413,431	417,448	420,079	422,484	422,484	422,484	422,484	457,493	
2013	43,387	221,753	340,269	510,062	602,181	636,244	850,328	905,949	1,032,105	1,078,285	1,148,079	1,193,954	1,226,726	1,251,499	1,294,335	1,325,594	1,379,538	1,414,185	1,446,232	1,492,316	1,526,018	1,561,451	1,590,758	1,614,605	1,630,293	1,640,571	1,649,964	1,649,964	1,649,964	1,786,685	
2014	18,035	250,466	420,375	484,944	548,829	581,613	606,670	638,491	656,711	706,966	733,712	763,029	783,973	799,805	827,181	847,158	881,632	903,774	924,255	953,706	975,244	997,889	1,016,618	1,031,838	1,041,884	1,048,452	1,054,455	1,054,455	1,054,455	1,141,831	
2015		37,773	84,716	91,292	104,472	107,157	107,157	107,157	107,157	111,839	116,070	120,708	124,021	126,526	130,856	134,017	139,470	142,973	146,213	150,872	154,279	157,862	160,825	163,236	164,822	165,861	166,810	166,810	166,810	180,633
2016		275,228	350,684	411,051	494,944	580,460	651,093	721,097	766,605	800,099	830,367	863,548	887,250	905,168	936,150	958,759	997,775	1,022,833	1,046,012	1,079,343	1,103,719	1,129,346	1,150,543	1,167,791	1,179,137	1,186,571	1,193,364	1,193,364	1,193,364	1,292,250
2017	141,856	295,863	425,489	444,673	515,254	554,058	564,063	597,662	635,380	663,140	688,228	715,728	735,374	750,224	775,902	794,641	826,979	847,748	866,959	894,584	914,787	936,028	953,596	967,892	977,296	983,457	989,088	989,088	989,088	1,071,047	
2018	73,595	255,822	317,239	367,138	435,392	507,450	554,126	587,132	624,186	651,457	676,102	703,118	722,418	737,006	762,232	780,641	812,409	832,812	851,685	878,824	898,671	919,537	936,796	950,840	960,078	966,131	971,662	971,662	971,662	1,052,177	
2019		116,852	182,025	230,417	287,383	316,174	345,256	365,821	388,907	405,899	421,255	438,087	450,112	459,202	474,919	486,389	506,182	518,895	530,654	547,563	559,929	572,930	583,683	592,434	598,190	601,961	605,407	605,407	605,407	655,573
2020	8,637	41,206	51,832	99,099	117,126	128,970	140,832	149,221	158,638	165,569	171,833	178,699	183,604	187,312	193,723	198,402	206,475	211,661	216,458	223,355	228,399	233,702	238,089	241,658	244,006	245,544	246,950	246,950	246,950	267,413	
2021		14,326	38,178	48,993	57,955	63,761	69,625	73,773	78,428	81,855	84,952	88,346	90,771	92,604	95,774	98,087	102,078	104,642	107,013	110,423	112,917	115,539	117,707	119,472	120,633	121,393	122,088	122,088	122,088	132,205
2022	19,593	70,940	110,250	141,484	167,362	184,129	201,065	213,042	226,487	236,382	245,325	255,128	262,131	267,424	276,577	283,257	294,784	302,187	309,035	318,883	326,084	333,656	339,918	345,014	348,366	350,562	352,569	352,569	352,569	381,784	
2023																															

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Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Remedial UST
Selection of Loss Development Factors

Development Period in Months

RY	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-228	228-240	240-252	252-264	264-276	276-288	288-300	300-312	312-324	324-336	336-348	348-360	TAIL
1994																														
1995																														
1996	20.724	3.266	2.407	2.036	1.409	1.264	1.161	1.143	1.103	1.082	1.072	1.051	1.076	1.061	1.043	1.032	1.031	1.021	1.035	1.021	1.023	1.023	1.020	1.011	1.008	1.006	1.008	1.000	1.000	
1997	16.969	2.041	1.600	1.265	1.152	1.071	1.019	1.041	1.041	1.021	1.095	1.027	1.040	1.046	1.019	1.013	1.006	1.012	1.012	1.008	1.029	1.015	1.014	1.010	1.004	1.012				
1998	12.647	2.010	1.342	1.146	1.074	1.053	1.029	1.071	1.035	1.080	1.051	1.056	1.032	1.031	1.025	1.017	1.018	1.019	1.010	1.012	1.018	1.031	1.016	1.004	1.006	1.001				
1999	4.821	1.254	1.276	1.187	1.132	1.024	1.044	1.039	1.066	1.103	1.056	1.032	1.019	1.020	1.016	1.012	1.013	1.023	1.018	1.017	1.009	1.005	1.004	1.017						
2000	2.319	1.409	1.202	1.169	1.115	1.077	1.140	1.034	1.054	1.044	1.028	1.027	1.031	1.030	1.030	1.027	1.025	1.030	1.036	1.028	1.023	1.017	1.015							
2001	3.234	1.268	1.346	1.120	1.179	1.166	1.155	1.112	1.047	1.052	1.037	1.017	1.018	1.009	1.043	1.065	1.056	1.023	1.035	1.016	1.010									
2002	10.139	2.111	1.125	1.147	1.072	1.092	1.039	1.043	1.094	1.033	1.046	1.078	1.043	1.070	1.090	1.065	1.041	1.023	1.011	1.002	1.006									
2003	2.817	1.576	1.195	1.149	1.129	1.151	1.063	1.049	1.089	1.032	1.076	1.029	1.063	1.058	1.049	1.046	1.039	1.032	1.030	1.022										
2004	4.773	1.326	1.368	1.217	1.136	1.111	1.059	1.037	1.037	1.046	1.032	1.043	1.015	1.037	1.036	1.053	1.030	1.011	1.007	1.053										
2005	3.426	1.446	1.590	1.161	1.212	1.132	1.037	1.039	1.095	1.041	1.261	1.036	1.008	1.010	1.007	1.003	1.004	1.000												
2006	4.337	3.865	1.419	1.348	1.051	1.042	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.218	1.000	1.120	1.019													
2007	41.628	3.049	1.218	1.215	1.257	1.101	1.081	1.141	1.098	1.002	1.068	1.033	1.030	1.047	1.011	1.019														
2008	4.194	1.048	1.204	1.247	1.256	1.030	1.086	1.045	1.015	1.032	1.084	1.033	1.014	1.010	1.000															
2009	3.022	1.570	1.139	1.055	1.015	1.097	1.034	1.018	1.058	1.024	1.022	1.000	1.031	1.000																
2010	1.835	1.081	1.363	1.047	1.069	1.179	1.088	1.045	1.028	1.074	1.000	1.005																		
2011	2.766	1.844	1.117	1.100	1.081	1.076	1.034	1.028	1.041	1.053	1.020	1.036																		
2012	13.380	1.407	1.134	1.101	1.063	1.086	1.061	1.033	1.028	1.000	1.000																			
2013	5.111	1.534	1.499	1.181	1.057	1.336	1.065	1.139	1.045	1.065																				
2014	13.888	1.678	1.154	1.132	1.060	1.043	1.052	1.029	1.077																					
2015		2.243	1.078	1.144	1.026	1.000	1.000	1.000																						
2016		1.274	1.172	1.204	1.173	1.122	1.108																							
2017	2.086	1.438	1.045	1.159	1.075	1.018																								
2018	3.476	1.240	1.157	1.186	1.166																									
2019		1.558	1.266	1.247																										
2020	4.771	1.258	1.912																											
2021		2.665																												
2022	3.621																													
VOL WTD 3	4.480	1.578	1.264	1.188	1.136	1.065	1.075	1.087	1.053	1.051	1.032	1.016	1.018	1.024	1.006	1.019	1.006	1.009	1.027	1.017	1.019	1.012	1.008	1.010	1.006	1.006	1.008	1.000	NA	
VOL WTD 5	4.902	1.401	1.170	1.190	1.110	1.130	1.070	1.063	1.048	1.043	1.040	1.024	1.020	1.029	1.018	1.026	1.022	1.023	1.032	1.023	1.022	1.014	1.015	1.010	1.006	1.006	1.008	1.000	NA	
VOL WTD ALL	4.528	1.739	1.337	1.195	1.137	1.099	1.090	1.074	1.067	1.044	1.031	1.012	1.017	1.019	1.004	1.048	1.005	1.013	1.031	1.019	1.015	1.010	1.011	1.004	1.006	1.004	1.000	NA		
ARITH 3	4.196	1.827	1.445	1.197	1.138	1.047	1.053	1.056	1.050	1.039	1.031	1.012	1.017	1.019	1.004	1.048	1.005	1.013	1.031	1.019	1.015	1.011	1.008	1.011	1.004	1.006	1.000	NA		
ARITH 5	3.956	1.632	1.310	1.188	1.100	1.104	1.057	1.046	1.047	1.034	1.040	1.020	1.016	1.057	1.014	1.044	1.019	1.023	1.030	1.021	1.017	1.013	1.011	1.009	1.003	1.006	1.004	1.000	NA	
ARITH ALL	8.615	1.892	1.319	1.229	1.125	1.099	1.069	1.450	1.063	1.038	1.072	1.029	1.030	1.044	1.030	1.033	1.021	1.019	1.023	1.017	1.017	1.012	1.010	1.009	1.003	1.006	1.004	1.000	NA	
5 YR HI LO	3.621	1.418	1.198	1.183	1.100	1.061	1.060	1.030	1.044	1.035	1.039	1.022	1.017	1.022	1.006	1.032	1.018	1.021	1.030	1.023	1.016	1.014	1.011	1.009	1.002	1.006	NA	NA	NA	
7 YR HI LO	3.548	1.554	1.165	1.175	1.084	1.069	1.064	1.039	1.043	1.028	1.037	1.020	1.018	1.032	1.024	1.041	1.024	1.023	1.024	1.019	1.020	1.013	1.009	1.009	1.002	1.006	NA	NA	NA	
ALL YR HI LO	7.221	1.844	1.283	1.201	1.117	1.092	1.067	1.062	1.063	1.036	1.064	1.027	1.029	1.034	1.027	1.028	1.019	1.017	1.022	1.017	1.018	1.013	1.009	1.009	1.002	1.006	NA	NA	NA	TAIL
SELECTED	4.902	1.554	1.283	1.183	1.100	1.092	1.060	1.063	1.044	1.038	1.040	1.027	1.020	1.034	1.024	1.041	1.025	1.023	1.032	1.023	1.023	1.019	1.015	1.010	1.006	1.006	1.000	1.000	1.000	1.083

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Remedial UST
Paid Losses

Development in Months

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312	324	336	348	360
1994	-																													114,027
1995	-	-	-	-	-	-	7,781	72,262	81,424	81,424	101,034	101,034	105,196	106,705	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	
1996	40,315	835,499	2,728,718	6,568,905	13,373,754	18,845,618	23,820,837	27,664,147	31,626,348	34,871,004	37,747,448	40,455,899	42,534,558	45,765,782	48,568,937	50,658,185	52,285,341	53,882,728	55,011,326	56,923,526	58,124,590	59,473,654	60,816,782	62,003,446	62,680,269	63,188,205	63,545,512	64,059,077		
1997	61,400	1,041,894	2,126,620	3,402,864	4,304,438	4,959,870	5,311,545	5,412,008	5,631,204	5,859,361	5,980,682	6,550,759	6,730,658	7,001,728	7,322,383	7,463,064	7,561,344	7,606,213	7,693,757	7,786,570	7,847,588	8,076,143	8,200,584	8,314,134	8,400,063	8,432,328	8,529,481			
1998	239,795	3,032,700	6,094,264	8,178,370	9,375,140	10,068,463	10,602,282	10,912,410	11,684,792	12,096,844	13,060,306	13,727,870	14,499,065	14,951,449	15,319,415	15,575,277	15,862,219	16,158,393	16,312,830	16,500,587	16,792,391	17,314,252	17,590,047	17,668,757	17,779,349	17,799,357				
1999	436,835	2,105,831	2,641,761	3,370,046	3,998,601	4,527,780	4,638,276	4,843,173	5,032,565	5,366,728	5,917,688	6,249,511	6,450,553	6,574,295	6,705,452	6,809,966	6,893,063	6,982,923	7,144,639	7,276,048	7,401,552	7,470,931	7,507,360	7,539,703	7,668,887					
2000	1,404,622	3,256,938	4,590,454	5,519,248	6,451,995	7,193,747	7,750,786	8,836,291	9,135,094	9,627,642	10,050,268	10,330,492	10,607,398	10,934,896	11,265,746	11,608,205	11,922,692	12,218,748	12,583,946	13,033,082	13,401,053	13,707,066	13,940,368	14,148,993						
2001	-	147,472	476,981	604,628	813,801	911,192	1,074,243	1,252,777	1,447,406	1,609,378	1,814,667	1,875,002	1,960,925	2,114,181	2,204,070	2,358,085	2,569,598	2,737,830	2,849,874	2,914,700	2,946,891	2,951,515	2,970,446							
2002	47,379	480,361	1,014,084	1,140,741	1,308,579	1,402,608	1,531,018	1,591,392	1,659,124	1,685,756	1,773,480	1,839,082	1,870,679	1,904,981	1,922,955	2,005,524	2,135,112	2,253,770	2,305,160	2,384,844	2,422,364	2,447,144								
2003	71,422	201,172	317,027	378,728	435,080	491,064	565,402	600,804	630,373	686,253	708,407	762,255	784,155	833,873	881,870	925,066	967,687	1,005,806	1,037,603	1,068,824	1,092,445									
2004	84,160	401,722	532,740	728,973	887,261	1,008,297	1,120,106	1,186,075	1,229,393	1,286,274	1,327,154	1,384,142	1,404,444	1,456,535	1,508,295	1,588,561	1,635,498	1,654,081	1,666,236	1,754,136										
2005	115,085	394,303	570,217	906,812	1,053,062	1,275,950	1,444,651	1,497,871	1,556,506	1,704,631	1,773,966	2,236,223	2,315,908	2,334,050	2,357,368	2,374,726	2,382,660	2,391,427	2,391,427											
2006	8,574	37,183	143,721	203,989	274,938	288,877	300,938	300,938	300,938	300,938	300,938	300,938	300,938	300,938	300,938	366,445	366,445	410,371												
2007	2,861	119,076	363,029	442,068	537,077	674,872	743,159	803,483	916,913	1,006,421	1,008,109	1,076,420	1,112,466	1,146,136	1,200,201	1,213,637	1,237,230													
2008	60,614	254,231	266,381	320,759	400,143	502,530	517,750	562,296	587,385	596,073	615,335	666,862	688,613	698,412	705,588	705,588														
2009	93,362	282,127	442,836	504,349	532,197	540,101	592,613	612,576	623,399	659,857	675,804	690,692	712,041	712,041	712,041															
2010	-	125,006	229,422	248,031	338,015	353,987	378,531	446,308	485,492	507,551	521,824	560,509	560,509	563,408																
2011	120,046	332,076	612,202	684,075	752,341	813,135	874,773	904,905	930,473	968,523	1,019,798	1,040,105	1,077,136																	
2012	9,999	133,785	188,289	213,486	235,080	249,801	271,398	287,908	297,472	305,720	305,720	305,720																		
2013	43,387	221,753	340,269	510,062	602,181	636,244	850,328	905,949	1,032,105	1,078,285	1,148,079																			
2014	18,035	250,466	420,375	484,944	548,829	581,613	606,670	638,491	656,711	706,966																				
2015	-	37,773	84,716	91,292	104,472	107,157	107,157	107,157	107,157																					
2016	-	275,228	350,684	411,051	494,944	580,460	651,093	721,097																						
2017	141,856	295,863	425,489	444,673	515,254	554,058	564,063																							
2018	73,595	255,822	317,239	367,138	435,392	507,450																								
2019	-	116,852	182,025	230,417	287,383																									
2020	8,637	41,206	51,832	99,099																										
2021	-	14,326	38,178																											
2022	19,593	70,940																												
2023	-																													

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Remedial UST
Summary of Incurred Development Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	INC LDM	PAID	INCURRED	CASE	IBNR	UNPAID
RY	ULTIMATE	LOSS	LOSS	RESERVE	RESERVE	LOSS
1994	-	-	-	-	-	-
1995	114,027	114,027	114,027	-	-	-
1996	69,218,445	64,059,077	69,218,445	5,159,367	-	5,159,367
1997	9,170,047	8,529,481	9,170,047	640,565	-	640,565
1998	19,085,557	17,799,357	19,085,557	1,286,200	-	1,286,200
1999	8,440,945	7,668,887	8,398,678	729,791	42,267	772,058
2000	16,271,892	14,148,993	16,190,413	2,041,420	81,479	2,122,899
2001	3,406,322	2,447,144	3,389,265	942,121	17,057	959,178
2002	3,277,715	2,970,446	3,239,727	269,282	37,988	307,269
2003	1,164,735	1,092,445	1,136,652	44,207	28,083	72,290
2004	2,597,955	1,754,136	2,506,657	752,522	91,298	843,820
2005	2,903,847	2,391,427	2,788,380	396,953	115,467	512,420
2006	755,818	410,371	715,521	305,150	40,297	345,447
2007	1,498,076	1,237,230	1,375,354	138,125	122,722	260,847
2008	769,870	705,588	705,588	-	64,281	64,281
2009	900,929	712,041	815,042	103,001	85,887	188,888
2010	937,266	563,408	823,409	260,001	113,857	373,858
2011	2,037,645	1,077,136	1,772,862	695,725	264,784	960,509
2012	355,330	305,720	305,720	-	49,610	49,610
2013	1,591,402	1,148,079	1,356,966	208,887	234,436	443,323
2014	1,046,094	706,966	879,488	172,521	166,606	339,127
2015	130,995	107,157	107,158	1	23,837	23,838
2016	1,542,435	721,097	1,216,866	495,769	325,569	821,338
2017	853,251	564,063	663,561	99,498	189,690	289,188
2018	1,040,632	507,450	784,953	277,503	255,680	533,182
2019	737,647	287,383	544,232	256,849	193,415	450,264
2020	388,509	99,099	275,274	176,175	113,234	289,409
2021	233,005	38,178	151,100	112,922	81,905	194,828
2022	1,000,888	70,940	607,100	536,160	393,788	929,948
2023	434,643	-	179,002	179,002	255,641	434,643
TOTAL	151,905,922	132,237,326	148,517,044	16,279,718	3,388,878	19,668,595

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Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Remedial UST
Development of Losses to Ultimate

RY	Development Period in Months 12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - 276	276 - 288	288 - 300	300 - 312	312 - 324	324 - 336	336 - 348	348 - 360	360 - ULT
1994																															1.000
1995	1.000	1.000	1.000	1.000	1.000	1.000	1.000	3.677	1.000	1.321	1.000	1.000	1.000	1.000	1.000	0.939	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1996	0.902	1.033	0.991	1.067	1.057	1.024	1.022	0.986	0.975	1.004	0.996	1.019	1.016	1.000	1.030	1.013	1.015	1.034	1.021	1.013	1.003	1.004	1.011	1.002	1.002	1.006	1.011	1.009	1.000	1.000
1997	1.396	1.116	1.162	1.127	1.028	1.003	0.954	0.965	1.029	1.098	0.987	1.020	1.012	1.040	1.012	1.002	1.015	1.000	1.012	0.992	1.014	1.012	0.988	1.004	1.008	1.031	1.000	1.000	1.000	1.000
1998	1.204	1.386	1.084	1.038	1.045	0.968	1.004	1.048	1.012	1.016	1.052	1.024	1.027	1.042	1.012	1.001	1.040	1.005	0.996	1.022	1.016	0.999	0.996	0.996	0.999	1.000	1.000	1.000	1.000	1.000
1999	1.388	1.027	0.939	1.053	0.966	0.914	0.986	1.021	1.015	1.032	1.011	1.048	1.002	0.997	0.991	1.000	1.023	0.977	1.010	0.995	1.024	1.007	1.033	0.986	1.005	1.000	1.000	1.000	1.000	1.000
2000	1.144	1.133	1.038	0.934	0.926	1.063	1.055	1.053	1.020	0.993	0.996	1.031	1.010	1.012	1.023	1.018	1.007	1.029	1.013	1.069	1.020	0.997	0.981	1.000	1.005	1.000	1.000	1.000	1.000	1.000
2001	0.887	1.044	0.845	0.979	0.876	1.081	1.101	1.045	0.957	1.025	1.000	0.983	0.953	1.003	1.019	1.002	1.300	1.041	0.975	0.973	1.003	0.999	1.000	1.005	1.000	1.000	1.000	1.000	1.000	1.000
2002	1.056	0.963	0.912	0.932	1.005	1.041	0.957	1.018	1.185	1.082	0.991	0.983	1.010	1.074	1.000	0.999	1.001	0.990	0.979	1.000	1.000	1.007	1.000	1.000	1.005	1.000	1.000	1.000	1.000	1.000
2003	0.768	1.061	0.829	0.946	0.999	1.044	0.979	1.036	1.062	1.015	1.033	0.999	1.018	0.960	1.011	1.000	0.994	1.018	1.017	0.998	1.013	1.007	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2004	0.792	0.965	1.015	1.055	0.994	0.990	0.960	1.022	0.990	0.965	1.018	0.990	1.034	1.125	1.046	1.000	1.054	1.000	1.115	1.011	1.013	1.013	1.007	1.000	1.005	1.000	1.000	1.000	1.000	1.000
2005	0.933	0.960	1.098	0.982	1.011	0.876	1.016	1.012	1.006	0.990	1.012	0.993	1.008	1.016	1.000	1.000	0.987	1.000	1.005	1.011	1.013	1.013	1.007	1.000	1.005	1.000	1.000	1.000	1.000	1.000
2006	0.767	0.851	0.950	1.035	0.886	0.992	1.000	1.000	1.000	1.000	0.889	1.332	1.000	1.173	1.000	1.000	1.142	1.014	1.005	1.011	1.013	1.013	1.007	1.000	1.005	1.000	1.000	1.000	1.000	1.000
2007	0.911	1.068	1.001	0.914	1.102	1.090	1.075	1.047	0.964	1.000	1.030	1.026	1.000	1.039	1.003	0.987	1.031	1.014	1.005	1.011	1.013	1.013	1.007	1.000	1.005	1.000	1.000	1.000	1.000	1.000
2008	0.755	0.932	0.985	1.262	1.008	1.025	0.999	1.000	0.961	1.000	1.084	1.037	1.000	0.990	1.000	1.002	1.031	1.014	1.005	1.011	1.013	1.013	1.007	1.000	1.005	1.000	1.000	1.000	1.000	1.000
2009	1.125	0.974	0.970	0.998	1.031	1.010	0.995	1.000	0.975	1.000	0.992	0.935	1.135	1.000	1.013	1.002	1.031	1.014	1.005	1.011	1.013	1.013	1.007	1.000	1.000	1.005	1.000	1.000	1.000	1.000
2010	0.696	0.950	0.912	1.001	0.981	1.000	0.974	1.023	0.918	1.021	0.991	1.000	1.000	1.030	1.013	1.002	1.031	1.014	1.005	1.011	1.013	1.013	1.007	1.000	1.000	1.005	1.000	1.000	1.000	1.000
2011	1.126	1.158	0.990	1.312	1.043	1.000	1.005	1.009	1.027	0.964	1.000	1.001	1.010	1.030	1.013	1.002	1.031	1.014	1.005	1.011	1.013	1.013	1.007	1.000	1.000	1.005	1.000	1.000	1.000	1.000
2012	1.075	0.851	1.037	0.721	1.037	0.995	1.000	1.000	0.848	1.000	1.000	1.011	1.010	1.030	1.013	1.002	1.031	1.014	1.005	1.011	1.013	1.013	1.007	1.000	1.000	1.005	1.000	1.000	1.000	1.000
2013	0.916	1.273	1.078	1.013	1.113	1.093	0.988	1.084	1.092	1.000	1.009	1.011	1.010	1.030	1.013	1.002	1.031	1.014	1.005	1.011	1.013	1.013	1.007	1.000	1.000	1.005	1.000	1.000	1.000	1.000
2014	1.190	0.875	1.022	0.977	1.008	0.995	1.000	1.000	1.055	1.136	1.014	1.009	1.011	1.010	1.030	1.013	1.002	1.031	1.014	1.005	1.011	1.013	1.007	1.000	1.000	1.005	1.000	1.000	1.000	1.000
2015	1.537	0.675	0.868	0.864	0.557	1.000	1.000	1.000	1.028	1.014	1.009	1.011	1.010	1.030	1.013	1.002	1.031	1.014	1.005	1.011	1.013	1.013	1.007	1.000	1.000	1.005	1.000	1.000	1.000	1.000
2016	2.647	1.049	1.127	1.090	1.008	1.113	1.017	1.037	1.028	1.014	1.009	1.011	1.010	1.030	1.013	1.002	1.031	1.014	1.005	1.011	1.013	1.013	1.007	1.000	1.000	1.005	1.000	1.000	1.000	1.000
2017	1.426	0.814	1.167	1.000	1.054	1.000	1.014	1.037	1.028	1.014	1.009	1.011	1.010	1.030	1.013	1.002	1.031	1.014	1.005	1.011	1.013	1.013	1.007	1.000	1.000	1.005	1.000	1.000	1.000	1.000
2018	0.948	1.088	0.984	1.328	1.000	1.031	1.014	1.037	1.028	1.014	1.009	1.011	1.010	1.030	1.013	1.002	1.031	1.014	1.005	1.011	1.013	1.013	1.007	1.000	1.000	1.005	1.000	1.000	1.000	1.000
2019	1.509	1.000	1.198	1.033	1.022	1.031	1.014	1.037	1.028	1.014	1.009	1.011	1.010	1.030	1.013	1.002	1.031	1.014	1.005	1.011	1.013	1.013	1.007	1.000	1.000	1.005	1.000	1.000	1.000	1.000
2020	1.001	1.000	0.771	1.041	1.022	1.031	1.014	1.037	1.028	1.014	1.009	1.011	1.010	1.030	1.013	1.002	1.031	1.014	1.005	1.011	1.013	1.013	1.007	1.000	1.000	1.005	1.000	1.000	1.000	1.000
2021	1.000	2.289	1.093	1.041	1.022	1.031	1.014	1.037	1.028	1.014	1.009	1.011	1.010	1.030	1.013	1.002	1.031	1.014	1.005	1.011	1.013	1.013	1.007	1.000	1.000	1.005	1.000	1.000	1.000	1.000
2022	7.967	1.069	1.093	1.041	1.022	1.031	1.014	1.037	1.028	1.014	1.009	1.011	1.010	1.030	1.013	1.002	1.031	1.014	1.005	1.011	1.013	1.013	1.007	1.000	1.000	1.005	1.000	1.000	1.000	1.000
2023	1.473	1.069	1.093	1.041	1.022	1.031	1.014	1.037	1.028	1.014	1.009	1.011	1.010	1.030	1.013	1.002	1.031	1.014	1.005	1.011	1.013	1.013	1.007	1.000	1.000	1.005	1.000	1.000	1.000	1.000

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312	324	336	348	360	ULT
1994																															
1995	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	91,936	91,936	121,424	121,424	121,424	121,424	121,424	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027
1996	53,531,128	48,276,729	49,847,529	49,418,092	52,753,132	55,738,399	57,091,010	58,374,714	57,572,079	56,151,498	56,390,044	56,178,170	57,273,590	58,214,909	59,977,749	60,770,991	61,688,932	63,792,669	65,150,172	65,977,888	66,150,236	66,410,153	67,147,100	67,248,518	67,388,931	67,820,317	68,580,702	69,218,445	69,218,445	69,218,445	69,218,445
1997	3,623,255	5,056,762	5,645,295	6,559,604	7,389,942	7,593,854	7,617,322	7,270,502	7,018,575	7,225,243	7,931,591	7,826,924	7,979,609	8,072,414	8,391,881	8,488,892	8,504,323	8,633,879	8,636,397	8,738,364	8,670,098	8,791,796	8,900,508	8,793,515	8,827,197	8,894,995	9,170,047	9,170,047	9,170,047	9,170,047	9,170,047
1998	7,409,437	8,921,577	12,369,029	13,404,188	13,919,877	14,550,902	14,092,048	14,149,777	14,829,092	15,013,956	15,259,044	16,052,593	16,444,809	16,896,144	17,597,797	17,814,255	17,835,695	18,556,400	18,647,583	18,568,571	18,971,581	19,269,629	19,245,674	19,177,563	19,105,032	19,085,557	19,085,557	19,085,557	19,085,557	19,085,557	19,085,557
1999	5,779,939	8,024,567	8,241,908	7,737,025	8,143,656	7,865,685	7,192,693	7,094,803	7,246,092	7,355,844	7,589,351	7,674,874	8,045,877	8,059,650	8,032,191	7,960,410	7,958,498	8,144,205	7,960,287	8,039,540	7,997,090	8,192,089	8,245,749	8,515,122	8,398,678	8,440,945	8,440,945	8,440,945	8,440,945	8,440,945	8,440,945
2000	9,506,730	10,878,161	12,327,020	12,796,309	11,952,953	11,069,344	11,764,305	12,407,735	13,064,765	13,323,241	13,236,077	13,183,944	13,594,880	13,725,657	13,890,845	14,208,532	14,208,322	14,461,978	14,567,342	14,987,967	15,179,509	16,234,214	16,558,944	16,504,534	16,190,413	16,190,413	16,271,892	16,271,892	16,271,892	16,271,892	16,271,892
2001	3,352,183	2,974,870	3,105,598	2,624,610	2,569,088	2,249,767	2,432,889	2,678,844	2,799,441	2,679,331	2,745,539	2,744,650	2,698,160	2,571,752	2,580,388	2,629,369	2,635,271	3,425,000	3,565,999	3,477,574	3,383,497	3,392,897	3,389,265	3,389,265	3,406,322	3,406,322	3,406,322	3,406,322	3,406,322	3,406,322	3,406,322
2002	2,797,972	2,955,239	2,845,096	2,594,519	2,418,970	2,430,893	2,530,221	2,421,288	2,465,465	2,921,043	3,160,884	3,133,768	3,081,785	3,114,120	3,344,801	3,344,801	3,340,765	3,344,498	3,309,504	3,239,727	3,239,727	3,239,727	3,261,303	3,261,303	3,261,303	3,277,715	3,277,715	3,277,715	3,277,715	3,277,715	3,277,715
2003	1,489,298	1,143,640	1,213,936	1,006,896	952,160	951,366	993,623	972,568	1,007,453	1,070,316	1,086,373	1,121,830	1,121,173	1,141,225	1,095,113	1,107,025	1,107,024	1,100,057	1,120,214	1,138,780	1,136,652	1,151,236	1,158,902	1,158,902	1,164,735	1,164,735	1,164,735	1,164,735	1,164,735	1,164,735	1,164,735
2004	2,301,364	1,823,715	1,760,490	1,786,563	1,884,943	1,873,520	1,854,994	1,780,593	1,820,297	1,801,844	1,739,255	1,770,350	1,752,809	1,811,564	2,037,947	2,132,503	2,132,503	2,248,009	2,248,009	2,506,657	2,535,317	2,567,846	2,584,946	2,584,946	2,597,955	2,597,955	2,597,955	2,597,955	2,597,955	2,597,955	2,597,955
2005	3,138,114	2,929,139	2,810,581	3,086,814	3,030,308	3,062,220	2,681,318	2,723,317	2,755,742	2,771,583	2,744,820	2,777,459	2,757,862	2,778,623	2,824,321	2,824,321	2,824,321	2,788,380	2,788,380	2,801,799	2,833,833	2,870,192	2,889,306	2,889,306	2,903,847	2,903,847	2,903,847	2,903,847	2,903,847	2,903,847	2,903,847
2006	800,018	613,382	522,075	495,902	513,398	454,751	450,940	450,940	450,940	450,940	400,940	533,939	533,939	626,438	626,438	626,438	677,125	715,521	725,764	729,257	737,595	747,059	752,034	752,034	755,818	755,818	755,818	755,818	755,818	755,818	755,818
2007	1,090,014	993,082	1,060,685	1,062,066	970,948	1,070,209	1,166,127	1,253,301	1,312,571	1,264,959	1,264,959	1,302,593	1,336,035	1,336,035	1,388,675	1,393,322	1,375,354	1,418,205	1,438,508	1,445,431	1,461,957	1,480,714	1,490,575	1,490,575	1,498,076	1,498,076	1,498,076	1,498,076	1,498,076	1,498,076	1,498,076
2008	731,009	551,962	514,640	506,914	639,744	644,925	660,908	660,233	660,233	634,174	634,174	687,450	712,613	712,613	705,588	705,588	706,802	728,823	739,257	742,815	751,307	760,947	766,015	766,015	769,870	769,870	769,870	769,870	769,870	769,870	769,870
2009	722,859	813,160	792,224	768,528	767,285	790,728	798,504	794,123	794,123	774,343	774,343	767,806	717,805	815,042	815,042	825,704	827,125	852,894	865,105	869,268	879,207	890,487	896,417	896,417	900,929	900,929	900,929	900,929	900,929	900,929	900,929
2010	1,501,515	1,045,356	993,470	905,640	906,778	889,689	889,689	866,612	886,809	814,151	831,186	823,410	823,410	823,409	847,914	859,007	860,485	887,294	899,997	904,328	914,667	926,403	932,572	932,572	937,266	937,266	937,266	937,266	937,266	937,266	937,266
2011	999,032	1,125,045	1,302,535	1,288,969	1,691,617	1,763,581	1,763,581	1,773,194	1,789,194	1,836,973	1,771,122	1,771,122	1,772,862	1,790,118	1,843,393	1,867,509	1,870,722	1,929,006	1,956,622	1,966,038	1,988,516	2,014,030	2,027,442	2,027,442	2,037,645	2,037,645	2,037,645	2,037,645	2,037,645	2,037,645	2,037,645
2012	510,805	549,280	467,534	484,868	349,610	362,382	360,480	360,480	360,480	305,720	305,720	305,720	309,157	312,166	321,456	325,661	326,222	336,385	341,201	342,843	346,763	351,212	353,551	353,551	355,330	355,330	355,330	355,330	355,330	355,330	355,330
2013	749,010	686,060	873,521	942,049	954,324	1,061,991	1,160,751	1,147,103	1,242,963	1,357,285	1,356,966	1,369,214	1,384,606	1,398,082	1,439,691	1,458,525	1,461,034	1,506,554	1,528,122	1,535,476	1,553,032	1,572,958	1,583,433	1,583,433	1,591,402	1,591,402	1,591,402	1,591,402	1,591,402	1,591,402	1,591,402
2014	704,012	837,531	732,853	748,791	731,229	737,336	733,721	733,721	773,923	879,488	891,989	900,041	910,158	919,017	946,368	958,749	960,398	990,320	1,004,498	1,009,332	1,020,872	1,033,970	1,040,856	1,040,856	1,046,094	1,046,094	1,046,094	1,046,094	1,046,094	1,046,094	1,046,094
2015	247,006	379,643	256,400	222,633	192,349	107,159	107,159	107,158	107,158	110,132	111,698	112,706	113,973	115,082	118,507	120,058	120,264	124,011	125,786	126,392	127,837	129,477	130,339	130,339	130,995	130,995	130,995	130,995	130,995	130,995	130,995
2016	313,008	828,611	868,811	978,809	1,066,742	1,075,089	1,196,458	1,216,866	1,261,760	1,296,779	1,315,212	1,327,084	1,342,001	1,355,064	1,395,392	1,413,647	1,416,079	1,460,198	1,481,102	1,488,230	1,505,245	1,524,558	1,534,711	1,534,711	1,542,435	1,542,435	1,542,435	1,542,435	1,542,435	1,542,435	1,542,435
2017	465,001	662,914	539,396	629,732	629,732	663,561	663,561	673,151	697,986	717,358	727,555	734,122	742,375	749,600	771,909	782,008	783,353	807,759	819,323	823,266	832,678	843,362	848,978	848,978	853,251	853,251	853,251	853,251	853,251	853,251	853,251
2018	582,223	551,894	600,621	590,864	784,953	784,953	809,285	820,981	851,270	874,896	887,333	895,342	905,407	914,219	941,427	953,743	955,384	985,150	999,253	1,004,062	1,015,542	1,028,572	1,035,422	1,035,422	1,040,632	1,040,632	1,040,632	1,040,632	1,040,632	1,040,632	1,040,632
2019	291,502	439,872	439,872	526,812	544,232	556,410	573,657	581,948	603,418	620,165	628,981	634,658	641,793	648,039	667,326	676,056	677,219	698,318	708,315	711,724	719,862	729,098	733,953	733,953	737,647	737,647	737,647	737,647	737,647	737,647	737,647
2020	357,003	367,216	357,215	275,274	286,640	293,053	302,138	306,504	317,812	326,633	331,276	334,266	338,023	341,314	351,471	356,069	356,682	367,795	373,060	374,856	379,141	384,006	386,563	386,563	388,509	388,509	388,509	388,509	388,509	388,509	388,509
2021	66,000	66,001	151,100	165,094	171,910	175,757	181,205	183,824	190,606	195,896	198,680	200,474	202,727	204,700	210,793	213,550	213,918	220,582	223,740	224,817	227,387	230,305	231,839	231,839	233,005	233,005	233,005	233,005	233,005	233,005	233,005
2022	76,203	607,100	649,059	709,171	738,450	754,974	778,377	789,626	818,758	841,482	853,443	861,147	870,827	879,303	905,472	917,318	918,896	947,525	961,090	965,715	976,756	989,288	995,877	995,877	1,000,888	1,000,888	1,000,888	1,000,888	1,000,888	1,000,888	1,000,888
2023	179,002	263,638	281,859	307,963	320,678	327,853	338,016	342,901	355,552	365,420	370,614	373,960	378,163	381,844	393,208	398,352	399,038	411,470	417,361	419,369	424,164	429,606	432,467	432,467	434,643	434,643	434,643	434,643	434,643	434,643	434,643

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Remedial UST
Selection of Loss Development Factors

Development Period in Months

RY	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-228	228-240	240-252	252-264	264-276	276-288	288-300	300-312	312-324	324-336	336-348	348-360
1994																													
1995	1.000	1.000	1.000	1.000	1.000	1.000	1.000	3.677	1.000	1.321	1.000	1.000	1.000	1.000	1.000	0.939	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1996	0.902	1.033	0.991	1.067	1.057	1.024	1.022	0.986	0.975	1.004	0.996	1.019	1.016	1.030	1.013	1.015	1.034	1.021	1.013	1.003	1.004	1.011	1.002	1.002	1.006	1.011	1.009		
1997	1.396	1.116	1.162	1.127	1.028	1.003	0.954	0.965	1.029	1.098	0.987	1.020	1.012	1.040	1.012	1.002	1.015	1.000	1.012	0.992	1.014	1.012	0.988	1.004	1.008	1.031			
1998	1.204	1.386	1.084	1.038	1.045	0.968	1.004	1.048	1.012	1.016	1.052	1.024	1.027	1.042	1.012	1.001	1.040	1.005	0.996	1.022	1.016	0.999	0.996	0.996	0.999				
1999	1.388	1.027	0.939	1.053	0.966	0.914	0.986	1.021	1.015	1.032	1.011	1.048	1.002	0.997	0.991	1.000	1.023	0.977	1.010	0.995	1.024	1.007	1.033	0.986					
2000	1.144	1.133	1.038	0.934	0.926	1.063	1.055	1.053	1.020	0.993	0.996	1.031	1.010	1.012	1.023	1.018	1.007	1.029	1.013	1.069	1.020	0.997	0.981						
2001	0.887	1.044	0.845	0.979	0.876	1.081	1.101	1.045	0.957	1.025	1.000	0.983	0.953	1.003	1.019	1.002	1.300	1.041	0.975	0.973	1.003	0.999							
2002	1.056	0.963	0.912	0.932	1.005	1.041	0.957	1.018	1.185	1.082	0.991	0.983	1.010	1.074	1.000	0.999	1.001	0.990	0.979	1.000	1.000								
2003	0.768	1.061	0.829	0.946	0.999	1.044	0.979	1.036	1.062	1.015	1.033	0.999	1.018	0.960	1.011	1.000	0.994	1.018	1.017	0.998									
2004	0.792	0.965	1.015	1.055	0.994	0.990	0.960	1.022	0.990	0.965	1.018	0.990	1.034	1.125	1.046	1.000	1.054	1.000	1.115										
2005	0.933	0.960	1.098	0.982	1.011	0.876	1.016	1.012	1.006	0.990	1.012	0.993	1.008	1.016	1.000	1.000	0.987	1.000											
2006	0.767	0.851	0.950	1.035	0.886	0.992	1.000	1.000	1.000	1.000	0.889	1.332	1.000	1.173	1.000	1.000	1.142												
2007	0.911	1.068	1.001	0.914	1.102	1.090	1.075	1.047	0.964	1.000	1.030	1.026	1.000	1.039	1.003	0.987													
2008	0.755	0.932	0.985	1.262	1.008	1.025	0.999	1.000	0.961	1.000	1.084	1.037	1.000	0.990	1.000														
2009	1.125	0.974	0.970	0.998	1.031	1.010	0.995	1.000	0.975	1.000	0.992	0.935	1.135	1.000															
2010	0.696	0.950	0.912	1.001	0.981	1.000	0.974	1.023	0.918	1.021	0.991	1.000	1.000																
2011	1.126	1.158	0.990	1.312	1.043	1.000	1.005	1.009	1.027	0.964	1.000	1.001																	
2012	1.075	0.851	1.037	0.721	1.037	0.995	1.000	1.000	0.848	1.000	1.000																		
2013	0.916	1.273	1.078	1.013	1.113	1.093	0.988	1.084	1.092	1.000																			
2014	1.190	0.875	1.022	0.977	1.008	0.995	1.000	1.055	1.136																				
2015	1.537	0.675	0.868	0.864	0.557	1.000	1.000	1.000																					
2016	2.647	1.049	1.127	1.090	1.008	1.113	1.017																						
2017	1.426	0.814	1.167	1.000	1.054	1.000																							
2018	0.948	1.088	0.984	1.328	1.000																								
2019	1.509	1.000	1.198	1.033																									
2020	1.001	1.000	0.771																										
2021	1.000	2.289																											
2022	7.967																												
VOL WTD 3	2.064	1.099	0.997	1.121	1.017	1.066	1.010	1.068	1.069	0.981	0.997	0.986	1.043	1.016	1.002	0.996	1.030	1.003	1.031	0.988	1.015	1.000	0.997	0.996	1.005	1.013	1.009	1.000	NA
VOL WTD 5	1.473	1.005	1.070	1.091	0.989	1.059	1.002	1.037	1.028	0.990	1.009	1.002	1.024	1.030	1.013	0.998	1.016	1.010	1.012	1.029	1.017	1.001	0.999	1.000	1.005	1.013	1.009	1.000	NA
VOL WTD ALL	1.009	1.069	1.009	1.041	1.022	1.010	1.014	1.008	0.998	1.013	1.005	1.021	1.015	1.029	1.012	1.010	1.034	1.014	1.010	1.011	1.010	1.007	0.999	1.000	1.005	1.013	1.009	1.000	NA
ARITH 3	3.322	1.430	0.984	1.121	1.021	1.038	1.006	1.046	1.025	0.988	0.997	0.979	1.045	1.010	1.001	0.996	1.061	1.006	1.037	0.990	1.008	1.001	1.003	0.995	1.004	1.014	1.005	1.000	NA
ARITH 5	2.485	1.238	1.049	1.063	0.925	1.040	1.001	1.029	1.004	0.997	1.013	1.000	1.027	1.044	1.010	0.997	1.036	1.010	1.020	1.007	1.013	1.003	1.000	0.998	1.003	1.014	1.005	1.000	NA
ARITH ALL	1.360	1.057	0.999	1.026	0.989	1.014	1.004	1.148	1.009	1.028	1.004	1.025	1.014	1.033	1.005	1.002	1.050	1.007	1.013	1.006	1.010	1.003	1.000	0.998	1.003	1.014	1.005	1.000	NA
5 YR HI LO	1.170	1.029	1.093	1.041	1.005	1.031	1.000	1.021	1.012	1.000	0.997	1.009	1.000	1.019	1.001	1.000	1.016	1.006	1.003	0.998	1.013	1.001	0.995	0.999	1.003	1.011	NA	NA	NA
7 YR HI LO	1.516	0.990	1.034	1.022	1.021	1.018	0.999	1.017	0.994	1.000	1.002	1.011	1.008	1.034	1.003	1.000	1.040	1.007	1.003	1.001	1.011	1.003	0.996	0.999	1.003	1.011	NA	NA	NA
ALL YR HI LO	1.131	1.023	1.000	1.027	1.003	1.016	1.002	1.024	1.008	1.014	1.007	1.010	1.010	1.028	1.007	1.002	1.031	1.007	1.003	1.001	1.009	1.003	0.996	0.999	1.003	1.011	NA	NA	NA
SELECTED	1.473	1.069	1.093	1.041	1.022	1.031	1.014	1.037	1.028	1.014	1.009	1.011	1.010	1.030	1.013	1.002	1.031	1.014	1.005	1.011	1.013	1.007	1.000	1.000	1.005	1.000	1.000	1.000	1.000

Tail: 1.000

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Remedial UST
Incurred Losses

Development in Months

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312	324	336	348	360
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	114,027	114,027	114,027
1995	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	91,936	91,936	121,424	121,424	121,424	121,424	121,424	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	114,027	
1996	53,531,128	48,276,729	49,847,529	49,418,092	52,753,132	55,738,399	57,091,010	58,374,714	57,572,079	56,151,498	56,390,044	56,178,170	57,273,590	58,214,909	59,977,749	60,770,991	61,688,932	63,792,669	65,150,172	65,977,888	66,150,236	66,410,153	67,147,100	67,248,518	67,388,931	67,820,317	68,580,702	69,218,445		
1997	3,623,255	5,056,762	5,645,295	6,559,604	7,389,942	7,593,854	7,617,322	7,270,502	7,018,575	7,225,243	7,931,591	7,826,924	7,979,609	8,072,414	8,391,881	8,488,892	8,504,323	8,633,879	8,636,397	8,738,364	8,670,098	8,791,796	8,900,508	8,793,515	8,827,197	8,894,995	9,170,047			
1998	7,409,437	8,921,577	12,369,029	13,404,188	13,919,877	14,550,902	14,092,048	14,149,777	14,829,092	15,013,956	15,259,044	16,052,593	16,444,809	16,896,144	17,597,797	17,814,255	17,835,695	18,556,400	18,647,583	18,568,571	18,971,581	19,269,629	19,245,674	19,177,563	19,105,032	19,085,557				
1999	5,779,939	8,024,567	8,241,908	7,737,025	8,143,656	7,865,685	7,192,693	7,094,803	7,246,092	7,355,844	7,589,351	7,674,874	8,045,877	8,059,650	8,032,191	7,960,410	7,958,498	8,144,205	7,960,287	8,039,540	7,997,090	8,192,089	8,245,749	8,515,122	8,398,678					
2000	9,506,730	10,878,161	12,327,020	12,796,309	11,952,953	11,069,344	11,764,305	12,407,735	13,064,765	13,323,241	13,236,077	13,183,944	13,594,880	13,725,657	13,890,845	14,208,532	14,461,978	14,567,342	14,987,967	15,179,509	16,234,214	16,558,944	16,504,534	16,190,413						
2001	3,352,183	2,974,870	3,105,598	2,624,610	2,569,088	2,249,767	2,432,889	2,678,844	2,799,441	2,679,331	2,745,539	2,744,650	2,698,160	2,571,752	2,580,388	2,629,369	2,635,271	3,425,000	3,565,999	3,477,574	3,383,497	3,392,897	3,389,265							
2002	2,797,972	2,955,239	2,845,096	2,594,519	2,418,970	2,430,893	2,530,221	2,421,288	2,465,465	2,921,043	3,160,884	3,133,768	3,081,785	3,114,120	3,344,801	3,344,801	3,340,765	3,344,498	3,309,504	3,239,727	3,239,727	3,239,727								
2003	1,489,298	1,143,640	1,213,936	1,006,896	952,160	951,366	993,623	972,568	1,007,453	1,070,316	1,086,373	1,121,830	1,121,173	1,141,225	1,095,113	1,107,025	1,107,024	1,100,057	1,120,214	1,138,780	1,136,652									
2004	2,301,364	1,823,715	1,760,490	1,786,563	1,884,943	1,873,520	1,854,994	1,780,593	1,820,297	1,801,844	1,739,255	1,770,350	1,752,809	1,811,564	2,037,947	2,132,503	2,132,503	2,248,009	2,248,009	2,506,657										
2005	3,138,114	2,929,139	2,810,581	3,086,814	3,030,308	3,062,220	2,681,318	2,723,317	2,755,742	2,771,583	2,744,820	2,777,459	2,757,862	2,778,623	2,824,321	2,824,321	2,824,321	2,788,380	2,788,380											
2006	800,018	613,382	522,075	495,902	513,398	454,751	450,940	450,940	450,940	450,940	450,940	450,940	400,940	533,939	533,939	626,438	626,438	626,438	715,521											
2007	1,090,014	993,082	1,060,685	1,062,066	970,948	1,070,209	1,166,127	1,253,301	1,312,571	1,264,959	1,264,959	1,302,593	1,336,035	1,336,035	1,388,675	1,393,322	1,375,354													
2008	731,009	551,962	514,640	506,914	639,744	644,925	660,908	660,233	660,233	634,174	634,174	687,450	712,613	712,613	705,588	705,588														
2009	722,859	813,160	792,224	768,528	767,285	790,728	798,504	794,123	794,123	774,343	774,343	767,806	717,805	815,042	815,042															
2010	1,501,515	1,045,356	993,470	905,640	906,778	889,689	889,689	866,612	886,809	814,151	831,186	823,410	823,410	823,409																
2011	999,032	1,125,045	1,302,535	1,288,969	1,691,617	1,763,581	1,763,581	1,773,194	1,789,194	1,836,973	1,771,122	1,771,122	1,772,862																	
2012	510,805	549,280	467,534	484,868	349,610	362,382	360,480	360,480	360,480	305,720	305,720	305,720																		
2013	749,010	686,060	873,521	942,049	954,204	1,061,991	1,160,751	1,147,103	1,242,963	1,357,285	1,356,966																			
2014	704,012	837,531	732,853	748,791	731,229	737,336	733,721	733,721	773,923	879,488																				
2015	247,006	379,643	256,400	222,633	192,349	107,159	107,159	107,158	107,158																					
2016	313,008	828,611	868,811	978,809	1,066,742	1,075,089	1,196,458	1,216,866																						
2017	465,001	662,914	539,396	629,732	629,732	663,561	663,561																							
2018	582,223	551,894	600,621	590,864	784,953	784,953																								
2019	291,502	439,872	439,872	526,812	544,232																									
2020	357,003	357,216	357,215	275,274																										
2021	66,002	66,001	151,100																											
2022	76,203	607,100																												
2023	179,002																													

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Remedial UST
Determination of Pure Premium

(1)	(2) PAID LDM ULTIMATE	(3) INC LDM ULTIMATE	(4) SELECTED ULTIMATE	(5) POTENTIAL SITES	(6) PURE PREMIUM
RY					
1994					
1995					
1996					
1997					
1998					
1999					
2000					
2001					
2002					
2003					
2004					
2005					
2006					
2007					
2008	705,588	769,870	737,729	12,021	61
2009	982,893	900,929	941,911	12,003	78
2010	823,409	937,266	880,337	11,973	74
2011	1,772,862	2,037,645	1,905,254	11,936	160
2012	305,720	355,330	330,525	11,915	28
2013	1,786,685	1,591,402	1,689,043	11,887	142
2014	1,141,831	1,046,094	1,093,962	11,853	92
2015	180,633	130,995	155,814	11,834	13
2016	1,292,250	1,542,435	1,417,342	11,810	120
2017	1,071,047	853,251	962,149	11,790	82
2018	1,052,177	1,040,632	1,046,405	11,776	89
2019	655,573	737,647	696,610	11,759	59
2020	275,274	388,509	331,891	11,745	28
2021	151,100	233,005	192,053	11,735	16
2022	607,100	1,000,888	803,994	11,727	69
2023	179,002	434,643	306,823	11,718	26
TOTAL	12,983,144	14,000,540	13,491,842	189,482	71

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
UST Remedial Claims
Paid Bornhuetter-Ferguson Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	POTENTIAL	PROJECTED	TRENDED	DETRENDED	EXPECTED	PERCENT	EXPECTED	PAID	INDICATED	INCURRED	IBNR	CASE	ULTIMATE
RY	SITES	PURE PREM	PURE PREM	PURE PREM	LOSSES	UNPAID	UNPAID	LOSSES	ULTIMATE	LOSSES	RESERVE	RESERVE	PURE PREM
1994													
1995													
1996													
1997													
1998													
1999													
2000													
2001													
2002													
2003													
2004													
2005													
2006													
2007													
2008	12,021	61	17	146	1,750,202	25.8%	451,675	705,588	1,157,263	705,588	451,675	-	96
2009	12,003	78	23	133	1,602,174	27.6%	441,505	712,041	1,153,546	815,042	338,504	103,001	96
2010	11,973	74	24	122	1,465,194	30.0%	438,886	563,408	1,002,294	823,409	178,885	260,001	84
2011	11,936	160	56	112	1,339,132	31.3%	419,693	1,077,136	1,496,829	1,772,862	(276,033)	695,725	125
2012	11,915	28	11	103	1,225,550	33.2%	406,575	305,720	712,295	305,720	406,575	-	60
2013	11,887	142	60	94	1,120,938	35.7%	400,651	1,148,079	1,548,730	1,356,966	191,764	208,887	130
2014	11,853	92	42	86	1,024,731	38.1%	390,267	706,966	1,097,233	879,488	217,746	172,521	93
2015	11,834	13	7	79	937,963	40.7%	381,533	107,157	488,690	107,158	381,532	1	41
2016	11,810	120	65	73	858,176	44.2%	379,299	721,097	1,100,396	1,216,866	(116,469)	495,769	93
2017	11,790	82	48	67	785,439	47.3%	371,790	564,063	935,853	663,561	272,292	99,498	79
2018	11,776	89	58	61	719,232	51.8%	372,356	507,450	879,806	784,953	94,854	277,503	75
2019	11,759	59	42	56	658,436	56.2%	369,798	287,383	657,181	544,232	112,949	256,849	56
2020	11,745	28	22	51	602,932	62.9%	379,494	99,099	478,594	275,274	203,319	176,175	41
2021	11,735	16	14	47	552,295	71.1%	392,805	38,178	430,983	151,100	279,883	112,922	37
2022	11,727	69	63	43	505,996	81.4%	411,976	70,940	482,916	607,100	(124,184)	536,160	41
2023	11,718	26	26	40	463,539	96.2%	445,968	-	445,968	179,002	266,966	179,002	38
TOTAL	189,482				15,611,928		6,454,274	7,614,306	14,068,580	11,188,320	2,880,260	3,574,014	74

Pure Premium Selection		Trend =	0.917
3-Year Average x Latest	33		
5-Year Average x Latest	40		
All Year Average x Latest	37		
Selected Pure Premium	40		

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Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
UST Remedial Claims
Incurred Bornhuetter-Ferguson Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	POTENTIAL	PROJECTED	TRENDED	DETRENDED	EXPECTED	PERCENT	EXPECTED	INCURRED	INDICATED	PAID	UNPAID	CASE	ULTIMATE
RY	SITES	PURE PREM	PURE PREM	PURE PREM	LOSSES	IBNR	IBNR	LOSSES	ULTIMATE	LOSSES	LOSS	RESERVE	PURE PREM
1994													
1995													
1996													
1997													
1998													
1999													
2000													
2001													
2002													
2003													
2004													
2005													
2006													
2007													
2008	12,021	61	17	146	1,750,202	8.3%	146,136	705,588	851,724	705,588	146,136	-	71
2009	12,003	78	23	133	1,602,174	9.5%	152,738	815,042	967,780	712,041	255,739	103,001	81
2010	11,973	74	24	122	1,465,194	12.1%	177,988	823,409	1,001,397	563,408	437,989	260,001	84
2011	11,936	160	56	112	1,339,132	13.0%	174,015	1,772,862	1,946,876	1,077,136	869,740	695,725	163
2012	11,915	28	11	103	1,225,550	14.0%	171,108	305,720	476,828	305,720	171,108	-	40
2013	11,887	142	60	94	1,120,938	14.7%	165,130	1,356,966	1,522,096	1,148,079	374,017	208,887	128
2014	11,853	92	42	86	1,024,731	15.9%	163,204	879,488	1,042,691	706,966	335,725	172,521	88
2015	11,834	13	7	79	937,963	18.2%	170,680	107,158	277,838	107,157	170,681	1	23
2016	11,810	120	65	73	858,176	21.1%	181,139	1,216,866	1,398,005	721,097	676,908	495,769	118
2017	11,790	82	48	67	785,439	22.2%	174,614	663,561	838,175	564,063	274,112	99,498	71
2018	11,776	89	58	61	719,232	24.6%	176,713	784,953	961,665	507,450	454,215	277,503	82
2019	11,759	59	42	56	658,436	26.2%	172,645	544,232	716,877	287,383	429,494	256,849	61
2020	11,745	28	22	51	602,932	29.1%	175,730	275,274	451,004	99,099	351,905	176,175	38
2021	11,735	16	14	47	552,295	35.2%	194,141	151,100	345,241	38,178	307,063	112,922	29
2022	11,727	69	63	43	505,996	39.3%	199,079	607,100	806,179	70,940	735,239	536,160	69
2023	11,718	26	26	40	463,539	58.8%	272,637	179,002	451,639	-	451,639	179,002	39
TOTAL	189,482				15,611,928		2,867,695	11,188,320	14,056,015	7,614,306	6,441,710	3,574,014	74

Pure Premium Selection		Trend =	0.917
3-Year Average x Latest	33		
5-Year Average x Latest	40		
All Year Average x Latest	37		
Selected Pure Premium	40		

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance AST
Summary of Paid Development Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	PAID LDM	PAID	INCURRED	CASE	IBNR	UNPAID
RY	ULTIMATE	LOSS	LOSS	RESERVE	RESERVE	LOSS
1994	-	-	-	-	-	-
1995	-	-	-	-	-	-
1996	-	-	-	-	-	-
1997	-	-	-	-	-	-
1998	478,042	478,042	478,042	-	-	-
1999	2,689,230	2,532,831	2,689,230	156,399	-	156,399
2000	1,195,793	1,195,793	1,195,793	-	-	-
2001	6,690,965	6,169,987	6,690,965	520,978	-	520,978
2002	2,309,328	1,913,996	2,309,328	395,332	-	395,332
2003	1,496,283	1,432,117	1,449,461	17,344	46,822	64,166
2004	2,953,221	2,780,056	2,953,221	173,165	-	173,165
2005	2,117,185	1,714,527	2,117,185	402,658	-	402,658
2006	2,203,318	1,995,945	2,203,318	207,374	-	207,374
2007	1,173,608	1,173,608	1,173,608	-	-	-
2008	581,362	581,362	581,362	-	-	-
2009	1,065,899	923,112	963,112	40,000	102,787	142,787
2010	1,434,006	903,292	1,434,006	530,714	-	530,714
2011	1,240,502	955,996	1,240,502	284,506	-	284,506
2012	3,089,209	2,422,544	2,550,471	127,927	538,738	666,665
2013	1,378,222	1,044,234	1,262,213	217,980	116,009	333,989
2014	844,706	169,547	844,706	675,159	-	675,159
2015	1,886,642	1,263,610	1,688,085	424,476	198,556	623,032
2016	2,064,703	1,314,960	1,810,869	495,909	253,834	749,743
2017	4,445,724	2,384,220	4,445,724	2,061,504	-	2,061,504
2018	3,358,030	1,774,133	2,808,645	1,034,513	549,385	1,583,897
2019	6,096,870	2,802,620	4,624,173	1,821,552	1,472,698	3,294,250
2020	1,942,599	734,769	1,649,858	915,090	292,740	1,207,830
2021	5,102,016	1,548,565	2,927,030	1,378,465	2,174,986	3,553,451
2022	3,003,694	613,647	2,060,642	1,446,996	943,052	2,390,047
2023	6,673,307	463,090	1,270,204	807,114	5,403,103	6,210,218
TOTAL	67,514,465	41,286,602	55,421,754	14,135,152	12,092,710	26,227,863

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Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance AST
Development of Losses to Ultimate

RY	Development Period in Months 12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - 276	276 - 288	288 - 300	300 - 312	312 - 324	324 - 336	336 - 348	348 - 360	360 - ULT
1994																														1.031
1995																													1.000	1.031
1996																												1.000	1.000	1.031
1997																											1.000	1.000	1.000	1.031
1998		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	4.669	2.231	2.058	1.148	1.066	1.091	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.031
1999	15.900	1.244	2.319	1.021	1.004	1.011	1.041	1.014	1.085	1.078	1.058	1.037	1.005	1.016	1.000	1.000	1.124	1.000	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.031
2000	1.761	1.262	1.034	1.021	1.014	1.018	1.108	1.028	1.038	1.083	1.014	1.013	1.025	1.001	1.010	1.010	1.000	1.000	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.031
2001	1.541	1.087	1.075	1.093	1.050	1.021	1.028	1.099	1.106	1.029	1.266	1.019	1.043	1.029	1.094	1.027	1.021	1.029	1.018	1.002	1.012	1.009	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.031
2002	10.706	2.111	1.228	1.161	1.078	1.049	1.133	1.134	1.168	1.037	1.019	1.010	1.052	1.053	1.024	1.009	1.061	1.009	1.027	1.025	1.003	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.031
2003	3.306	1.453	1.561	1.192	1.187	1.137	1.043	1.129	1.051	1.067	1.192	1.050	1.041	1.048	1.064	1.064	1.030	1.010	1.000	1.014	1.008	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.031
2004	3.116	1.474	1.254	1.298	1.343	1.122	1.032	1.102	1.122	1.044	1.055	1.050	1.020	1.011	1.008	1.012	1.024	1.006	1.000	1.008	1.008	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.031
2005	11.692	1.138	1.099	1.080	1.052	1.048	1.018	1.026	1.008	1.008	1.017	1.032	1.094	1.026	1.007	1.002	1.011	1.013	1.010	1.008	1.008	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.031
2006	4.502	1.556	1.611	1.283	1.183	1.035	1.111	1.026	1.092	1.151	1.063	1.076	1.033	1.035	1.040	1.013	1.009	1.018	1.010	1.008	1.008	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.031
2007	3.306	1.594	1.127	1.341	1.099	1.033	1.053	1.050	1.036	1.016	1.021	1.020	1.000	1.000	1.000	1.000	1.026	1.018	1.010	1.008	1.008	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.031
2008	2.474	1.276	1.351	1.168	1.027	1.067	1.100	1.125	1.050	1.023	1.021	1.008	1.015	1.004	1.000	1.018	1.026	1.018	1.010	1.008	1.008	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.031
2009	10.467	1.861	1.934	1.065	1.456	1.254	1.238	1.223	1.089	1.081	1.048	1.043	1.009	1.021	1.021	1.018	1.026	1.018	1.010	1.008	1.008	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.031
2010	4.034	1.182	1.691	1.078	1.324	1.134	1.340	1.062	1.386	1.075	1.132	1.132	1.013	1.026	1.021	1.018	1.026	1.018	1.010	1.008	1.008	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.031
2011	3.325	1.526	1.081	1.124	1.092	1.068	1.074	1.053	1.046	1.001	1.022	1.040	1.027	1.026	1.021	1.018	1.026	1.018	1.010	1.008	1.008	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.031
2012	1.608	1.402	1.175	1.088	1.109	1.113	1.079	1.045	1.024	1.048	1.048	1.027	1.026	1.021	1.026	1.018	1.026	1.018	1.010	1.008	1.008	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.031
2013	3.828	1.585	1.391	1.080	1.118	1.066	1.007	1.023	1.036	1.008	1.035	1.048	1.027	1.026	1.021	1.018	1.026	1.018	1.010	1.008	1.008	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.031
2014	1.000	6.122	3.205	1.209	1.485	1.019	1.292	1.019	1.151	1.047	1.035	1.048	1.027	1.026	1.021	1.018	1.026	1.018	1.010	1.008	1.008	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.031
2015	4.922	1.606	1.295	1.461	1.159	1.453	1.301	1.098	1.081	1.047	1.035	1.048	1.027	1.026	1.021	1.018	1.026	1.018	1.010	1.008	1.008	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.031
2016	3.887	1.284	1.170	1.170	1.171	1.054	1.070	1.052	1.081	1.047	1.035	1.048	1.027	1.026	1.021	1.018	1.026	1.018	1.010	1.008	1.008	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.031
2017	5.527	1.708	1.328	1.185	1.093	1.053	1.119	1.052	1.081	1.047	1.035	1.048	1.027	1.026	1.021	1.018	1.026	1.018	1.010	1.008	1.008	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.031
2018	3.795	1.505	1.208	1.292	1.295	1.077	1.119	1.052	1.081	1.047	1.035	1.048	1.027	1.026	1.021	1.018	1.026	1.018	1.010	1.008	1.008	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.031
2019	2.265	1.347	1.192	1.118	1.149	1.077	1.119	1.052	1.081	1.047	1.035	1.048	1.027	1.026	1.021	1.018	1.026	1.018	1.010	1.008	1.008	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.031
2020	3.694	1.560	1.207	1.215	1.149	1.077	1.119	1.052	1.081	1.047	1.035	1.048	1.027	1.026	1.021	1.018	1.026	1.018	1.010	1.008	1.008	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.031
2021	131.102	1.924	1.246	1.215	1.149	1.077	1.119	1.052	1.081	1.047	1.035	1.048	1.027	1.026	1.021	1.018	1.026	1.018	1.010	1.008	1.008	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.031
2022	4.778	1.486	1.246	1.215	1.149	1.077	1.119	1.052	1.081	1.047	1.035	1.048	1.027	1.026	1.021	1.018	1.026	1.018	1.010	1.008	1.008	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.031
2023	2.944	1.486	1.246	1.215	1.149	1.077	1.119	1.052	1.081	1.047	1.035	1.048	1.027	1.026	1.021	1.018	1.026	1.018	1.010	1.008	1.008	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.031

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312	324	336	348	360	ULT
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1998	-	16,713	16,713	16,713	16,713	16,713	16,713	16,713	16,713	78,028	174,102	358,349	411,237	438,258	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	492,674
1999	34,176	543,408	676,196	1,567,972	1,601,529	1,608,182	1,625,584	1,692,876	1,717,189	1,863,780	2,008,295	2,125,717	2,204,155	2,214,424	2,250,269	2,250,269	2,529,597	2,529,597	2,532,094	2,532,831	2,532,831	2,532,831	2,532,831	2,532,831	2,532,831	2,532,831	2,532,831	2,532,831	2,532,831	2,532,831	2,610,359
2000	370,129	651,957	822,756	850,390	862,198	877,375	971,906	999,462	1,037,135	1,123,070	1,139,298	1,154,165	1,182,661	1,184,428	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,232,396
2001	1,334,769	2,056,418	2,236,336	2,404,395	2,628,060	2,759,085	2,817,023	2,896,871	3,183,541	3,519,996	3,623,500	4,589,112	4,674,733	4,876,595	5,018,242	5,488,608	5,638,087	5,757,861	5,925,597	6,033,763	6,045,530	6,116,687	6,169,987	6,169,987	6,169,987	6,169,987	6,169,987	6,169,987	6,169,987	6,169,987	6,358,847
2002	25,391	271,845	573,933	704,799	818,350	881,841	924,693	1,047,264	1,187,136	1,386,044	1,436,815	1,464,223	1,479,159	1,556,347	1,638,304	1,677,022	1,692,921	1,796,372	1,812,290	1,861,975	1,909,066	1,913,996	1,924,358	1,924,358	1,924,358	1,924,358	1,924,358	1,924,358	1,924,358	1,924,358	1,983,261
2003	55,198	182,491	265,162	413,872	493,384	585,783	665,773	694,461	783,706	823,855	878,721	1,047,401	1,100,227	1,145,541	1,200,282	1,276,743	1,358,101	1,398,792	1,412,642	1,412,642	1,432,117	1,444,025	1,451,843	1,451,843	1,451,843	1,451,843	1,451,843	1,451,843	1,451,843	1,451,843	1,496,283
2004	154,438	481,188	709,451	889,323	1,154,237	1,550,136	1,738,876	1,795,147	1,978,584	2,219,493	2,316,258	2,443,349	2,565,442	2,616,804	2,645,562	2,666,495	2,698,686	2,762,524	2,780,056	2,780,056	2,803,451	2,826,762	2,842,066	2,842,066	2,842,066	2,842,066	2,842,066	2,842,066	2,842,066	2,842,066	2,929,060
2005	76,161	890,444	1,013,676	1,114,425	1,203,629	1,266,271	1,326,703	1,350,155	1,385,185	1,396,276	1,407,470	1,431,885	1,477,651	1,616,331	1,657,857	1,670,265	1,673,598	1,691,931	1,714,527	1,731,299	1,745,869	1,760,386	1,769,916	1,769,916	1,769,916	1,769,916	1,769,916	1,769,916	1,769,916	1,769,916	1,824,092
2006	60,491	272,313	423,641	682,375	875,535	1,035,779	1,072,081	1,190,682	1,221,925	1,334,084	1,534,980	1,631,669	1,755,125	1,812,291	1,876,290	1,951,782	1,977,382	1,995,945	2,031,320	2,051,191	2,068,453	2,085,652	2,096,943	2,096,943	2,096,943	2,096,943	2,096,943	2,096,943	2,096,943	2,096,943	2,161,130
2007	107,082	353,965	564,316	635,862	852,470	936,817	967,505	1,018,844	1,069,756	1,108,422	1,126,553	1,150,527	1,173,608	1,173,608	1,173,608	1,173,608	1,173,608	1,204,179	1,225,522	1,237,510	1,247,924	1,258,301	1,265,113	1,265,113	1,265,113	1,265,113	1,265,113	1,265,113	1,265,113	1,265,113	1,303,838
2008	76,453	189,175	241,331	325,929	380,673	391,046	417,098	458,918	516,229	541,900	554,141	565,941	570,718	579,066	581,362	581,362	591,932	607,351	618,116	624,162	629,415	634,649	638,084	638,084	638,084	638,084	638,084	638,084	638,084	638,084	657,616
2009	6,274	65,671	122,193	236,292	251,768	366,562	459,776	569,158	696,182	758,059	819,677	858,838	896,129	904,524	923,112	942,303	959,435	984,427	1,001,875	1,011,676	1,020,189	1,028,672	1,034,241	1,034,241	1,034,241	1,034,241	1,034,241	1,034,241	1,034,241	1,034,241	1,065,899
2010	25,118	101,329	119,772	202,531	218,274	289,061	327,938	439,479	466,760	646,920	695,674	787,662	891,779	903,292	926,662	945,927	963,125	988,213	1,005,728	1,015,566	1,024,112	1,032,628	1,038,219	1,038,219	1,038,219	1,038,219	1,038,219	1,038,219	1,038,219	1,038,219	1,069,998
2011	105,665	351,316	535,992	579,582	651,347	711,550	759,749	815,994	858,956	898,414	899,616	919,162	955,996	981,887	1,007,291	1,028,232	1,046,926	1,074,197	1,093,236	1,103,931	1,113,221	1,122,477	1,128,554	1,128,554	1,128,554	1,128,554	1,128,554	1,128,554	1,128,554	1,128,554	1,163,098
2012	492,662	792,235	1,110,684	1,305,178	1,533,202	1,668,186	1,849,816	2,059,499	2,222,469	2,323,261	2,380,133	2,422,544	2,539,141	2,607,908	2,675,381	2,731,001	2,780,654	2,853,086	2,903,654	2,932,058	2,956,732	2,981,318	2,997,458	2,997,458	2,997,458	2,997,458	2,997,458	2,997,458	2,997,458	2,997,458	3,089,209
2013	89,198	341,477	541,380	753,022	813,524	909,739	970,104	977,192	999,814	1,036,131	1,044,234	1,080,796	1,132,815	1,163,495	1,193,597	1,218,411	1,240,564	1,272,879	1,295,439	1,308,111	1,319,119	1,330,088	1,337,289	1,337,289	1,337,289	1,337,289	1,337,289	1,337,289	1,337,289	1,337,289	1,378,222
2014	3,119	3,119	19,091	61,186	74,003	109,866	111,997	144,666	147,359	169,547	177,476	183,690	192,532	197,746	202,862	207,079	210,844	216,337	220,171	222,325	224,196	226,060	227,284	227,284	227,284	227,284	227,284	227,284	227,284	227,284	234,241
2015	35,104	172,789	277,518	359,484	525,069	608,686	884,338	1,150,455	1,263,610	1,365,584	1,429,446	1,479,496	1,550,704	1,592,702	1,613,908	1,667,877	1,698,201	1,742,437	1,773,320	1,790,667	1,805,736	1,820,751	1,830,608	1,830,608	1,830,608	1,830,608	1,830,608	1,830,608	1,830,608	1,830,608	1,886,642
2016	145,829	566,906	727,719	851,131	995,600	1,165,875	1,228,997	1,314,960	1,382,869	1,494,468	1,564,357	1,619,131	1,697,060	1,743,021	1,788,117	1,825,291	1,858,477	1,906,888	1,940,686	1,959,670	1,976,161	1,992,593	2,003,381	2,003,381	2,003,381	2,003,381	2,003,381	2,003,381	2,003,381	2,003,381	2,064,703
2017	139,537	771,285	1,317,458	1,749,609	2,072,429	2,264,234	2,384,220	2,668,479	2,806,289	3,032,757	3,174,586	3,285,740	3,443,883	3,537,152	3,628,666	3,704,105	3,771,451	3,869,692	3,938,278	3,976,803	4,010,269	4,043,615	4,065,506	4,065,506	4,065,506	4,065,506	4,065,506	4,065,506	4,065,506	4,065,506	4,189,949
2018	153,788	583,697	878,341	1,060,851	1,370,309	1,774,133	1,910,830	2,138,649	2,249,097	2,430,600	2,544,268	2,633,352	2,760,096	2,834,847	2,908,191	2,968,651	3,022,625	3,101,692	3,156,328	3,187,204	3,214,025	3,240,751	3,258,295	3,258,295	3,258,295	3,258,295	3,258,295	3,258,295	3,258,295	3,258,295	3,358,030
2019	689,496	1,561,490	2,102,629	2,507,017	2,802,620	3,221,132	3,469,321	3,882,952	4,083,481	4,413,020	4,619,397	4,781,139	5,011,256	5,146,974	5,280,138	5,389,910	5,487,906	5,630,858	5,730,659	5,786,718	5,835,415	5,883,397	5,915,791	5,915,791	5,915,791	5,915,791	5,915,791	5,915,791	5,915,791	5,915,791	6,096,870
2020	105,627	390,166	608,554	734,769	892,977	1,026,324	1,105,403	1,237,195	1,301,088	1,406,087	1,471,843	1,523,377	1,596,698	1,639,941	1,682,370	1,717,345	1,748,569	1,794,117	1,825,916	1,843,777	1,859,293	1,874,754	1,884,903	1,884,903	1,884,903	1,884,903	1,884,903	1,884,903	1,884,903	1,884,903	1,942,599
2021	6,140	805,000	1,548,565	1,929,787	2,345,304	2,695,525	2,903,216	3,249,353	3,417,161	3,692,927	3,865,629	4,000,979	4,193,546	4,307,119	4,418,554	4,510,413	4,592,419	4,712,045	4,795,561	4,842,472	4,883,223	4,923,828	4,950,485	4,950,485	4,950,485	4,950,485	4,950,485	4,950,485	4,950,485	4,950,485	5,102,016
2022	128,434	613,640	911,682	1,136,117	1,380,744	1,586,928	1,709,201	1,912,981	2,011,775	2,174,126	2,275,800	2,355,484	2,468,853	2,535,717	2,601,321	2,655,402	2,703,681	2,774,108	2,823,276	2,850,894	2,874,885	2,898,790	2,914,484	2,914,484	2,914,484	2,914,484	2,914,484	2,914,484	2,914,484	2,914,484	3,003,694
2023	463,090	1,363,384	2,025,484	2,524,112	3,067,598	3,525,678	3,797,333	4,250,071	4,469,560	4,830,255	5,056,144	5,233,179	5,485,052	5,633,602	5,779,356	5,899,506	6,006,768	6,163,236	6,272,472	6,333,831	6,387,132	6,440,242	6,475,108	6,475,108	6,475,108	6,475,108	6,475,108	6,475,108	6,475,108	6,475,108	6,673,307

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance AST
Selection of Loss Development Factors

Development Period in Months

RY	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-228	228-240	240-252	252-264	264-276	276-288	288-300	300-312	312-324	324-336	336-348	348-360	TAIL
1994																														
1995																														
1996																														
1997																														
1998		1.000	1.000	1.000	1.000	1.000	1.000	1.000	4.669	2.231	2.058	1.148	1.066	1.091	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000					
1999	15.900	1.244	2.319	1.021	1.004	1.011	1.041	1.014	1.085	1.078	1.058	1.013	1.025	1.001	1.016	1.000	1.124	1.000	1.001	1.000	1.000	1.000	1.000	1.000	1.000					
2000	1.761	1.262	1.034	1.014	1.018	1.108	1.028	1.038	1.083	1.014	1.013	1.025	1.001	1.010	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000						
2001	1.541	1.087	1.075	1.093	1.050	1.021	1.028	1.099	1.106	1.029	1.266	1.019	1.043	1.029	1.094	1.027	1.021	1.029	1.018	1.002	1.012	1.009								
2002	10.706	2.111	1.228	1.161	1.078	1.049	1.133	1.134	1.168	1.037	1.019	1.010	1.052	1.053	1.024	1.009	1.061	1.009	1.027	1.025	1.003									
2003	3.306	1.453	1.561	1.192	1.187	1.137	1.043	1.129	1.051	1.067	1.192	1.050	1.041	1.048	1.064	1.064	1.030	1.010	1.000	1.014										
2004	3.116	1.474	1.254	1.298	1.343	1.122	1.032	1.102	1.122	1.044	1.055	1.050	1.020	1.011	1.008	1.012	1.024	1.006	1.000											
2005	11.692	1.138	1.099	1.080	1.052	1.048	1.018	1.026	1.008	1.008	1.017	1.032	1.094	1.026	1.007	1.002	1.011	1.009												
2006	4.502	1.556	1.611	1.283	1.183	1.035	1.111	1.026	1.092	1.151	1.063	1.076	1.033	1.035	1.040	1.013	1.009													
2007	3.306	1.594	1.127	1.341	1.099	1.033	1.053	1.050	1.036	1.016	1.021	1.020	1.000	1.000	1.000															
2008	2.474	1.276	1.351	1.168	1.027	1.067	1.100	1.125	1.050	1.023	1.021	1.008	1.015	1.004	1.000															
2009	10.467	1.861	1.934	1.065	1.456	1.254	1.238	1.223	1.089	1.081	1.048	1.043	1.009	1.021																
2010	4.034	1.182	1.691	1.078	1.324	1.134	1.340	1.062	1.386	1.075	1.132	1.132	1.013																	
2011	3.325	1.526	1.081	1.124	1.092	1.068	1.074	1.053	1.046	1.001	1.022	1.040																		
2012	1.608	1.402	1.175	1.175	1.088	1.109	1.113	1.079	1.045	1.024	1.018																			
2013	3.828	1.585	1.391	1.080	1.118	1.066	1.007	1.023	1.036	1.008																				
2014	1.000	6.122	3.205	1.209	1.485	1.019	1.292	1.019	1.151																					
2015	4.922	1.606	1.295	1.461	1.159	1.453	1.301	1.098																						
2016	3.887	1.284	1.170	1.170	1.171	1.054	1.070																							
2017	5.527	1.708	1.328	1.185	1.093	1.053																								
2018	3.795	1.505	1.208	1.292	1.295																									
2019	2.265	1.347	1.192	1.118																										
2020	3.694	1.560	1.207																											
2021	131.102	1.924																												
2022	4.778																													
VOL WTD 3	7.530	1.545	1.199	1.174	1.173	1.114	1.173	1.061	1.047	1.016	1.039	1.069	1.012	1.008	1.021	1.006	1.016	1.009	1.008	1.008	1.008	1.005	1.000	1.000	1.000	NA	NA	NA	NA	
VOL WTD 5	3.649	1.570	1.225	1.190	1.176	1.103	1.119	1.067	1.081	1.031	1.038	1.048	1.016	1.021	1.014	1.016	1.026	1.018	1.012	1.006	1.006	1.005	1.000	1.000	1.000	NA	NA	NA	NA	
VOL WTD ALL	2.944	1.406	1.258	1.152	1.123	1.076	1.078	1.074	1.089	1.047	1.093	1.039	1.031	1.026	1.035	1.030	1.019	1.014	1.010	1.006	1.006	1.005	1.000	1.000	1.000	NA	NA	NA	NA	
ARITH 3	46.524	1.610	1.203	1.198	1.186	1.187	1.221	1.047	1.077	1.011	1.057	1.072	1.012	1.008	1.013	1.005	1.015	1.010	1.009	1.014	1.005	1.003	1.000	1.000	1.000	NA	NA	NA	NA	
ARITH 5	29.127	1.609	1.221	1.245	1.240	1.129	1.157	1.054	1.133	1.038	1.048	1.049	1.014	1.017	1.011	1.018	1.027	1.014	1.009	1.008	1.003	1.002	1.000	1.000	1.000	NA	NA	NA	NA	
ARITH ALL	10.106	1.659	1.415	1.164	1.158	1.092	1.106	1.072	1.307	1.118	1.134	1.049	1.030	1.029	1.022	1.025	1.017	1.009	1.007	1.007	1.003	1.002	1.000	1.000	1.000	NA	NA	NA	NA	
5 YR HI LO	4.089	1.591	1.203	1.215	1.208	1.058	1.158	1.052	1.081	1.036	1.030	1.035	1.012	1.017	1.005	1.009	1.022	1.011	1.006	1.005	1.001	1.000	1.000	NA	NA	NA	NA	NA	NA	
7 YR HI LO	4.336	1.545	1.246	1.195	1.167	1.070	1.170	1.063	1.076	1.029	1.035	1.042	1.018	1.019	1.016	1.013	1.019	1.008	1.004	1.004	1.001	1.000	1.000	NA	NA	NA	NA	NA	NA	
ALL YR HI LO	5.020	1.486	1.349	1.157	1.149	1.077	1.099	1.067	1.103	1.047	1.072	1.045	1.027	1.025	1.016	1.016	1.014	1.007	1.004	1.004	1.001	1.000	1.000	NA	NA	NA	NA	NA	NA	
SELECTED	2.944	1.486	1.246	1.215	1.149	1.077	1.119	1.052	1.081	1.047	1.035	1.048	1.027	1.026	1.021	1.018	1.026	1.018	1.010	1.008	1.008	1.005	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.031

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance AST
Paid Losses

Development in Months

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312	324	336	348	360
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
1998	-	16,713	16,713	16,713	16,713	16,713	16,713	16,713	16,713	78,028	174,102	358,349	411,237	438,258	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042					
1999	34,176	543,408	676,196	1,567,972	1,601,529	1,608,182	1,625,584	1,692,876	1,717,189	1,863,780	2,008,295	2,125,717	2,204,155	2,214,424	2,250,269	2,250,269	2,529,597	2,529,597	2,532,094	2,532,094	2,532,831	2,532,831	2,532,831	2,532,831	2,532,831					
2000	370,129	651,957	822,756	850,390	862,198	877,375	971,906	999,462	1,037,135	1,123,070	1,139,298	1,154,165	1,182,661	1,184,428	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793						
2001	1,334,769	2,056,418	2,236,336	2,404,395	2,628,060	2,759,085	2,817,023	2,896,871	3,183,541	3,519,996	3,623,500	4,589,112	4,674,733	4,876,595	5,018,242	5,488,608	5,638,087	5,757,861	5,925,597	6,033,763	6,045,530	6,116,687	6,169,987							
2002	25,391	271,845	573,933	704,799	818,350	881,841	924,693	1,047,264	1,187,136	1,386,044	1,436,815	1,464,225	1,479,159	1,556,347	1,638,304	1,677,022	1,692,921	1,796,372	1,812,290	1,861,975	1,909,066	1,913,996								
2003	55,198	182,491	265,162	413,872	493,384	585,783	665,773	694,461	783,706	823,855	878,721	1,047,401	1,100,227	1,145,541	1,200,282	1,276,743	1,358,101	1,398,792	1,412,642	1,412,642	1,432,117									
2004	154,438	481,188	709,451	889,323	1,154,237	1,550,136	1,738,876	1,795,147	1,978,584	2,219,493	2,316,258	2,443,349	2,565,442	2,616,804	2,645,562	2,666,495	2,698,686	2,762,524	2,780,056	2,780,056										
2005	76,161	890,444	1,013,676	1,114,425	1,203,629	1,266,271	1,326,703	1,350,155	1,385,185	1,396,276	1,407,470	1,431,885	1,477,651	1,616,331	1,657,857	1,670,265	1,673,598	1,691,931	1,714,527											
2006	60,491	272,313	423,641	682,375	875,535	1,035,779	1,072,081	1,190,682	1,221,925	1,334,084	1,534,980	1,631,669	1,755,125	1,812,291	1,876,290	1,951,782	1,977,382	1,995,945												
2007	107,082	353,965	564,316	635,862	852,470	936,817	967,505	1,018,844	1,069,756	1,108,422	1,126,553	1,150,527	1,173,608	1,173,608	1,173,608	1,173,608	1,173,608													
2008	76,453	189,175	241,331	325,929	380,673	391,046	417,098	458,918	516,229	541,900	554,141	565,941	570,718	579,066	581,362	581,362														
2009	6,274	65,671	122,193	236,292	251,768	366,562	459,776	569,158	696,182	758,059	819,677	858,838	896,129	904,524	923,112															
2010	25,118	101,329	119,772	202,531	218,274	289,061	327,938	439,479	466,760	646,920	695,674	787,662	891,779	903,292																
2011	105,665	351,316	535,992	579,582	651,347	711,550	759,749	815,994	858,956	898,414	899,616	919,162	955,996																	
2012	492,662	792,235	1,110,684	1,305,178	1,533,202	1,668,186	1,849,816	2,059,499	2,222,469	2,323,261	2,380,133	2,422,544																		
2013	89,198	341,477	541,380	753,022	813,524	909,739	970,104	977,192	999,814	1,036,131	1,044,234																			
2014	3,119	3,119	19,091	61,186	74,003	109,866	111,997	144,666	147,359	169,547																				
2015	35,104	172,789	277,518	359,484	525,069	608,686	884,338	1,150,455	1,263,610																					
2016	145,829	566,906	727,719	851,131	995,600	1,165,875	1,228,997	1,314,960																						
2017	139,537	771,285	1,317,458	1,749,609	2,072,429	2,264,234	2,384,220																							
2018	153,788	583,697	878,341	1,060,851	1,370,309	1,774,133																								
2019	689,496	1,561,490	2,102,629	2,507,017	2,802,620																									
2020	105,627	390,166	608,554	734,769																										
2021	6,140	805,000	1,548,565																											
2022	128,434	613,647																												
2023	463,090																													

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance AST
Summary of Incurred Development Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	INC LDM	PAID	INCURRED	CASE	IBNR	UNPAID
RY	ULTIMATE	LOSS	LOSS	RESERVE	RESERVE	LOSS
1994	-	-	-	-	-	-
1995	-	-	-	-	-	-
1996	-	-	-	-	-	-
1997	-	-	-	-	-	-
1998	478,042	478,042	478,042	-	-	-
1999	2,689,230	2,532,831	2,689,230	156,399	-	156,399
2000	1,195,793	1,195,793	1,195,793	-	-	-
2001	6,690,965	6,169,987	6,690,965	520,978	-	520,978
2002	2,309,328	1,913,996	2,309,328	395,332	-	395,332
2003	1,449,461	1,432,117	1,449,461	17,344	-	17,344
2004	2,953,221	2,780,056	2,953,221	173,165	-	173,165
2005	2,117,185	1,714,527	2,117,185	402,658	-	402,658
2006	2,203,318	1,995,945	2,203,318	207,374	-	207,374
2007	1,174,762	1,173,608	1,173,608	-	1,154	1,154
2008	588,201	581,362	581,362	-	6,839	6,839
2009	977,257	923,112	963,112	40,000	14,146	54,146
2010	1,472,728	903,292	1,434,006	530,714	38,722	569,436
2011	1,280,868	955,996	1,240,502	284,506	40,366	324,872
2012	2,752,818	2,422,544	2,550,471	127,927	202,347	330,274
2013	1,382,665	1,044,234	1,262,213	217,980	120,452	338,432
2014	931,732	169,547	844,706	675,159	87,026	762,185
2015	1,933,375	1,263,610	1,688,085	424,476	245,290	669,765
2016	2,262,200	1,314,960	1,810,869	495,909	451,331	947,240
2017	5,695,207	2,384,220	4,445,724	2,061,504	1,249,483	3,310,987
2018	3,701,335	1,774,133	2,808,645	1,034,513	892,690	1,927,202
2019	6,415,093	2,802,620	4,624,173	1,821,552	1,790,920	3,612,473
2020	2,414,116	734,769	1,649,858	915,090	764,258	1,679,348
2021	4,750,523	1,548,565	2,927,030	1,378,465	1,823,493	3,201,957
2022	3,730,659	613,647	2,060,642	1,446,996	1,670,017	3,117,012
2023	2,948,085	463,090	1,270,204	807,114	1,677,881	2,484,995
TOTAL	66,498,168	41,286,602	55,421,754	14,135,152	11,076,414	25,211,567

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Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance AST
Development of Losses to Ultimate

Development Period in Months

RY	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-228	228-240	240-252	252-264	264-276	276-288	288-300	300-312	312-324	324-336	336-348	348-360	360-ULT
1994																														1.000
1995																													1.000	1.000
1996																												1.000	1.000	1.000
1997																											1.000	1.000	1.000	1.000
1998	0.919	1.000	1.000	1.000	1.000	1.000	1.000	1.000	5.060	1.000	1.000	1.000	0.941	0.860	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1999	2.823	1.728	1.311	1.028	1.000	1.002	1.000	1.223	1.011	1.020	1.017	0.999	0.985	1.000	1.000	1.050	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2000	0.962	1.129	1.031	0.939	0.956	1.047	1.016	1.044	1.052	1.020	1.017	1.000	0.998	1.001	0.993	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2001	1.249	1.030	0.860	0.957	1.024	1.053	1.037	1.158	1.088	1.010	1.145	1.020	1.065	1.015	1.050	1.005	1.014	0.990	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2002	1.400	0.975	0.747	0.999	1.094	1.051	0.969	1.000	0.961	1.006	1.000	1.208	0.910	1.031	0.994	1.073	1.000	0.978	1.000	0.991	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2003	1.007	0.827	1.143	1.042	1.096	1.030	1.030	1.011	1.061	1.240	0.987	1.006	0.967	0.960	1.071	0.986	0.997	0.967	1.000	0.988	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2004	1.017	1.163	1.104	1.447	1.013	1.039	1.007	1.279	1.013	0.998	0.994	0.994	0.998	0.988	1.018	1.008	1.016	0.995	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2005	0.924	1.035	1.032	0.955	1.137	1.010	1.011	1.000	1.002	1.000	1.208	1.077	1.004	0.969	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2006	1.741	1.117	1.068	1.045	1.040	1.074	1.037	1.282	0.879	1.057	1.033	1.025	1.016	1.019	1.000	0.996	1.000	1.000	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2007	0.990	0.996	0.948	0.974	1.000	1.099	1.009	0.999	0.954	1.000	1.001	0.983	1.000	1.000	1.000	1.000	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2008	1.200	1.023	0.966	1.026	1.127	1.000	1.000	1.083	0.941	1.000	1.017	1.000	0.985	1.000	1.011	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2009	1.279	1.001	1.295	1.058	1.133	1.003	1.000	1.184	0.977	1.021	1.000	0.978	1.000	0.981	1.003	1.011	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2010	0.567	1.112	1.246	1.147	1.203	1.000	1.032	1.197	1.287	1.000	1.126	1.363	1.000	1.012	1.003	1.011	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2011	1.092	1.390	0.942	0.989	1.006	1.023	1.038	1.145	1.049	1.000	1.000	1.103	1.005	1.012	1.003	1.011	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2012	1.145	1.406	0.953	1.053	1.078	1.053	1.058	0.995	0.995	0.983	1.005	1.045	1.005	1.012	1.003	1.011	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2013	1.186	1.007	1.090	1.038	0.971	1.031	1.000	1.102	1.005	0.978	1.015	1.045	1.005	1.012	1.003	1.011	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2014	5.046	0.919	1.039	1.000	0.981	1.000	1.000	1.023	0.995	1.007	1.015	1.045	1.005	1.012	1.003	1.011	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2015	1.533	0.993	1.033	1.548	0.987	1.118	1.153	1.009	1.038	1.007	1.015	1.045	1.005	1.012	1.003	1.011	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2016	1.667	1.154	1.165	0.995	1.110	1.000	1.000	1.091	1.038	1.007	1.015	1.045	1.005	1.012	1.003	1.011	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2017	2.350	1.027	1.187	1.010	1.201	1.000	1.025	1.091	1.038	1.007	1.015	1.045	1.005	1.012	1.003	1.011	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2018	1.078	1.126	1.096	1.207	1.002	1.029	1.025	1.091	1.038	1.007	1.015	1.045	1.005	1.012	1.003	1.011	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2019	1.322	1.111	1.074	1.013	1.053	1.029	1.025	1.091	1.038	1.007	1.015	1.045	1.005	1.012	1.003	1.011	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2020	1.194	1.267	1.022	1.055	1.053	1.029	1.025	1.091	1.038	1.007	1.015	1.045	1.005	1.012	1.003	1.011	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2021	1.291	1.053	1.109	1.055	1.053	1.029	1.025	1.091	1.038	1.007	1.015	1.045	1.005	1.012	1.003	1.011	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2022	1.331	1.115	1.109	1.055	1.053	1.029	1.025	1.091	1.038	1.007	1.015	1.045	1.005	1.012	1.003	1.011	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2023	1.282	1.115	1.109	1.055	1.053	1.029	1.025	1.091	1.038	1.007	1.015	1.045	1.005	1.012	1.003	1.011	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312	324	336	348	360	ULT
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1998	127,001	116,714	116,714	116,714	116,714	116,714	116,714	116,714	116,714	590,611	590,611	590,611	590,611	555,611	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042
1999	308,314	870,343	1,504,209	1,971,983	2,027,001	2,026,436	2,030,044	2,030,044	2,482,580	2,510,580	2,561,027	2,603,820	2,601,196	2,561,795	2,561,795	2,561,795	2,689,230	2,689,230	2,689,230	2,689,230	2,689,230	2,689,230	2,689,230	2,689,230	2,689,230	2,689,230	2,689,230	2,689,230	2,689,230	2,689,230	2,689,230
2000	1,026,004	986,880	1,114,568	1,148,569	1,078,568	1,030,942	1,079,607	1,097,363	1,145,515	1,205,440	1,205,440	1,205,440	1,202,646	1,203,928	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793
2001	3,289,000	4,108,645	4,233,509	3,642,391	3,484,058	3,566,802	3,756,792	3,895,867	4,511,171	4,910,015	4,958,003	5,677,351	5,790,979	5,849,503	6,227,944	6,318,643	6,632,090	6,664,686	6,756,186	6,690,965	6,690,965	6,690,965	6,690,965	6,690,965	6,690,965	6,690,965	6,690,965	6,690,965	6,690,965	6,690,965	6,690,965
2002	1,797,008	2,516,405	2,453,720	1,833,500	1,832,500	2,004,966	2,106,298	2,041,647	2,041,647	1,961,513	1,972,533	1,972,533	2,381,937	2,167,740	2,234,838	2,221,133	2,382,845	2,382,845	2,330,982	2,330,982	2,309,328	2,309,328	2,309,328	2,309,328	2,309,328	2,309,328	2,309,328	2,309,328	2,309,328	2,309,328	2,309,328
2003	1,020,098	1,027,589	849,418	970,556	1,011,191	1,108,245	1,141,783	1,175,610	1,188,633	1,261,406	1,563,735	1,542,848	1,552,847	1,501,010	1,441,010	1,543,256	1,520,985	1,516,742	1,466,741	1,466,741	1,449,461	1,449,461	1,449,461	1,449,461	1,449,461	1,449,461	1,449,461	1,449,461	1,449,461	1,449,461	1,449,461
2004	1,126,417	1,145,722	1,332,467	1,471,542	2,129,824	2,157,171	2,241,962	2,257,589	2,888,114	2,925,815	2,920,815	2,902,227	2,885,920	2,880,127	2,846,805	2,896,847	2,921,054	2,966,831	2,953,221	2,953,221	2,953,221	2,953,221	2,953,221	2,953,221	2,953,221	2,953,221	2,953,221	2,953,221	2,953,221	2,953,221	2,953,221
2005	1,543,485	1,425,516	1,475,649	1,522,726	1,454,148	1,653,994	1,671,234	1,688,897	1,668,486	1,668,486	1,672,486	1,672,486	2,019,809	2,175,022	2,184,707	2,117,185	2,117,185	2,117,185	2,117,185	2,117,185	2,117,185	2,117,185	2,117,185	2,117,185	2,117,185	2,117,185	2,117,185	2,117,185	2,117,185	2,117,185	2,117,185
2006	674,273	1,174,072	1,310,933	1,399,553	1,462,786	1,521,109	1,634,236	1,694,721	2,173,374	1,909,874	2,018,289	2,085,285	2,138,100	2,172,164	2,212,418	2,212,418	2,203,318	2,203,318	2,203,318	2,203,318	2,203,318	2,203,318	2,203,318	2,203,318	2,203,318	2,203,318	2,203,318	2,203,318	2,203,318	2,203,318	2,203,318
2007	1,238,240	1,225,463	1,220,733	1,156,901	1,127,089	1,127,090	1,238,935	1,250,577	1,249,903	1,192,870	1,192,870	1,194,026	1,173,608	1,173,608	1,173,608	1,173,608	1,173,608	1,174,762	1,174,762	1,174,762	1,174,762	1,174,762	1,174,762	1,174,762	1,174,762	1,174,762	1,174,762	1,174,762	1,174,762	1,174,762	1,174,762
2008	415,004	497,948	509,298	492,059	504,948	569,232	569,232	569,232	616,446	580,293	580,153	590,261	590,261	590,261	581,362	581,362	587,623	588,201	588,201	588,201	588,201	588,201	588,201	588,201	588,201	588,201	588,201	588,201	588,201	588,201	588,201
2009	426,280	545,273	545,773	706,544	747,814	847,182	849,952	849,952	1,006,233	982,683	1,003,653	1,003,653	981,649	981,649	963,112	965,895	976,298	977,257	977,257	977,257	977,257	977,257	977,257	977,257	977,257	977,257	977,257	977,257	977,257	977,257	977,257
2010	542,005	307,495	341,816	426,049	488,528	587,710	587,710	606,228	725,760	933,806	933,806	1,051,870	1,434,006	1,434,006	1,451,410	1,455,605	1,471,282	1,472,728	1,472,728	1,472,728	1,472,728	1,472,728	1,472,728	1,472,728	1,472,728	1,472,728	1,472,728	1,472,728	1,472,728	1,472,728	1,472,728
2011	620,289	677,051	941,165	886,346	876,176	881,631	901,895	935,802	1,071,754	1,124,801	1,124,801	1,124,801	1,240,502	1,247,190	1,262,328	1,265,976	1,279,610	1,280,868	1,280,868	1,280,868	1,280,868	1,280,868	1,280,868	1,280,868	1,280,868	1,280,868	1,280,868	1,280,868	1,280,868	1,280,868	1,280,868
2012	1,343,875	1,538,925	2,163,183	2,062,128	2,171,132	2,339,654	2,464,291	2,607,826	2,593,724	2,580,382	2,536,632	2,550,471	2,666,063	2,680,438	2,712,971	2,720,811	2,750,114	2,752,818	2,752,818	2,752,818	2,752,818	2,752,818	2,752,818	2,752,818	2,752,818	2,752,818	2,752,818	2,752,818	2,752,818	2,752,818	2,752,818
2013	860,008	1,020,291	1,027,875	1,120,854	1,163,773	1,130,369	1,165,331	1,165,331	1,284,396	1,290,963	1,262,213	1,281,032	1,339,091	1,346,311	1,362,651	1,366,589	1,381,307	1,382,665	1,382,665	1,382,665	1,382,665	1,382,665	1,382,665	1,382,665	1,382,665	1,382,665	1,382,665	1,382,665	1,382,665	1,382,665	1,382,665
2014	175,503	885,620	814,206	845,942	845,942	830,162	830,162	830,162	848,925	844,706	850,564	863,245	902,369	907,234	918,246	920,899	930,817	931,732	931,732	931,732	931,732	931,732	931,732	931,732	931,732	931,732	931,732	931,732	931,732	931,732	931,732
2015	540,144	827,915	821,797	848,986	1,314,585	1,297,946	1,450,916	1,673,552	1,688,085	1,752,793	1,764,947	1,791,262	1,872,445	1,882,541	1,905,390	1,910,896	1,931,477	1,933,375	1,933,375	1,933,375	1,933,375	1,933,375	1,933,375	1,933,375	1,933,375	1,933,375	1,933,375	1,933,375	1,933,375	1,933,375	1,933,375
2016	732,004	1,219,943	1,407,791	1,639,699	1,631,067	1,810,869	1,810,869	1,810,869	1,975,192	2,050,905	2,065,126	2,095,916	2,190,907	2,202,720	2,229,455	2,235,898	2,259,979	2,262,200	2,262,200	2,262,200	2,262,200	2,262,200	2,262,200	2,262,200	2,262,200	2,262,200	2,262,200	2,262,200	2,262,200	2,262,200	2,262,200
2017	1,278,376	3,004,614	3,087,194	3,663,863	3,701,363	4,445,724	4,445,724	4,558,957	4,972,649	5,163,260	5,199,064	5,276,579	5,515,724	5,545,464	5,612,770	5,628,990	5,689,615	5,695,207	5,695,207	5,695,207	5,695,207	5,695,207	5,695,207	5,695,207	5,695,207	5,695,207	5,695,207	5,695,207	5,695,207	5,695,207	5,695,207
2018	1,743,651	1,880,233	2,117,839	2,320,790	2,802,029	2,808,645	2,889,291	2,962,882	3,231,742	3,355,620	3,378,890	3,429,267	3,584,688	3,604,016	3,647,759	3,658,300	3,697,700	3,701,335	3,701,335	3,701,335	3,701,335	3,701,335	3,701,335	3,701,335	3,701,335	3,701,335	3,701,335	3,701,335	3,701,335	3,701,335	3,701,335
2019	2,895,383	3,827,312	4,250,591	4,565,470	4,624,173	4,867,898	5,007,673	5,135,219	5,601,202	5,815,906	5,856,236	5,943,549	6,212,923	6,246,422	6,322,236	6,340,506	6,408,793	6,415,093	6,415,093	6,415,093	6,415,093	6,415,093	6,415,093	6,415,093	6,415,093	6,415,093	6,415,093	6,415,093	6,415,093	6,415,093	6,415,093
2020	1,066,901	1,273,982	1,613,963	1,649,858	1,740,160	1,831,879	1,884,478	1,932,476	2,107,834	2,188,631	2,203,808	2,236,666	2,338,036	2,350,642	2,379,172	2,386,048	2,411,745	2,414,116	2,414,116	2,414,116	2,414,116	2,414,116	2,414,116	2,414,116	2,414,116	2,414,116	2,414,116	2,414,116	2,414,116	2,414,116	2,414,116
2021	2,154,103	2,780,016	2,927,030	3,246,608	3,424,305	3,604,789	3,708,296	3,802,747	4,147,818	4,306,811	4,336,676	4,401,334	4,600,811	4,625,618	4,681,760	4,695,289	4,745,858	4,750,523	4,750,523	4,750,523	4,750,523	4,750,523	4,750,523	4,750,523	4,750,523	4,750,523	4,750,523	4,750,523	4,750,523	4,750,523	4,750,523
2022	1,548,655	2,060,642	2,298,642	2,549,612	2,689,160	2,830,897	2,912,182	2,986,356	3,257,346	3,382,206	3,405,659	3,456,436	3,613,088	3,632,569	3,676,658	3,687,284	3,726,996	3,730,659	3,730,659	3,730,659	3,730,659	3,730,659	3,730,659	3,730,659	3,730,659	3,730,659	3,730,659	3,730,659	3,730,659	3,730,659	3,730,659
2023	1,270,204	1,628,385	1,816,460	2,014,784	2,125,059	2,237,064	2,301,298	2,359,913	2,574,058	2,672,726	2,691,260	2,731,385	2,855,177	2,870,571	2,905,412	2,913,808	2,945,190	2,948,085	2,948,085	2,948,085	2,948,085	2,948,085	2,948,085	2,948,085	2,948,085	2,948,085	2,948,085	2,948,085	2,948,085	2,948,085	2,948,085

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance AST
Selection of Loss Development Factors

Development Period in Months

RY	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-228	228-240	240-252	252-264	264-276	276-288	288-300	300-312	312-324	324-336	336-348	348-360	Tail
1994																														
1995																														
1996																														
1997																														
1998	0.919	1.000	1.000	1.000	1.000	1.000	1.000	1.000	5.060	1.000	1.000	1.000	0.941	0.860	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000					
1999	2.823	1.728	1.311	1.028	1.000	1.002	1.000	1.223	1.011	1.020	1.017	0.999	0.985	1.000	1.000	1.050	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000						
2000	0.962	1.129	1.031	0.939	0.956	1.047	1.016	1.044	1.052	1.020	1.000	0.998	1.001	0.993	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000							
2001	1.249	1.030	0.860	0.957	1.024	1.053	1.037	1.158	1.088	1.010	1.145	1.020	1.010	1.065	1.015	1.050	1.005	1.014	0.990	1.000	1.000	1.000								
2002	1.400	0.975	0.747	0.999	1.094	1.051	0.969	1.000	0.961	1.006	1.000	1.208	0.910	1.031	0.994	1.073	1.000	0.978	1.000	0.991	1.000									
2003	1.007	0.827	1.143	1.042	1.096	1.030	1.030	1.011	1.061	1.240	0.987	1.006	0.967	0.960	1.071	0.986	0.997	0.967	1.000	0.988										
2004	1.017	1.163	1.104	1.447	1.013	1.039	1.007	1.279	1.013	0.998	0.994	0.994	0.998	0.988	1.018	1.008	1.016	0.995	1.000											
2005	0.924	1.035	1.032	0.955	1.137	1.010	1.011	0.988	1.000	1.002	1.000	1.208	1.077	1.004	0.969	1.000	1.000	1.000												
2006	1.741	1.117	1.068	1.045	1.040	1.074	1.037	1.282	0.879	1.057	1.033	1.025	1.016	1.019	1.000	0.996	1.000													
2007	0.990	0.996	0.948	0.974	1.000	1.099	1.009	0.999	0.954	1.000	1.001	0.983	1.000	1.000	1.000	1.000														
2008	1.200	1.023	0.966	1.026	1.127	1.000	1.000	1.083	0.941	1.000	1.017	1.000	1.000	0.985	1.000															
2009	1.279	1.001	1.295	1.058	1.133	1.003	1.000	1.184	0.977	1.021	1.000	0.978	1.000	0.981																
2010	0.567	1.112	1.246	1.147	1.203	1.000	1.032	1.197	1.287	1.000	1.126	1.363	1.000																	
2011	1.092	1.390	0.942	0.989	1.006	1.023	1.038	1.145	1.049	1.000	1.000	1.103																		
2012	1.145	1.406	0.953	1.053	1.078	1.053	1.058	0.995	0.995	0.983	1.005																			
2013	1.186	1.007	1.090	1.038	0.971	1.031	1.000	1.102	1.005	0.978																				
2014	5.046	0.919	1.039	1.000	0.981	1.000	1.000	1.023	0.995																					
2015	1.533	0.993	1.033	1.548	0.987	1.118	1.153	1.009																						
2016	1.667	1.154	1.165	0.995	1.110	1.000	1.000																							
2017	2.350	1.027	1.187	1.010	1.201	1.000																								
2018	1.078	1.126	1.096	1.207	1.002																									
2019	1.322	1.111	1.074	1.013																										
2020	1.194	1.267	1.022																											
2021	1.291	1.053																												
2022	1.331																													
VOL WTD 3	1.282	1.115	1.069	1.055	1.114	1.020	1.054	1.042	0.998	0.985	1.029	1.150	1.000	0.990	1.000	0.998	1.006	0.990	1.000	0.996	1.000	1.000	1.000	1.000	1.000	NA	NA	NA	NA	
VOL WTD 5	1.257	1.096	1.109	1.079	1.087	1.020	1.047	1.038	1.038	0.993	1.023	1.092	1.005	1.003	0.998	0.999	1.004	0.998	0.996	0.997	1.000	1.000	1.000	1.000	1.000	NA	NA	NA	NA	
VOL WTD ALL	1.297	1.095	1.034	1.051	1.059	1.033	1.024	1.106	1.031	1.017	1.035	1.054	0.996	1.012	1.007	1.026	1.003	0.999	0.996	0.997	1.000	1.000	1.000	1.000	1.000	NA	NA	NA	NA	
ARITH 3	1.272	1.143	1.064	1.077	1.105	1.039	1.051	1.044	0.998	0.987	1.044	1.148	1.000	0.989	1.000	0.999	1.005	0.987	1.000	0.993	1.000	1.000	1.000	1.000	1.000	NA	NA	NA	NA	
ARITH 5	1.243	1.117	1.109	1.155	1.056	1.030	1.042	1.055	1.066	0.996	1.030	1.085	1.003	0.998	0.997	0.998	1.003	0.991	0.998	0.996	1.000	1.000	1.000	1.000	1.000	NA	NA	NA	NA	
ARITH ALL	1.453	1.108	1.059	1.067	1.055	1.032	1.021	1.096	1.255	1.020	1.022	1.063	0.993	0.991	1.006	1.016	1.002	0.994	0.999	0.996	1.000	1.000	1.000	1.000	1.000	NA	NA	NA	NA	
5 YR HI LO	1.269	1.097	1.112	1.077	1.033	1.010	1.019	1.044	1.017	0.994	1.008	1.029	1.000	0.996	1.000	0.999	1.000	0.991	1.000	0.997	1.000	1.000	1.000	NA	NA	NA	NA	NA	NA	
7 YR HI LO	1.361	1.094	1.081	1.054	1.032	1.021	1.025	1.093	1.004	0.997	1.011	1.064	1.003	0.992	1.002	1.011	1.001	0.995	1.000	0.998	1.000	1.000	1.000	NA	NA	NA	NA	NA	NA	
ALL YR HI LO	1.335	1.092	1.062	1.049	1.053	1.029	1.016	1.091	1.026	1.007	1.015	1.045	0.992	0.996	1.003	1.013	1.001	0.996	1.000	0.998	1.000	1.000	1.000	NA	NA	NA	NA	NA	NA	Tail
SELECTED	1.282	1.115	1.109	1.055	1.053	1.029	1.025	1.091	1.038	1.007	1.015	1.045	1.005	1.012	1.003	1.011	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance AST
Incurred Losses

Development in Months

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312	324	336	348	360
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1995	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1998	127,001	116,714	116,714	116,714	116,714	116,714	116,714	116,714	116,714	590,611	590,611	590,611	590,611	555,611	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042	478,042					
1999	308,314	870,343	1,504,209	1,971,983	2,027,001	2,026,436	2,030,044	2,030,044	2,482,580	2,510,580	2,561,027	2,603,820	2,601,196	2,561,795	2,561,795	2,561,795	2,689,230	2,689,230	2,689,230	2,689,230	2,689,230	2,689,230	2,689,230	2,689,230						
2000	1,026,004	986,880	1,114,568	1,148,569	1,078,568	1,030,942	1,079,607	1,097,363	1,145,515	1,205,440	1,205,440	1,202,646	1,203,928	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793	1,195,793							
2001	3,289,000	4,108,645	4,233,509	3,642,391	3,484,058	3,566,802	3,756,792	3,895,867	4,511,171	4,910,015	4,958,003	5,677,351	5,790,979	5,849,503	6,227,944	6,318,643	6,632,090	6,664,686	6,756,186	6,690,965	6,690,965	6,690,965								
2002	1,797,008	2,516,405	2,453,720	1,833,500	1,832,500	2,004,966	2,106,298	2,041,647	2,041,647	1,961,513	1,972,533	1,972,533	2,381,937	2,167,740	2,234,838	2,221,133	2,382,845	2,382,845	2,330,982	2,330,982	2,309,328	2,309,328								
2003	1,020,098	1,027,589	849,418	970,556	1,011,191	1,108,245	1,141,783	1,175,610	1,188,633	1,261,406	1,563,735	1,542,848	1,552,847	1,501,010	1,441,010	1,543,256	1,520,985	1,516,742	1,466,741	1,466,741	1,449,461									
2004	1,126,417	1,145,722	1,332,467	1,471,542	2,129,824	2,157,171	2,241,962	2,257,589	2,888,114	2,925,815	2,920,815	2,902,227	2,885,920	2,880,127	2,846,805	2,896,847	2,921,054	2,966,831	2,953,221	2,953,221										
2005	1,543,485	1,425,516	1,475,649	1,522,726	1,454,148	1,653,994	1,671,234	1,688,897	1,668,486	1,668,486	1,672,486	1,672,486	2,019,809	2,175,022	2,184,707	2,117,185	2,117,185	2,117,185	2,117,185											
2006	674,273	1,174,072	1,310,933	1,399,553	1,462,786	1,521,109	1,634,236	1,694,721	2,173,374	1,909,874	2,018,289	2,085,285	2,138,100	2,172,164	2,212,418	2,212,418	2,203,318	2,203,318												
2007	1,238,240	1,225,463	1,220,733	1,156,901	1,127,089	1,127,090	1,238,935	1,250,577	1,249,903	1,192,870	1,192,870	1,194,026	1,173,608	1,173,608	1,173,608	1,173,608	1,173,608													
2008	415,004	497,948	509,298	492,059	504,948	569,232	569,232	569,232	616,446	580,293	580,153	590,261	590,261	590,261	581,362	581,362														
2009	426,280	545,273	545,773	706,544	747,814	847,182	849,952	849,952	1,006,233	982,683	1,003,653	1,003,653	981,649	981,649	963,112															
2010	542,005	307,495	341,816	426,049	488,528	587,710	587,710	606,228	725,760	933,806	933,806	1,051,870	1,434,006	1,434,006																
2011	620,289	677,051	941,165	886,346	876,176	881,631	901,895	935,802	1,071,754	1,124,801	1,124,801	1,124,801	1,240,502																	
2012	1,343,875	1,538,925	2,163,183	2,062,128	2,171,132	2,339,654	2,464,291	2,607,826	2,593,724	2,580,382	2,536,632	2,550,471																		
2013	860,008	1,020,291	1,027,875	1,120,854	1,163,773	1,130,369	1,165,331	1,165,331	1,284,396	1,290,963	1,262,213																			
2014	175,503	885,620	814,206	845,942	845,942	830,162	830,162	830,162	848,925	844,706																				
2015	540,144	827,915	821,797	848,986	1,314,585	1,297,946	1,450,916	1,673,552	1,688,085																					
2016	732,004	1,219,943	1,407,791	1,639,699	1,631,067	1,810,869	1,810,869	1,810,869																						
2017	1,278,376	3,004,614	3,087,194	3,663,863	3,701,363	4,445,724	4,445,724																							
2018	1,743,651	1,880,233	2,117,839	2,320,790	2,802,029	2,808,645																								
2019	2,895,383	3,827,313	4,250,591	4,565,470	4,624,173																									
2020	1,066,901	1,273,982	1,613,963	1,649,858																										
2021	2,154,103	2,780,016	2,927,030																											
2022	1,548,655	2,060,642																												
2023	1,270,204																													

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance AST
Determination of Pure Premium

(1) RY	(2) PAID LDM ULTIMATE	(3) INC LDM ULTIMATE	(4) SELECTED ULTIMATE	(5) POLICIES IN FORCE	(6) PURE PREMIUM
1994					
1995					
1996					
1997					
1998					
1999					
2000					
2001					
2002					
2003					
2004					
2005					
2006					
2007					
2008	581,362	588,201	584,782	517	1,131
2009	1,065,899	977,257	1,021,578	563	1,815
2010	1,434,006	1,472,728	1,453,367	578	2,514
2011	1,240,502	1,280,868	1,260,685	810	1,556
2012	3,089,209	2,752,818	2,921,013	975	2,996
2013	1,378,222	1,382,665	1,380,444	1,003	1,376
2014	844,706	931,732	888,219	1,030	862
2015	1,886,642	1,933,375	1,910,008	1,021	1,871
2016	2,064,703	2,262,200	2,163,452	1,010	2,142
2017	4,445,724	5,695,207	5,070,466	1,005	5,045
2018	3,358,030	3,701,335	3,529,682	999	3,533
2019	6,096,870	6,415,093	6,255,982	989	6,326
2020	1,942,599	2,414,116	2,178,357	978	2,227
2021	5,102,016	4,750,523	4,926,269	965	5,105
2022	3,003,694	3,730,659	3,367,177	942	3,574
2023	6,673,307	2,948,085	4,810,696	914	5,263
TOTAL	44,207,491	43,236,863	43,722,177	14,299	3,058

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance AST
Paid Bornhuetter-Ferguson Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	POLICIES	PROJECTED	TRENDED	DETRENDED	EXPECTED	PERCENT	EXPECTED	PAID	INDICATED	INCURRED	IBNR	CASE	ULTIMATE
RY	IN FORCE	PURE PREM	PURE PREM	PURE PREM	LOSSES	UNPAID	UNPAID	LOSSES	ULTIMATE	LOSSES	RESERVE	RESERVE	PURE PREM
1994													
1995													
1996													
1997													
1998													
1999													
2000													
2001													
2002													
2003													
2004													
2005													
2006													
2007													
2008	517	1,131	2,711	1,757	908,467	11.6%	105,341	581,362	686,703	581,362	105,341	-	1,328
2009	563	1,815	4,102	1,863	1,048,655	13.4%	140,477	923,112	1,063,589	963,112	100,477	40,000	1,889
2010	578	2,514	5,363	1,974	1,141,190	15.6%	177,798	903,292	1,081,090	1,434,006	(352,916)	530,714	1,870
2011	810	1,556	3,132	2,093	1,695,201	17.8%	301,849	955,996	1,257,845	1,240,502	17,343	284,506	1,553
2012	975	2,996	5,687	2,218	2,162,951	21.6%	466,774	2,422,544	2,889,318	2,550,471	338,847	127,927	2,963
2013	1,003	1,376	2,465	2,352	2,358,570	24.2%	571,560	1,044,234	1,615,793	1,262,213	353,580	217,980	1,611
2014	1,030	862	1,457	2,493	2,567,385	27.6%	709,067	169,547	878,615	844,706	33,909	675,159	853
2015	1,021	1,871	2,982	2,642	2,697,648	33.0%	890,853	1,263,610	2,154,463	1,688,085	466,377	424,476	2,110
2016	1,010	2,142	3,221	2,801	2,828,700	36.3%	1,027,168	1,314,960	2,342,128	1,810,869	531,259	495,909	2,319
2017	1,005	5,045	7,157	2,969	2,983,578	43.1%	1,285,823	2,384,220	3,670,043	4,445,724	(775,681)	2,061,504	3,652
2018	999	3,533	4,728	3,147	3,143,711	47.2%	1,482,809	1,774,133	3,256,941	2,808,645	448,296	1,034,513	3,260
2019	989	6,326	7,986	3,336	3,298,977	54.0%	1,782,497	2,802,620	4,585,118	4,624,173	(39,055)	1,821,552	4,636
2020	978	2,227	2,653	3,536	3,458,022	62.2%	2,150,060	734,769	2,884,828	1,649,858	1,234,970	915,090	2,950
2021	965	5,105	5,736	3,748	3,616,780	69.6%	2,519,014	1,548,565	4,067,579	2,927,030	1,140,549	1,378,465	4,215
2022	942	3,574	3,789	3,973	3,742,411	79.6%	2,977,847	613,647	3,591,494	2,060,642	1,530,851	1,446,996	3,813
2023	914	5,263	5,263	4,211	3,849,042	93.1%	3,581,941	463,090	4,045,030	1,270,204	2,774,826	807,114	4,426
TOTAL	14,299				41,501,288		20,170,878	19,899,699	40,070,577	32,161,602	7,908,975	12,261,903	2,802

Pure Premium Selection		Trend =	1.060
3-Year Average Ex. Latest	4,059		
5-Year Average Ex. Latest	4,978		
All Year Average Ex. Latest	4,211		
Selected Pure Premium	4,211		

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Insurance AST
Incurred Bornhuetter-Ferguson Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	POLICIES	PROJECTED	TRENDED	DETRENDED	EXPECTED	PERCENT	EXPECTED	INCURRED	INDICATED	PAID	UNPAID	CASE	ULTIMATE
RY	IN FORCE	PURE PREM	PURE PREM	PURE PREM	LOSSES	IBNR	IBNR	LOSSES	ULTIMATE	LOSSES	LOSS	RESERVE	PURE PREM
1994													
1995													
1996													
1997													
1998													
1999													
2000													
2001													
2002													
2003													
2004													
2005													
2006													
2007													
2008	517	1,131	2,711	1,757	908,467	1.2%	10,563	581,362	591,925	581,362	10,563	-	1,145
2009	563	1,815	4,102	1,863	1,048,655	1.4%	15,179	963,112	978,291	923,112	55,179	40,000	1,738
2010	578	2,514	5,363	1,974	1,141,190	2.6%	30,005	1,434,006	1,464,011	903,292	560,719	530,714	2,533
2011	810	1,556	3,132	2,093	1,695,201	3.2%	53,424	1,240,502	1,293,926	955,996	337,930	284,506	1,597
2012	975	2,996	5,687	2,218	2,162,951	7.4%	158,988	2,550,471	2,709,459	2,422,544	286,915	127,927	2,779
2013	1,003	1,376	2,465	2,352	2,358,570	8.7%	205,469	1,262,213	1,467,682	1,044,234	423,449	217,980	1,463
2014	1,030	862	1,457	2,493	2,567,385	9.3%	239,800	844,706	1,084,507	169,547	914,959	675,159	1,053
2015	1,021	1,871	2,982	2,642	2,697,648	12.7%	342,254	1,688,085	2,030,339	1,263,610	766,730	424,476	1,989
2016	1,010	2,142	3,221	2,801	2,828,700	20.0%	564,353	1,810,869	2,375,222	1,314,960	1,060,262	495,909	2,352
2017	1,005	5,045	7,157	2,969	2,983,578	21.9%	654,573	4,445,724	5,100,297	2,384,220	2,716,078	2,061,504	5,075
2018	999	3,533	4,728	3,147	3,143,711	24.1%	758,202	2,808,645	3,566,847	1,774,133	1,792,714	1,034,513	3,570
2019	989	6,326	7,986	3,336	3,298,977	27.9%	920,985	4,624,173	5,545,158	2,802,620	2,742,537	1,821,552	5,607
2020	978	2,227	2,653	3,536	3,458,022	31.7%	1,094,736	1,649,858	2,744,595	734,769	2,009,826	915,090	2,806
2021	965	5,105	5,736	3,748	3,616,780	38.4%	1,388,305	2,927,030	4,315,334	1,548,565	2,766,769	1,378,465	4,472
2022	942	3,574	3,789	3,973	3,742,411	44.8%	1,675,278	2,060,642	3,735,920	613,647	3,122,273	1,446,996	3,966
2023	914	5,263	5,263	4,211	3,849,042	56.9%	2,190,654	1,270,204	3,460,858	463,090	2,997,769	807,114	3,786
TOTAL	14,299				41,501,288		10,302,769	32,161,602	42,464,371	19,899,699	22,564,671	12,261,903	2,970

Pure Premium Selection		Trend =	1.060
3-Year Average Ex. Latest	4,059		
5-Year Average Ex. Latest	4,978		
All Year Average Ex. Latest	4,211		
Selected Pure Premium	4,211		

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Remedial AST
Summary of Paid Development Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	PAID LDM	PAID	INCURRED	CASE	IBNR	UNPAID
RY	ULTIMATE	LOSS	LOSS	RESERVE	RESERVE	LOSS
1994	-	-	-	-	-	-
1995	106,826	106,826	106,826	-	-	-
1996	109,456	109,456	109,456	-	-	-
1997	-	-	-	-	-	-
1998	662,628	662,628	662,628	-	-	-
1999	1,741,560	1,499,337	1,741,560	242,223	-	242,223
2000	5,640,481	4,609,460	5,640,481	1,031,021	-	1,031,021
2001	2,192,168	1,566,522	2,192,168	625,646	-	625,646
2002	239,493	239,493	239,493	-	-	-
2003	555,224	555,224	555,224	-	-	-
2004	2,144,554	1,937,099	2,074,609	137,511	69,944	207,455
2005	79,838	79,838	79,838	-	-	-
2006	-	-	-	-	-	-
2007	41,750	41,750	41,750	-	-	-
2008	51,787	51,787	51,787	-	-	-
2009	183,657	183,657	183,657	-	-	-
2010	-	-	-	-	-	-
2011	-	-	-	-	-	-
2012	-	-	-	-	-	-
2013	-	-	-	-	-	-
2014	-	-	-	-	-	-
2015	155,510	155,510	155,510	-	-	-
2016	-	-	-	-	-	-
2017	59,359	59,359	59,359	-	-	-
2018	-	-	-	-	-	-
2019	-	-	-	-	-	-
2020	196,843	57,042	121,700	64,658	75,143	139,801
2021	75,000	11,965	75,000	63,035	-	63,035
2022	-	-	-	-	-	-
2023	-	-	-	-	-	-
TOTAL	14,236,135	11,926,953	14,091,047	2,164,094	145,088	2,309,182

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Remedial AST
Development of Losses to Ultimate

Development Period in Months

RY	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-228	228-240	240-252	252-264	264-276	276-288	288-300	300-312	312-324	324-336	336-348	348-360	360-ULT
1994																														1.083
1995							2.144	1.250	1.102	1.016	1.278	1.153	1.000	1.048	1.141	1.010	1.042	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.083
1996										1.967	1.516	1.030	1.000	1.104	1.620	1.057	1.109	1.113	1.009	1.011	1.055	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.083
1997																											1.000	1.000	1.000	1.083
1998		2.879	1.306	1.090	1.020	1.000	1.056	1.070	1.037	1.019	1.055	1.046	1.006	1.009	1.000	1.000	1.000	1.000	1.000	1.000	1.040	1.003	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.083
1999	1.701	2.649	1.129	1.235	1.136	1.319	1.105	1.061	1.055	1.049	1.055	1.024	1.016	1.002	1.007	1.007	1.035	1.032	1.041	1.027	1.006	1.000	1.031	1.012	1.000	1.000	1.000	1.000	1.000	1.083
2000	1.962	1.171	1.107	1.048	1.046	1.070	1.068	1.150	1.105	1.047	1.036	1.019	1.040	1.028	1.016	1.035	1.216	1.066	1.049	1.028	1.049	1.033	1.007	1.001	1.000	1.000	1.000	1.000	1.000	1.083
2001			7.454	2.945	2.045	1.350	1.237	1.305	1.137	1.164	1.109	1.073	1.141	1.052	1.205	1.093	1.118	1.050	1.028	1.039	1.142	1.047	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.083
2002		4.517	2.551	1.068	1.086	1.000	1.038	1.904	1.113	1.019	1.000	1.065	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.004	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.083
2003	1.224	1.255	1.000	1.000	1.000	1.317	1.736	1.067	1.029	1.286	1.111	1.054	1.071	1.053	1.010	1.061	1.044	1.000	1.000	1.006	1.004	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.083
2004		3.475	1.113	1.759	1.221	1.157	1.322	1.092	1.254	1.712	1.027	1.055	1.028	1.066	1.053	1.028	1.000	1.051	1.000	1.010	1.006	1.004	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.083
2005	1.794	1.493	1.622	1.000	1.316	1.173	1.202	1.079	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.017	1.010	1.006	1.004	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.083
2006																	1.027	1.021	1.017	1.010	1.006	1.004	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.083
2007		2.517	1.169	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.027	1.021	1.017	1.010	1.006	1.004	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.083
2008		1.226	1.100	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.033	1.027	1.021	1.017	1.010	1.006	1.004	1.001	1.001	1.000	1.000	1.000	1.000	1.083
2009			1.105	1.340	1.052	1.375	1.089	1.347	1.098	1.122	1.000	1.000	1.000	1.000	1.000	1.043	1.033	1.027	1.021	1.017	1.010	1.006	1.004	1.001	1.001	1.000	1.000	1.000	1.000	1.083
2010													1.038	1.032	1.043	1.033	1.027	1.021	1.017	1.010	1.006	1.004	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.083
2011												1.037	1.038	1.032	1.043	1.033	1.027	1.021	1.017	1.010	1.006	1.004	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.083
2012											1.049	1.037	1.038	1.032	1.043	1.033	1.027	1.021	1.017	1.010	1.006	1.004	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.083
2013										1.155	1.049	1.037	1.038	1.032	1.043	1.033	1.027	1.021	1.017	1.010	1.006	1.004	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.083
2014									1.103	1.155	1.049	1.037	1.038	1.032	1.043	1.033	1.027	1.021	1.017	1.010	1.006	1.004	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.083
2015		2.167	1.222	1.092	1.000	1.000	1.000	1.000	1.103	1.155	1.049	1.037	1.038	1.032	1.043	1.033	1.027	1.021	1.017	1.010	1.006	1.004	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.083
2016								1.136	1.103	1.155	1.049	1.037	1.038	1.032	1.043	1.033	1.027	1.021	1.017	1.010	1.006	1.004	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.083
2017	1.233	1.115	1.000	1.000	1.000	1.000	1.135	1.136	1.103	1.155	1.049	1.037	1.038	1.032	1.043	1.033	1.027	1.021	1.017	1.010	1.006	1.004	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.083
2018						1.131	1.135	1.136	1.103	1.155	1.049	1.037	1.038	1.032	1.043	1.033	1.027	1.021	1.017	1.010	1.006	1.004	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.083
2019					1.097	1.131	1.135	1.136	1.103	1.155	1.049	1.037	1.038	1.032	1.043	1.033	1.027	1.021	1.017	1.010	1.006	1.004	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.083
2020			1.329	1.143	1.097	1.131	1.135	1.136	1.103	1.155	1.049	1.037	1.038	1.032	1.043	1.033	1.027	1.021	1.017	1.010	1.006	1.004	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.083
2021			1.167	1.143	1.097	1.131	1.135	1.136	1.103	1.155	1.049	1.037	1.038	1.032	1.043	1.033	1.027	1.021	1.017	1.010	1.006	1.004	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.083
2022		1.535	1.167	1.143	1.097	1.131	1.135	1.136	1.103	1.155	1.049	1.037	1.038	1.032	1.043	1.033	1.027	1.021	1.017	1.010	1.006	1.004	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.083
2023	1.824	1.535	1.167	1.143	1.097	1.131	1.135	1.136	1.103	1.155	1.049	1.037	1.038	1.032	1.043	1.033	1.027	1.021	1.017	1.010	1.006	1.004	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.083

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312	324	336	348	360	ULT
1994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1995	-	-	-	-	-	-	19,195	41,156	51,445	56,701	57,626	73,664	84,921	84,921	88,971	101,542	102,511	106,826	106,826	106,826	106,826	106,826	106,826	106,826	106,826	106,826	106,826	106,826	106,826	106,826	115,678
1996	-	-	-	-	-	-	-	-	-	14,203	27,940	42,359	43,615	43,615	48,148	77,977	82,406	91,416	101,779	102,681	103,306	109,456	109,456	109,456	109,456	109,456	109,456	109,456	109,456	109,456	118,526
1997	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1998	-	113,506	326,771	426,734	465,016	474,091	474,091	500,870	536,142	555,872	566,448	597,852	625,365	629,257	635,092	635,092	635,092	635,092	635,092	635,092	635,092	660,330	662,628	662,628	662,628	662,628	662,628	662,628	662,628	662,628	717,536
1999	91,601	155,804	412,759	466,204	575,644	653,770	862,519	953,244	1,011,272	1,067,094	1,119,362	1,181,084	1,209,850	1,229,249	1,232,121	1,241,346	1,250,602	1,294,320	1,335,943	1,390,883	1,428,204	1,437,060	1,437,060	1,481,747	1,499,337	1,499,337	1,499,337	1,499,337	1,499,337	1,499,337	1,623,577
2000	600,543	1,178,120	1,380,065	1,527,820	1,601,730	1,675,915	1,792,516	1,914,991	2,202,232	2,433,794	2,547,274	2,638,146	2,687,862	2,795,225	2,873,605	2,920,207	3,022,541	3,675,996	3,920,130	4,111,183	4,225,970	4,432,029	4,577,720	4,609,460	4,612,188	4,612,188	4,612,188	4,612,188	4,612,188	4,612,188	4,994,368
2001	-	-	4,285	31,943	94,057	192,393	259,731	321,220	419,351	476,821	555,214	615,741	660,726	753,773	792,848	955,109	1,043,903	1,166,740	1,225,467	1,260,270	1,309,174	1,495,557	1,566,522	1,568,840	1,569,768	1,569,768	1,569,768	1,569,768	1,569,768	1,569,768	1,699,844
2002	-	7,498	33,870	86,415	92,333	100,309	100,309	104,163	198,304	220,667	224,817	224,817	239,493	239,493	239,493	239,493	239,493	239,493	239,493	239,493	239,493	239,493	240,379	240,734	240,877	240,877	240,877	240,877	240,877	240,877	260,837
2003	75,879	92,879	116,529	116,529	116,529	116,529	153,490	266,468	284,207	292,415	376,033	417,688	440,376	471,503	496,493	501,430	532,032	555,224	555,224	555,224	558,647	560,714	561,543	561,876	561,876	561,876	561,876	561,876	561,876	561,876	608,434
2004	-	48,087	167,082	185,942	327,157	399,428	462,288	611,344	667,682	837,489	1,433,954	1,473,129	1,554,162	1,598,045	1,703,105	1,792,711	1,843,534	1,843,534	1,937,099	1,937,099	1,957,003	1,969,068	1,976,352	1,979,277	1,980,448	1,980,448	1,980,448	1,980,448	1,980,448	1,980,448	2,144,554
2005	9,181	16,467	24,588	39,884	39,884	52,485	61,585	74,021	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	81,205	82,039	82,545	82,851	82,973	83,022	83,022	83,022	83,022	83,022	83,022	83,022	89,902
2006	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2007	-	14,192	35,720	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	42,867	43,785	44,535	44,992	45,270	45,437	45,504	45,531	45,531	45,531	45,531	45,531	45,531	49,304
2008	-	38,408	47,087	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	53,519	54,951	56,127	57,089	57,675	58,031	58,246	58,332	58,366	58,366	58,366	58,366	58,366	63,203
2009	-	-	47,443	52,422	70,244	73,919	101,655	110,661	149,107	163,657	183,657	183,657	183,657	183,657	183,657	183,657	191,528	197,935	203,231	207,582	211,137	213,306	214,621	215,415	215,734	215,862	215,862	215,862	215,862	215,862	233,749
2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2015	-	53,789	116,564	142,401	155,510	155,510	155,510	155,510	155,510	171,484	198,018	207,716	215,398	223,539	230,756	240,646	248,696	255,351	260,817	265,283	268,009	269,662	270,659	271,060	271,220	271,220	271,220	271,220	271,220	271,220	293,694
2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2017	43,180	53,255	59,359	59,359	59,359	59,359	59,359	67,351	76,529	84,390	97,448	102,220	106,001	110,007	113,559	118,426	122,387	125,662	128,352	130,550	131,892	132,705	133,196	133,393	133,472	133,472	133,472	133,472	133,472	133,472	144,532
2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2020	-	-	42,917	57,042	65,200	71,493	80,843	91,728	104,228	114,934	132,718	139,218	144,367	149,823	154,660	161,289	166,684	171,144	174,808	177,802	179,629	180,736	181,405	181,673	181,781	181,781	181,781	181,781	181,781	181,781	196,843
2021	-	-	11,965	13,968	15,965	17,506	19,796	22,461	25,522	28,143	32,498	34,089	35,350	36,686	37,871	39,494	40,815	41,907	42,804	43,537	43,985	44,256	44,419	44,485	44,511	44,511	44,511	44,511	44,511	44,511	48,200
2022	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Remedial AST
Selection of Loss Development Factors

Development Period in Months

RY	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - 276	276 - 288	288 - 300	300 - 312	312 - 324	324 - 336	336 - 348	348 - 360
1994																													
1995							2.144	1.250	1.102	1.016	1.278	1.153	1.000	1.048	1.141	1.010	1.042	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1996										1.967	1.516	1.030	1.000	1.104	1.620	1.057	1.109	1.113	1.009	1.011	1.055	1.000	1.000	1.000	1.000	1.000			
1997																													
1998		2.879	1.306	1.090	1.020	1.000	1.056	1.070	1.037	1.019	1.055	1.046	1.006	1.009	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.040	1.003	1.000	1.000				
1999	1.701	2.649	1.129	1.235	1.136	1.319	1.105	1.061	1.055	1.049	1.055	1.024	1.016	1.002	1.007	1.007	1.035	1.032	1.041	1.027	1.006	1.000	1.031	1.012					
2000	1.962	1.171	1.107	1.048	1.046	1.070	1.068	1.150	1.105	1.047	1.036	1.019	1.040	1.028	1.016	1.035	1.216	1.066	1.049	1.028	1.049	1.033	1.007						
2001			7.454	2.945	2.045	1.350	1.237	1.305	1.137	1.164	1.109	1.073	1.141	1.052	1.205	1.093	1.118	1.050	1.028	1.039	1.142	1.047							
2002		4.517	2.551	1.068	1.086	1.000	1.038	1.904	1.113	1.019	1.000	1.065	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000								
2003	1.224	1.255	1.000	1.000	1.000	1.317	1.736	1.067	1.029	1.286	1.111	1.054	1.071	1.053	1.010	1.061	1.044	1.000	1.000	1.000									
2004		3.475	1.113	1.759	1.221	1.157	1.322	1.092	1.254	1.712	1.027	1.055	1.028	1.066	1.053	1.028	1.000	1.051	1.000										
2005	1.794	1.493	1.622	1.000	1.316	1.173	1.202	1.079	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000											
2006																													
2007		2.517	1.169	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000													
2008		1.226	1.100	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000														
2009			1.105	1.340	1.052	1.375	1.089	1.347	1.098	1.122	1.000	1.000	1.000	1.000															
2010																													
2011																													
2012																													
2013																													
2014																													
2015		2.167	1.222	1.092	1.000	1.000	1.000	1.000																					
2016																													
2017	1.233	1.115	1.000	1.000	1.000	1.000																							
2018																													
2019																													
2020			1.329																										
2021																													
2022																													
VOL WTD 3	NA	NA	1.329	1.000	1.000	1.000	1.000	1.000	NA	NA	NA	1.000	1.000	1.000	1.000	1.000	1.000	1.038	1.000	1.024	1.068	1.029	1.012	1.008	1.000	1.000	1.000	1.000	NA
VOL WTD 5	NA	2.145	1.138	1.065	1.000	1.000	1.000	1.000	NA	1.122	1.000	1.000	1.000	1.000	1.048	1.034	1.009	1.039	1.029	1.027	1.051	1.030	1.012	1.007	1.000	1.000	1.000	1.000	NA
VOL WTD ALL	1.824	1.535	1.167	1.143	1.097	1.131	1.135	1.136	1.103	1.155	1.049	1.037	1.038	1.032	1.043	1.033	1.097	1.046	1.028	1.024	1.051	1.029	1.011	1.007	1.000	1.000	1.000	1.000	NA
ARITH 3	NA	NA	1.329	1.000	1.000	1.000	1.000	1.000	NA	NA	NA	1.000	1.000	1.000	1.000	1.000	1.000	1.017	1.000	1.013	1.064	1.027	1.014	1.006	1.000	1.000	1.000	1.000	NA
ARITH 5	NA	1.115	1.165	1.046	1.000	1.000	1.000	1.000	NA	1.122	1.000	1.000	1.000	1.000	1.013	1.022	1.011	1.020	1.015	1.019	1.039	1.030	1.010	1.003	1.000	1.000	1.000	1.000	NA
ARITH ALL	1.583	2.224	1.729	1.275	1.148	1.136	1.231	1.179	1.077	1.185	1.091	1.040	1.023	1.028	1.088	1.026	1.056	1.031	1.014	1.013	1.036	1.020	1.008	1.003	1.000	1.000	1.000	1.000	NA
5 YR HI LO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.000	1.000	1.000	1.000	1.014	1.000	1.017	1.009	1.018	1.018	1.036	1.005	1.000	1.000	NA	NA	NA	NA
7 YR HI LO	NA	NA	1.222	NA	NA	NA	NA	NA	NA	1.000	1.000	1.000	1.000	1.013	1.002	1.022	1.040	1.027	1.014	1.014	1.027	1.018	1.003	1.000	1.000	NA	NA	NA	NA
ALL YR HI LO	1.576	2.092	1.313	1.148	1.080	1.126	1.169	1.129	1.068	1.130	1.061	1.033	1.015	1.023	1.043	1.022	1.043	1.025	1.011	1.011	1.022	1.018	1.003	1.000	1.000	1.000	1.000	1.000	TAIL
SELECTED	1.824	1.535	1.167	1.143	1.097	1.131	1.135	1.136	1.103	1.155	1.049	1.037	1.038	1.032	1.043	1.033	1.027	1.021	1.017	1.010	1.006	1.004	1.001	1.001	1.000	1.000	1.000	1.000	1.083

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Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Remedial AST
Paid Losses

Development in Months

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312	324	336	348	360
1994	-																													-
1995	-	-	-	-	-	-	19,195	41,156	51,445	56,701	57,626	73,664	84,921	84,921	88,971	101,542	102,511	106,826	106,826	106,826	106,826	106,826	106,826	106,826	106,826	106,826	106,826	106,826	106,826	
1996	-	-	-	-	-	-	-	-	14,203	27,940	42,359	43,615	43,615	48,148	77,977	82,406	91,416	101,779	102,681	103,782	109,456	109,456	109,456	109,456	109,456	109,456				
1997	-																													
1998	-	113,506	326,771	426,734	465,016	474,091	474,091	500,870	536,142	555,872	566,448	597,852	625,365	629,257	635,092	635,092	635,092	635,092	635,092	635,092	635,092	635,092	660,330	662,628	662,628	662,628				
1999	91,601	155,804	412,759	466,204	575,644	653,770	862,519	953,244	1,011,272	1,067,094	1,119,362	1,181,084	1,209,850	1,229,249	1,232,121	1,241,346	1,250,602	1,294,320	1,335,943	1,390,883	1,428,204	1,437,060	1,437,060	1,481,747	1,499,337					
2000	600,543	1,178,120	1,380,065	1,527,820	1,601,730	1,675,915	1,792,516	1,914,991	2,202,232	2,433,794	2,547,274	2,638,146	2,687,862	2,795,225	2,873,605	2,920,207	3,022,541	3,675,996	3,920,130	4,111,183	4,225,970	4,432,029	4,577,720	4,609,460						
2001	-	-	4,285	31,943	94,057	192,393	259,731	321,220	419,351	476,821	555,214	615,741	660,726	753,773	792,848	955,109	1,043,903	1,166,740	1,225,467	1,260,270	1,309,174	1,495,557	1,566,522							
2002	-	7,498	33,870	86,415	92,333	100,309	100,309	104,163	198,304	220,667	224,817	224,817	239,493	239,493	239,493	239,493	239,493	239,493	239,493	239,493	239,493	239,493								
2003	75,879	92,879	116,529	116,529	116,529	116,529	153,490	266,468	284,207	292,415	376,033	417,688	440,376	471,503	496,493	501,430	532,032	555,224	555,224	555,224	555,224									
2004	-	48,087	167,082	185,942	327,157	399,428	462,288	611,344	667,682	837,489	1,433,954	1,473,129	1,554,162	1,598,045	1,703,105	1,792,711	1,843,534	1,843,534	1,937,099	1,937,099										
2005	9,181	16,467	24,588	39,884	39,884	52,485	61,585	74,021	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838											
2006	-																													
2007	-	14,192	35,720	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750													
2008	-	38,408	47,087	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787														
2009	-	-	47,443	52,422	70,244	73,919	101,655	110,661	149,107	163,657	183,657	183,657	183,657	183,657	183,657															
2010	-	-	-	-																										
2011	-	-	-	-																										
2012	-	-	-	-	-	-	-	-	-	-	-																			
2013	-	-	-	-	-																									
2014	-	-																												
2015	-	53,789	116,564	142,401	155,510	155,510	155,510	155,510	155,510																					
2016	-	-																												
2017	43,180	53,255	59,359	59,359	59,359	59,359	59,359																							
2018	-	-	-	-																										
2019	-	-	-	-																										
2020	-	-	42,917	57,042																										
2021	-	-	11,965																											
2022	-																													
2023	-																													

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Remedial AST
Summary of Incurred Development Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	INC LDM	PAID	INCURRED	CASE	IBNR	UNPAID
RY	ULTIMATE	LOSS	LOSS	RESERVE	RESERVE	LOSS
1994	-	-	-	-	-	-
1995	106,826	106,826	106,826	-	-	-
1996	109,456	109,456	109,456	-	-	-
1997	-	-	-	-	-	-
1998	662,628	662,628	662,628	-	-	-
1999	1,741,560	1,499,337	1,741,560	242,223	-	242,223
2000	5,640,481	4,609,460	5,640,481	1,031,021	-	1,031,021
2001	2,192,168	1,566,522	2,192,168	625,646	-	625,646
2002	239,493	239,493	239,493	-	-	-
2003	555,224	555,224	555,224	-	-	-
2004	2,074,609	1,937,099	2,074,609	137,511	-	137,511
2005	79,838	79,838	79,838	-	-	-
2006	-	-	-	-	-	-
2007	41,750	41,750	41,750	-	-	-
2008	51,787	51,787	51,787	-	-	-
2009	195,947	183,657	183,657	-	12,290	12,290
2010	-	-	-	-	-	-
2011	-	-	-	-	-	-
2012	-	-	-	-	-	-
2013	-	-	-	-	-	-
2014	-	-	-	-	-	-
2015	218,566	155,510	155,510	-	63,055	63,055
2016	-	-	-	-	-	-
2017	86,700	59,359	59,359	-	27,341	27,341
2018	-	-	-	-	-	-
2019	-	-	-	-	-	-
2020	197,669	57,042	121,700	64,658	75,969	140,626
2021	121,817	11,965	75,000	63,035	46,817	109,852
2022	-	-	-	-	-	-
2023	-	-	-	-	-	-
TOTAL	14,316,519	11,926,953	14,091,047	2,164,094	225,473	2,389,566

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Remedial AST
Development of Losses to Ultimate

Development Period in Months

RY	12 - 24	24 - 36	36 - 48	48 - 60	60 - 72	72 - 84	84 - 96	96 - 108	108 - 120	120 - 132	132 - 144	144 - 156	156 - 168	168 - 180	180 - 192	192 - 204	204 - 216	216 - 228	228 - 240	240 - 252	252 - 264	264 - 276	276 - 288	288 - 300	300 - 312	312 - 324	324 - 336	336 - 348	348 - 360	360 - ULT
1994																														1.000
1995	1.000	100000.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.067	1.000	1.000	0.805	1.291	1.096	0.885	0.994	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1996	0.231	1.000	1.000	2.333	2.000	1.000	0.286			1.079	1.260	1.000	1.000	1.000	1.505	1.058	1.000	1.108	1.000	1.000	0.913	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
1998	1.062	2.451	1.173	0.998	1.460	1.000	0.738	0.814	0.872	1.015	1.047	0.920	1.000	0.988	1.000	1.000	1.000	1.000	1.000	1.000	1.110	1.000	0.940	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1999	2.490	0.658	1.022	1.103	1.251	1.026	0.943	1.026	1.041	1.044	0.966	1.024	1.015	0.964	1.015	1.000	1.023	1.012	1.055	1.000	0.990	1.121	1.000	1.046	1.000	1.000	1.000	1.000	1.000	1.000
2000	1.181	1.060	1.072	1.020	0.993	1.022	1.026	1.108	1.020	1.244	1.054	0.991	1.172	0.992	0.996	1.049	1.007	1.043	0.983	0.981	1.069	0.990	1.121	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2001	3.476	1.429	0.813	0.967	0.918	1.055	1.079	1.009	1.081	1.132	0.972	1.016	1.008	0.934	1.172	0.987	0.990	1.069	1.009	1.100	1.102	1.033	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2002	3.261	0.902	0.742	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.549	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2003	1.004	1.185	1.031	1.000	1.114	1.298	1.128	0.958	1.150	1.051	1.000	0.832	1.147	1.000	1.000	1.011	0.994	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2004	0.860	3.207	0.981	1.000	0.999	1.000	1.211	0.977	1.540	1.142	1.031	1.043	1.000	1.022	1.120	0.997	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2005	0.922	0.888	1.000	0.974	1.119	1.000	1.367	0.872	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	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	1.000	1.000	1.000	1.000
2007	0.860	1.000	0.485	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2008	0.577	1.000	0.898	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2009	1.000	2.119	1.000	1.000	1.000	1.346	1.260	1.000	1.000	1.022	1.000	1.000	1.000	1.000	1.067	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2010														1.000	1.067	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2011													1.002	1.000	1.067	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2012												1.063	1.002	1.000	1.067	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2013											1.004	1.063	1.002	1.000	1.067	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2014										1.059	1.004	1.063	1.002	1.000	1.067	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2015	195789.070	1.000	1.000	0.794	1.000	1.000	1.000	1.000	1.163	1.059	1.004	1.063	1.002	1.000	1.067	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2016									1.000	1.163	1.059	1.004	1.063	1.002	1.000	1.067	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2017	1.314	0.904	1.000	1.000	1.000	1.000	1.039	1.000	1.163	1.059	1.004	1.063	1.002	1.000	1.067	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2018						1.021	1.039	1.000	1.163	1.059	1.004	1.063	1.002	1.000	1.067	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2019					1.077	1.021	1.039	1.000	1.163	1.059	1.004	1.063	1.002	1.000	1.067	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2020	121700.000	1.000	1.000	1.011	1.077	1.021	1.039	1.000	1.163	1.059	1.004	1.063	1.002	1.000	1.067	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2021	32000.000	2.344	1.000	1.000	1.077	1.021	1.039	1.000	1.163	1.059	1.004	1.063	1.002	1.000	1.067	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2022		1.180	1.000	1.011	1.077	1.021	1.039	1.000	1.163	1.059	1.004	1.063	1.002	1.000	1.067	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2023	1.599	1.180	1.000	1.011	1.077	1.021	1.039	1.000	1.163	1.059	1.004	1.063	1.002	1.000	1.067	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312	324	336	348	360	ULT
1994	-																														-
1995	1	1	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	106,701	106,701	106,701	85,921	110,921	121,542	107,511	106,826	106,826	106,826	106,826	106,826	106,826	106,826	106,826	106,826	106,826	106,826	106,826	106,826	106,826
1996	65,000	15,001	15,001	15,001	35,001	70,001	70,001	20,000	-	50,001	53,940	67,940	67,940	67,940	67,940	102,248	108,206	108,206	119,916	119,916	119,916	109,456	109,456	109,456	109,456	109,456	109,456	109,456	109,456	109,456	109,456
1997																									-	-	-	-	-	-	-
1998	282,000	299,445	733,820	861,104	859,104	1,254,635	1,254,635	925,870	753,994	657,142	667,199	698,719	642,886	642,886	635,092	635,092	635,092	635,092	635,092	635,092	635,093	705,092	705,092	662,628	662,628	662,628	662,628	662,628	662,628	662,628	662,628
1999	576,051	1,434,131	943,131	963,453	1,062,740	1,329,280	1,254,083	1,286,407	1,338,653	1,397,656	1,350,524	1,383,455	1,403,917	1,403,917	1,353,916	1,373,691	1,373,691	1,405,690	1,422,494	1,500,783	1,500,783	1,486,070	1,665,560	1,665,560	1,741,560	1,741,560	1,741,560	1,741,560	1,741,560	1,741,560	1,741,560
2000	2,102,118	2,481,719	2,630,091	2,819,603	2,876,383	2,857,666	2,921,119	3,236,351	3,301,717	4,107,207	4,330,460	4,291,057	5,028,326	4,988,326	4,966,652	5,210,073	5,247,171	5,471,620	5,376,625	5,275,990	5,639,825	5,639,825	5,640,481	5,640,481	5,640,481	5,640,481	5,640,481	5,640,481	5,640,481	5,640,481	5,640,481
2001	302,096	1,050,043	1,500,023	1,219,231	1,178,913	1,082,184	1,141,921	1,231,922	1,243,082	1,344,127	1,522,137	1,480,155	1,503,301	1,515,771	1,415,769	1,659,746	1,638,565	1,621,524	1,733,336	1,748,983	1,924,282	2,121,367	2,192,168	2,192,168	2,192,168	2,192,168	2,192,168	2,192,168	2,192,168	2,192,168	2,192,168
2002	200,004	652,311	588,414	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	239,493	239,493	239,493	239,493	239,493	239,493	239,493	239,493	239,493	239,493	239,493	239,493	239,493	239,493	239,493	239,493
2003	250,003	250,882	297,387	306,532	306,532	341,511	443,402	500,006	478,961	550,916	578,916	578,916	481,483	552,376	552,376	552,376	558,548	555,224	555,224	555,224	555,224	555,224	555,224	555,224	555,224	555,224	555,224	555,224	555,224	555,224	555,224
2004	300,004	258,090	827,611	812,287	812,287	811,862	811,862	983,570	961,290	1,480,232	1,690,604	1,743,171	1,818,773	1,818,773	1,859,341	2,081,628	2,074,609	2,074,609	2,074,609	2,074,609	2,074,609	2,074,609	2,074,609	2,074,609	2,074,609	2,074,609	2,074,609	2,074,609	2,074,609	2,074,609	2,074,609
2005	75,000	69,181	61,467	61,467	59,884	66,985	66,985	91,585	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838
2006	-	-																													-
2007	100,001	86,012	86,012	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750
2008	100,000	57,687	57,687	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787
2009	50,001	50,001	105,943	105,943	105,943	105,943	142,619	179,761	179,761	179,722	183,657	183,657	183,657	183,657	183,657	195,947	195,947	195,947	195,947	195,947	195,947	195,947	195,947	195,947	195,947	195,947	195,947	195,947	195,947	195,947	195,947
2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2015	1	195,789	195,789	195,789	155,510	155,510	155,510	155,510	155,510	180,822	191,473	192,330	204,467	204,857	204,857	218,566	218,566	218,566	218,566	218,566	218,566	218,566	218,566	218,566	218,566	218,566	218,566	218,566	218,566	218,566	218,566
2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2017	50,000	65,680	59,359	59,359	59,359	59,359	59,359	61,688	61,688	71,728	75,953	76,293	81,108	81,262	81,262	86,700	86,700	86,700	86,700	86,700	86,700	86,700	86,700	86,700	86,700	86,700	86,700	86,700	86,700	86,700	86,700
2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2020	1	121,700	121,700	121,700	123,089	132,513	135,333	140,642	140,642	163,533	173,166	173,941	184,918	185,270	185,270	197,669	197,669	197,669	197,669	197,669	197,669	197,669	197,669	197,669	197,669	197,669	197,669	197,669	197,669	197,669	197,669
2021	1	32,000	75,000	75,000	75,856	81,663	83,401	86,673	86,673	100,781	106,717	107,195	113,959	114,176	114,176	121,817	121,817	121,817	121,817	121,817	121,817	121,817	121,817	121,817	121,817	121,817	121,817	121,817	121,817	121,817	121,817
2022	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Remedial AST
Selection of Loss Development Factors

Development Period in Months

RY	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132-144	144-156	156-168	168-180	180-192	192-204	204-216	216-228	228-240	240-252	252-264	264-276	276-288	288-300	300-312	312-324	324-336	336-348	348-360
1994																													
1995	1.000	100000.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.067	1.000	1.000	0.805	1.291	1.096	0.885	0.994	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
1996	0.231	1.000	1.000	2.333	2.000	1.000	0.286			1.079	1.260	1.000	1.000	1.000	1.505	1.058	1.000	1.000	1.108	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000		
1997																													
1998	1.062	2.451	1.173	0.998	1.460	1.000	0.738	0.814	0.872	1.015	1.047	0.920	1.000	0.988	1.000	1.000	1.000	1.000	1.000	1.000	1.110	1.000	0.940	1.000	1.000				
1999	2.490	0.658	1.022	1.103	1.251	0.943	1.026	1.041	1.044	0.966	1.024	1.015	1.000	0.964	1.015	1.000	1.023	1.012	1.055	1.000	0.990	1.121	1.000	1.046					
2000	1.181	1.060	1.072	1.020	0.993	1.022	1.108	1.020	1.244	1.054	0.991	1.172	0.992	0.996	1.049	1.007	1.043	0.983	0.981	1.069	1.000	1.000	1.000						
2001	3.476	1.429	0.813	0.967	0.918	1.055	1.079	1.009	1.081	1.132	0.972	1.016	1.008	0.934	1.172	0.987	0.990	1.069	1.009	1.100	1.102	1.033							
2002	3.261	0.902	0.742	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.549	1.000	1.000	1.000	1.000	1.000								
2003	1.004	1.185	1.031	1.000	1.114	1.298	1.128	0.958	1.150	1.051	1.000	0.832	1.147	1.000	1.011	0.994	1.000	1.000	1.000										
2004	0.860	3.207	0.981	1.000	0.999	1.000	1.211	0.977	1.540	1.142	1.031	1.043	1.000	1.022	1.120	0.997	1.000	1.000	1.000										
2005	0.922	0.888	1.000	0.974	1.119	1.000	1.367	0.872	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000												
2006																													
2007	0.860	1.000	0.485	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000													
2008	0.577	1.000	0.898	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000														
2009	1.000	2.119	1.000	1.000	1.000	1.346	1.260	1.000	1.000	1.022	1.000	1.000	1.000	1.000															
2010																													
2011																													
2012																													
2013																													
2014																													
2015	195789.070	1.000	1.000	0.794	1.000	1.000	1.000	1.000																					
2016																													
2017	1.314	0.904	1.000	1.000	1.000	1.000																							
2018																													
2019																													
2020	121700.000	1.000	1.000																										
2021	32000.000	2.344																											
2022																													
VOL WTD 3	76850.000	1.280	1.000	1.000	1.000	1.000	1.000	1.000	NA	NA	NA	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.069	1.025	1.027	0.995	1.033	1.000	1.000	1.000	1.000	NA
VOL WTD 5	76850.000	1.167	1.000	0.842	1.000	1.000	1.000	1.000	NA	1.022	1.000	1.000	1.000	1.000	1.000	1.109	1.000	0.999	1.024	0.991	1.058	1.025	1.025	0.995	1.030	1.000	1.000	1.000	NA
VOL WTD ALL	1.599	1.180	0.982	1.011	1.077	1.021	1.039	0.989	1.163	1.059	1.004	1.063	1.002	0.990	1.067	0.985	1.020	1.004	0.999	1.053	1.024	1.025	0.995	1.030	1.000	1.000	1.000	1.000	NA
ARITH 3	76850.000	1.672	1.000	1.000	1.000	1.000	1.000	1.000	NA	NA	NA	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.033	1.034	1.051	0.980	1.023	1.000	1.000	1.000	1.000	NA
ARITH 5	76850.000	1.416	1.000	0.897	1.000	1.000	1.000	1.000	NA	1.022	1.000	1.000	1.000	1.000	1.030	1.002	0.999	1.014	0.998	1.034	1.041	1.039	0.985	1.011	1.000	1.000	1.000	1.000	NA
ARITH ALL	20559.312	5883.656	0.951	1.079	1.124	1.044	1.015	0.976	1.078	1.041	1.025	1.000	0.996	1.015	1.080	0.954	1.004	1.017	1.005	1.021	1.017	1.026	0.988	1.011	1.000	1.000	1.000	1.000	NA
5 YR HI LO	NA	1.000	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.023	1.034	1.017	1.000	1.000	1.000	NA	NA	NA	NA
7 YR HI LO	32000.000	1.000	1.000	NA	NA	NA	NA	NA	NA	1.000	1.000	1.000	1.000	1.000	1.000	0.996	0.999	1.002	1.002	1.017	1.023	1.008	1.000	1.000	1.000	1.000	NA	NA	NA
ALL YR HI LO	10247.934	1.433	0.968	1.005	1.072	1.029	1.046	0.985	1.052	1.038	1.009	0.999	1.000	0.997	1.045	0.987	1.001	1.010	1.001	1.011	1.019	1.008	1.000	1.000	1.000	NA	NA	NA	NA
SELECTED	1.599	1.180	1.000	1.011	1.077	1.021	1.039	1.000	1.163	1.059	1.004	1.063	1.002	1.000	1.067	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

ALL YR HI LO — Tail
SELECTED — Tail: 1.000

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Remedial AST
Incurred Losses

Development in Months

RY	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312	324	336	348	360
1994	-	-																												-
1995	1	1	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	106,701	106,701	106,701	85,921	110,921	121,542	107,511	106,826	106,826	106,826	106,826	106,826	106,826	106,826	106,826	106,826	106,826	106,826	106,826	
1996	65,000	15,001	15,001	15,001	35,001	70,001	70,001	20,000	-	50,001	53,940	67,940	67,940	67,940	67,940	102,248	108,206	108,206	119,916	119,916	119,916	109,456	109,456	109,456	109,456	109,456	109,456			
1997	-	-																												
1998	282,000	299,445	733,820	861,104	859,104	1,254,635	1,254,635	925,870	753,994	657,142	667,199	698,719	642,886	642,886	635,092	635,092	635,092	635,092	635,092	635,092	635,093	705,092	705,092	662,628	662,628	662,628				
1999	576,051	1,434,131	943,131	963,453	1,062,740	1,329,280	1,254,083	1,286,407	1,338,653	1,397,656	1,350,524	1,383,455	1,403,917	1,403,917	1,353,916	1,373,691	1,373,691	1,405,690	1,422,494	1,500,783	1,500,783	1,486,070	1,665,560	1,665,560	1,741,560					
2000	2,102,118	2,481,719	2,630,091	2,819,603	2,876,383	2,857,666	2,921,119	3,236,351	3,301,717	4,107,207	4,330,460	4,291,057	5,028,326	4,988,326	4,966,652	5,210,073	5,247,171	5,471,620	5,376,625	5,275,990	5,639,825	5,639,825	5,640,481	5,640,481						
2001	302,096	1,050,043	1,500,023	1,219,231	1,178,913	1,082,184	1,141,921	1,231,922	1,243,082	1,344,127	1,522,137	1,480,155	1,503,301	1,515,771	1,415,769	1,659,746	1,638,565	1,621,524	1,733,336	1,748,983	1,924,282	2,121,367	2,192,168							
2002	200,004	652,311	588,414	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	436,415	239,493	239,493	239,493	239,493	239,493	239,493								
2003	250,003	250,882	297,387	306,532	306,532	341,531	443,402	500,006	478,961	550,916	578,916	578,916	481,483	552,376	552,376	552,376	558,548	555,224	555,224	555,224										
2004	300,004	258,090	827,611	812,287	812,287	811,862	811,862	983,570	961,290	1,480,232	1,690,604	1,743,171	1,818,773	1,818,773	1,859,341	2,081,628	2,074,609	2,074,609	2,074,609	2,074,609										
2005	75,000	69,181	61,467	61,467	59,884	66,985	66,985	91,585	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838	79,838												
2006	-	-																												
2007	100,001	86,012	86,012	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750	41,750													
2008	100,000	57,687	57,687	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787	51,787														
2009	50,001	50,001	105,943	105,943	105,943	105,943	142,619	179,761	179,761	179,722	183,657	183,657	183,657	183,657	183,657															
2010	-	-	-	-	-	-	-	-	-	-	-	-																		
2011	-	-	-	-	-	-	-	-	-	-																				
2012	-	-	-	-	-	-	-	-																						
2013	-	-	-	-	-																									
2014	-	-	-	-																										
2015	1	195,789	195,789	195,789	155,510	155,510	155,510	155,510	155,510																					
2016	-	-	-																											
2017	50,000	65,680	59,359	59,359	59,359	59,359	59,359																							
2018	-	-	-	-																										
2019	-	-	-																											
2020	1	121,700	121,700	121,700																										
2021	1	32,000	75,000																											
2022	-	-																												
2023	-																													

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Remedial AST
Determination of Pure Premium

(1)	(2)	(3)	(4)	(5)	(6)
	PAID LDM	INC LDM	SELECTED	POTENTIAL	PURE
RY	ULTIMATE	ULTIMATE	ULTIMATE	SITES	PREMIUM
1994					
1995					
1996					
1997					
1998					
1999					
2000					
2001					
2002					
2003					
2004					
2005					
2006					
2007					
2008	51,787	51,787	51,787	2,055	25
2009	183,657	195,947	189,802	2,051	93
2010	-	-	-	2,049	-
2011	-	-	-	2,044	-
2012	-	-	-	2,040	-
2013	-	-	-	2,040	-
2014	-	-	-	2,039	-
2015	155,510	218,566	187,038	2,038	92
2016	-	-	-	2,038	-
2017	59,359	86,700	73,030	2,037	36
2018	-	-	-	2,036	-
2019	-	-	-	2,036	-
2020	196,843	197,669	197,256	2,035	97
2021	75,000	121,817	98,409	2,034	48
2022	-	-	-	2,034	-
2023	-	-	-	2,034	-
TOTAL	722,156	872,486	797,321	32,640	24

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Remedial AST
Paid Bornhuetter-Ferguson Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	POTENTIAL	PROJECTED	TRENDED	DETRENDED	EXPECTED	PERCENT	EXPECTED	PAID	INDICATED	INCURRED	IBNR	CASE	ULTIMATE
RY	SITES	PURE PREM	PURE PREM	PURE PREM	LOSSES	UNPAID	UNPAID	LOSSES	ULTIMATE	LOSSES	RESERVE	RESERVE	PURE PREM
1994													
1995													
1996													
1997													
1998													
1999													
2000													
2001													
2002													
2003													
2004													
2005													
2006													
2007													
2008	2,055	25	34	23	46,532	18.1%	8,405	51,787	60,192	51,787	8,405	-	29
2009	2,051	93	122	23	47,371	21.4%	10,151	183,657	193,808	183,657	10,151	-	94
2010	2,049	-	-	24	48,271	23.9%	11,531	-	11,531	-	11,531	-	6
2011	2,044	-	-	24	49,116	26.7%	13,094	-	13,094	-	13,094	-	6
2012	2,040	-	-	25	50,001	29.3%	14,638	-	14,638	-	14,638	-	7
2013	2,040	-	-	25	51,001	32.6%	16,614	-	16,614	-	16,614	-	8
2014	2,039	-	-	26	51,995	41.6%	21,636	-	21,636	-	21,636	-	11
2015	2,038	92	108	26	53,009	47.1%	24,941	155,510	180,451	155,510	24,941	-	89
2016	2,038	-	-	27	54,069	53.4%	28,873	-	28,873	-	28,873	-	14
2017	2,037	36	40	27	55,123	58.9%	32,484	59,359	91,843	59,359	32,484	-	45
2018	2,036	-	-	28	56,198	63.7%	35,787	-	35,787	-	35,787	-	18
2019	2,036	-	-	28	57,322	66.9%	38,336	-	38,336	-	38,336	-	19
2020	2,035	97	103	29	58,440	71.0%	41,505	57,042	98,547	121,700	(23,153)	64,658	48
2021	2,034	48	50	29	59,580	75.2%	44,790	11,965	56,755	75,000	(18,245)	63,035	28
2022	2,034	-	-	30	60,771	83.8%	50,945	-	50,945	-	50,945	-	25
2023	2,034	-	-	30	61,987	91.1%	56,492	-	56,492	-	56,492	-	28
TOTAL	32,640				860,786		450,221	519,320	969,541	647,013	322,528	127,693	30

Pure Premium Selection		Trend =	1.020
3-Year Average x Latest	51		
5-Year Average x Latest	31		
All Year Average x Latest	30		
Selected Pure Premium	30		

Missouri Petroleum Storage Tank Insurance Fund
Reserve Study as of June 30, 2023
Remedial AST
Incurred Bornhuetter-Ferguson Method

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	POTENTIAL	PROJECTED	TRENDED	DETRENDED	EXPECTED	PERCENT	EXPECTED	INCURRED	INDICATED	PAID	UNPAID	CASE	ULTIMATE
RY	SITES	PURE PREM	PURE PREM	PURE PREM	LOSSES	IBNR	IBNR	LOSSES	ULTIMATE	LOSSES	LOSS	RESERVE	PURE PREM
1994													
1995													
1996													
1997													
1998													
1999													
2000													
2001													
2002													
2003													
2004													
2005													
2006													
2007													
2008	2,055	25	34	23	46,532	0.0%	-	51,787	51,787	51,787	-	-	25
2009	2,051	93	122	23	47,371	6.3%	2,971	183,657	186,628	183,657	2,971	-	91
2010	2,049	-	-	24	48,271	6.3%	3,028	-	3,028	-	3,028	-	1
2011	2,044	-	-	24	49,116	6.5%	3,168	-	3,168	-	3,168	-	2
2012	2,040	-	-	25	50,001	12.0%	6,002	-	6,002	-	6,002	-	3
2013	2,040	-	-	25	51,001	12.4%	6,322	-	6,322	-	6,322	-	3
2014	2,039	-	-	26	51,995	17.3%	8,979	-	8,979	-	8,979	-	4
2015	2,038	92	108	26	53,009	28.8%	15,293	155,510	170,803	155,510	15,293	-	84
2016	2,038	-	-	27	54,069	28.8%	15,599	-	15,599	-	15,599	-	8
2017	2,037	36	40	27	55,123	31.5%	17,383	59,359	76,742	59,359	17,383	-	38
2018	2,036	-	-	28	56,198	33.0%	18,524	-	18,524	-	18,524	-	9
2019	2,036	-	-	28	57,322	37.7%	21,627	-	21,627	-	21,627	-	11
2020	2,035	97	103	29	58,440	38.4%	22,460	121,700	144,160	57,042	87,118	64,658	71
2021	2,034	48	50	29	59,580	38.4%	22,898	75,000	97,898	11,965	85,933	63,035	48
2022	2,034	-	-	30	60,771	47.8%	29,053	-	29,053	-	29,053	-	14
2023	2,034	-	-	30	61,987	67.4%	41,755	-	41,755	-	41,755	-	21
TOTAL	32,640				860,786		235,061	647,013	882,074	519,320	362,754	127,693	27

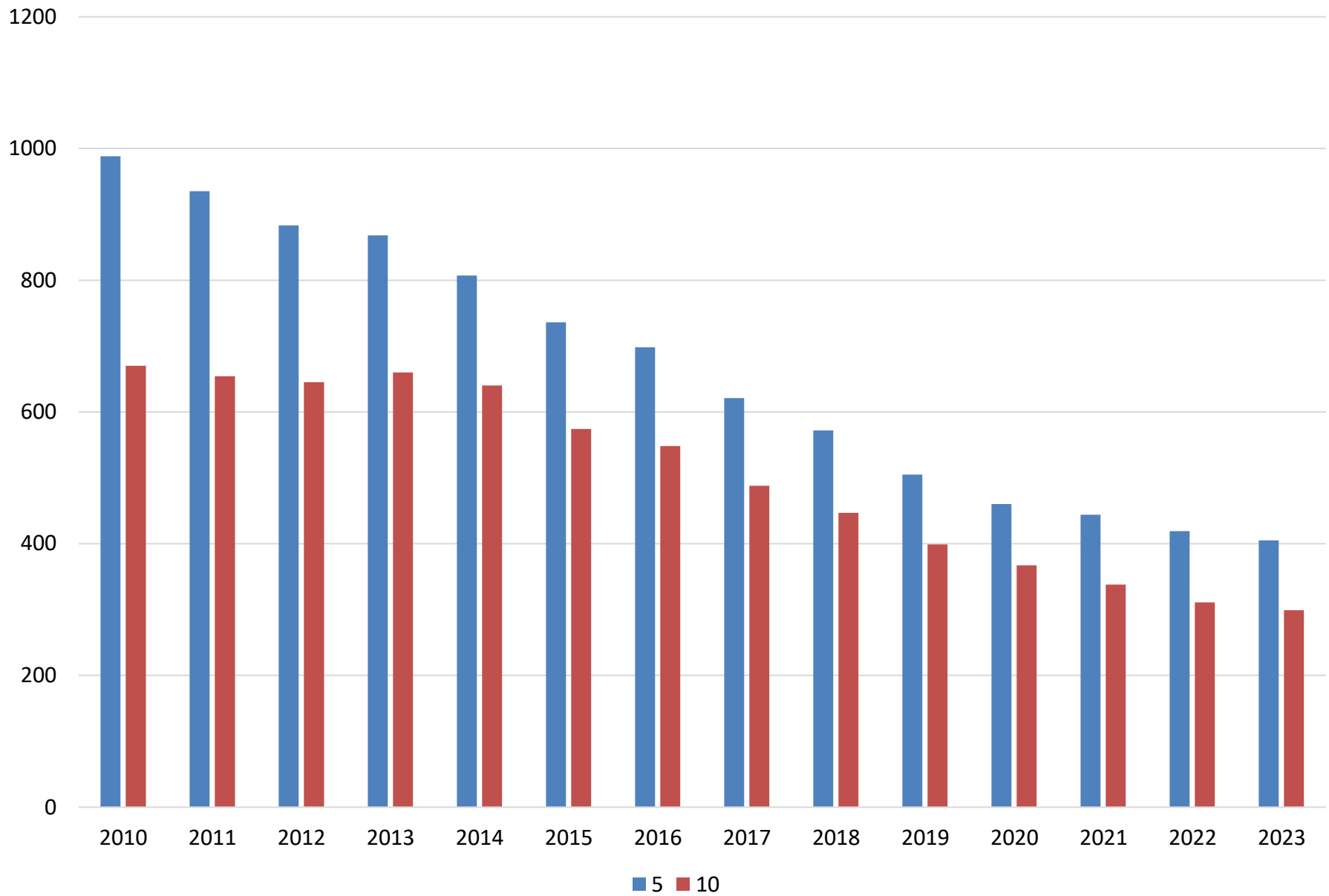| Pure Premium Selection		Trend =	1.020
3-Year Average x Latest	51		
5-Year Average x Latest	31		
All Year Average x Latest	30		
Selected Pure Premium	30		

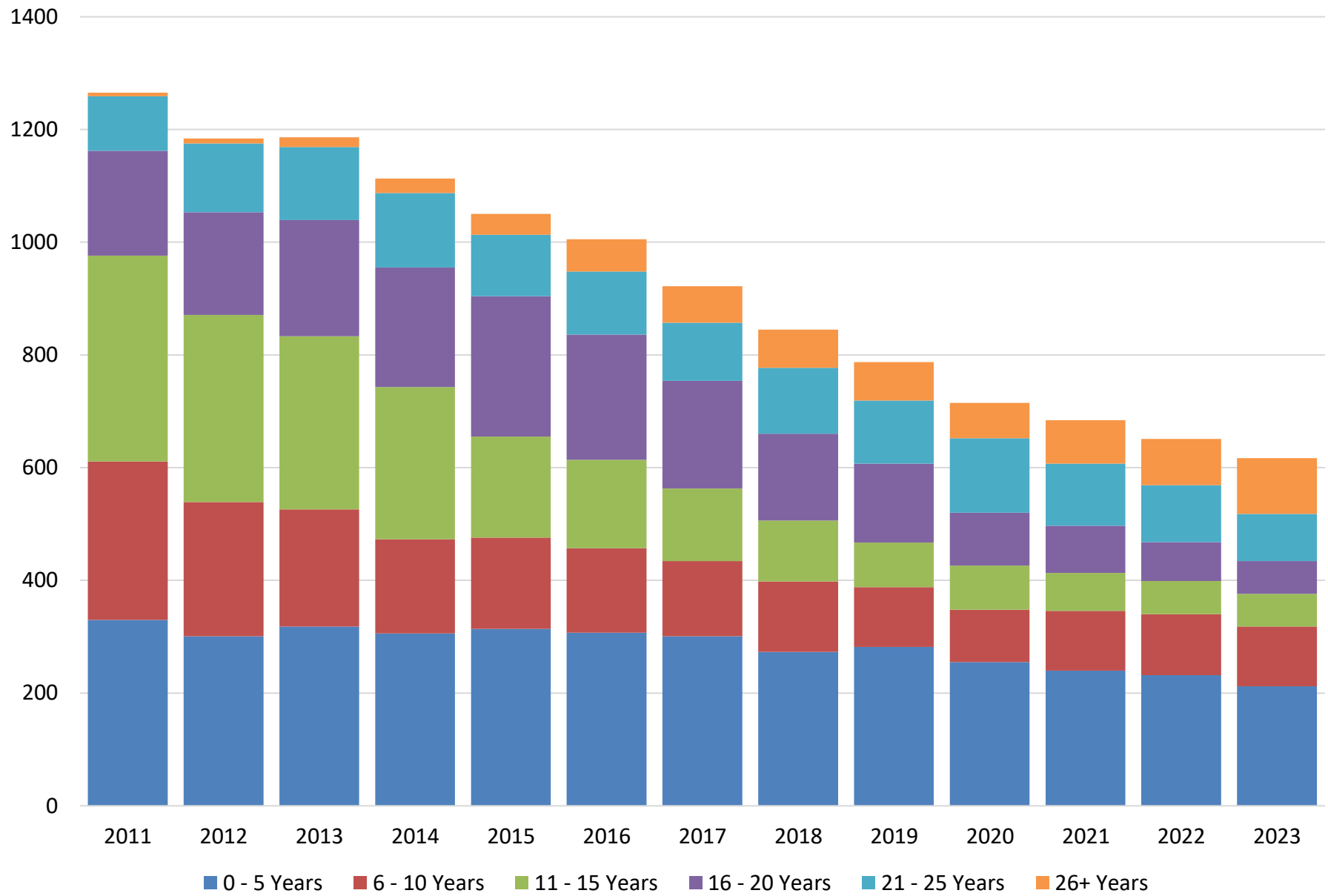Percent of Total Reported Claims Closed with Payment in First 72 Months After Report
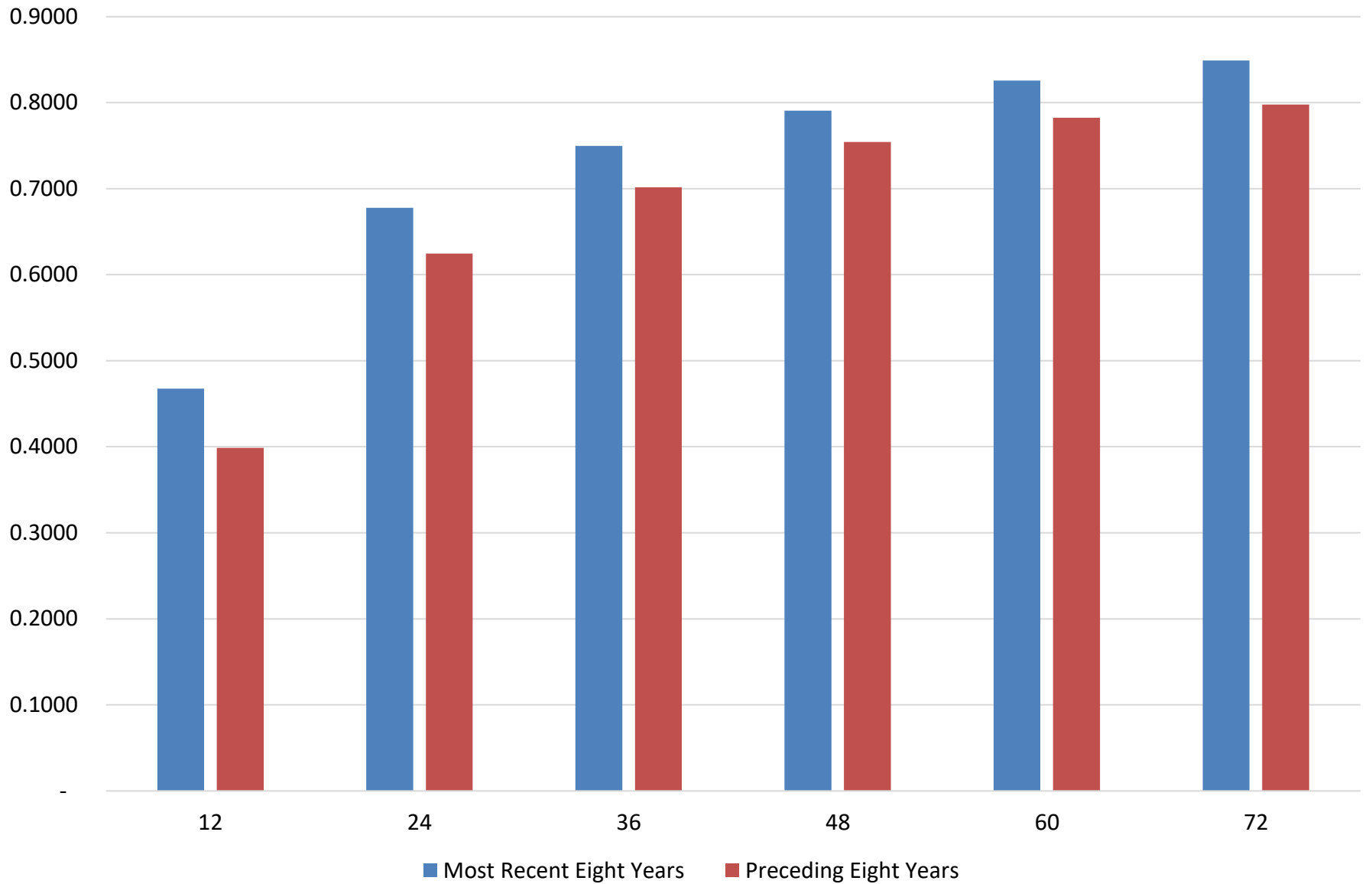
Backlog of Claims Older than 5 or 10 Years as a Percent of Total Open

Legend: ■ % Older than 5 Years   ■ % Older than 10 Years
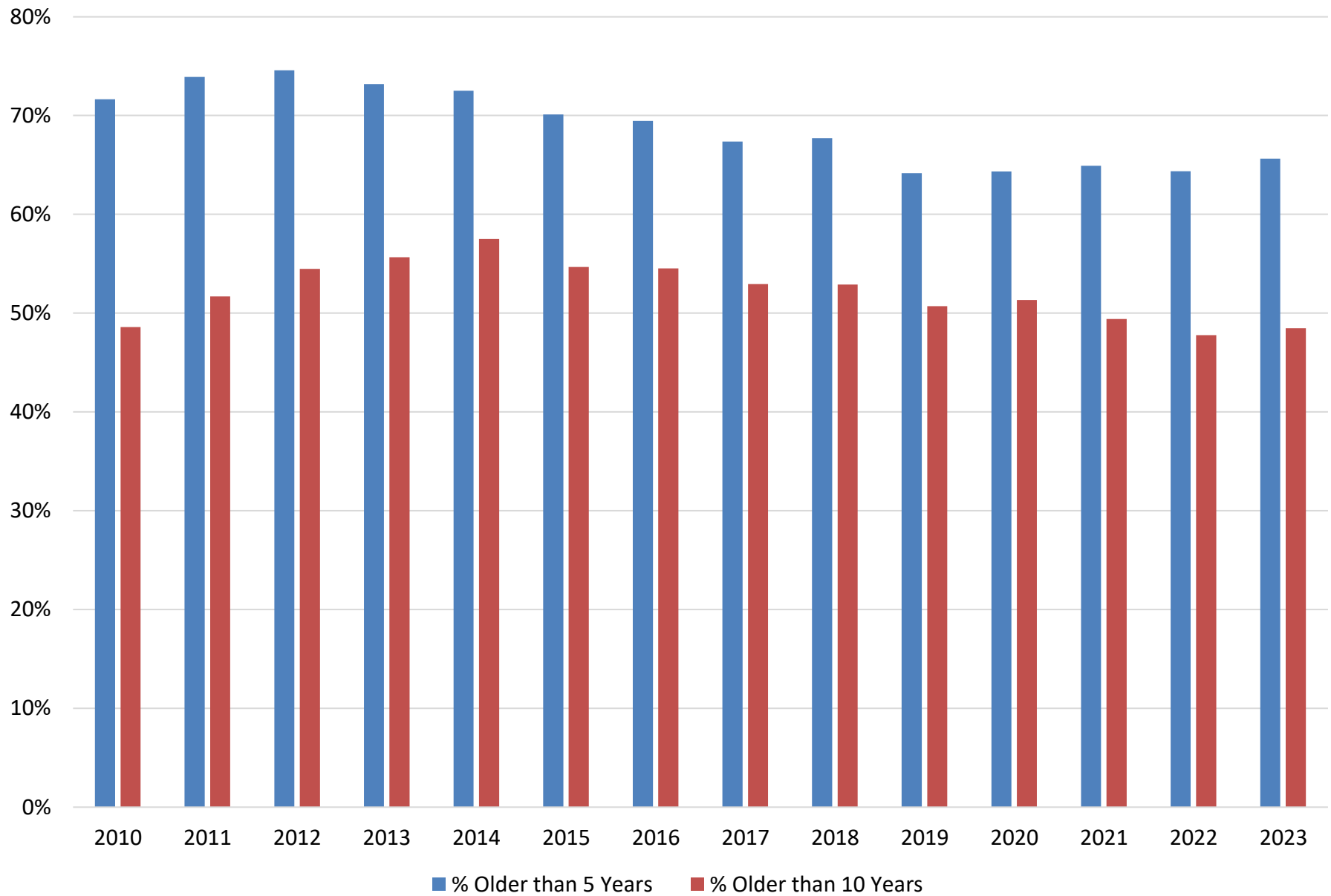
Backlog of Claims Older than 5 or 10 Years, Absolute Quantities

Number of Open Claims by Age of Release

Legend: 0 - 5 Years | 6 - 10 Years | 11 - 15 Years | 16 - 20 Years | 21 - 25 Years | 26+ Years

Percent of Open Claims by Age of Release

Legend: 0 - 5 Years | 6 - 10 Years | 11 - 15 Years | 16 - 20 Years | 21 - 25 Years | 26+ Years