



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

March 28, 2022

Thomas E. Dobbs III, MD, MPH
State Health Officer
Mississippi State Department of Health
570 East Woodrow Wilson Avenue
P.O. Box 1700
Jackson, MS 39215-1700

Dear Dr. Dobbs:

The U.S. Nuclear Regulatory Commission (NRC) uses the Integrated Materials Performance Evaluation Program (IMPEP) in the review of Agreement State and NRC radiation control programs. Enclosed is the draft IMPEP report, which documents the results of the Mississippi Agreement State review conducted on February 7 - 11, 2022 in Jackson, Mississippi. In-person inspector accompaniments were conducted on December 15 - 16, 2021, and a virtual accompaniment was performed on January 24, 2022. The team's preliminary findings were discussed with your staff on the last day of the review. Since the 2017 IMPEP and the Management Review Board (MRB) meeting following the 2018 periodic, the 2022 IMPEP team identified a decline in performance. While the team did not identify an immediate safety concern, the team's proposed recommendations are that the Mississippi Agreement State Program be found not adequate to protect public health and safety and not compatible with the NRC's program. The team made 14 new recommendations and determined that the recommendation from the 2017 IMPEP review should remain open. The review team also recommends that the Mississippi Agreement State Program be placed on Probation, based on significant deficiencies that were noted throughout the program that could have the potential to impact public health and safety.

The NRC conducts periodic reviews of Agreement State radiation control programs to ensure that public health and safety are adequately protected from the potential hazards associated with the use of radioactive materials and that Agreement State programs are compatible with the NRC's program. The IMPEP process uses a team comprised of Agreement State and NRC staff to perform the reviews. All reviews use common criteria in the assessment, with an emphasis on the Agreement State program's performance. The final determination of adequacy and compatibility of each program, based on the team's report, is made by the Chair of the MRB after receiving input from the MRB members. The MRB is comprised of NRC senior managers and an Agreement State program manager.


In accordance with procedures for the implementation of IMPEP, we are providing a copy of the draft report for review and comment prior to submitting the report to the MRB. Comments are requested within 4 weeks from your receipt of this letter. This schedule will permit the issuance of the final report in a timely manner.

The team will review the response, make any necessary changes to the report, and issue it to the MRB as a proposed final report. The hybrid MRB meeting is scheduled to be conducted on May 26, 2022, at 1:00 PM ET, via Microsoft Teams and in person at NRC Headquarters, conference room OWFN17-B04. The NRC will provide invitational travel for you or your designee to attend the MRB meeting at the NRC Headquarters in Rockville, Maryland. The NRC will also provide you with Microsoft Teams connection information prior to the meeting.

If you have any questions regarding the enclosed report, please contact Kathy Modes at (215) 872-5804.

Thank you for your cooperation.

Sincerely,



Signed by Anderson, Brian
on 03/28/22

Brian C. Anderson, Chief
State Agreement and Liaison Programs Branch
Division of Materials Safety, Security, State,
and Tribal Programs
Office of Nuclear Material Safety and Safeguards

Enclosure:
2022 Mississippi Draft IMPEP Report

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INTEGRATED MATERIALS PERFORMANCE EVALUATION PROGRAM

REVIEW OF THE MISSISSIPPI PROGRAM

February 7 - 11, 2022

DRAFT REPORT

Enclosure

EXECUTIVE SUMMARY

The results of the Integrated Materials Performance Evaluation Program (IMPEP) review of the Mississippi Agreement State Program (Mississippi) are discussed in this report. The review was conducted from February 7 - 11, 2022 in Jackson, Mississippi. In-person inspector accompaniments were conducted on December 15 - 16, 2021, and a virtual accompaniment was performed on January 24, 2022.

In 2017, Mississippi was found to be adequate to protect public health and safety but needs improvement and compatible with the NRC's program. A period of Monitoring was initiated due to the fact that three out of six performance indicators were found to be satisfactory but needs improvement. In its 2017 meeting, the Management Review Board (MRB) indicated its intention to consider the State's progress at the time of a 2018 periodic meeting. Based on the results of the 2018 periodic meeting, the MRB removed Mississippi from the period of Monitoring (ADAMS Accession Number [ML18241A125](#)).

The 2022 IMPEP team identified an overall decline in performance by Mississippi. The team found Mississippi's performance to be satisfactory but needs improvement for the following two performance indicators:

- Technical Staffing and Training; and
- Legislation, Regulations, and Other Program Elements.

The team found Mississippi's performance to be unsatisfactory for the following four performance indicators:

- Status of Materials Inspection Program;
- Technical Quality of Inspections;
- Technical Quality of Licensing Actions; and
- Technical Quality of Incident and Allegation Activities.

The finding for the Legislation, Regulations, and Other Program Elements performance indicator remained unchanged from the previous IMPEP review. The remaining five performance indicators declined from the 2017 review and the subsequent MRB decision to remove Mississippi from the period of Monitoring.

In addition, the team made 14 new recommendations and determined that the recommendation from the 2017 IMPEP review should remain open.

Accordingly, the team recommends that the Mississippi Agreement State Program be found not adequate to protect public health and safety.

Since the team noted that Mississippi's program has the potential to create gaps, conflicts, duplication, or other conditions that could jeopardize an orderly pattern in the collective national effort to regulate agreement materials, the team also recommends that Mississippi be found not compatible with the NRC's program.

Accordingly, the team recommends that the Mississippi Agreement State Program be placed on Probation, based on significant deficiencies that were noted throughout the program that could have the potential to impact public health and safety.

The team recommends that a follow-up IMPEP take place in approximately one year to review the following indicators:

- Technical Staffing and Training;
- Technical Quality of Licensing Actions; and
- Legislation, Regulations, and Other Program Elements.

The team also recommends that a follow-up IMPEP take place in approximately two years to review the following indicators:

- Status of Materials Inspection Program;
- Technical Quality of Inspections; and
- Technical Quality of Incident and Allegation Activities.

The team recommends a full IMPEP review take place in approximately three years.

The team considered the need for periodic meetings but noted that periodic meetings serve as informal forums to exchange information. If the MRB agrees with the team's recommendations, then Mississippi will immediately be placed on heightened oversight. Heightened oversight requires Mississippi to prepare a program improvement plan, submit status reports, and hold bimonthly conference calls with NMSS and Regional staff.

1.0 INTRODUCTION

The Mississippi Agreement State Program (Mississippi) review was conducted in Jackson, Mississippi from February 7 – 11, 2022, by a team of technical staff members from the U.S. Nuclear Regulatory Commission (NRC) and the Commonwealth of Pennsylvania. Team members are identified in Appendix A. Two in-person inspector accompaniments were conducted December 15-16, 2021, and a virtual inspector accompaniment was conducted on January 24, 2022. The inspector accompaniments are identified in Appendix B. The review was conducted in accordance with the “Agreement State Program Policy Statement,” published in the *Federal Register* on October 18, 2017 (82 FR 48535), and NRC Management Directive (MD) 5.6, “Integrated Materials Performance Evaluation Program (IMPEP),” dated July 24, 2019. Preliminary results of the review, which covered the period of April 28, 2017 – February 11, 2022, were discussed with Mississippi managers on the last day of the review.

In preparation for the review, a questionnaire addressing the common performance indicators and applicable non-common performance indicators was sent to Mississippi on July 8, 2021 (NRC’s Agencywide Documents Access and Management System (ADAMS) Accession Number [ML21189A261](#), with an updated letter sent on November 17, 2021 Accession Number [ML21320A091](#). Mississippi provided its response to the questionnaire on January 21, 2022. A copy of the questionnaire response is available in ADAMS using the Accession Number. [ML22039A159](#).

The Mississippi Radiation Control Program is administered by the Division of Radiological Health which is located within the Mississippi Department of Health. Organization charts for Mississippi are available in ADAMS using the Accession Number [ML22039A155](#).

At the time of the review, Mississippi regulated approximately 244 specific licenses authorizing possession and use of radioactive materials. The review focused on the radiation control program as it is carried out under Section 274b. (of the Atomic Energy Act of 1954, as amended) Agreement between the NRC and the State of Mississippi.

The team evaluated the information gathered against the established criteria for each common and applicable non-common performance indicator and made a preliminary assessment of the Mississippi radiation control program’s performance.

2.0 PREVIOUS IMPEP REVIEW AND STATUS OF RECOMMENDATIONS

The previous IMPEP review concluded on April 27, 2017. The final report is available in ADAMS using Accession Number [ML17214A458](#). The results of the review and the status of the associated recommendation are as follows:

Technical Staffing and Training: Satisfactory
Recommendation: None

Status of Materials Inspection Program: Satisfactory
Recommendation: None

Technical Quality of Inspections: Satisfactory
Recommendation: None

Technical Quality of Licensing Actions: Satisfactory but Needs Improvement
Recommendation: The Program review its guidance, including licensing, incident, and allegation guidance; update this guidance, as appropriate; and provide training to all Program staff on the new procedures.

Status: This recommendation remains open and will be further addressed in the discussion section for this indicator and in the Technical Quality of Incident and Allegation Activities indicator. As noted in the 2018 periodic meeting summary (ADAMS Accession Number [ML18156A024](#)), the Division's leadership initiated the development of the *Mississippi State Department of Health Radiological Health Manual* based on the guidelines provided by the Conference of Radiation Control Program Directors. A policy development Quality Improvement subgroup was created to develop and review policies and procedures identified as a priority based on IMPEP findings. The Policy Subgroup leverages its leadership team members to develop or strengthen departmental policy/procedures and ensure overall buy-in from the Branch staff for all policies and procedures. All policies and procedures developed by the Policy Subgroup were then reviewed by the Quality Improvement team for comment and approval using the Policy Review Checklist. As a result of the 2018 periodic meeting, the MRB removed Mississippi from a period of Monitoring and there was a shift in management oversight of the program; the Quality Improvement team took a lesser role, and the previous Radiation Control Program Director resumed his role. Based on the records reviewed during the 2022 IMPEP review, the team noted that the staff did not follow or implement these policies and procedures.

Technical Quality of Incident and Allegation Activities: Satisfactory but Needs Improvement.

Recommendation: The Program review its guidance, including licensing, incident, and allegation guidance; update this guidance, as appropriate; and provide training to all Program staff on the new procedures.

Status: This recommendation remains open. The 2022 IMPEP team found that the staff were not following the guidance and divulged the identity of an alleged. There was no progress made on improving performance and the team noted a decline in this indicator.

Legislation, Regulations, and Other Program Elements: Satisfactory but Needs Improvement.

Recommendation: None

Overall finding: The 2017 MRB found Mississippi to be adequate to protect public health and safety, but needs improvement, and compatible with the NRC's program. The team further recommended, and the MRB agreed, that a Periodic Meeting be held within 1 year (2018) and that the next IMPEP review take place approximately 3 years (2021) following the Periodic Meeting. However, the pandemic required the NRC to reschedule the next IMPEP review for 2022.

3.0 COMMON PERFORMANCE INDICATORS

Five common performance indicators are used to review the NRC and Agreement State radiation control programs. These indicators are: 1) Technical Staffing and Training, 2) Status of Materials Inspection Program, 3) Technical Quality of Inspections, 4) Technical Quality of Licensing Actions, and 5) Technical Quality of Incident and Allegation Activities.

3.1 Technical Staffing and Training

The ability to conduct effective licensing and inspection programs is largely dependent on having a sufficient number of experienced, knowledgeable, well-trained technical personnel. Under certain conditions, staff turnover could have an adverse effect on the implementation of these programs and could affect public health and safety. Apparent trends in staffing must be assessed. Review of staffing also requires consideration and evaluation of the levels of training and qualification. The evaluation standard measures the overall quality of training available to, and taken by, materials program personnel.

a. Scope

The team used the guidance in State Agreements procedure SA-103, "Reviewing the Common Performance Indicator: Technical Staffing and Training," and evaluated Mississippi's performance with respect to the following performance indicator objectives:

- A balanced staffing strategy has been implemented throughout the review period.
- Any vacancies, especially senior-level positions, are filled in a timely manner.
- There is a balance in staffing of the licensing and inspection programs.
- Management is committed to training and staff qualification.
- Agreement State training and qualification program is equivalent to NRC Inspection Manual Chapter (IMC) 1248, "Formal Qualifications Program for Federal and State Material and Environmental Management Programs."
- Qualification criteria for new technical staff are established and are followed, or qualification criteria will be established if new staff members are hired.
- Individuals performing materials licensing and inspection activities are adequately qualified and trained to perform their duties.
- License reviewers and inspectors are trained and qualified in a reasonable period of time.

b. Discussion

At the time of the on-site 2022 IMPEP review, Mississippi was comprised of six staff members. Mississippi had a Radiation Control Program Director (RCPD), a Deputy, two full time inspectors (one fully qualified and one qualified in industrial/commercial/academic), one part-time inspector who performs priority 5 virtual inspections, and one license reviewer who works remotely from another State. This equates to approximately 3.8 Program FTE. This calculation does not include 3 vacancies. These vacancies have been open for approximately 1.5 years. Mississippi informed the team that they intend to fill at least two of these positions in the near future. Once these vacancies are filled and Mississippi is fully staffed, the Program FTE will exceed 6.

During the review period, five staff members left the program, and six staff members were hired. These included the departure of the RCPD and a first line supervisor who was a fully qualified inspector. The new RCPD was hired and assumed the RCPD role in November 2021. The Deputy RCPD was hired in December 2021.

The team found that Mississippi's training and qualification program was compatible with the NRC's IMC 1248, but it was not being implemented or maintained in a proper recordkeeping manner. Based on the qualification journals provided, the team identified gaps in training. For example, the license reviewer's qualification journal only contained training prior to 2013. In that record, there was no documentation to include a review of

the NRC's NUREG-1556 series licensing guidance. Therefore, the team concluded that the license reviewer was not fully qualified in accordance with IMC 1248. For the inspector who was not fully qualified, the team noted that three NRC training course registrations had been withdrawn after being approved. Without completing these training courses, this inspector is limited to performing only inspections for commercial, academic, and industrial licensees.

At the time of the 2022 on-site review, Mississippi had two full-time inspectors, but only one was fully qualified. The fully qualified inspector performed inspections of medical licensees. The other inspector performed inspections of commercial, academic, and industrial licensees. Both of these full-time inspectors performed some license reviews. The part-time inspector only inspected priority 5 licensees virtually. The license reviewer performed a majority of the license reviews. The team noted that the Mississippi licensing and inspection staff worked independently and with little supervision. The team found that this approach did not lead to a balanced staffing strategy because there was only a single qualified medical licensee inspector. In addition, the team found repeat findings of the staff keeping records in an informal handwritten format.

In accordance with NRC's IMC 1248, fully qualified license reviewers and inspectors are required to successfully complete 24 hours of refresher training in 24 months in order to maintain their qualification. The team did not find complete training records and was not able to verify that the full-time, fully qualified inspector completed refresher training to maintain qualifications.

There were no impacts on this indicator due to the pandemic.

c. Evaluation

The team determined that during the review period Mississippi did not meet the performance indicator objectives. For example:

- A balanced staffing strategy had not been implemented throughout the review period.
- Vacancies were not filled in a timely manner.
- There was not a balance in staffing of the licensing and inspection programs.
- Individuals performing materials licensing and inspection activities were not adequately qualified or trained to perform their duties.

In terms of a balance in staffing, there was one license reviewer who performed the majority of license reviews. There was one inspector who inspected Priority 1, 2, and 3 and medical licenses and performed a few license reviews. There was one inspector who only inspected Priority 1, 2, and 3 commercial, academic, and industrial licenses and performed a few license reviews. During this review period, these three individuals worked independently, with little supervision, and with no cross training. Further, the team noted that the sole primary license reviewer had not been trained in the current NUREG-1556 series licensing guidance, and there was only one inspector qualified to inspect medical licenses. In addition, this had an impact on the technical quality of licensing actions as the license reviewer was not aware that there were new checklists that should have been used. Therefore, the team concluded that Mississippi did not have a balanced staffing strategy.

The team found that there was insufficient qualified staffing to implement the regulatory program. The team also determined that vacant positions resulted in performance issues in other performance indicators.

As a result of this review, the team will make one new recommendation:

- Mississippi develops a database to track refresher training requirements (24 hours of training every 2 years for qualified inspectors and license reviewers) and to ensure that staff are adequately trained and qualified before assuming new duties.

Based on the IMPEP evaluation criteria in MD 5.6, the team recommends that Mississippi's performance with respect to the indicator, Technical Staffing and Training, be found satisfactory but needs improvement.

d. MRB Chair's Determination

The final report will present the MRB Chair's determination regarding this indicator.

3.2 Status of Materials Inspection Program

Inspections of licensed operations are essential to ensure that activities are being conducted in compliance with regulatory requirements and consistent with good safety and security practices. The frequency of inspections is specified in IMC 2800, "Materials Inspection Program," and is dependent on the amount and type of radioactive material, the type of operation licensed, and the results of previous inspections. There must be a capability for maintaining and retrieving statistical data on the status of the inspection program.

a. Scope

The team used the guidance in State Agreements procedure SA-101, "Reviewing the Common Performance Indicator: Status of the Materials Inspection Program," and evaluated Mississippi's performance with respect to the following performance indicator objectives:

- Initial inspections and inspections of Priority 1, 2, and 3 licensees are performed at the prescribed frequencies (<https://www.nrc.gov/materials/miau/mat-toolkits.html>).
- Deviations from inspection schedules are normally coordinated between technical staff and management.
- There is a plan to perform any overdue inspections and reschedule any missed or deferred inspections or a basis has been established for not performing any overdue inspections or rescheduling any missed or deferred inspections.
- Applicants working under reciprocity are inspected in accordance with the criteria prescribed in IMC 2800 and other applicable guidance or compatible Agreement State procedure.
- Inspection findings are communicated to licensees in a timely manner (30 calendar days, or 45 days for a team inspection), as specified in IMC 0610, "Nuclear Material Safety and Safeguards Inspection Reports."

b. Discussion

Mississippi maintained a database for licensing, but not inspections. The review team found that Mississippi did not have a reliable and comprehensive database capable of

identifying the number of Priority 1, 2, 3 and initial inspections performed during the review period. This was a repeat of the 2018 periodic meeting summary, Mississippi managed inspection planning schedules in an informal, handwritten manner. This approach prevented inspection plans from being tracked, maintained, and easily retrievable in a consistent and reliable manner. Mississippi presented conflicting data that could not be substantiated as the records provided were inadequate, incomplete, inconsistent, or nonexistent. In response to the questionnaire, Mississippi reported that it had no data available for the following parameters:

- the total number of inspections completed since the last IMPEP review,
- the total number of inspections performed overdue,
- the total number of inspections currently overdue,
- the total number of inspections completed on time,
- the total number of inspections completed overdue, and
- the number of reciprocity inspections completed during the review period.

Mississippi further indicated that there were three Priority 1, 2, 3 or initial inspections that remained overdue and that approximately 16 Priority 1, 2, 3 or initial inspections were completed overdue during the review period. Mississippi had difficulty in locating the records needed for the review. The team reviewed 11 records which were incomplete and did not document the completion of overdue inspections. The team could not validate if the information provided was complete or comprehensive, and the overall issues with documentation complicated the team's review of this indicator.

The team reviewed inspection records that corresponded with the inspector accompaniments completed during the review. Two of the three inspections records were not complete at the time of the on-site IMPEP review and documentation was not available to demonstrate supervisory review of inspection findings or the communication of inspection results to the licensees. The team noted that the third inspector accompaniment was communicated to the licensee within the 30 days of completion.

Mississippi was unable to provide documentation of the basis for tracking inspection performance within established inspection priority timeframes. The team noted there was no management oversight to identify inspections to be completed, to enlist technical staff to complete the inspection, to ensure that inspections were completed and properly documented or to ensure that inspection findings were consistently communicated to licensees within the timeframes established (i.e., IMC 2800, IMC 0610, applicable guidance or an equivalent standard established by Mississippi). Dependence on information managed in an informal, handwritten manner and the use of personal calendars and individual (rather than shared) computer accounts contributed to Mississippi's inability to establish a reliable tracking system. Furthermore, Mississippi provided no documentation of coordination between technical staff and management regarding deviations from inspection priorities and no plan was implemented to address its deficiencies.

The team could not confirm that inspection findings were provided to licensees in a consistent manner (e.g., use of cover letters or comparable NRC Form 591). Mississippi's inconsistent use of cover letters following inspections was demonstrated in the three inspections reviewed with no documentation of inspection findings being provided to the licensee. The three inspections included:

- A Priority 3 well logging licensee was inspected in August of 2021 and noted to have operated without a Radiation Safety Officer, to have permanently shut

down without requesting termination, and to have not properly transferred sources to a licensed entity. While there were violations observed, there was no documentation maintained to demonstrate that inspection findings were communicated to the licensee. However, documentation was provided that the license had been terminated.

- A Priority 2 irradiator licensee was inspected in December of 2021. Despite multiple requests for the inspection documentation, the IMPEP team was notified that the report was late in being issued based upon a personal calendar alert. The inspection report was still being written at the time of the on-site IMPEP review in early February 2022; exceeding the 30 days post-inspection with no indication when the report would be approved by management and issued to the licensee.
- A Priority 1 industrial radiography licensee was inspected in November of 2018. While the inspection noted no violations, there was no documentation of inspection findings being communicated to the licensee.

Mississippi provided no management oversight to ensure the communication of inspection results including security inspection findings to licensees. While a combined letter to document health and safety as well as security inspection findings was drafted and used for some industrial facilities, there was no documentation that management had concurred with its usage or required it to be used consistently across all license modalities that are subject to the physical protection of Category 1 and Category 2 quantities of radioactive material (e.g., Title 10 *Code of Federal Regulation (CFR)* Part 37 requirements). It was noted that a cover letter was not used to disclose security inspection findings to medical licensees. Mississippi did not indicate “Official Use Only – Security Related Information” on any part of the inspection document corresponding letter even when referencing a Category 1 or 2 quantity of radioactive material or in diagrams of the positioning of Category 1 sources.

Mississippi was unable to perform inspections for a period of 14 months due to travel restrictions during the pandemic. The team noted that Temporary Instruction 003 (TI-003), “Evaluating the Impacts of the Coronavirus Disease 2019 Public Health Emergency as part of the Integrated Materials Performance Evaluation Program (IMPEP),” states, in part, that for inspections that exceed the scheduling window with overdue dates falling inside the defined timeframe of the pandemic, the number of overdue inspections should be noted in the report but should not be counted in the calculation. The team could not determine the number of overdue inspections due to the pandemic since Mississippi has inconsistent and incomplete inspection data.

Mississippi did not develop or implement a reciprocity procedure compatible with IMC 2800. The team found no records to demonstrate how reciprocity candidates were determined, how they were tracked, or if the facilities were inspected at the proper frequency. While Mississippi indicated that some reciprocity inspections occurred, Mississippi could not produce records to verify that the inspections had occurred.

c. Evaluation

The team determined that during the review period Mississippi did not meet the performance indicator objectives. For example:

- Initial inspections and inspections of Priority 1, 2, and 3 licensees may not have been performed at the prescribed frequencies.
- Deviations from inspection schedules were not normally coordinated between technical staff and management.
- There was no developed plan to perform overdue inspections or reschedule any missed or deferred inspections or to formulate a basis for not performing any overdue inspections or rescheduling any missed or deferred inspections.
- Applicant licensees working under reciprocity were not inspected in accordance with the criteria prescribed in IMC 2800 and other applicable guidance or compatible Agreement State procedure.
- Inspection findings were not communicated to licensees in a timely manner (30 calendar days, or 45 days for a team inspection), as specified in IMC 0610, "Nuclear Material Safety and Safeguards Inspection Reports."

Mississippi did not have a systematic approach to ensure that Priority 1, 2, 3 and initial inspections were performed at the prescribed frequencies. Despite this deficiency being previously noted during the 2009 IMPEP review, Mississippi still did not have a mechanism to verify that inspections were completed at the proper frequency. No records were maintained to demonstrate that reciprocity candidates were inspected.

Based on the criteria in MD 5.6, the team concluded that:

- Mississippi was not able to calculate the percentage of overdue priority 1,2,3 and initial inspections due to a problem with recordkeeping;
- Inspection findings were not issued to the licensee according to the criteria specified in State Agreements procedure SA-101 or compatible Agreement State procedure in most cases reviewed; and
- Mississippi did not have a reciprocity procedure in place.

As a result of this review, the team will make three new recommendations:

1. Mississippi develops and implements a reliable and comprehensive scheduling and tracking process to ensure completion of inspections, including reciprocity inspections (similar to a 2009 IMPEP review recommendation).
2. Mississippi develops a method to ensure licensees are provided with the results of the inspection (e.g., cover letters) in a timely manner.
3. Mississippi establishes a reciprocity procedure, trains staff on the use of this procedure, and assesses the performance results on an annual basis.

Based on the IMPEP evaluation criteria in MD 5.6, the team recommends that Mississippi's performance with respect to the indicator, Status of Materials Inspection Program, be found unsatisfactory.

d. MRB Chair's Determination

The final report will present the MRB Chair's determination regarding this indicator.

3.3 Technical Quality of Inspections

Inspections, both routine and reactive, provide reasonable assurance that licensee activities are carried out in a safe and secure manner. Accompaniments of inspectors

performing inspections and the critical evaluation of inspection records are used to assess the technical quality of an inspection program.

a. Scope

The team used the guidance in State Agreements procedure SA-102, "Reviewing the Common Performance Indicator: Technical Quality of Inspections," and evaluated Mississippi's performance with respect to the following performance indicator objectives:

- Inspections of licensed activities focus on health, safety, and security.
- Inspection findings are well-founded and properly documented in reports.
- Management promptly reviews inspection results.
- Procedures are in place and used to help identify root causes and poor licensee performance.
- Inspections address previously identified open items and violations.
- Inspection findings lead to appropriate and prompt regulatory action.
- Supervisors, or senior staff as appropriate, conduct annual accompaniments of each inspector to assess performance and assure consistent application of inspection policies.
- For Programs with separate licensing and inspection staffs, procedures are established and followed to provide feedback information to license reviewers.
- Inspection guides are compatible with NRC guidance.
- An adequate supply of calibrated survey instruments is available to support the inspection program.

b. Discussion

The team evaluated 11 inspection reports and associated correspondence and interviewed current inspectors. The team reviewed casework for inspections conducted by two current and four former inspectors. The casework review covered industrial radiography, well logging, underwater irradiator, manual brachytherapy, nuclear medicine, fixed gauge, and portable gauge licenses.

The team found that the inspectors worked only in their area of specialty. The fully qualified inspector typically inspected medical licensees. Whereas the other full-time, limited qualified inspector typically inspected commercial, academic, and industrial licensees. In November 2021, Mississippi hired a part-time inspector under contract from another Agreement State to perform virtual inspections of priority 5 licensees. The team noted that this distribution of workload resulted in priority 1, 2, and 3 licenses repeatedly being inspected by the same person. There was no cross-training to promote continuity of operation. The team found that having one inspector qualified to conduct medical licensee inspections and another inspector qualified to conduct commercial, academic, and industrial licensee inspections could jeopardize the ability to perform inspections if either of these inspectors left Mississippi. Furthermore, since each inspection was a snapshot of operating conditions, the same perspective was captured time and again.

The team identified inconsistencies with all 11 inspection casework files reviewed:

1. Inspectors did not consistently document the licensee's name, license number, inspection date, location being inspected, or provide an indication of a temporary job site inspection in inspection documentation. Multiple reports included the phrase "Unable to enter without scheduling," and indicated either a mailing

address (P.O. Box) or corporate office outside of Mississippi. Inspection reports did not contain sufficient information for the team to determine if the inspector performed a site visit or interviewed licensee personnel since names were included without an indication of the individual's role in the licensee's radiation safety program. When the inspection report provided space to include a management contact with the licensee, the inspector left the entry blank and noted that an exit meeting to disclose inspection findings was conducted although no date or name and title of the licensee representative was recorded.

2. A nuclear medicine inspection completed in December of 2021 underwent peer review by an inspector, who had not completed formal qualification requirements in the inspection modality. It was noted that the inspector who completed the peer review had only recently completed the NRC's nuclear medicine training course.
3. Inspection reports relied heavily upon checklists that only permitted the inspector to select (Y) for yes or (N) for no. Reports were prescriptive and did not reflect the scope of a performance-based, risk-informed inspection. When a space was provided for comments, the comments section was often incomplete or blank. The team noted that in the comment fields, when filled out were brief and typically did not justify the conclusions. When the checklist was completed, the team noted the inspector did not validate if the Radiation Safety Officer listed on the license was correct.
4. Handwritten notes on loose leaf paper and "post it" notes were attached to the inspection report. These notes described operating conditions and/or violations which were not incorporated into the inspection report. Given limitations of the documentation provided to the team, there was no record maintained to demonstrate that inspection findings were provided to the licensee. There was no ability to verify that the violations were issued and if the licensee took corrective actions.
5. Three of the 11 inspections reviewed had no record of inspection findings being provided to the licensee and there was no indication of management oversight.
6. A Priority 3 well logging inspection conducted in 2017 noted five violations and indicated that a follow-up inspection would occur within six months. While the inspection should have occurred in January of 2018, an inspection was not conducted until August of 2021. Inspectors interviewed during the review had no knowledge of why an inspection would be performed prior to the frequency established for the particular modality and could not provide any examples of such an occurrence being coordinated by supervisory staff.
7. Two inspection reports did not include a supervisory review. While the report provided space for a supervisor's signature, the record was left unsigned thereby indicating no management oversight. An inspection report for an inspection conducted in August of 2021 was not signed by the inspector.
8. Nine inspections did not have a review of the previous inspection for follow-up items or prior violations. One inspection report noted a review of violations issued from the last inspection, but this information was crossed out without explanation.

9. Mississippi did not have a procedure in place and were not protecting security-related information. For example, an inspection report for a licensee who possessed risk significant radioactive material was not marked to indicate that the report contained security-related information. Another inspection report contained diagrams of the placement of the Category 1 sources and did not have the proper markings. Mississippi indicated that they found files dispersed throughout the building and in inspector's vehicles. This is a repeat of previous IMPEP findings and associated recommendations.
10. Correspondence transmitting inspection results for a Priority 1 industrial radiography licensee was issued to the facility prior to management signing and approving the inspection report.
11. The team noted inconsistencies and conflicting information in the following inspection reports:
 - A Priority 1 industrial radiography inspection indicated that regulations relevant to a Category 1 source were not applicable, but later negated this information by indicating that the regulations did actually apply.
 - A manual brachytherapy inspection indicated that a license condition requiring quarterly source inventories was not applicable, but then attached documentation revealing that the licensee had performed the required inventories.
 - A portable gauge inspection was dated 2015 and then corrected to 2017. While the inspection noted previous violations, the violation descriptions were crossed out. There was no explanation provided for this action. Furthermore, copious amounts of "white out" were used throughout this report and specifically on dates being recorded.
 - Several reports contained an abundance of "white out." Pages were glued together by the "white out" and it was used repeatedly to alter the signature date recorded in the report. The consistent use of "white out" made it difficult to support the validity of dates provided.
12. Photos contained in the inspection reports were not properly labeled and the chain of custody was not indicated. Information was not provided to indicate who had taken the photo, what information was being displayed, when the photo was taken, or where the photo was taken.
13. Inspections completed one year apart for the same licensee were altered in format. Specifically, the more recent inspection was edited so that the location being inspected was no longer identified. The more recent report had parameters removed from the evaluation and the order of information was reorganized. Email attachments from the licensee were randomly placed in the inspection file, but it was unclear how this information was evaluated by the inspector in regard to the licensee's radiation safety program or source security. While both reports contained checklists, the more recent inspection recorded noticeably less information and relied more upon attachments.
14. None of the 11 inspection casework files reviewed identified the inspection procedure used. The team also noted that because the same inspector

repeatedly performed inspections of the same licensees, the inspector became familiar with the licensee's program and recorded limited information that did not justify the conclusions or findings and would not provide a clear understanding of the basis for the conclusion for new inspectors.

15. Mississippi did not provide documentation of completed reciprocity inspections. Mississippi expressed confusion as to who was tracking which licensees were eligible for inspection.

The team found that inspection reports were generally not well-organized, contained handwritten notes, and were missing page numbers, which made it difficult to review the documents as a whole.

Inspection reports did not reference a standard inspection procedure or a procedure that was specific to the modality being inspected. While Mississippi presented an overall inspection procedure, it was in draft form and did not contain a date of issuance. Procedures for the array of modalities inspected by Mississippi could not be produced during the review. The team also noted that an inspection report template was changed to include less information, without documented management approval.

In-person inspector accompaniments were conducted on December 15-16, 2021, and a virtual accompaniment was performed on January 24, 2022. In-person inspections were adequate to protect health and safety. The technical staff included more performance-based aspects of the inspection when prompted to do so by the IMPEP team member. For example, the IMPEP team member asked the inspector to include an observation of the administration of radioactive material at the nuclear medicine facility. At the irradiator facility, the team member asked the inspector to discuss emergency drills and preventive maintenance activities with the irradiator operators. The inspectors were familiar with the licensees and the licensed activities. No violations were identified.

For the Priority 5 virtual inspector accompaniment, the inspector emailed a questionnaire to the licensee in advance of the virtual inspection and reviewed information provided via email. The inspector conducted the inspection via a telephone conference call and was not able to visually take a tour of the licensee's facility for verification purposes. The team noted the licensee's information contained inconsistencies and that the inspector did not address these deficiencies in their inspection. The team noted that this inspection was primarily a compliance-based review in lieu of a performance-based inspection. The team found the inspection was ineffective in determining the number of radioactive sources in possession and did not differentiate between which fixed gauges were in use and which were in storage. The team also noted that the inspector informed the licensee that they did not have to perform leak tests because the NRC had exempted these requirements due to the pandemic. This was later corrected because the NRC licensees have to submit a request for this exemption. The inspector did not review the Sealed Source and Device Registry prior to performing a fixed gauge inspection. The team noted that this should have been included as part of the preparation to familiarize the inspector with the variety of fixed gauges at this licensee's facility. The team concluded that the virtual inspection was not a complete or comprehensive inspection.

Mississippi was unable to perform inspections for a period of 14 months due to restrictions during the pandemic. The team noted that TI-003 states, in part, that if these impacts to supervisory accompaniments were outside of the Program's control, they should not be considered by the IMPEP team while establishing the overall indicator rating. Therefore, the team did not consider the absence of supervisory

accompaniments in 2020 when establishing the overall indicator rating. Supervisory accompaniments were completed for two of the four inspectors during 2017. There were no supervisory accompaniments during 2018 or 2019. Mississippi did not implement a plan to address the missing supervisory accompaniments. Documentation was provided to demonstrate that supervisory accompaniments were completed in 2021 for two inspectors by the former RCPD and for the part-time inspector by a member from another Agreement State program.

The team noted that Mississippi had an adequate supply of properly calibrated survey instruments. Mississippi designated an individual responsible for identifying instrumentation currently in their possession, identifying the location of the equipment, tracking instrument calibration, and ensuring that a reliable supply of calibrated instrumentation is available to technical staff. However, the team was informed that the contracted commercial survey meter calibration service was performed in-house with a calibrator listed on the Program's specific Mississippi radioactive materials license. In addition, Mississippi could not provide the team with documentation of an inspection or audit of these activities to demonstrate the safe use of radioactive materials within their building.

c. Evaluation

The team determined that during the review period Mississippi did not meet the performance indicator objectives. For example:

- Inspections of licensed activities did not always focus on health, safety, and security.
- Inspection findings were not well-founded and properly documented in reports.
- Management did not promptly review inspection results.
- Procedures were not in place and used to help identify root causes and poor licensee performance.
- Inspections did not address previously identified open items and violations.
- Inspection findings did not lead to appropriate and prompt regulatory action.
- Supervisors, or senior staff as appropriate, did not conduct annual accompaniments of each inspector to assess performance and assure consistent application of inspection policies.
- For Programs with separate licensing and inspection staffs, procedures were not established and followed to provide feedback information to license reviewers.
- Inspection guides were compatible with NRC guidance.

As noted above, inspection findings were incomplete, inconsistent, and not properly documented in reports. There was no documentation to show that inspection results and inspection findings were promptly reviewed by program management. The draft inspection procedure was not finalized. Mississippi did not consistently implement this draft procedure across the program. Further, the team noted that the draft inspection procedure was not compatible with the NRC guidance.

Based on the criteria in MD 5.6, the team concluded that:

- An evaluation of inspection casework indicated that most of the inspections:
 - 1) did not address certain aspects of health, safety, or security concerns,
 - 2) were incomplete,
 - 3) indicated problems with respect to thoroughness, technical quality, and consistency, or
 - 4) indicated no management review of inspection results;

- Most of the program's inspection procedures were not compatible with the criteria in IMC 2800, IPs 87102 through 87654 series, as applicable, and State Agreements procedure SA-102;
- Inspection procedures were not implemented by most of the inspectors;
- Inspection findings do not lead to appropriate and prompt regulatory action in most of the cases reviewed;
- Supervisory accompaniments of most inspectors were not performed in accordance with the criteria specified in IMC 2800 and State Agreements procedure SA-102, or compatible Agreement State procedures; and
- Follow-up actions regarding inspection findings in most cases are not in accordance with the criteria specified in IMC 2800 and State Agreements procedure SA-102, or compatible Agreement State procedures.

As a result of this review, the team will make six new recommendations:

1. Mississippi develops and implements inspection procedures that are consistent with the NRC's Inspection procedures and provide training on the proper method of documenting inspections. Checklists may be used, but the final inspection documentation needs to be clear, consistent, and comprehensive to ensure that the inspection covered all required safety focus areas.
2. Mississippi develops a systematic approach to ensure that annual supervisory inspector accompaniments are completed.
3. Mississippi develops a review process by qualified staff to ensure inspection documentation is complete, comprehensive, focused on safety and security, as applicable and meets the documentation requirements in IMC 2800.
4. Mississippi develops and implements a procedure for the control of sensitive or security-related information that provides guidance to identify, mark, handle, and protect such information consistently (repeat from 2009 IMPEP review).
5. Mississippi ensures staff have access to the Sealed Source and Device Registry and the National Source Tracking System in order to provide inspectors with information they will need for inspection preparation.
6. Mississippi implements a process to ensure violations are adequately documented, licensee corrective actions are reviewed for adequacy and documented, and sufficient follow-up of violations is performed and documented consistent with the safety or security significance (repeat from 2009 IMPEP review).

Based on the IMPEP evaluation criteria in MD 5.6, the team recommends that Mississippi's performance with respect to the indicator, Technical Quality of Inspections, be found unsatisfactory.

d. MRB Chair's Determination

The final report will present the MRB Chair's determination regarding this indicator.

3.4 Technical Quality of Licensing Actions

The quality, thoroughness, and timeliness of licensing actions can have a direct bearing on public health and safety, as well as security. An assessment of licensing procedures, implementation of those procedures, and documentation of communications and associated actions between the Mississippi licensing staff and regulated community is a significant indicator of the overall quality of the licensing program.

a. Scope

The team used the guidance in State Agreements procedure SA-104, "Reviewing the Common Performance Indicator: Technical Quality of Licensing Actions," and evaluated Mississippi's performance with respect to the following performance indicator objectives:

- Licensing action reviews are thorough, complete, consistent, and of acceptable technical quality with health, safety, and security issues properly addressed.
- Essential elements of license applications have been submitted and elements are consistent with current regulatory guidance (e.g., Pre-Licensing Guidance, Title 10 CFR Part 37, financial assurance, etc.)
- License reviewers, if applicable, have the proper signature authority for the cases they review independently.
- License conditions are stated clearly and can be inspected.
- Deficiency letters clearly state regulatory positions and are used at the proper time.
- Reviews of renewal applications demonstrate a thorough analysis of a licensee's inspection and enforcement history.
- Applicable guidance documents are available to reviewers and are followed (e.g., NUREG-1556 series, Pre-Licensing Guidance, regulatory guides, etc.).
- Licensing practices for risk-significant radioactive materials are appropriately implemented including the physical protection of Category 1 and Category 2 quantities of radioactive material (10 CFR Part 37 equivalent).
- Documents containing sensitive security information are properly marked, handled, controlled, and secured.

b. Discussion

During the review period, Mississippi performed 1,054 radioactive materials licensing actions. Mississippi maintained a database for licensing.

The team evaluated 11 licensing actions: 1 new application, 4 amendments, 5 renewals, and 1 fixed gauge decommissioning. The team evaluated casework which included the following license types: research and development type A broad scope, manufacturing and distribution, fixed gauges, medical institution written directive required, industrial radiography, gas chromatographs, and possession only. The casework sample represented work from three current and two former license reviewers. Since November 2020, Mississippi had one license reviewer working remotely who performed most of Mississippi's technical licensing reviews. The two full-time inspectors performed a few license reviews.

The team identified inconsistencies in 6 of the 11 licensing actions reviewed. For example:

1. Based on the records provided, it appeared that Mississippi issued a receipt and possession license as well as an exempt distribution license to a Mississippi

- licensee. Only the NRC can issue exempt distribution licenses. The team saw an exempt distribution license prepared by Mississippi that was signed by the previous RCPD. This license had the appearance that it had been issued. The team discussed this matter with the license reviewer and was informed that the exempt distribution license was never issued by Mississippi. Mississippi issued a receipt and possession license for this licensed activity. The Mississippi exempt distribution license should be discarded, appropriately. Also, Mississippi should ensure their licensee has the proper understanding of these requirements.
2. The team noted that Mississippi possesses four financial assurance instruments and all four need to be updated to current standards. The team noted that three of the four financial assurance instruments had not been reviewed or updated during this review period. The remaining instrument was updated in 2021 but had a zero-dollar market value. Financial assurance may become the State's burden if these instruments are not maintained and updated in addition to if a licensee experiences bankruptcy or abandons the radioactive material. The instruments were maintained in a locked safe in the RCPD's office. Mississippi needs to follow the guidance in NUREG-1757, Volume 3, Revision 1, "Consolidated Decommissioning Guidance: Financial Assurance, Recordkeeping, and Timeliness."
 3. Three authorized users (AUs) were granted authority to use radioactive material on a medical license. Based on the team's review, these AUs did not provide adequate training and experience to be approved. There needs to be a minimum of three cases in each of the categories in order to approve an AU. Based on the information in the file, there were not three cases, and the team did not see evidence to support this request in accordance with NUREG-1556 series, Volume 9, Revision 3 "Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Medical Use Licenses" and 10 CFR 35.392, 10 CFR 35.394, and 10 CFR 35.396. The team noted that this matter could have cross-jurisdictional implications if an AU were to show the Mississippi license to another Agreement State or the NRC and be granted authorization on another license.
 4. The team observed that Mississippi was not using the most current up-to-date guidance. NRC issued an updated version of the Risk Significant Radioactive Materials in 2018 and an updated version of the Pre-Licensing Guidance in 2019. However, Mississippi was not using these versions. Mississippi modified the 2006 version of the Pre-Licensing Guidance. The team informed Mississippi that this was not acceptable because these guidance documents were needed for compatibility and to assure that new licensees would use the radioactive material as intended. They were also used to validate the review of change of ownership/control. This was a significant finding, and the compatibility issue will be discussed in Section 4.1 of this report.
 5. The team identified 240 non-standard license conditions that were being implemented on Mississippi's radioactive material licenses. The team noted the use of non-standard license conditions. The license reviewer committed to review this list and work with the NRC's State Regulation Review Coordinator to submit the non-standard license conditions to the NRC for a compatibility review. The license reviewer plans to submit approximately 15 non-standard license conditions to the NRC for review.
 6. The team could not confirm that license reviews for renewals included a review of the licensee's compliance or enforcement history.

The team noted that all Mississippi licenses, include a license condition requiring the licensee to notify Mississippi prior to an emergency evacuation of a facility that stores radioactive material. With the number of severe weather events in the State of Mississippi, the team found this standard license condition to be appropriate.

Licenses that authorize Category 1 and 2 quantities of radioactive material were properly marked as containing sensitive information.

c. Evaluation

The team determined that during the review period Mississippi did not meet the performance indicator objectives. For example:

- Licensing action reviews were not thorough, complete, consistent, and of acceptable technical quality with health, safety, and security issues properly addressed.
- Essential elements of license applications were not submitted, and elements were not consistent with current regulatory guidance (e.g., Pre-Licensing Guidance, Title 10 CFR Part 37, financial assurance, etc.)
- License conditions were not stated clearly.
- Reviews of renewal applications did not demonstrate a thorough analysis of a licensee's inspection and enforcement history.
- Applicable guidance documents were not being followed (e.g., Pre-Licensing Guidance, regulatory guides, etc.).

Mississippi's licensing procedure was revised on January 3, 2022, in response to the 2017 IMPEP review recommendation. However, Mississippi did not show the team evidence that the staff was trained on the new procedure. The team will recommend keeping this recommendation open because the team did not see how this newly revised procedure was being implemented.

Mississippi informed the team that cover letters were used only for new and renewal licensing actions and that they do not use cover letters for amendments or terminations. A cover letter transmitting the licensing action (new, renewal, amendment, termination) would provide the licensee with information regarding the action completed and other relevant information that Mississippi wanted to share with their licensees (e.g., inform the licensee what they must do to comply with the State of Mississippi requirements, conduct their radiation safety program according to the conditions of their Mississippi license and Mississippi's regulations). Since Mississippi will be transitioning to WBL, standard cover letters will be available for their use, and they will have the opportunity to customize the letters.

Based on the criteria in MD 5.6, the team concluded that:

- Evaluation of licensing casework indicated that most licensing actions were not thorough, complete, consistent, and of acceptable technical quality;
- Evaluation of licensing actions indicated that most do not adequately address health, safety, or security issues that have the potential to result in an overexposure, loss of risk-significant radioactive materials, or unintended/unauthorized use of radioactive material;
- Reviews of renewal applications do not demonstrate thorough analysis of a licensee's inspection and enforcement history in most of the licensing actions reviewed; and

- Reviewers are not following the criteria specified in the NUREG-1556 series, as applicable, and State Agreements procedure SA-104 or compatible Agreement State procedure, in most of the actions reviewed.

As a result of this review, the team will make three new recommendations:

1. Mississippi performs an extent of condition review of all of their medical licenses issued since April 28, 2017, to ensure that all RSOs, AUs, authorized nuclear pharmacists, and authorized medical physicists are appropriately qualified in accordance with applicable licensing guidance (e.g., equivalent 10 CFR Part 35 regulations and NUREG-1556, Volume 9, Revision 3).
2. Mississippi develops a licensing process that uses standard or approved license conditions on Mississippi radioactive material licenses to ensure no conflicts, duplications, gaps, or other conditions that would jeopardize an orderly pattern in the regulation of agreement material on a nationwide basis. This licensing process may include the use of cover letters or other documentation to clearly inform the licensee of the type of licensing action completed and any other relevant information.
3. Mississippi performs an extent of condition review of licenses renewed during this review period (since April 28, 2017) to determine if the licensee's compliance history/enforcement history at the time would have made Mississippi not renew the license based on this additional information in accordance with NUREG-1556 series, Volume 20, Revision 1.

The 2017 IMPEP review made the following recommendation: The Program review its guidance, including licensing, incident, and allegation guidance; update this guidance, as appropriate; and provide training to all Program staff on the new procedures. Based on the results of this review, the team will recommend to the MRB to keep this recommendation open.

Based on the IMPEP evaluation criteria in MD 5.6, the team recommends that Mississippi's performance with respect to the indicator, Technical Quality of Licensing Actions, be found unsatisfactory.

d. MRB Chair's Determination

The final report will present the MRB Chair's determination regarding this indicator.

3.5 Technical Quality of Incident and Allegation Activities

The quality, thoroughness, and timeliness of response to incidents and allegations of safety concerns can have a direct bearing on public health, safety, and security. An assessment of incident response and allegation investigation procedures, actual implementation of these procedures internal and external coordination, timely incident reporting, and investigative and follow-up actions, are a significant indicator of the overall quality of the incident response and allegation programs.

a. Scope

The team used the guidance in State Agreements procedure SA-105, "Reviewing the Common Performance Indicator: Technical Quality of Incident and Allegation Activities,"

and evaluated Mississippi's performance with respect to the following performance indicator objectives:

- Incident response and allegation procedures are in place and followed.
- Response actions are appropriate, well-coordinated, and timely.
- On-site responses are performed when incidents have potential health, safety, or security significance.
- Appropriate follow-up actions are taken to ensure prompt compliance by licensees.
- Follow-up inspections are scheduled and completed, as necessary.
- Notifications are made to the NRC Headquarters Operations Center for incidents requiring a 24-hour or immediate notification to the Agreement State or NRC.
- Incidents are reported to the Nuclear Material Events Database (NMED) and closed when all required information has been obtained.
- Allegations are investigated in a prompt, appropriate manner.
- Concerned individuals are notified within 30 days of investigation conclusions.
- Concerned individuals' identities are protected, as allowed by law.

b. Discussion

During the review period, 13 incidents were reported to Mississippi. The team evaluated 8 radioactive materials incidents: 2 stolen radioactive materials (radiopharmacy delivery vehicle and a portable gauge from temporary job site storage location), 2 potential overexposures, 1 medical event, 1 equipment failure (radiography camera failure to retract), 1 fixed gauge shutter stuck in the open unshielded position, and 1 damaged portable gauge (run over at a construction site).

When notified of an incident, Mississippi staff would complete the Mississippi Complaint/Allegation/Incident (CAI) Form. The form did not include a section to indicate if a discussion between management and staff took place, whether the follow-up would be conducted as an immediate on-site review, a follow-up telephone call or email, or if the incident would be reviewed at the time of the next routine inspection. Typically, these determinations would be made based on both the circumstances and the health and safety significance of the incident. The team did not see documentation of a supervisory review on all incident cases reviewed. A supervisory review would have been beneficial to ensure completeness and validate that the incident was properly closed.

The team identified inconsistencies with 6 of the 8 actions reviewed:

1. The team noted that a Mississippi inspector responded 5 days after a potential overexposure incident but did not interview the assistant radiographer who had the exposure, until 10 days after the incident. The inspector's notes indicated that the assistant radiographer was not wearing a dosimeter at the time of the incident, but the assistant radiographer's dosimeter was sent for processing and read 150 mrem. The assistant radiographer had blood drawn and noted that the results were within normal limits and there were no physical symptoms of radiation sickness. The assistant radiographer was placed on non-radiography duties until the end of the year. The Radiation Safety Officer provided a dose recreation based upon the location of the source and proximity of the radiographer and concluded that the radiographer was overexposed. The inspector dismissed the Radiation Safety Officer's assessment by concluding that if the radiographer had been overexposed, the film would have been visually darkened. Based on the incident file, the required 30-day report was never

submitted by the licensee or requested by Mississippi. Mississippi subsequently retracted this NMED report because there was not enough evidence to definitively prove there was an overexposure. The team disagrees with this assessment. Mississippi needs to review the Handbook on Nuclear Material Event Reporting in the Agreement States in SA-300, "Reporting Material Events," re-evaluate this incident, make changes to the NMED report, and submit an update to the HOC, if applicable.

2. For the other potential overexposure event, the file indicated that there was no on-site review. The file contained a request for the licensee to submit a report detailing the overexposure; dosimetry reports for the current year; the radiation safety committee's investigation, including corrective actions taken; and a statement indicating the exposure was due to use of radioactive materials or x-rays. This incident involved a cardiologist that wore their dosimeter on the outside of the lead apron and that the revised dose was calculated to be less than the occupational dose limit. The team concluded that Mississippi performed an in-house review of records and closed the case without performing an inspection.
3. The team noted that the documentation in the file for the fixed gauge stuck shutter did not appear to include any action taken by Mississippi. The record noted that the gauge was replaced. Mississippi has not closed this case in NMED even though it took place in 2020.
4. For the case of the stolen radiopharmacy delivery vehicle, the NMED report has not been properly closed nor marked as completed. This theft occurred in 2019. Mississippi will need to correct this record.
5. The team evaluated Mississippi reporting of incidents to the NRC's Headquarters Operations Center (HOC). The team noted that in each case requiring HOC notification, Mississippi reported the incidents within the required timeframe. The team also evaluated whether Mississippi had failed to report any required incidents to the HOC. The team did not identify any missed reporting requirements, but Mississippi withdrew an event where a Delta 880 radiography camera's source did not fully retract. It was reported as an equipment failure. However, Mississippi retracted the event based on the estimated dose to the radiographer being below the occupational dose limits. The equipment failure still occurred, and this event should not have been retracted. Mississippi will need to correct this record.
6. In another case, Mississippi closed a stolen portable gauge incident on the day it was reported even though a 30-day report was required. The team noted that the review of the incident should have included a review of the 30-day report and should not have been closed prior to the completion of that review. Mississippi should revise their procedure to ensure that this problem does not recur.

The incident files indicated that there were investigations conducted, but there was no indication if this review took place at the facility where the incident occurred, at the company's office, or was conducted remotely via telephone or email. This made it difficult for the team to assess Mississippi's performance. The team concluded that the responses to incidents were incomplete, poorly coordinated, and not timely in cases that resulted in an overexposure. The team found that Mississippi's evaluation of incident

notifications and its response to those incidents was not thorough, well balanced, complete, or comprehensive.

During the review period, 11 allegations were received by Mississippi. The team evaluated 6 allegations, including 2 allegations that the NRC referred to the State, during the review period.

The team identified inconsistencies with 4 of the 6 actions reviewed:

1. NRC's MD 8.8, "Management of Allegations" required that staff protect the identity of alleged. On January 29, 2018, Mississippi established their CAI Policy and Procedure which required the State to take extra care not to divulge the identity of the alleged. However, before the development of this procedure, an alleged's identity was revealed to the licensee. In the documentation, the staff included a paragraph about the licensee indicating the alleged's performance was poor. The team noted that a supervisory review did not identify the fact that the inspector divulged the alleged's identity.
2. For one of the two allegations referred by the NRC, there was no allegation file. It appeared from the records provided that Mississippi created two licenses for a company that distributes exempt material; one license was for the exempt distribution and the other was for possession. As noted in Section 3.4 above, only the NRC has the regulatory authority to issue exempt distribution licenses. The team noted that this allegation had no accompanying documentation about the review and the results. As noted above in Section 3.4, Mississippi indicated they did not issue the distribution license.
3. The second allegation referred by the NRC involved the unauthorized use of radioactive material by a radiographer. There is no indication that Mississippi conducted an inspection or issued a violation for the unauthorized use of radioactive material.
4. In another allegation, Mississippi sent an 11-person team to survey an individual's private residence in response to a concern regarding a member of the public being irradiated by their neighbors. The file contained a criminal record for one of the neighbors but was missing a closeout letter to the alleged informing the alleged of the results of the survey and investigation. The team noted that an 11-person survey team was a bit excessive and that the neighbor's criminal record was not material to the allegation.

There were no observable affects to the investigation and response to incidents and allegations due to the pandemic.

c. Evaluation

The team determined that during the review period Mississippi did not meet the performance indicator objectives. For example:

- Incident response and allegation procedures were in place and not followed.
- Response actions were not appropriate, well-coordinated, and timely.
- On-site responses were not performed when incidents have potential health, safety, or security significance.

- Incidents were reported to the NMED, but not all have been closed when all required information has been obtained.
- Allegations were not investigated in a prompt, appropriate manner.
- Concerned individuals were not notified within 30 days of investigation conclusions.
- Concerned individuals' identities were not protected.

The Mississippi CAI policy and procedure was established on January 29, 2018, to ensure the timely and complete investigation and reporting of CAI. The team concluded that Mississippi was not following the CAI policy, the guidance in the Handbook to SA-300, or the guidance in MD 8.8. As noted above, responses to potential overexposures were not immediate. Two of the eight incident casework remain open in NMED even though they occurred in calendar years 2019 and 2020. As noted above, Mississippi did not protect the identity of an alleged and did not notify another alleged of the results of their investigation. Mississippi inappropriately informed a licensee of an allegation. Management review, when conducted, failed to identify issues related to the protection of the alleged's identity. The team found issues in 6 of the 8 incident casework files and 4 of the 6 allegation casework files reviewed. Therefore, based on the information reviewed, the team concluded that there was little supervisory review at the time, inspectors worked mostly independently, and there appeared to be no peer review process in place.

Based on the criteria in MD 5.6, the team concluded that:

- Incident response and allegation procedures were not implemented in most cases;
- The level of effort was not commensurate with the potential health, safety, or security significance of an incident or allegation in most of the cases reviewed;
- Actions taken were not focused, well-coordinated, or timely for incidents and allegations involving health, safety, and security issues in most of the cases reviewed;
- Results of allegation investigations were not provided to known allegeds, or alleged identities were not protected in accordance with the applicable State or Federal laws or policies, in most of the cases reviewed; and
- Responses to incidents or allegations were incomplete, poorly coordinated, and not timely in cases that could have resulted in an overexposure, or loss of risk-significant radioactive material.

Based on the above, the team concluded that Mississippi did not follow the guidance in their CAI policy and procedure. The 2017 IMPEP review recommended that Mississippi review its guidance, including licensing, incident, and allegation guidance; update this guidance, as appropriate; and provide training to all staff on the new procedures. Based on the results of this 2022 review, the team will recommend keeping this recommendation open.

As a result of this review, the team will make one new recommendation:

- Mississippi conducts an assessment of their incident and allegation casework completed for the review period to ensure proper closure of cases.

Based on the IMPEP evaluation criteria in MD 5.6, the team recommends that Mississippi's performance with respect to the indicator, Technical Quality of Incident and Allegation Activities, be found unsatisfactory.

d. MRB Chair's Determination

The final report will present the MRB Chair's determination regarding this indicator.

4.0 NON-COMMON PERFORMANCE INDICATORS

Four non-common performance indicators are used to review Agreement State programs: 1) Legislation, Regulations, and Other Program Elements, 2) Sealed Source and Device (SS&D) Evaluation Program, 3) Low-Level Radioactive Waste (LLRW) Disposal Program, and 4) Uranium Recovery Program. The NRC's Agreement with Mississippi does not relinquish regulatory authority for a uranium recovery program; therefore, only the first three non-common performance indicators applied to this review.

4.1 Legislation, Regulations, and Other Program Elements

State statutes should authorize the State to establish a program for the regulation of agreement material and provide authority for the assumption of regulatory responsibility under the State's agreement with the NRC. The statutes must authorize the State to promulgate regulatory requirements necessary to provide reasonable assurance of adequate protection of public health, safety, and security. The State must be authorized through its legal authority to license, inspect, and enforce legally binding requirements, such as regulations and licenses. The NRC regulations that should be adopted by an Agreement State for purposes of compatibility or health and safety should be adopted in a time frame so that the effective date of the State requirement is not later than 3 years after the effective date of the NRC's final rule. Other program elements that have been designated as necessary for maintenance of an adequate and compatible program should be adopted and implemented by an Agreement State within 6 months following NRC designation. A Program Element Table indicating the Compatibility Categories for those program elements other than regulations can be found on the NRC Web site at the following address: <https://scp.nrc.gov/regtoolbox.html>.

a. Scope

The team used the guidance in State Agreements procedure SA-107, "Reviewing the Non-Common Performance Indicator: Legislation, Regulations, and Other Program Elements," and evaluated Mississippi performance with respect to the following performance indicator objectives. A complete list of regulation amendments can be found on the NRC website at the following address: <https://scp.nrc.gov/regtoolbox.html>.

- The Agreement State program does not create conflicts, duplications, gaps, or other conditions that jeopardize an orderly pattern in the regulation of radioactive materials under the Atomic Energy Act, as amended.
- Regulations adopted by the Agreement State for purposes of compatibility or health and safety were adopted no later than 3 years after the effective date of the NRC regulation.
- Other program elements, as defined in State Agreements procedure SA-200 that have been designated as necessary for maintenance of an adequate and compatible program, have been adopted and implemented within 6 months of NRC designation.
- The State statutes authorize the State to establish a program for the regulation of agreement material and provide authority for the assumption of regulatory responsibility under the agreement.
- The State is authorized through its legal authority to license, inspect, and enforce legally binding requirements such as regulations and licenses.

- Sunset requirements, if any, do not negatively impact the effectiveness of the State's regulations.

b. Discussion

Mississippi became an Agreement State on July 1, 1962. The Mississippi Agreement State Program's current effective statutory authority is contained in the Mississippi State Department of Health Title 15, Part 21, Division of Radiological Health regulations. The Mississippi Radiation Protection Law of 1976 designates the Department as the radiation control agency for Mississippi. No new legislation affecting the Program was created or implemented since the last IMPEP review.

In the beginning of the review period, Mississippi worked on the previous overdue amendments, but then decided to adopt NRC regulations by reference. Mississippi submitted a request to adopt applicable NRC regulations by reference to the Mississippi Radiation Advisory Council for review, comment, and approval in November 2017. The regulations were approved by the Mississippi State Board of Health on January 10, 2018 and became part of the Mississippi Administrative Code on February 17, 2018. The NRC staff provided comments on the regulations adopted by reference to Mississippi for resolution on February 27, 2018. Mississippi revised the regulations to incorporate NRC comments and filed them with the Mississippi Secretary of State's Office prior to the periodic meeting on April 25, 2018. The regulations were published in August 2018. Since Mississippi adopted NRC regulations by reference, this streamlined the process and there are no overdue regulations. The team noted that the State's rules and regulations are not subject to "sunset" laws.

During the IMPEP review, the team identified 240 non-standard license conditions that were being implemented by Mississippi on its licenses. These license conditions have not been reviewed for compatibility by the NRC. As noted in State Agreements procedure SA-201, "Review of State Regulatory Requirements," legally binding requirements (license conditions) that an Agreement State proposes to add should be submitted to the NRC for a compatibility review before implementation, unless it is one of the standard license conditions that are referred to in NUREG-1556, Volume 20, Revision 1, "Consolidated Guidance About Materials Licenses: Guidance About Administrative Licensing Procedures." The NRC review is needed to determine that these legally binding requirements: 1) do not create conflicts, duplications, gaps, or other conditions that would jeopardize an orderly pattern in the regulation of agreement material on a nationwide basis, 2) do not preclude a practice authorized by the Atomic Energy Act of 1954, as amended, and in the national interest, and 3) do not preclude the ability of the NRC to evaluate the effectiveness of Agreement State programs for agreement material with respect to protection of public health and safety. The team also noted that Mississippi was not using the most current Pre-Licensing Guidance, Risk Significant Radioactive Material Checklist, IMC 1248 for inspectors and license reviewers, and compatible inspection procedures.

c. Evaluation

The team determined that during the review period Mississippi did not meet the performance indicator objectives. For example:

- The Agreement State program does not create conflicts, duplications, gaps, or other conditions that jeopardize an orderly pattern in the regulation of radioactive materials under the Atomic Energy Act, as amended.

- Other program elements, as defined in State Agreements procedure SA-200 that have been designated as necessary for maintenance of an adequate and compatible program, have not been adopted and implemented within 6 months of NRC designation.

Since the non-standard license conditions have not been reviewed by the NRC for compatibility, the review team cannot determine whether the Mississippi program created conflicts, duplications, gaps, or other conditions that could jeopardize an orderly pattern in the regulation of radioactive materials under the Atomic Energy Act, as amended.

Also, the team determined that Mississippi did not implement certain program elements (i.e., Risk Significant Radioactive Materials checklist, Pre-Licensing Guidance, IMC 1248 for Inspector and License Reviewer Qualification, and NRC Inspection procedures), and as such were not compatible.

Based on the IMPEP evaluation criteria in MD 5.6, the team recommends that Mississippi's performance with respect to the indicator, Legislation, Regulations, and Other Program Elements, be found satisfactory, but needs improvement.

d. MRB Chair's Determination

The final report will present the MRB Chair's determination regarding this indicator.

4.2 Sealed Source and Device Evaluation Program

Since becoming an Agreement State in 1962, Mississippi has not performed any Sealed Source and Device evaluations; therefore, the team did not review this indicator.

4.3 Low-Level Radioactive Waste Disposal Program

In 1981, the NRC amended its Policy Statement, "Criteria for Guidance of States and NRC in Discontinuance of NRC Regulatory Authority and Assumption Thereof by States Through Agreement," to allow a State to seek an amendment for the regulation of LLRW as a separate category. Those States with existing Agreements prior to 1981 were determined to have continued LLRW disposal authority without the need for an amendment. Although, Mississippi has authority to regulate a LLRW disposal facility, the NRC has not required States to have a program for licensing a disposal facility until such time as the State has been designated as a host State for a LLRW disposal facility. When an Agreement State has been notified or becomes aware of the need to regulate a LLRW disposal facility, it is expected to put in place a regulatory program that will meet the criteria for an adequate and compatible LLRW disposal program. There are no plans for a LLRW disposal facility in Mississippi. Accordingly, the team did not review this indicator.

5.0 SUMMARY

The team found Mississippi's performance to be satisfactory but needs improvement for two performance indicators reviewed:

- Technical Staffing and Training; and
- Legislation, Regulations, and Other Program Elements.

The team found Mississippi's performance to be unsatisfactory for the following four performance indicators reviewed:

- Status of Materials Inspection Program;
- Technical Quality of Inspections;
- Technical Quality of Licensing Actions; and
- Technical Quality of Incident and Allegation Activities.

The finding for the Legislation, Regulations, and Other Program Elements performance indicator remained unchanged from the 2017 IMPEP review. The other five performance indicators declined from the 2017 IMPEP review.

The team made 14 new recommendations and determined that the recommendation from the 2017 IMPEP review should remain open.

The 2017 IMPEP review made the following recommendation:

- The Program review its guidance, including licensing, incident, and allegation guidance; update this guidance, as appropriate; and provide training to all Program staff on the new procedures. Based on the results of this review, the team will recommend to the MRB to keep this recommendation open.

As a result of this review, the team will make 14 new recommendations:

1. Mississippi develops a database to track refresher training requirements (24 hours of training every 2 years for qualified inspectors and license reviewers) and to ensure that staff are adequately trained and qualified before assuming new duties.
2. Mississippi develops and implements a reliable and comprehensive scheduling and tracking process to ensure completion of inspections, including reciprocity inspections (similar to a 2009 IMPEP review recommendation).
3. Mississippi develops a method to ensure licensees are provided with the results of the inspection (e.g., cover letters) in a timely manner.
4. Mississippi establishes a reciprocity procedure, trains staff on the use of this procedure, and assesses the performance results on an annual basis.
5. Mississippi develops and implements inspection procedures that are consistent with the NRC's Inspection procedures and provide training on the proper method of documenting inspections. Checklists may be used, but the final inspection documentation needs to be clear, consistent, and comprehensive to ensure that the inspection covered all required safety focus areas.
6. Mississippi develops a systematic approach to ensure that annual supervisory inspector accompaniments are completed.
7. Mississippi develops a review process by qualified staff to ensure inspection documentation is complete, comprehensive, focused on safety and security, as applicable and meets the documentation requirements in IMC 2800.

8. Mississippi develops and implements a procedure for the control of sensitive or security-related information that provides guidance to identify, mark, handle, and protect such information consistently (repeat from 2009 IMPEP review).
9. Mississippi ensures staff have access to the Sealed Source and Device Registry and the National Source Tracking System in order to provide inspectors with information they will need for inspection preparation.
10. Mississippi implements a process to ensure violations are adequately documented, licensee corrective actions are reviewed for adequacy and documented, and sufficient follow-up of violations is performed and documented consistent with the safety or security significance (repeat from 2009 IMPEP review).
11. Mississippi performs an extent of condition review of all of their medical licenses issued since April 28, 2017, to ensure that all RSOs, AUs, authorized nuclear pharmacists, and authorized medical physicists are appropriately qualified in accordance with applicable licensing guidance (e.g., equivalent 10 CFR Part 35 regulations and NUREG-1556, Volume 9, Revision 3).
12. Mississippi develops a licensing process that uses standard or approved license conditions on Mississippi radioactive material licenses to ensure no conflicts, duplications, gaps, or other conditions that would jeopardize an orderly pattern in the regulation of agreement material on a nationwide basis. In addition, this licensing process may include the use of cover letters or other documentation to clearly inform the licensee of the type of licensing action completed and any other relevant information.
13. Mississippi performs an extent of condition review of licenses renewed during this review period (since April 28, 2017) to determine if the licensee's compliance history/enforcement history at the time would have made Mississippi not renew the license based on this additional information in accordance with NUREG-1556 series, Volume 20, Revision 1.
14. Mississippi conducts an assessment of their incident and allegation casework completed for the review period to ensure proper closure of cases.

The team noticed a significant decline in performance (unsatisfactory for four of the six performance indicators) since the 2017 review which found Mississippi to be adequate to protect public health and safety but needs improvement. Based on the criteria in MD 5.6, the team recommends that the Mississippi Agreement State Program be found not adequate to protect public health and safety.

Since the team noted that Mississippi's program has the potential to create gaps, conflicts, duplication, or other conditions that could jeopardize an orderly pattern in the collective national effort to regulate agreement materials, the team also recommends that the Mississippi Agreement State Program be found not compatible with the NRC's program.

The team recommends that a follow-up IMPEP take place in approximately one year to review the following indicators:

- Technical Staffing and Training;
- Technical Quality of Licensing Actions; and
- Legislation, Regulations, and Other Program Elements.

The team also recommends that a follow-up IMPEP take place in approximately two years to review the following indicators:

- Status of Materials Inspection Program;
- Technical Quality of Inspections; and
- Technical Quality of Incident and Allegation Activities.

The team will recommend a full IMPEP review take place in approximately three years.

The team considered the need for periodic meetings but noted that periodic meetings serve as informal forums to exchange information. If the MRB agrees with the team's recommendations, then Mississippi will immediately be placed on heightened oversight. Heightened oversight requires Mississippi to prepare a program improvement plan, submit status reports, and hold bimonthly conference calls with NMSS and Regional staff.

The team considered recommending temporary suspension versus probation, but the team noted that they did not identify an immediate safety concern. In cases where program weaknesses exist regarding the adequacy and/or compatibility of an Agreement State's program, yet the weaknesses do not require immediate action to protect public health and safety, one of the options available to ensure continued protection of public health and safety is to place the Agreement State on Probation. As stated in MD 5.6, probation should be considered when degraded technical quality of inspection and licensing programs have, or could have, an adverse impact on public health, safety, security, or the environment; and previously identified programmatic deficiencies have gone uncorrected for a significant period of time beyond which the corrective actions had been originally scheduled for completion, and the MRB is not confident in the State's ability to correct such deficiencies in an expeditious and effective manner. Based on the results of the 2022 IMPEP review, and in accordance with the criteria in MD 5.6, the team will recommend that the Mississippi Agreement State Program be placed on Probation.

LIST OF APPENDICES

Appendix A IMPEP Review Team Members

Appendix B Inspector Accompaniments

APPENDIX A

IMPEP REVIEW TEAM MEMBERS

Name	Areas of Responsibility
Kathy Modes, NMSS	Team Leader Technical Quality of Incident and Allegation Activities Inspector Accompaniments
Darren Piccirillo, Region III	Team Leader in Training Technical Staffing and Training Legislation, Regulations, and Other Program Elements
Jackie Cook, Region IV	Technical Quality of Licensing Actions
Lisa Forney, PA	Status of Materials Inspection Program Technical Quality of Inspections Inspector Accompaniment

APPENDIX B

INSPECTOR ACCOMPANIMENTS

The following inspector accompaniments were performed prior to the on-site IMPEP review:

Accompaniment No.: 1 (in-person)	License No.: MS-628-02
License Type: <i>Nuclear medicine</i>	Priority: 3
Inspection Date: 12/15/2021	Inspector's initials: JA

Accompaniment No.: 2 (in-person)	License No.: MS-1063-01
License Type: <i>Underwater irradiator</i>	Priority: 2
Inspection Date: 12/16/2021	Inspector's initials: RS

Accompaniment No.: 3 (virtual)	License No.: MS-0871-01
License Type: <i>Fixed gauge</i>	Priority: 5
Inspection Date: 1/24/2022	Inspector's initials: LG

03/28/2022 Letter to T. Dobbs re: Mississippi Draft IMPEP Report DATE March 28, 2022

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OFFICE	NMSS/MSST/SALB			
NAME	BAnderson BA			
DATE	Mar 28, 2022			

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