



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

July 17, 2017

MEMORANDUM TO: Frederick D. Brown  
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Research, State, Tribal, Compliance, Administration,  
and Human Capital Programs  
Office of the Executive Director for Operations

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Reactor and Materials Rulemaking  
Office of the General Counsel

Marc L. Dapas, Director  
Office of Nuclear Material Safety  
and Safeguards

James M. Trapp, Acting Deputy Administrator  
NRC Region III

FROM: Paul Michalak, Chief */RA L. Rakovan for/*  
Agreement State Programs Branch  
Division of Material Safety, State, Tribal  
and Rulemaking Programs  
Office of Nuclear Material Safety  
and Safeguards

SUBJECT: INTEGRATED MATERIALS PERFORMANCE EVALUATION  
PROGRAM REVIEW OF MISSISSIPPI

This memorandum transmits to the Management Review Board (MRB) a proposed final report (Enclosure 1) documenting the Integrated Materials Performance Evaluation Program (IMPEP) review of Mississippi. The review was conducted by a team of U.S. Nuclear Regulatory Commission (NRC) and Agreement State technical staff during the period of April 24-28, 2017. The team's preliminary findings were discussed with Mississippi on the last day of the review. However, a follow-up discussion of the results was held on Thursday, June 1, 2017, specifically to address the decision to downgrade the indicator Technical Quality of Incidents and Allegations from "satisfactory" to "satisfactory but needs improvement," and the team recommending the State be placed on monitoring. The team issued a draft report to

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Mississippi on June 1, 2017, for factual comment. Mississippi responded to the findings and conclusions of the review by letter on July 11, 2017, from Jim Craig, Director, Office of Health Protection. A copy may be found in the NRC's Agencywide Documents Access and Management System using the Accession Number ML17193A266. In its response, Mississippi did not identify any factual or technical corrections. However, the State provided further affirmation of actions taken after the review for the issues found during the onsite review, specifically for the indicator Technical Quality of Licensing Actions, and the concern of being placed on monitoring.

Overall, the review team is recommending that Mississippi's performance be found satisfactory for three indicators, Technical Staffing and Training, Status of Materials Inspection Program, and Technical Quality of Inspections, and satisfactory, but needs improvement for the indicators Technical Quality of Licensing Actions, Technical Quality of Incident and Allegation Activities, and Compatibility Requirements.

Accordingly, the review team recommends that the Mississippi Agreement State Program be found adequate to protect public health and safety, but needs improvement, and compatible with the program. The review team recommends that the next IMPEP review take place in approximately 4 years and a periodic meeting take place in approximately 1 year. Additionally, the review team recommends that a period of monitoring be initiated for Mississippi due to the fact that three out of six performance indicators were found to be satisfactory, but needs improvement.

The MRB meeting to consider the Mississippi report is scheduled for **Thursday, July 27, 2017, from 1:30 p.m. to 4:00 p.m. ET**. In accordance with Management Directive 5.6, the meeting is open to the public. The agenda for the meeting is enclosed (Enclosure 2).

Enclosures:

1. Mississippi Response to Proposed Final Report
2. Meeting Agenda

cc: Jim Craig, Director  
Office of Health Protection

B.J. Smith, Director  
Division of Radiological Health

W. Lee Cox, NC  
Organization of Agreement States  
Liaison to the MRB

SUBJECT: INTEGRATED MATERIALS PERFORMANCE EVALUATION PROGRAM REVIEW  
OF MISSISSIPPI

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INTEGRATED MATERIALS PERFORMANCE EVALUATION PROGRAM  
REVIEW OF THE MISSISSIPPI AGREEMENT STATE PROGRAM

April 24 – April 27, 2017

**PROPOSED FINAL REPORT**

## **EXECUTIVE SUMMARY**

This report presents the results of the Integrated Materials Performance Evaluation Program (IMPEP) review of the Mississippi Agreement State Program. The review was conducted during the week of April 24-27, 2017, by a review team composed of technical staff members from the U.S. Nuclear Regulatory Commission (NRC) and the State of Texas.

Based on the results of this review, Mississippi's performance was found satisfactory for three indicators, Technical Staffing and Training, Status of Materials Inspection Program, and Technical Quality of Inspections, and satisfactory, but needs improvement for the indicators Technical Quality of Licensing Actions, Technical Quality of Incident and Allegation Activities, and Compatibility Requirements.

The review team made one recommendation (see Section 5.0).

Accordingly, the review team recommends that the Mississippi Agreement State Program be found adequate to protect public health and safety, but needs improvement, and compatible with the program. The review team recommends that the next IMPEP review take place in approximately 4 years and a periodic meeting take place in approximately 1 year. Additionally, the review team recommends that a period of monitoring be initiated for Mississippi due to the fact that three out of six performance indicators were found to be satisfactory, but needs improvement.

## 1.0 INTRODUCTION

This report presents the results of the review of the Mississippi Agreement State Program radioactive materials safety program. The review was conducted during the period of April 24-April 27, 2017, by a review team composed of technical staff members from the U.S. Nuclear Regulatory Commission (NRC) and the State of Texas. Review team members are identified in Appendix A. The review was conducted in accordance with the "Implementation of the Integrated Materials Performance Evaluation Program and Rescission of Final General Statement of Policy," published in the *Federal Register* on October 16, 1997, and NRC Management Directive 5.6 (MD 5.6), "Integrated Materials Performance Evaluation Program (IMPEP)," dated February 26, 2004. Preliminary results of the review, which covered the period of April 20, 2013 through April 27, 2017, were discussed with Mississippi managers on the last day of the review.

In preparation for the review, a questionnaire addressing the common and applicable non-common performance indicators was sent to the Mississippi on January 11, 2017. The State provided its response to the questionnaire on April 3, 2017. A copy of the questionnaire response is available in the NRC's Agencywide Documents Access and Management System (ADAMS) using the Accession Number ML17095A298.

The Mississippi Agreement State Program (the Program) is administered by the Division of Radiological Health (the Division). The Division is under the Department of Health (the Department). Organization charts for the State are available in ADAMS (Accession Number ML17095A291).

At the time of the review, the Program regulated 286 specific licenses authorizing possession and use of radioactive materials. The review focused on the radioactive materials program as it is carried out under the Section 274b. (of the Atomic Energy Act of 1954, as amended) Agreement between the NRC and the State of Mississippi.

The review team evaluated the information gathered against the established criteria for each common and the applicable non-common performance indicator and made a preliminary assessment of the Program's performance.

## 2.0 PREVIOUS IMPEP REVIEW AND STATUS OF RECOMMENDATIONS

The previous IMPEP review concluded on April 19, 2013. The final report is available in ADAMS (Accession Number ML13177A301). The results of the review 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  
Recommendation: None

Technical Quality of Incident and Allegation Activities: Satisfactory  
Recommendation: None

Compatibility Requirements: Satisfactory  
Recommendation: None

Overall finding: Adequate to protect public health and safety and compatible with NRC's program.

### 3.0 COMMON PERFORMANCE INDICATORS

Five common performance indicators are used to review the NRC regional and Agreement State radioactive materials 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 thus could affect public health and safety. Apparent trends in staffing must be explored. Review of staffing also requires a 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 review 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 well-conceived and balanced staffing strategy has been implemented throughout the review period.
- 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 being followed or that qualification criteria will be established if new staff members are hired.
- 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.

- 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

The Program is composed of five technical staff members including the Radioactive Materials Branch Director. All technical staff perform licensing, inspection, and incident response activities. The Program has budgeted five full-time equivalent staff for the radioactive materials program including any vacancies in the program. Currently, there is one vacancy. The person selected to fill the vacancy is expected to start in May 2017. Excluding the Branch Director, four of the five technical staff positions turned over at least once during the review period. Six technical staff members left the program and five technical staff members were hired. The vacancies were usually filled within two to three months, except for the current vacancy, which has been vacant for one year due to the lack of suitable candidates. At the time of the review one of the staff members was fully qualified for all modalities under the Program and the remainder were trained for various modalities working their way to full qualification. Mississippi has a training and qualification manual that is compatible with NRC's IMC 1248.

c. Evaluation

Program management acknowledged that there was high staff attrition during the review period. This has been the case during the last four IMPEP reviews. There were also some performance issues observed by the review team which are described in Sections 3.4, 3.5, and 4.1 documented later in this report. The review team discussed the high attrition rates and performance issues with the Program management to determine if the performance problems were attributable to the staffing and training objectives of this performance indicator. Staff turnover occurred throughout the review period for several different reasons. One individual left for a higher salary in the private sector, while others left for a variety of personal reasons. During the review period, there was prompt management attention to address the high rates of attrition including modifying the salary scale and the career ladder progression of the health physics (HP) staff. Currently, new hires with little or no health physics experience start as an HP-Trainee. As the new staff gain additional experience in State employment, the staff move on to HP-1, HP-2, HP-3, and HP-4 positions. After several years of training and experience, technical staff will reach the HP-Advanced position. In addition to modifying career ladder progression and salary, Program management prioritized staff workload. During the review period, qualified staff members focused on licensing, inspection, and incident response activities to prevent significant performance issues from developing due to staff attrition and while new staff were being trained. Training needs of new staff members were also addressed in a timely manner. The current staff has several years of private industry experience, and is well-trained and qualified to implement Mississippi's Program. The review team concluded that the performance issues were isolated to the performance indicators discussed later in the report and not attributable to the technical staffing and training performance indicator objectives.

The review team determined that during the review period the Mississippi program met the performance indicator objectives listed in Section 3.1.a.

d. Results

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

3.2 Status of the Materials Inspection Program

Periodic inspections of licensed operations are essential to ensure that activities are being conducted in compliance with regulatory requirements and consistent with good safety practices. The frequency of inspections is specified in NRC IMC Chapter 2800, "Materials Inspection Program" and is dependent on the amount and kind of 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 review 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 frequency prescribed in IMC 2800.
- Candidate licensees working under reciprocity are inspected in accordance with the criteria prescribed in IMC 1220, "Processing of NRC Form 241, Report of Proposed Activities in Non-Agreement States, Areas of Exclusive Federal Jurisdiction, and Offshore Waters, and Inspection of Agreement State Licensees Operating Under 10 CFR 150.20."
- 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.
- 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

The Program's inspection frequency is at least the same, and in a few instances more frequent, for similar license types in IMC 2800. The Program performed 246 priority 1, 2, 3, and initial inspections during the review period. Of these inspections, 7.9 percent

were conducted overdue. Specifically, 18 of 240 priority 1, 2, or 3, and 1 of 6 initial inspections were conducted overdue. One routine inspection was currently overdue at the time of the review. An evaluation of 25 inspection reports indicated that almost all inspection findings, (23 out of 25 reports reviewed) were communicated to the licensees within the Program's goal of 30 days after the inspection exit. The Program inspected 15 percent of reciprocity candidates in 2013, 48 percent in 2014, 30 percent in 2015, and 30 percent in 2016.

c. Evaluation

Several overdue inspections, including the one currently overdue, were found to be of licensees who did not maintain a physical presence in Mississippi, but rather maintained their license solely in the event that temporary job site work within state jurisdiction became available. Although these licensees are required by license conditions to provide advance notification of work in Mississippi to the Program, some rarely worked in the state, making it challenging for the Program to complete a routine inspection at the required frequency. The Program has increased the use of in-depth telephone interviews and in-office document review in lieu of on-site inspections, when none are available. The Program supplements these telephone interviews with subsequent field inspections, when such opportunities arise.

Two reports examined during this review were issued 31 days after the inspection exit. Both reports communicated to the licensees that no violations were identified as a result of the inspections.

The Program fell one inspection short of inspecting the required percentage of reciprocity candidates in 2013, but has consistently and substantially exceeded the required percentage since.

The review team determined that during the review period, Mississippi met the performance indicator objectives listed in Section 3.2.a.

d. Results

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

3.3 Technical Quality of Inspections

Inspections, both routine and reactive, provide 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 a program's inspection capability.

a. Scope

The review 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 conduct annual accompaniments of each inspector to assess performance and assure consistent application of inspection policies.
- For programs with separate licensing and inspection staffs, to verify that procedures are established and followed to provide feedback information to license reviewers.
- For Agreement States, to determine if inspection guides are consistent with NRC guidance.
- An adequate supply of calibrated survey instruments is available to support the inspection program.

b. Discussion

The review team evaluated the inspection reports, enforcement documentation, and interviewed inspectors for 25 materials inspections conducted during the review period. The casework reviewed included inspections conducted by six of the Program's inspectors and covered broad scope, medical, industrial, commercial, and reciprocity licenses.

Review team members accompanied all four of the Program's materials inspectors during the week of April 3, 2017. The inspectors were well-prepared, thorough and professional. The inspections were adequate to assess radiological health, safety and security, and included varying degrees of performance-based observations. The inspector accompaniments are identified in Appendix B.

The Program has a policy of performing annual supervisory accompaniments for each of the materials inspectors. The review team found that over the review period, each of the state's inspectors was accompanied by a supervisor at least once per year, with one exception in 2013. One inspector was not accompanied by a supervisor in 2013. However, this individual was accompanied three times in 2012, and three times in 2014.

The review team determined that during the review period Mississippi met the performance indicator objectives listed in Section 3.3.a.

c. Results

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

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, and security. An assessment of licensing procedures, actual implementation of these procedures, and documentation of communications and associated actions between the State licensing staff and regulated community will be a significant indicator of the overall quality of the program.

a. Scope

The review 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 meet current regulatory guidance (e.g. financial assurance, increased controls, pre-licensing guidance).
- License reviewers, if applicable, have the proper signature authority for the cases they review independently.
- License conditions are stated clearly and are inspectable.
- 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 increased controls and fingerprinting orders (Part 37 equivalent).
- Documents containing sensitive security information are properly marked, handled, controlled and secured.

b. Discussion

During the review period, the Program performed 1,067 radioactive materials licensing actions. The review team evaluated 25 radioactive materials licensing actions. The licensing actions selected for review included six new applications, ten amendments, four renewals, and five terminations. The review team evaluated casework which included the following license types and actions: broad scope academic, medical

diagnostic and therapy, industrial radiography, research and development, nuclear pharmacy, gauges, gamma knife, and well-logging. The casework sample represented work from six license reviewers.

The review team determined that, for the most part, license reviewers follow the Program's licensing guidance and/or the NRC's NUREG-1556 series, "Consolidated Guidance about Materials Licenses" when performing a licensing action. Once completed, all licensing actions are peer reviewed, reviewed by the Branch Director and finally reviewed and signed by the Division Director.

The review team assessed new applications for the Program's implementation of the pre-licensing requirements. The Program uses a checklist equivalent to the "Checklist to Provide a Basis for Confidence That Radioactive Material Will Be Used as Specified on a License" and "Checklist for Risk-Significant Radioactive Material." The Program conducts pre-licensing visits for all new applicants, which includes a security review for applicants that are subject to Part 37 requirements.

c. Evaluation

The review team identified some licensing issues inconsistent with Program guidance or regulatory requirements. The review team identified two licensing actions in which an individual was designated as an authorized user (AU) on a medical use license without adequate documentation of training and experience as indicated in Part 35 requirements. The required documentation was requested and obtained from the licensees during the week of the IMPEP review. Additionally, the review team identified a licensing action in which an AU was designated as a Radiation Safety Officer (RSO) on a medical license without the license reviewer obtaining a preceptor RSO attestation or documentation that the authorized user had training in the radiation safety, regulatory issues and emergency procedures appropriate for the license. Interviews indicated that staff were not aware of this requirement. During the IMPEP review, the Program initiated a review of all medical licenses, approximately 80-90 in total, to ensure that all required documentation had been obtained and was in the licensing files.

The Program adopted the 10 CFR Part 37 requirements in March 2016 by license condition. The review team identified some issues with the Program's subsequent implementation of Part 37. The review team found that a Part 37 license condition was not included on a fixed gauge license, a High Dose Rate Afterloader (HDR) license, and a well logging license, all of which were authorized to possess enough category 3 sources to constitute a category 2 quantity, if aggregated. The well logging license did include a limiting condition restricting the licensee from aggregating category 3 sources into category 2 quantities, but the condition did not include all of the radionuclides authorized on the license. Prior to the conclusion of the review, the Program reviewed all licenses with the potential for aggregation. Part 37 conditions were added to all licenses with the potential for aggregation to category 2 quantities to ensure that inspectors had the appropriate regulatory tools to enforce Part 37 security requirements. This included the licenses discussed above and one additional fixed gauge identified by the Program. The HDR license was amended to remove a source listed on the license such that the total activity authorized could not be aggregated to a category 2 quantity.

The review team also found that, since March 2016, letters sent to 12 of the 16 reciprocity licensees approved to possess an aggregate category 2 or higher quantity of radioactive material did not contain a condition binding that licensee to applicable Part 37 requirements. The Program had originally identified this issue in late 2016 after a program inspector found himself unable to cite Part 37 violations of a radiographer working in the state under reciprocity. Program management indicated that there was an error with the reciprocity letter template that was used to process reciprocity requests and the need for the Part 37 condition to be included in the reciprocity letter was overlooked.

During the inspector accompaniments in April 2017, while inspecting an out of State radiographer, a Program inspector again encountered a situation where the Part 37 condition had not been included on the reciprocity acceptance letter. The Program maintained that they could not issue a violation because of the lack of a Part 37 condition. During this IMPEP review, the review team found that Mississippi's regulations require all reciprocity licensees to comply with the terms of their license. Some home State materials licenses either reference their State's Part 37 regulations or have a binding Part 37 license condition. Therefore, nine of the twelve licensees approved for reciprocity could still have been cited for violations of Part 37, as their home Agreement State licenses had such a reference or license condition. This included the licensee that was inspected during the accompaniments. Previously, Program staff were either unaware of this or were not able to use this knowledge to issue a violation. The Program initiated enforcement action against the most recently identified licensee during the IMPEP review. However, three reciprocity licensees could not have been cited in this manner, as their licenses contained no condition referencing Part 37 requirements. At the time of the review, the Program had initiated issuing revised letters to licensees that work in Mississippi under reciprocity and ensured that the correct verbiage was included in the reciprocity letter "templates."

During the 2009 IMPEP review there was a discussion of the implementation of security requirements. At that time the Program adopted the requirements for Increased Controls, the Fingerprinting Orders, and the National Source Tracing System by license condition. There were some cases where the conditions were not added to the appropriate licenses. Program management attributed this to an oversight on the part of the Program and that a method would be implemented to ensure that new license applications and amendments would be reviewed to determine the applicability of enhanced security requirements. The 2009 IMPEP review team noted that many of the Programs policies and procedures were outdated and in need of revision and that the Program primarily used verbal communication to implement new policies and practices. The 2009 IMPEP review team also recommended that the Program update its existing procedures and develop new procedures, if necessary, to memorialize the Program policies and practices and to serve as a knowledge management tool. Although this recommendation was closed during the 2013 IMPEP, it does not appear that the Program has updated its procedures as needed.

In evaluating the licensing issues concerning AUs, RSOs, and Part 37 implementation, the review team identified weaknesses with the Program's instruction to staff in these areas. The review team recommends that the Program's licensing guidance be updated

to ensure that documentation of training and experience for RSOs and AUs meets the requirements in Part 35; to ensure that Part 37 security requirements are added to the appropriate licenses and reciprocity letters; and that the staff receive training on the new procedures.

d. Results

The review team found that some licensing actions do not fully address health and safety concerns, lack technical quality, or do not adhere to existing guidance. Therefore, based on the IMPEP evaluation criteria in MD 5.6, the review team recommends that Mississippi's performance with respect to the indicator, Technical Quality of Licensing Actions, be found satisfactory, but needs improvement.

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 and safety. An assessment of incident response and allegation investigation procedures, actual implementation of these procedures, internal and external coordination, and investigative and follow-up procedures and actions will be a significant indicator of the overall quality of the program.

a. Scope

The review 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, investigation, 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).
- Allegations are investigated in a prompt, appropriate manner.
- Concerned individuals are notified of investigation conclusions.
- Concerned individuals' identities are protected, as allowed by law.

b. Discussion

During the review period, eight incidents, rising to the level requiring reporting to the NRC, were reported to Mississippi. The review team evaluated all the radioactive materials incidents: four malfunctioning fixed gauge shutters (different type gauges), two stuck radiography sources, and two damaged portable gauges. The Program dispatched inspectors for onsite follow-up for one of the cases reviewed, a damaged portable gauge. Four of the incidents reported to the Program, those dealing with malfunctioning shutters, were not reported to the NRC in a timely fashion. The timeliness of reporting was discussed with Program Management. Program management had made the determination that the issues were of minor health and safety significance and did not need to be reported in 24 hours.

Program management was advised that the reporting requirements were not based on a health and safety evaluation of the events, rather that all eight events met the 10 CFR 30.50 reporting criteria and were reportable. The impact of late reporting was reviewed and no adverse outcomes were identified.

A similar finding was identified during the 2013 IMPEP. The Program reported 11 incidents outside the time requirements identified in Appendix A of SA-300, "Reporting Material Events." These were also attributed to the misunderstanding by the Program related to the applicability of 10 CFR 30.50(b)(2) to radiography equipment and gauges, when the staff had made the determination that the issues were of minor health and safety significance.

The review team also evaluated eight additional incidents that were reported to Mississippi but were not reportable to the NRC. These eight incidents were the only non-reportable incidents that had documentation to review. Program staff advised that they performed many more incident follow ups but that they did not track or document them. The Program's implementing procedure for incidents requires Program staff to complete a Radiological Incident Information Form which was completed in the 16 incidents available for review. Program management said that they would adhere to the procedure in the future.

It should be noted that, at the start of the IMPEP review, Program management provided incident and allegation procedures to the review team. Later during the review, these procedures were replaced with different procedures for consideration. Program management advised these had been revised since the last IMPEP review but had not been disseminated to the staff. The procedures do not have a date or revision number on them.

Based on a review of the available documentation and of the Incident procedure, and of discussions with staff, it appeared that the Program dispatched staff to events in response to calls received by the Program and that that timely and appropriate actions were taken in those cases reviewed. Due to the lack of documentation, the review team could not determine if any of the incidents that were not documented should have been reported.

During the review period, six allegations were received by Mississippi. The review team evaluated all of these allegations. No allegations were referred to the State by the NRC, during the review period. The review team concluded that the Program took prompt and appropriate actions in response to concerns raised.

c. Evaluation

The team determined that during the review period Mississippi incident response and allegation procedures were in place but occasionally were not practiced in a detailed fashion. The team also determined that Mississippi failed to notify NRC in a timely fashion of four out of eight incidents.

Program management indicated that they would adhere to procedures in the future. As a result, the review team concluded that a recommendation was not needed for this indicator.

d. Results

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

#### 4.0 NON-COMMON PERFORMANCE INDICATORS

Four non-common performance indicators are used to review Agreement State programs: (1) Compatibility Requirements, (2) Sealed Source and Device (SS&D) Evaluation Program, (3) Low-Level Radioactive Waste Disposal (LLRW) Program, and (4) Uranium Recovery (UR) 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 Compatibility Requirements

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 agreement. The statutes must authorize the State to promulgate regulatory requirements necessary to provide reasonable assurance of 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. 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 NRC's final rule. Other program elements, as defined in Appendix A of State Agreements procedure SA-200, "Compatibility Categories and Health and Safety Identification for NRC Regulations and 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. Scope

The review team used the guidance in State Agreements procedure SA-107, “Reviewing the Non-Common Performance Indicator: Compatibility Requirements,” and evaluated [State’s] 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 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.
- Impact of sunset requirements, if any, on 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 the State. During the 2016 legislative session, House Bill 289 was approved increasing license fees for the first time since 2006. The bill approved a 15 percent fee increase for all fees that were not in statute (Mississippi Code Annotated § 45-14-31). The fee increase went into effect on July 1, 2016. The Program is fully fee funded. The Program’s revenues have been approximately \$150,000 to \$200,000 below their annual operating costs. The effect of this fee increase will be to reduce or eliminate the operating deficit.

The review team determined that Mississippi’s administrative rulemaking process takes approximately six to twelve months from drafting to finalizing a rule. The Program submits proposed regulations to the Mississippi Radiation Advisory Council for review and approval. The public, the NRC, other agencies, and potentially impacted licensees and registrants are offered an opportunity to comment during the process. Comments are considered and incorporated, as appropriate, before the regulations are finalized and approved by the Mississippi State Board of Health. Once approved, the final rules are sent to the Secretary of State for adoption. Mississippi’s rules and regulations are not subject to “sunset” laws. In lieu of regulations, the Program also has the authority to

issue alternate legally binding requirements, such as license conditions, e.g., 10 CFR Part 37 license condition.

During the review period, Mississippi submitted two final regulation amendments, and one legally binding license condition to the NRC for a compatibility review. Both final regulation amendments were overdue for State adoption at the time of submission. The license condition was adopted on time.

Mississippi uses a legally binding license condition to adopt 10 CFR Part 37 physical protection requirements. However, as discussed in Section 3.4 above, the review team identified that the Program did not add the license condition to all applicable licenses. The omission of the license condition prevented Mississippi from enforcing Part 37 requirements on some licensees that could possess category 2 or greater quantities of radioactive material. The Program amended the applicable licenses to include the Part 37 license condition.

At the time of this review, the following five amendments were overdue:

- Technical Corrections Parts 30, 34, 40 and 71, 77 FR 39899, which was due for Agreement State adoption by August 6, 2015. Received by the NRC for review on March 20, 2017. The NRC issued a letter April 6, 2017, with no comments.
- Advance Notification to Native American Tribes of Transportation of Certain Types of Nuclear Waste Part 71, 77 FR 34194, which was due for Agreement State adoption by August 10, 2015. Received by the NRC for review on March 20, 2017. The NRC issued a letter April 6, 2017, with no comments.
- Requirements for Distribution of Byproduct Material Parts 30, 31, 32, 40, and 70, 77 FR 43666, which was due for Agreement State adoption by October 23, 2015. The State has not submitted the regulations to NRC for review.
- Decommissioning Planning Parts 20, 30, 40, and 70, 76 FR 35512, which was due for Agreement State adoption by December 17, 2015. The State has not submitted the regulations to NRC for review.
- Distribution of Source Material to Exempt Persons and to General Licensees and Revision of General License and Exemptions Parts 30, 40, and 70, 78 FR 32310, which was due for Agreement State adoption by August 27, 2016. The State has not submitted the regulations to NRC for review.

Finally, in a letter dated July 9, 2013, the NRC provided 53 comments on three final regulation amendments, and other provisions not related to a regulation amendment tracking number, that were submitted by the Program prior to the current review period. The Program addressed the comments and submitted a revised final regulation amendments package to NRC for review on March 20, 2017. At the time of the IMPEP review, the revised final regulation package was under review by the NRC.

c. Evaluation

The team determined that during the review period Mississippi met the performance indicator objectives listed in Section 4.1.a, with the following exception.

- 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.

The review team interviewed the Program's staff and management to determine the reason for the seven (five current and two previous) overdue regulation packages. The Program Director explained that prior to the review period, the Program had funding for a contractor to develop and submit rules for adoption to the NRC and the State. The funds for the contractor were not available to the Program during the current review period. The promulgation of rules was transferred to the Program staff. The review team determined the reason several regulation amendments were overdue was primarily due to the loss of contractor funding combined with the additional workload to promulgate regulations and Program management's decision to prioritize incident response, inspection, and licensing activities.

In addition, Mississippi was not able to promulgate 10 CFR Part 37 equivalent regulations prior to the due date of March 19, 2016, but the State adopted a legally binding license condition that was equivalent to 10 CFR Part 37 by the due date. However, as discussed above, the license condition was not added to all applicable licenses, thereby limiting the enforcement of the Part 37 equivalent requirements on a few Mississippi licensees.

The Department's senior management stated that the Program will seek authorization from the Mississippi Radiation Advisory Council and the State Board of Health to adopt NRC regulations by reference. This will reduce the workload for the Program's technical staff and improve the timeliness of promulgating regulations.

d. Results

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

4.2 Sealed Source and Device Evaluation Program

Since becoming an Agreement State in 1962, Mississippi has not performed any SS&D evaluations; therefore, the review 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. Although the Mississippi Agreement State Program has LLRW disposal authority, the NRC has not required States to have a Program for licensing LLRW 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, they are expected to put in place a regulatory Program which 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 review team did not review this indicator.

## 5.0 SUMMARY

Based on the results of this review, Mississippi’s performance was found satisfactory for three indicators, Technical Staffing and Training, Status of Materials Inspection Program, and Technical Quality of Inspections, and satisfactory, but needs improvement for the Technical Quality of Licensing Actions, Technical Quality of Incident and Allegation Activities, and Compatibility Requirements. The review team made one recommendation regarding program performance by the State.

Accordingly, the review team recommends that the Mississippi Agreement State Program be found adequate to protect public health and safety, but needs improvement, and compatible with the NRC’s program. The review team recommends that the next IMPEP review take place in approximately 4 years and a periodic meeting take place in approximately 1 year. Additionally, the review team recommends that a period of monitoring be initiated for Mississippi due to the fact that three out of six performance indicators were found to be satisfactory, but needs improvement.

Below is the review team’s recommendation, as mentioned in the report, for evaluation and implementation by Mississippi:

The review team recommends that the Program’s licensing guidance be updated to ensure that documentation of training and experience for RSOs and AUs meets the requirements in Part 35; to ensure that Part 37 security requirements are added to the appropriate licenses and reciprocity letters; and that the staff receive training on the new procedures (Section 3.4).

## LIST OF APPENDICES

Appendix A	IMPEP Review Team Members
Appendix B	Inspection Accompaniments

APPENDIX A

IMPEP REVIEW TEAM MEMBERS

<b>Name</b>	<b>Area of Responsibility</b>
Orysia Masnyk Bailey, Region I	Team Leader Technical Quality of Incident and Allegation Activities
Ryan Craffey, Region III	Status of Materials Inspection Program Technical Quality of Inspections Inspection Accompaniments
Vanessa Danese, Texas	Technical Quality of Licensing Actions
Binesh Tharakan, Region IV	Technical Staffing and Training Compatibility Requirements

APPENDIX B

INSPECTION ACCOMPANIMENTS

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

Accompaniment No.: 1	License No.: LA-5838-L01 (in MS under reciprocity)
License Type: Industrial Radiography – Temporary Job Sites	Priority: 1
Inspection Date: 04/03/2017	Inspector: RS

Accompaniment No.: 2	License No.: MS-267-01
License Type: Medical Therapy – Other Emerging Technology	Priority: 2
Inspection Date: 04/04/2017	Inspector: JA

Accompaniment No.: 3	License No.: MS-463-01
License Type: Well Logging – Tracers and Sealed Sources	Priority: 3
Inspection Date: 04/05/2017	Inspector: BC

Accompaniment No.: 4	License No.: MS-1063-01
License Type: Irradiator – Other Greater than 10,000 Curies	Priority: 2
Inspection Date: 04/06/2017	Inspector: JM

Accompaniment No.: 5	License No.: MS-1092-01
License Type: Gamma Stereotactic Radiosurgery	Priority: 2
Inspection Date: 04/07/2017	Inspector: JM

Accompaniment No.: 6	License No.: MS-683-01
License Type: Irradiator – Self Shielded Less than 10,000 Curies	Priority: 5
Inspection Date: 04/07/2017	Inspector: JM

Accompaniment No.: 7	License No.: MS-683-02
License Type: Irradiator – Self Shielded Less than 10,000 Curies	Priority: 5
Inspection Date: 04/07/2017	Inspector: JM

**Agenda for Management Review Board Meeting  
July 27, 2017, 1:30 p.m. – 4:00 p.m. (ET), OWFN-17B04**

1. Announcement of public meeting. Request for members of the public to indicate they are participating and their affiliation.
2. MRB Chair convenes meeting. Introduction of MRB members, review team members, State representatives and other participants.
3. Consideration of the Mississippi IMPEP Report.
  - A. Presentation of Findings Regarding Mississippi's Program and Discussion.
    - Technical Staffing and Training
    - Status of Materials Inspection Program
    - Technical Quality of Inspections
    - Technical Quality of Licensing Actions
    - Technical Quality of Incident and Allegation Activities
    - Compatibility Requirements
  - B. IMPEP Team Recommendations.
    - Recommendation for Adequacy and Compatibility Ratings
    - Recommendation for Next IMPEP Review
  - C. MRB Consultation/Comments on Issuance of Report.
4. Request for comments from Mississippi representatives, OAS Liaison, and State IMPEP team members.
5. Adjournment.

Invitees:	Frederick Brown, OEDO	Dan Collins, NMSS
	Mary Spencer, OGC	Kevin Williams, NMSS
	Marc Dapas, NMSS	Paul Michalak, NMSS
	James Trapp, RIII	Lance Rakovan, NMSS
	Lee Cox, NC, OAS	Lizette Roldan-Otero, NMSS
	Orysia Masnyk-Bailey, RI	Karen Meyer, NMSS
	Binesh Tharakan, RIV/RSOA	BJ Smith, MS
	Ryan Craffey, RIII	
	Vanessa Danese, TX	