

INTEGRATED MATERIALS PERFORMANCE EVALUATION PROGRAM

REVIEW OF MISSISSIPPI AGREEMENT STATE PROGRAM

January 27-31, 1997

FINAL REPORT

U.S. Nuclear Regulatory Commission

1.0 INTRODUCTION

This report presents the results of the review of the Mississippi radiation control program. The review was conducted during the period January 27-31, 1997, by a review team comprised of technical staff members from the Nuclear Regulatory Commission (NRC) and the State of Texas. Team members are identified in Appendix A. The review was conducted in accordance with the "Interim Implementation of the Integrated Materials Performance Evaluation Program Pending Final Commission Approval of the Statement of Principles and Policy for the Agreement State Program and the Policy Statement on Adequacy and Compatibility of Agreement State Programs," published in the Federal Register on October 25, 1995, and the September 12, 1995, NRC Management Directive 5.6, "Integrated Materials Performance Evaluation Program (IMPEP)." Preliminary results of the review, which covered the period September 24, 1993 to December 31, 1996, were discussed with Mississippi management on January 31, 1997.

A draft of this report was issued to Mississippi for factual comment on March 11, 1997. The State of Mississippi responded in a letter dated April 14, 1997 (Attachment 1). The State's comments were incorporated into the final report. The Management Review Board (MRB) met on May 14, 1997, to consider the proposed final report. The MRB found the Mississippi radiation control program was adequate to protect public health and safety and compatible with NRC's program.

The Department of Health (DOH) is the radiation control agency within the State of Mississippi that regulates, among other public health issues, exposure to radiation hazards. The State Health Officer is appointed by and reports to the Governor. Within the DOH, the Mississippi radiation control program is administered by the Division of Radiological Health (DRH) under the direction of the Office of Health Regulation. The DOH and DRH organization charts are included as Appendix B. The Mississippi program regulates approximately 320 specific licensees. In addition to the radioactive materials program, the DRH administers programs for machine produced radiation, naturally occurring radioactive materials, and emergency preparedness for the Grand Gulf nuclear power plant. The review focused on the 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.

In preparation for the review, a questionnaire addressing the common and non-common indicators was sent to the DRH on November 18, 1996. Mississippi provided its response to the questionnaire on January 7, 1997. A copy of that response is included as Appendix C to this report.

The review team's general approach for conduct of this review consisted of: (1) examination of Mississippi's response to the questionnaire, (2) review of applicable Mississippi statutes and regulations, (3) analysis of quantitative information from the DRH licensing and inspection data bases, (4) technical review of selected files, (5) field accompaniments of two Mississippi inspectors, and (6) interviews with staff and management to answer questions or clarify issues. The team evaluated the information that it gathered against the IMPEP performance criteria for each common and non-common indicator and made a preliminary assessment of the radiation control program's performance.

Section 2 below discusses the State's actions in response to recommendations made following the previous review. Results of the current review for the IMPEP common performance indicators are presented in Section 3. Section 4 discusses results of the applicable non-common indicators, and Section 5 summarizes the review team's findings and recommendations.

2.0 STATUS OF ITEMS IDENTIFIED IN PREVIOUS REVIEWS

The previous routine review concluded on September 24, 1993, and the results were transmitted to Dr. F. E. Thompson, Jr., State Health Officer, Mississippi State Department of Health, on June 3, 1994.

Findings from the September 1993 routine review resulted in recommendations in two program indicators: Status and Compatibility of Regulations and Administrative Procedures. The State's corrective actions in response to the recommendations were evaluated during a review visit which concluded on September 24, 1994. All comments and recommendations were satisfactorily resolved for the Status and Compatibility of Regulations indicator and closed at that time. Results of the review visit were transmitted to Mr. E. S. Fuente, Director, Division of Radiological Health, on December 5, 1994.

The September 1994 review visit findings resulted in continued recommendations for the Administrative Procedures indicator. During the 1993 review NRC recommended that the program review their written administrative procedures for uniformity with their current regulatory practices, and revise as needed, with particular emphasis on enforcement procedures, procedures for medical misadministrations, procedures for handling, processing and tracking allegations, and procedures for the evaluation and documentation of inspector accompaniments. By written memorandum the Director, DRH, directed each Section Supervisor to update all administrative procedures by the end of 1994.

During the 1997 IMPEP review the team found a revised procedures manual was available which contained implementing procedures for a wide range of program tasks including enforcement actions, handling of misadministrations, supervisory accompaniments, and processing and tracking allegations. Although some procedures were completed just prior to the review, the DRH Director indicated that the procedures were being implemented. This item is closed.

3.0 COMMON PERFORMANCE INDICATORS

IMPEP identifies five common performance indicators to be used in reviewing both NRC Regional and Agreement State programs. These indicators include: (1) Status of Materials Inspection Program; (2) Technical Staffing and Training, (3) Technical Quality of Licensing Actions, (4) Technical Quality of Inspections, and (5) Response to Incidents and Allegations.

3.1 Status of Materials Inspection Program

The team focused on four factors in reviewing this indicator: (1) inspection frequency, (2) overdue inspections, (3) initial inspection of new licenses, and (4) timely dispatch of inspection

findings to licensees. The team evaluation is based on the Mississippi questionnaire responses regarding this indicator, data gathered independently from the State's licensing and inspection data tracking system, the examination of licensing and inspection casework files, and interviews with managers and staff.

The team's review of the State's inspection priorities verified that the State's inspection frequencies for various types or groups of licenses are at least as frequent as similar license types or groups listed in the NRC Inspection Manual Chapter 2800 (IMC 2800) frequency schedule. In reviewing the State's priority schedule, the review team noted that the State requires more frequent inspections in some license categories as follows: teletherapy licensees are scheduled to be inspected on a two year frequency vs. NRC's three year frequency, medical private practice licensees on a two or three year frequency vs. NRC's three (with quality management program) or five year (without quality management program) frequency, and academic broad licensees on a one year frequency vs. NRC's two or three year frequency.

In their response to the questionnaire, Mississippi indicated that as of December 31, 1996, there were three licenses identified as core inspections in IMC 2800 that were overdue by more than 25 percent of the NRC's frequency. This number is well within the 10 percent criterion for overdue inspections of Management Directive 5.6. The team noted that two of the overdue inspections were inspected before the review and the third overdue inspection was conducted during the IMPEP review week.

Inspection data are continuously updated and tracked, and reviewed every six months for inspection planning. With respect to initial inspections of new licenses, the team reviewed the inspection tracking data system and verified that initial inspections were entered into the tracking system together with existing licenses. Inspection due dates generated by the system for new licenses are combined by inspection priority with those for other materials licenses. A review of the inspection tracking system showed that initial inspections are not differentiated from routine inspections, since the tracking system does not display a six month due date for initial inspections. From interviews, IMPEP reviewers found the inspection staff was able to identify initial inspections by the license number. The higher-numbered licenses are new issues indicating an initial inspection is necessary. Mississippi's schedule for initial inspections, however, does not fully coincide with the guidance of the programmatic indicator. Although inspections are to be performed within six months for priority 1, 2, and 3, licensees, priority 4 licensees are scheduled for initial inspection on a one-year interval. The State's priority 4 licensees include portable and industrial gauges (except generally licensed gauges), small academic licenses, medical licensee's in-vitro programs, gas chromatographs, and environmental sampling facilities.

The review team suggests that the tracking system be revised to allow initial inspections to be readily identified.

The inspection frequencies of licenses selected for inspection file review were compared with the frequencies of the State's priority system and verified to be consistent and as frequent as similar license types under the IMC 2800 system. A review of 19 files of recently issued licenses indicated that the initial inspection was conducted within six months for five of the licenses. Initial inspection for the other new licenses ranged from 8-18 months after license issuance or material receipt. Eight of the licenses were in the State's priority 4 (one year

interval) category. Of those, two were initially inspected within one year, four were initially inspected within six months, and two exceeded the one year frequency. Over half of the inspection reports reviewed for new licenses contained at least one notice of violation. This reinforces the need to perform initial inspections within the prescribed schedule so that inspectors can discuss program responsibilities with the licensee shortly after materials are introduced into operations. During the MRB discussions, the DRH Director indicated that loss of some staff during this evaluation period contributed to the delay in some initial inspections. The review team recommends that all initial inspections be performed within six months of license issuance or within six months of the licensee's receipt of material and commencement of operations, consistent with IMC 2800.

The timeliness of the issuance of inspection findings was also evaluated during the inspection file review. For the files examined, all inspection correspondence had been sent within 20 days of the inspection date, well within the goal of 30 days after completion of the inspection.

Mississippi reported in their response to the questionnaire that 110 different licensees had submitted requests for reciprocity during the review period, of which 46 were from licensees with inspection intervals of 3 years or less. The State reported that 29 of 46 licensees were inspected.

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

3.2 Technical Staffing and Training

In reviewing this indicator, the review team considered the radioactive materials program staffing level, the technical qualifications of the staff, staff training, and staff turnover. To evaluate these issues, the review team examined the State's questionnaire responses regarding this indicator, interviewed DRH management and staff, and considered any possible backlogs in licensing or compliance actions.

At the time of the review, Mississippi's radiation control program had three Sections: (1) the Environmental Section, (2) the X-Ray Section, and (3) the Radioactive Materials Section (RMS). The RMS is authorized for a Health Physicist (HP) Administrative (supervisor), one HP Senior position, two HPs, and one HP Trainee position. The organization chart (Appendix B) shows each of these positions, but not the number of staff assigned to each position. At the time of the review, there was an additional individual assigned full time in the HP position. The review team believes that based on the satisfactory performance of the materials licensing and inspection programs, this staffing level is adequate when all positions are filled and the personnel trained.

The technical quality of the staff was evaluated from interviews with the DRH Director, review of the job descriptions, and a review of the training records. The review team determined that successful candidates for technical positions were required to have a bachelor's degree in science for the first level (health physicist) and a master's degree and/or additional radiation-

related work experience for positions beyond entry level. The team concluded that the DRH has been able to recruit qualified individuals, and that all of the staff HPs have bachelor's degrees in science, most with several years of practical experience in radiation safety practices.

The licensing and inspection functions of the program are integrated; therefore, all health physicists performed duties in licensing, inspection, and event response. Balance between the licensing and inspection functions is achieved by basing staff assignments on program needs. Mississippi's efforts to maintain the program while at the same time devoting significant effort in hiring and training new staff by experienced staff throughout the review period are commendable. As noted by the review team, two individuals, the HP Administrative and Health Physicist Senior, performed a large majority of licensing and inspection activities, and were responsible for the training of the new staff.

According to the information provided in the questionnaire and the DRH training procedures, all health physicists are required to attend training courses which are equivalent to courses outlined in IMC 1246 as well as the five-week health physics course. The records show that all of the radioactive materials staff members have completed the five-week health physics course and the basic NRC courses needed for licensing and inspection functions except for two individuals. One staff member needs the Industrial Radiography course to complete training requirements. The other person was new to the program and has experience as a health physicist at a nuclear power facility, but will need to attend the NRC or equivalent courses as they become available.

Program management also explained their in-house and on-the-job training processes. New staff are assigned increasingly complex licensing duties under the direction of senior staff and accompany experienced inspectors during increasingly complicated inspections. New staff inspectors are assigned independent inspections after demonstrating competence during accompaniment evaluations by the senior staff. The team noted that program management exhibited a strong commitment to training during the review. However, the Director, DRH, expressed concern about access to State funding for training and increasing difficulty in obtaining approval for out of State travel for training purposes without NRC funds for travel and training.

Information provided by the DRH shows that there have been two staff turnovers in the RMS since the previous 1993 review, one in May 1994 and another in March 1996. A replacement HP Trainee was hired in September 1995, received the appropriate course training and was recently promoted to HP. The team discussed plans with the DRH Director for involving this individual in routine licensing and inspection activities since required course work was nearly complete. Another replacement HP (experienced) was hired in November 1996 and is currently undergoing additional training. The Program Director received a promotion in June 1996 from HP Administrative (RMS Supervisor) which left the RMS with only two fully trained HPs for a short period of time. As a result of this staff turnover and a new Division Director change, the program currently has the Health Physicist Trainee position vacant and is actively recruiting for the position.

The review team recommends that the State give priority to filling the vacant HP Trainee position.

In evaluating this indicator, the review team considered the staff changes, noted that the program filled the vacancies in a timely fashion, except for the vacated Trainee position, accelerated the training schedule for the Trainee position, and hired an experienced Health Physicist as one of the replacements. Although there currently are no routine licensing or inspection backlogs, the Director, DRH, related that short-term inspection backlogs could occur if additional staff effort is needed to respond to events, or if either of the two senior staff left the program.

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

3.3 Technical Quality of Licensing Actions

The review team examined casework and interviewed the reviewers for 22 specific licenses. Licensing actions were reviewed for completeness, consistency, proper isotopes and quantities used, qualifications of authorized users, adequate facilities and equipment, and operating and emergency procedures sufficient to establish the basis for licensing actions. Casework was reviewed for timeliness, adherence to good health physics practices, reference to appropriate regulations, documentation of safety evaluation reports, or other supporting documents, consideration of enforcement history on renewals, pre-licensing visits, peer or supervisory review as indicated, and proper signature authorities. Licenses were reviewed for accuracy, appropriateness of the license and of its conditions and tie-down conditions, and overall technical quality. The files were checked for retention of necessary documents and supporting data.

As part of the license renewal practice the licensee is requested to submit a complete program description for DRH staff review at five-year intervals. When a license is issued, it includes the expiration date based on inspection priority. During this five year period the DRH issues the licensee a letter (also determined by inspection frequency) which requests information about program status. The licensee identifies program changes or certifies that no program changes occurred. Following review of the licensee's response, the license is amended to extend the expiration date by the designated frequency. For example, priority 1 licensees are sent annual program status letters; the licenses are then amended to extend the expiration date by one year. Priority 2 licenses expire two years from license issuance, with program status letters sent just prior to license expiration. Following the licensee's response, the expiration date is extended for another two years. Priority 3 and 4 licensees are handled in a similar manner. This practice continues for five years from the new or renewed license issue date. After the fifth year the licensee submits a new application for DRH review and license renewal.

The cases were selected to provide a representative sample of licensing actions which had been completed in the review period and to include work by all reviewers. The cross-section sampling included three of Mississippi's major licenses and included the following types: broad scope (research and development), nuclear laundry, nuclear pharmacy, strontium-90 eye applicator, nuclear medicine, teletherapy, portable and fixed gauges, and industrial fixed radiography. Licensing actions included 2 new licenses, 13 five-year interval renewals, 4 amendments, and 3 terminations. In discussions with the Director, DRH, it was noted that there were no major decommissioning efforts underway with regard to agreement material in

Mississippi. A list of licenses that were reviewed, with case-specific comments can be found in Appendix D.

The review team found that, overall, the licensing actions were generally thorough, complete, consistent, and of acceptable quality with health and safety issues properly addressed. Special license tie-down conditions were almost always stated clearly, backed by information contained in the file, and inspectable. The licensee's compliance history was taken into account when reviewing renewal applications. Mississippi's licensing guides and license policy procedures were revised and updated in March 1995. Mississippi's licensing guides and license conditions were adopted directly from the NRC's. With few exceptions, file reviews showed reviewers appropriately used the revised licensing guides.

From discussions with staff, the team found that State licensees have not been notified of the need to file for reciprocity on sites which are under exclusive Federal jurisdiction as identified in the NRC All Agreement States Letter SP-96-022. Additionally, licenses which authorize temporary job sites have not been amended to include a condition requiring the licensee to file for reciprocity when at sites which are under exclusive federal jurisdiction.

The team recommends that all "temporary job location" licensees be notified of their responsibility for determining federal jurisdiction, and that the All Agreement States letter SP-96-022 be utilized to revise the State's standard license condition for use of material at temporary job sites.

Team review of two license files authorizing use of strontium-90 eye applicators showed that the license files did not contain information on the method used by the licensee to assess the quantity of strontium-90 activity before administering treatment to patients. Since recent NRC experience has identified licensee misadministrations due to inadequate determination of strontium-90 eye applicator activity, the team suggests that the RMS review the methods used by strontium-90 eye applicator licensees to assess the quantity of material prior to patient administration.

All new or renewed licenses and amendments are peer reviewed and signed by the Director, DRH, before being issued. No potentially significant health and safety issues were identified.

Based on the IMPEP evaluation criteria, the review team recommends that performance with respect to the indicator, Technical Quality of Licensing Actions, be found satisfactory.

3.4 Technical Quality of Inspections

The team reviewed the inspection reports, enforcement documentation, and the data base information for 20 materials inspections conducted during the review period. The casework included the State's two fully-qualified materials inspectors and one inspector who left the program during the review period. A sample of the higher priority categories of license types was reviewed as follows: three institutional medical for diagnostic use, one pool-type irradiator, one industrial laundry, one institutional medical with brachytherapy and isotope therapy, one institutional medical with an HDR unit, one teletherapy, four nuclear pharmacies, one broad medical, five industrial radiography, and two portable gauges. Appendix E provides a list of the inspection cases reviewed in depth with case-specific comments.

The inspection procedures and techniques utilized by Mississippi were reviewed and determined to be generally consistent with the inspection guidance provided in IMC 2800 with one exception. Although follow-up and most field site inspections were performed on an unannounced basis, the review team found that almost all routine and initial inspections are conducted on an announced basis. The team suggests that the State revisit their policy for conducting announced routine inspections, and consider performing more routine inspections on an unannounced basis, as permitted by available resources.

The State's primary inspection report form was reviewed and found to be a comprehensive document providing general inspection areas consistent with the types of information and data collected under IMC 2800 and 87100 documents. Except for a special medical form developed during the review period, the State does not use separate supplements to the inspection report form for various license types. During inspection preparation, the form is adapted by the inspector to the special type of inspection to be performed, which is equivalent to NRC field notes. Copies of revised inspection field notes contained in IMC 87100 appendices covering the areas of industrial/research development, well logging, industrial radiography, commercial irradiator, medical broad-scope, and radiopharmacy were provided by the team. The review team suggests that the State review its form and adopt, where appropriate, field notes specific to the various types of licensees.

Inspection reports were reviewed to determine if the reports adequately documented the scope of the licensed program, licensee organization, personnel protection, posting and labeling, control of materials, equipment, use of materials, transfer, and disposal. The reports were also checked to determine if the reports adequately documented operations observed, interview of workers, independent measurements, status of previous noncompliance items, substantiation of all items of noncompliance, and the substance of discussions during exit interviews with management. To assure consistency and quality of reports, the Director, DRH, provided review and comment, and signed inspection correspondence and field notes.

Overall, the review team found that the inspection reports showed very good quality. Four reports needed additional information to fully document performance areas covered during the inspection such as details of worker interviews and licensee operations observed by the inspector. Other reports contained only minor discrepancies from standard practice which were related to insufficient detail.

The files were found to be organized chronologically, with licensing and inspection information readily accessible. Field notes, inspection forms, and enforcement documents were found to be complete. Documented inspection findings generally led to appropriate enforcement actions. Routine enforcement letters were drafted by inspectors and were issued promptly to the licensee by the Director, DRH.

In response to a finding from the previous NRC review, the State revised the procedure which describes criteria for determining enforcement actions. The State bases their enforcement program primarily upon onsite inspections and written notices of inspection findings. The State defines a violation as any item of non-compliance with existing rules and regulations of the Agency, variation from the existing specific conditions assigned to a license or variation from existing operating and emergency procedures of the licensee approved through the Agency. A deficiency is defined as any item which, if continued by a licensee has the potential to affect

public health and safety or could result in a violation. This item, in fact, however, does not constitute a violation. When the licensee responds to a notice of violation (NOV) or deficiency, the response is given to the inspector to evaluate the licensee's response, and to draft a reply for the program director's signature. The revised enforcement procedure includes provisions for monetary penalties, orders (cease and desist, license suspension, and show cause), written notices of noncompliance, and enforcement conferences. A concern in implementation of the revised enforcement policy was identified during review of inspection reports. The procedure indicates NOVs are issued when a licensee does not comply with a particular regulation while deficiencies are noted for less significant inspection findings, but not for a violation of regulations. However, reports showed that deficiencies were used when citing violations of regulations and did not provide clear significance to the inspection findings. The team recommends the use of deficiencies closely follow the revised enforcement procedure, particularly when regulations are cited.

The Director, DRH, stated that inspection results showed licensee compliance for corrective actions taken to address violations was acceptable during the review period and no escalated enforcement beyond issued NOVs was necessary. In one case the State held a meeting with licensee management to discuss problems identified during an inspection, which resulted in the licensee's commitment to take appropriate corrective action. The inspectors also performed license reviews, further strengthening the continuity of the regulatory and enforcement programs. The review team concluded that the enforcement policy was effective.

Two inspector accompaniments identified in Appendix E were performed by a review team member on January 15, 1997 (hospital- nuclear medicine program) and January 16, 1997 (radiopharmacy). The other inspectors were either new to the program or were not yet qualified to perform independent inspections of high priority licensees. During the accompaniments inspectors demonstrated appropriate inspection techniques and knowledge of the regulations. The inspectors were well prepared and thorough in the review of licensee radiation safety programs. Inspection techniques were observed to be primarily compliance oriented, with inspection report form information prescribing inspection areas. The team suggested the State document their inspection activities of performance-based methods such as observation of licensee operations, worker demonstration of material handling and use, employee interviews, and an increase in type and number of independent measurements. Overall, the technical performance of the inspectors was at a high level, and the inspections were adequate to assess radiological health and safety at the licensed facilities.

Mississippi has a policy of performing annual supervisory accompaniments of inspectors. In response to the questionnaire, the State reported that supervisory inspector accompaniments were performed at least annually by the Director, DRH, on each inspector since the previous review. Performance evaluations are discussed with the inspector and one annual accompaniment documented. Accompaniments of junior personnel also are performed by senior inspectors.

It was noted that Mississippi has an ample number of portable radiation detection instruments for use during routine inspections and response to incidents and emergencies. Included in the State's meter inventory were ion chambers, micro-R meters, high range detectors, GM tubes, ratemeters, liquid scintillation detectors, high and low range pocket dosimeters, alpha and gamma spectroscopy equipment, various calibration standards, and air sampling equipment.

The portable instruments used during the inspector accompaniments were observed to be operational and calibrated. The DRH program office is co-located with the radiation counting laboratory and a holding area for emergency response kits and vehicles. Portable instruments maintained at each location in the building were available for use during routine inspections and observed to be calibrated.

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

3.5 Response to Incidents and Allegations

In evaluating the effectiveness of the State's actions in responding to incidents and allegations, the review team examined the State's response to the questionnaire regarding this indicator, reviewed the incidents reported for Mississippi in the "Nuclear Material Events Database" (NMED) against those contained in the Mississippi files and reviewed the casework of 14 reportable incidents and two NRC referred allegations identified as involving byproduct material. In addition, the review team interviewed the staff members assigned to incident response.

Responsibility for initial response and follow up actions to radioactive materials incidents and allegations rests with the DRH. Written procedures require emergency response to events involving radioactive material licensees. The HP Administrative is the designated emergency coordinator, with backup provided by DRH staff. The Director, DRH, or in his absence his designee, will be advised of all incidents reported and response actions considered before responders depart for the incident scene. The written procedures specify that an on-site response will be made in the following situations: 1) the DRH is requested to do so; 2) radioactive material other than gas is lost; 3) an actual or potential hazard to public health and safety is identified; 4) media notification to the DRH of any real or suspected incident; or 5) a determination by the Director or his designee that a response is necessary.

After an initial screening, a total of 14 files were reviewed, 13 of which were the most safety significant reportable incidents involving byproduct material that occurred during the IMPEP review period. The incidents reviewed included one equipment failure, one misadministration, three lost or stolen radioactive material events, three contamination events, four cases of damage to equipment, and two transportation events. Five of the incidents reviewed were entered into the NMED. The information in NMED agreed with the information in the Mississippi files. A list of the incident response case work with comments is included as Appendix F. Eight of the incidents reviewed had not been reported to NRC and referred to NMED. The review team recommends that the State send in information of the reportable events that were not previously reported to NRC and continue voluntary reporting of all reportable events in the NMED database system collection of material events by providing event information directly into the NMED system electronically or providing compatible information in written form, in accordance with guidance contained in the "Handbook on Nuclear Material Event Reporting in the Agreement States," Draft Report, March 1995.

For the most part, correct response procedures were followed. In most instances actions were appropriate and timely. The level of effort was generally commensurate with the hazard to the

public, and suitable enforcement actions were taken. There were, however, instances in which improvement was needed.

The team identified two incident cases that the State did not conduct prompt on-site investigations to identify the extent of radiation exposure and spread of contamination. The first case involved a student at a licensed facility in which I-125 contamination was found inside a building, on the student's hands, clothing, shoes, and vehicle. Communications were made with the licensee at the time the incident happened, but there was no response to the facility. A second incident involved a fire in which three nuclear measurement gauges were potentially damaged. The State approved the licensee's request to move the gauges to an isolated storage building and instructed the licensee in precautionary procedures to be used when moving the gauges but did not observe the licensee's on-scene mitigative actions.

The team recommends that the State review and revise, as appropriate, its procedures for conducting onsite response to incidents whenever there is a potential for radiation exposure or radioactive contamination of the public.

The two allegations received by the State during the review period that involved byproduct radioactive materials were examined in detail. Allegations were responded to promptly with appropriate investigations and follow up actions. The review team reviewed the State's procedures, found them adequate, and that they appeared to be followed. These procedures were used for the control of information, and the results of the investigation were promptly related to the alleged. No significant problems were observed.

Based on the IMPEP evaluation criteria, the review team recommends that Mississippi's performance with respect to the indicator, Response to Incidents and Allegations, be found satisfactory.

4.0 NON-COMMON PERFORMANCE INDICATORS

IMPEP identifies four non-common performance indicators to be used in reviewing Agreement State programs: (1) Legislation and Regulations, (2) Sealed Source and Device Evaluation Program, (3) Low-Level Radioactive Waste Disposal Program, and (4) Uranium Recovery Operations. Mississippi's agreement does not cover uranium recovery operations, so only the first three non-common performance indicators were applicable to this review.

4.1 Legislation and Regulations

4.1.1 Legislative and Legal Authority

In response to the questionnaire and discussions with the Director, DRH, Mississippi reported to the review team the legislation which authorizes the Mississippi radiation control program is identified in the Mississippi Radiation Protection Law of 1976, and no changes were made during the review period. House Bill No. 1357, which passed in 1992, provides authority for the program to collect fees. There are no sunset laws in Mississippi and the State indicated that regulations have no expiration date.

4.1.2 Status and Compatibility of Regulations

All but one regulation required for compatibility identified as due or overdue for adoption at the time of the 1993 routine review and September 1994 review visit were adopted in October 1994 and July 1996. A license condition to establish a legal binding requirement was used in the one case where regulation promulgation was overdue. The rules received final NRC review and approval on August 2, 1996 and with adoption of two comments made by NRC were determined to be compatible. The first comment was editorial and was corrected prior to the printing of the new regulations. The second comment concerned Section 801 of the Mississippi Regulations as follows:

In 801.Q.7, (equivalent to 10CFR 36.21), amend subsection (a)(1) to require that a sealed source have a certificate of registration issued under 10 CFR 32.210, or the equivalent rule of the Agency or another Agreement State.

The Director, DRH, indicated that this comment would be incorporated into the next rule adoption, which requires approval by the Board of Health and will be addressed in 1997. Until final rules are adopted, the State has addressed the second comment by including a license condition that requires licensees to have a certificate of registration for sealed sources.

With the following exceptions, Mississippi has adopted all compatible regulations which will become due through 1998.

- "Preparation, Transfer for Commercial Distribution and Use of Byproduct Material for Medical Use," 10 CFR Parts 30, 32 and 35 amendments (59 FR 61767, 59 FR 65243, 60 FR 322) that became effective on January 1, 1995, is under review and is expected to become effective by the due date of January 1, 1998.
- "Low-Level Waste Shipment Manifest Information and Reporting," 10 CFR Part 20 and 61 amendments (60 FR 15649 and 60 FR 25983) that becomes effective March 1, 1998 and will need to be adopted by March 1, 1998. The NRC delayed its effectiveness until the States could adopt compatible requirements so that the national manifest system will go into effect at one time.
- "Performance Requirements for Radiography Equipment," 10 CFR 34 amendments (60 FR 28323) that became effective June 30, 1995 and will need to be adopted by June 30, 1998.
- "Compatibility with the International Atomic Energy Agency," 10 CFR Part 71 amendment (60 FR 50248) that became effective April 1, 1996 and will need to be adopted by April 1, 1999. NRC delayed the effective date of this rule until April 1, 1996 so that the DOT companion rule could be implemented at the same time. Since the rule involves the transport of materials across state lines, the States are encouraged to adopt compatible regulations as soon as possible.
- "Medical Administration of Radiation and Radioactive Materials," 10 CFR Parts 20 and 35 amendments (60 FR 48623) that became effective October 20, 1995 and will need to be adopted by October 20, 1998.

The review team examined the procedures used in the Mississippi's promulgation process and found the public is offered the opportunity to comment on proposed regulations throughout the process. The quality management rule (QM), which was enacted in October 1994, was one recent example of Mississippi's willingness to cooperate with the NRC.

The team notes that NRC staff is currently reviewing all Agreement States equivalent regulations to Part 20, Standards for Protection Against Radiation. The reviews are being conducted outside the IMPEP process and the States will be notified of the results.

Based on the IMPEP evaluation criteria, the review team recommends that Mississippi's performance with respect to the indicator, Legislation and Regulations, be found satisfactory.

4.2 Sealed Source and Device Evaluation Program

The review team did not review the State's sealed source and device (SS&D) program even though Mississippi currently has responsibility for this area. The review team discussed with the Director, DRH, as to whether Mississippi has considered returning its authority for the Sealed Source and Device Evaluation Program. Mississippi has not yet formulated a position on this issue. The State did not perform any SS&D evaluations during the period of the review.

4.3 Low-Level Radioactive Waste (LLRW) Disposal Program

In 1981, the NRC amended its Policy Statement, "Criteria for Guidance of States and NRC in Discontinuance of NRC 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 of an amendment. Although Mississippi has LLRW disposal authority, NRC has not required States to have a program for licensing a 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

As noted in Sections 3 and 4 above, the review team found the State's performance with respect to each of the performance indicators to be satisfactory. Accordingly, the team recommended, and the MRB concurred in finding the Mississippi program to be adequate to protect public health and safety and compatible with NRC's program.

Below is a summary list of suggestions and recommendations, as mentioned in earlier sections of the report, for action by the State.

1. The review team suggests that the tracking system be revised to allow initial inspections to be readily identified. (Section 3.1)

2. The review team recommends that all initial inspections be performed within six months of license issuance or within six months of the licensee's receipt of material and commencement of operations, consistent with IMC 2800. (Section 3.1)
3. The review team recommends that the State give priority to filling the vacant HP Trainee position. (Section 3.2)
4. The team recommends that all "temporary job location" licensees be notified of their responsibility for determining federal jurisdiction, and that the All Agreement States letter SP-96-022 be utilized to revise the State's standard license condition for use of material at temporary job sites. (Section 3.3)
5. The team suggests that the RMS review the methods used by strontium-90 eye applicator licensees to assess the quantity of material prior to patient administration. (Section 3.3)
6. The team suggests that the State revisit their policy for conducting announced routine inspections, and consider performing more routine inspections on an unannounced basis, as permitted by available resources. (Section 3.4)
7. The review team suggests that the State review its form and adopt, where appropriate, field notes specific to the various types of licensees. (Section 3.4)
8. The team recommends the use of deficiencies closely follow the revised enforcement procedure, particularly when regulations are cited. (Section 3.4)
9. The team suggested the State document their inspection activities of performance-based methods such as observation of licensee operations, worker demonstration of material handling and use, employee interviews, and an increase in type and number of independent measurements. (Section 3.4)
10. The review team recommends that the State send in information of the reportable events that were not previously reported to NRC and continue voluntary reporting of all reportable events in the NMED database system collection of material events by providing event information directly into the NMED system electronically or providing compatible information in written form, in accordance with guidance contained in the "Handbook on Nuclear Material Event Reporting in the Agreement States," Draft Report, March 1995. (Section 3.5)
11. The team recommends that the State review and revise, as appropriate, its procedures for conducting onsite response to incidents whenever there is a potential for radiation exposure or radioactive contamination of the public. (Section 3.5)

LIST OF APPENDICES AND ATTACHMENTS

Appendix A	IMPEP Review Team Members
Appendix B	Mississippi Radiation Control Branch Organization Chart
Appendix C	Mississippi's Questionnaire Response
Appendix D	License File Reviews
Appendix E	Inspection File Reviews
Appendix F	Incident File Reviews
Attachment 1	Mississippi's Response to Review Findings

APPENDIX A

IMPEP REVIEW TEAM MEMBERS

Name	Area of Responsibility
Craig Gordon, RI	Team Leader Legislation and Regulations Technical Quality of Inspections
Richard Woodruff, RII	Technical Staffing and Training
Sally Merchant, NMSS	Technical Quality of Licensing Actions
Cynthia Cardwell, Texas	Status of Materials Inspection Program Response to Incidents and Allegations

APPENDIX B

MISSISSIPPI RADIATION CONTROL PROGRAM
ORGANIZATION CHART

APPENDIX C

MISSISSIPPI'S QUESTIONNAIRE RESPONSE

APPENDIX D
LICENSE FILE REVIEWS

File No.: 1
Licensee: Black Warrior Wireline, Inc.
Location: Columbus
License Type: Well-logging
Date Amendment Issued: 06/24/93

License No.: 626
Amendment No.: 7
Type of Action: Termination
License Reviewer: BJS

File No.: 2
Licensee: Quinn Contracting, Inc.
Location: Falkner
License Type: Troxler Gauge
Date Amendment Issued: 02/21/95

License No.: 763-01
Amendment No.: 2
Type of Action: Amendment
License Reviewer: BJS,MP

Comments:

- a) Sources moved to storage as licensee's corrective actions resulting from poor inspection findings.
- b) No checklists or other licensing aids were included, nor were copies of all outgoing communications.

File No.: 3
Licensee: Schlumberger Technology Corp.
Location: Houston, TX
License Type: Well-logging
Date Amendment Issued: 10/01/96

License No.: 463-01
Amendment No.: 25
Type of Action: Renewal
License Reviewer: MP

Comment:

- a) Amendment 21 (8/27/92) amended license in entirety. No checklist or other method for ensuring completeness were included.

File No.: 4
Licensee: University of Mississippi
Location: Jackson
License Type: Broadscope - R&D
Date Amendment Issued: 01/24/96

License No.: EBL-01
Amendment No.: 49 and 50
Type of Action: Renewal
License Reviewer: MP

Comments:

- a) No checklists or other method of documenting review process were included.
- b) No documentation of deficiency telephone call.

File No.: 5
Licensee: Henley Operating Company
Location: Columbus
License Type: Irradiator
Date Amendment Issued: 08/09/96

License No.: 661-01
Amendment No.: 10
Type of Action: Renewal
License Reviewer: BJS,MP

Comments:

- a) Outgoing deficiency correspondence not included (responses were included).
- b) No checklists or other method of documenting review process were included.

File No.: 6
Licensee: Interstate Nuclear Services License No.: 495-01
Location: Vicksburg Amendment No.: 19
License Type: Nuclear Laundry Type of Action: Amendment
Temporarily suspend operation - storage only license
Date Amendment Issued: 05/02/95 License Reviewer: BJS,MP

File No.: 7
Licensee: Syncor License No.: 493-04
Location: Tupelo Amendment No.:
License Type: Radiopharmacy Type of Action: New License
Date Amendment Issued: 08/01/96 License Reviewer: BJS,MP

File No.: 8
Licensee: Baptist Memorial Hospital License No.: 232-01
Location: Oxford Amendment No.: 28
License Type: Medical - Teletherapy Type of Action: Renewal
Date Amendment Issued: 04/01/96 License Reviewer: BJS,MP

File No.: 9
Licensee: Methodist Medical Center License No.: 722-02
Location: Jackson Amendment No.:
License Type: Medical - HDR Type of Action: New
Date Amendment Issued: 08/23/96 License Reviewer: BJS,MP

File No.: 10
Licensee: Jeff Anderson Regional Medical Center License No.: 267-01
Location: Meridian Amendment No.: 54
License Type: Medical Type of Action: Amendment
Date Amendment Issued: 10/30/96 License Reviewer: BJS,MP

File No.: 11
Licensee: James L. Pettis, M.D. License No.: 219-01
Location: Tupelo Amendment No.: 17
License Type: Sr-90 Eye Applicator Type of Action: Renewal
Date Amendment Issued: 07/09/96 License Reviewer: BJS,MP

Comments:

- a) Requirement to assess quantity of material remaining after decay, before administration, was not addressed in the license application, nor in the issued license.

- b) Inspection: April 22, 1994 (quality management rule not in effect) Inspection (MP and LD) did not include a review of procedure for assessing the source strength of brachytherapy source (Sr-90 eye applicator) before administration.

File No.: 12
Licensee: William C. Sams, M.D.
Location: Gulfport
License Type: Sr-90 Eye Applicator
Date Amendment Issued: 06/09/95

License No.: 359-01
Amendment No.: 1
Type of Action: Renewal
License Reviewer: BJS,MP

Comments:

- a) Requirement to assess quantity of material remaining after decay (before administration) was not addressed in the license application, nor in the issued license. The original license application (June 17, 1976 for Dr. Flagg) contained a brochure for the eye applicator with instructions to calculate decay over time. The license did require that material be used according to procedures in the application.
- b) Inspection, May 11, 1994, 2 violations: (1) 6-month inventory of unit not done, and (2) the applicator was not tested for leakage between July 27, 1990 and February 12, 1994. A letter describing acceptable corrective action, dated May 19, 1994, was provided.
- c) Inspection: May 11, 1994 (quality management rule not in effect) Inspection did not note if licensee assessed source strength of brachytherapy source (Sr-90 eye applicator) before administration.

File No.: 13
Licensee: King's Daughter's Hospital
Location: Brookhaven
License Type: Medical
Date Amendment Issued: 02/06/96

License No.: 270-01
Amendment No.: 28
Type of Action: Renewal
License Reviewer: BJS,MP

File No.: 14
Licensee: Trace Regional Hospital
Location: Houston, MS
License Type: Medical
Date Amendment Issued: 10/95

License No.: 017-02
Amendment No.: 36
Type of Action: Renewal
License Reviewer: BJS

File No.: 15
Licensee: Magnolia Hospital
Location: Corinth
License Type: Medical - Brachytherapy
Date Amendment Issued: 04/02/96

License No.: 290-01
Amendment No.: 48
Type of Action: Amendment
License Reviewer: BJS

File No.: 16

Licensee: Cardiovascular Associates
Location: Jackson
License Type: Medical
Date Amendment Issued: 01/16/96

License No.: 804-01
Amendment No.:
Type of Action: Renewal
License Reviewer: BJS

Comment:

- a) March 22, 1996, request to add physician as Authorized user. April 3, 1996 deficiency letter, requesting clarification of training dates. September 6, 1996 letter from Baptist Medical Center attesting to physicians competency over last 13 years. Specific dates for the 500 hours of supervised work experience and 500 hour of supervised clinical experience requirements were not provided. The license was issued.

File No.: 17
Licensee: Struthers Industries, Inc.
Location: Gulfport
License Type: Industrial Radiography
Date Amendment Issued: 09/07/93

License No.: 259-01
Amendment No.: 37
Type of Action: Renewal
License Reviewer: BJS

File No.: 18
Licensee: Sverdrup Technology, Inc.
Location: Stennis Space Center
License Type: Radiography
Date Amendment Issued: 09/12/94

License No.: 653-02
Amendment No.: 27
Type of Action: Termination
License Reviewer: BJS

File No.: 19
Licensee: Rutter and Associates, Inc.
Location: McComb
License Type: Troxler Gauge
Date Amendment Issued: 02/20/96

License No.: 457-01
Amendment No.: 10
Type of Action: Renewal
License Reviewer: BJS,MP

Comment:

- a) No documentation of outgoing correspondence.

File No.: 20
Licensee: Birmingham Steel Corporation
Location: Jackson
License Type: Gauge (level measurement)
Date Amendment Issued: 07/19/96

License No.: 612-01
Amendment No.: 7
Type of Action: Termination
License Reviewer: BJS,MP

File No.: 21
Licensee: P.M.S.C. Irby Steel
Location: Gulfport
License Type: Industrial Radiography
Date Amendment Issued: 02/02/96

License No.: 750-01
Amendment No.: 7
Type of Action: Amendment
License Reviewer: BJS,MP

Comment:

- a) License, which allows for temporary job sites, has not been amended to include a requirement to file for reciprocity when on sites which are exclusive federal jurisdiction (in accordance with the All Agreement Letter SP-96-022 guidance).

File No.: 22

Licensee: Welding Testing X-Ray, Inc.

Location: Baton Rouge

License Type: Industrial Radiography

Date Amendment Issued: 03/01/96

License No.: 666-01

Amendment No.: 8

Type of Action: Amendment

License Reviewer: BJS,MP

Comment:

- a) License, which allows for temporary job sites, has not been amended to include a requirement to file for reciprocity when on sites which are exclusive federal jurisdiction (in accordance with the All Agreement Letter SP-96-022 guidance).

APPENDIX E
INSPECTION FILE REVIEWS

File No.: 1
Licensee: Gamma Med License No. 661
Location: Columbus Inspection Type: Announced, Routine, Complete
License Type: Irradiator Priority: 1
Inspection Date: 12/18/96 Inspector: MP

Comments:

- a) Inspection compliance oriented as opposed to performance-based; license required surveillances not demonstrated for inspector.
- b) Report does not show whether worker interviews performed to determine personnel qualifications.

File No.: 2
Licensee: Quinn Contracting, Inc. License No.: 763
Location: Falkner Inspection Type: Announced, Initial, Complete
License Type: Portable Gauge Priority: 4
Inspection Date: 01/19/95 Inspector: LD

Comment:

- a) Initial inspection delayed until 18 months after license issued.

File No.: 3
Licensee: Meridian Central License No.: 784
Location: Meridian Inspection Type: Announced, Initial, Complete
License Type: Pharmacy Priority: 1
Inspection Date: 06/14/95 Inspector: BJS

Comments:

- a) Initial inspection not performed within 6 months of license issuance.
- b) Independent measurements (smear samples) not included in report.

File No.: 4
Licensee: Meridian Central License No.: 784
Location: Meridian Inspection Type: Announced, Routine, Complete
License Type: Pharmacy Priority: 1
Inspection Date: 07/31/96 Inspector: MP

File No.: 5
Licensee: Cox Nuclear Pharmacy, Inc. License No.: 794
Location: Biloxi Inspection Type: Announced, Initial, Complete
License Type: Pharmacy Priority: 1
Inspection Date: 08/30/95 Inspector: MP

Comments:

- a) Initial inspection not performed within 6 months of license issuance.
- b) NOV not issued for improper control of shield possibly contaminated with I-131.

File No.: 6
Licensee: Cox Nuclear Pharmacy, Inc. License No.: 794
Location: Biloxi Inspection Type: Unannounced, Follow-up, Complete
License Type: Pharmacy Priority: 1
Inspection Date: 12/27/96 Inspector: BJS

Comment:

- a) Inspection not performed within DRH recommended 6 months of initial inspection.

File No.: 7
Licensee: Interstate Nuclear Services License No.: 495
Location: Vicksburg Inspection Type: Announced, Routine, Complete
License Type: Nuclear Laundry Priority: 2
Inspection Date: 02/23-24/95 Inspector: BG

File No.: 8
Licensee: St. Dominic-Jackson Memorial Hospital License No.: 039
Location: Jackson Inspection Type: Announced, Routine, Complete
License Type: Medical Priority: 2
Inspection Date: 07/24/96 Inspector: MP

Comment:

- a) Status of lost check source not identified.

File No.: 9
Licensee: Baptist Memorial Hospital License No.: 376
Location: Booneville Inspection Type: Announced, Routine, Complete
License Type: Medical Priority: 2
Inspection Date: 02/11/96 Inspector: BJS

Comment:

- a) Unable to determine whether inspection finding recommending radiation safety committee change followed-up by licensing amendment.

File No.: 10
Licensee: Bethesda Regional Cancer Treatment Center License No.: 734
Location: Greenville Inspection Type: Announced, Routine, Complete
License Type: HDR Priority: 1
Inspection Date: 12/05/96 Inspector: BJS

Comment:

- a) Previous inspection resulted in enforcement conference and identified need for follow-up inspection, but follow-up inspection not performed.

File No.: 11

Licensee: Rankin Medical Center
Location: Brandon
License Type: Medical
Inspection Date: 08/17/95

License No.: 311
Inspection Type: Announced, Routine, Complete
Priority: 3
Inspector: MP

File No.: 12

Licensee: Rankin Medical Center
Location: Brandon
License Type: Medical
Inspection Date: 08/01/96

License No.: 311
Inspection Type: Announced, Routine, Complete
Priority: 3
Inspector: MP

Comment:

- a) Unable to determine whether worker interviews conducted.

File No.: 13

Licensee: King's Daughter Hospital
Location: Yazoo City
License Type: Hospital
Inspection Date: 10/27/95

License No.: 383
Inspection Type: Announced, Routine, Complete
Priority: 2
Inspector: MP

Comment:

- a) Enforcement letter identifies recurrent violation, but does not describe significance of the violation being repeated.

File No.: 14

Licensee: Longview Inspection, Inc.
Location: Pascagoula
License Type: Industrial Radiography
Inspection Date: 10/03/96

License No.: 784
Inspection Type: Announced, Routine, Complete
Priority: 1
Inspector: BJS

Comment:

- a) Report does not refer to status of NOV identified during previous field inspection.

File No.: 15

Licensee: James Atkins Engineering
Location: Pontotoc
License Type: Portable Gauge
Inspection Date: 01/23/95

License No.: 669
Inspection Type: Unannounced, Routine, Complete
Priority: 4
Inspector: LD

File No.: 16

Licensee: Babcock and Wilcox

License No.: 201

Location: West Point
License Type: Industrial Radiography
Inspection Date: 12/19/96

Inspection Type: Announced, Routine
Priority: 1
Inspector: MP

Comments:

- a) NOV not issued for failure to notify State about the incident.
- b) Licensee failed to submit 30-day notification report.

File No.: 17

Licensee: Radiologic Clinic
Location: Columbus
License Type: Teletherapy
Inspection Date: 04/04/95

License No.: 104
Inspection Type: Announced, Routine, Complete
Priority: 2
Inspector: BJS

File No.: 18

Licensee: Struthers Industries, Inc.
Location: Gulfport
License Type: Industrial Radiography
Inspection Date: 09/04/96

License No.: 259
Inspection Type: Announced, Routine, Complete
Priority: 1
Inspector: BJS

Comment:

- a) Inspection overdue (interval exceeded the 1 year frequency by 6 months).

File No.: 19

Licensee: Welding Testing X-Ray, Inc.
Location: Baton Rouge, LA
License Type: Industrial Radiography
Inspection Date: 05/06/96

License No.: 666
Inspection Type: Unannounced, Routine, Complete
Priority: 1
Inspector: MP

File No.: 20

Licensee: P.M.S.C. Inby Steel
Location: Gulfport
License Type: Industrial Radiography
Inspection Date: 09/04/96

License No.: 750
Inspection Type: Announced, Routine, Complete
Priority: 1
Inspector: BJS

In addition, the following inspection accompaniments were made as part of the on-site IMPEP review:

Accompaniment No. 1

Licensee: Memorial Hospital at Gulfport
Location: Gulfport
License Type: Hospital
Inspection Date: 01/15/97

License No.: MS-284-01
Inspection Type: Routine
Priority: 2
Inspector: MP

This was an accompaniment performed by C. Gordon, IMPEP team leader.

Comments:

- a) Good, thorough inspection of licensee operations. Inspector demonstrated proficiency to examine inspection areas effectively.
- b) Verification of worker training not fully confirmed through interviews.
- c) Record reviews detail oriented. Although inspection announced, observation of licensee operations comprised only a small portion of inspection activity. Safety issues adequately covered.

Accompaniment No.: 2

Licensee: Syncor International Corporation

Location: Gulfport

License Type: Nuclear Pharmacy

Inspection Date: 1/16/97

License No.: MS-493_03

Inspection Type: Routine

Priority: 1

Inspector: BJS

This was an accompaniment by C. Gordon, IMPEP team leader.

Comments:

- a) Inspection announced, but preparation and inspection plan complete. Inspector demonstrated thorough control over inspection activities.
- b) Surveys or wipe samples not taken in all areas where radioactive materials used (transportation vehicles).
- c) Inspection concentrated on review of licensee documentation and recordkeeping, observation of licensee operations very limited.
- d) Information and safety issues clearly communicated to licensee during inspection and at exit interview.

APPENDIX F
INCIDENT FILE REVIEWS

File No.: 1

Licensee: Syncor International Corp.

License No: MS-493-01

Site of Event: Jackson, MS

Date of Event: 5/14/96

Type of Event: Transportation

Investigation Date: 5/14/96

Investigation Type: Site

Summary of Incident and Final Disposition: The licensee notified the State that a used Molybdenum-99 generator in a Yellow II package had fallen off the carrier's truck and had been taken to the Mississippi Department of Health Pharmacy. Also, the county emergency management notified the State that a White I box was reported found on a street corner. The State surveyed the Yellow II package and found no contamination or elevated readings. Upon arrival by the State on the street corner where the White I box was found, the box had already been retrieved by the carrier. State visited the licensee on 5/16/96. No contamination was detected on the outside of the White I package. The State indicated to the licensee that the incident would be referred to the U.S. Department of Transportation for their review.

Comments:

- a) Good coordination with local authorities (county emergency management, fire dept.)
- b) Not in NMED.
- c) No license number was on the incident report.

File No.: 2

Licensee: Mississippi Dept. of Transportation

License No.: MS-261-01

Site of Event: Lucedale, MS

Date of Event: 9/10/96

Type of Event: Damage to Equipment

Investigation Date: 9/10/96

Investigation Type: Onsite

Summary of Incident and Final Disposition: A traffic accident in which a moisture/density gauge, with the source rod in the open position, became lodged underneath the rear axle of a car. The licensee roped off an area around the vehicle and contacted the MS Highway Patrol and the MS Emergency Management Agency. The DRH inspector dislodged the gauge, shielded the source in the ground, and then was able to retract the source. The licensee placed the gauge in a lead-lined box for transport back to Jackson and eventually the manufacturer. The source was intact and no leakage was detected.

Comments:

- a) Not entered in NMED.
- b) No license number was on the incident report.
- c) The State promptly responded to the scene.

File No.: 3

Licensee: APAC-Mississippi, Inc.

License No.: MS-538-01

Site of Event: Corinth, MS

Date of Event: 4/13/95

Type of Event: Damage to Equipment

Investigation Date: 4/14/95

Investigation Type: Phone

Summary of Incident and Final Disposition: Two moisture/density gauges and an asphalt content gauges were involved in a fire. The containers of both Moisture/density gauges were damaged, but the gauges were intact. The asphalt content gauge was more heavily damaged. By phone, the DRH approved the licensee's request to move the gauges to an isolated storage building and instructed the licensee in precautionary procedures to be used when moving the gauges. The licensee's tests for leakage were negative and the gauge manufacturer arrived on-site several days later to package the gauges for disposal.

Comments:

- a) Reported in NMED.
- b) No on-site investigation by the State.

File No.: 4

Licensee: N/A

License No.: N/A

Site of Event: Greenville, MS

Date of Event: 1/3/95

Type of Event: Contamination

Investigation Date: 01/04/95

Investigation Type: Phone

Summary of Incident and Final Disposition: A shipment of steel plates contaminated with Co-60 set off alarms at a steel company. The shipment was imported by a company in Oregon. The steel company in Mississippi received the plates from another steel company in Texas. The DRH contacted the Texas steel company, the Texas and Oregon radiation control programs, and the EPA. The steel plates were returned to the Texas steel company.

Comments:

- a) Good coordination with multiple jurisdictions and companies.
- b) Not in NMED.

File No.: 5

Licensee: Mississippi State University

Site of Event: MSU Campus

Date of Event: 6/3/96

Investigation Date: 6/5/96

License No.: MS-EBL-02

Type of Event: Contamination

Investigation Type: Phone

Summary of Incident and Final Disposition: A student doing an experiment using I-125 was transporting some solutions containing a total activity of 3 to 5 microcuries. The student dropped the container of solution vials outside the building and picked up the broken glass without gloves. The licensee found contamination inside and outside the building, on the student's hands, clothing, shoes, and vehicle. The licensee performed thyroid bioassays and a CDE of < 1 rem to the thyroid was calculated, and notified the DRH. The licensee indicated they had revised the handling procedures for the student's research project and intended to purchase NaI detectors for labs on campus where non-beta emitters are to be used.

Comments:

- a) Not in NMED.
- b) No license number on the report.
- c) On-site investigation was not conducted by the State.

File No.: 6

Licensee: Mississippi Dept. of Transportation

Site of Event: Raleigh, MS

Date of Event: 5/28/96

Investigation Date: 5/28/96

License No.: MS-261-01

Type of Event: Damage to Equipment

Investigation Type: Site

Summary of Incident and Final Disposition: A moisture/density gauge was run over by a bulldozer. The gauge was in the testing position with the probe imbedded in the roadbed. The source rod appeared to be intact and the source was returned to its shielded position inside the gauge. The DRH confirmed that the source was in the shielded position and that no contamination was present. The gauge was transported to the licensee's facility. Results of a leak test of the source prior to return to the manufacturer showed no contamination.

Comments:

- a) Not in NMED.
- b) No license number in the incident report.
- c) Prompt response by DRH.

File No.: 7

Licensee: Grand Gulf Nuclear Station

License No.: N/A

Site of Event: Vicksburg, MS

Date of Event: 5/12-17/96

Type of Event: Contamination

Investigation Date: 5/31/96

Investigation Type: Site

Summary of Incident and Final Disposition: Grand Gulf Nuclear Station (GGNS) notified the DRH that a contract employee, who had previously set off contamination alarms at Millstone Nuclear Power Station, set off alarms at GGNS. Cs-137 contamination was found on the employee's shirt. DRH inspectors surveyed the employee's hotel room used while working at GGNS. Neither the survey nor results of wipe tests showed the presence of contamination.

Comments:

- a) Prompt response to potential contamination in unrestricted area.
- b) Not in NMED.

File No.: 8

Licensee: Syncor International Corp.

License No.: MS-493-01

Site of Event: Jackson, MS

Date of Event: Unknown

Type of Event: Lost RAM

Investigation Date: 12/8/94

Investigation Type: Site

Summary of Incident and Final Disposition: An ammo box containing radiopharmaceuticals was found on the street. The DRH conducted inspections at the licensee's facility and at the facility of the licensee that ordered the radiopharmaceuticals. The DRH was unable to determine whether the shipment was lost by the licensee or stolen. The DRH requested that the licensee submit revised procedures addressing the matter.

Comment:

- a) Reported in NMED

File No.: 9

Licensee: Methodist Medical Center

License No.: MS-722-01

Site of Event: Jackson, MS

Date of Event: Unknown

Type of Event: Lost RAM

Investigation Date: N/A

Investigation Type: None

Summary of Incident and Final Disposition: The licensee reported that a Co-57 reference source with an activity of 50 microcuries was apparently left on an emergency room patient's hospital gown after a scan was completed. The licensee was unable to locate the reference source. The licensee reported that its methods for use and storage of the reference sources have been reviewed with the technologist to avoid reoccurrence.

Comment:

- a) No DRH report or response in the incident file.

File No.: 10

Licensee: Perf-O-Log
Site of Event: Seminary, MS
Date of Event: 8/7/96
Investigation Date: 8/9/96

License No.: MS-664-01

Type of Event: Lost RAM
Investigation Type: Phone

Summary of Incident and Final Disposition: A 50 millicurie Co-60 logging source was lost in a gas storage cavern while the licensee was pulling the wireline out of the hole. A camera was run in the casing and it appeared that the logging tool had fallen to the bottom of the storage cavern. The DRH discussed the requirements for abandoning well-logging sources with the licensee and the licensee stated that a plaque would be attached to the wellhead as per the requirements.

Comments:

- a) No license number was on the incident report.
- b) Not in NMED.

File No.: 11

Licensee: Babcock & Wilcox
Site of Event: West Point, MS
Date of Event: 6/14/95
Investigation Date: June - Sept. 1995

License No.: MS-002-01

Type of Event: Equipment Failure
Investigation Type: Phone

Summary of Incident and Final Disposition: While attempting to retrieve a 24 curie source into an exposure device, the radiographer noticed that the control assembly appeared to be slack. Surveys conducted by the radiographer verified that the source had not returned to the shielded position. The radiographer secured the area and notified the RSO, who retrieved the source. The highest exposure recorded for any individual was 10 mrem. The licensee contends that the crank assembly adapter became loose and released tension on the drive cable. Photographs provided by the RSO indicate that there may be some differences in the design between this adapter and the new adapter supplied by the camera manufacturer. The California Radiological Health Branch was provided with details of the incident and the crank assembly adapter by the DRH. Their investigation found no manufacturing defect with the adapter and suggested that the failure to return the source to the shielded position may have been due to the licensee tampering the crank assembly adapter, which the licensee has denied. The DRH could not determine if the manufacturer had put the adapter together incorrectly or if it had been tampered with by the licensee.

Comments:

- a) Reported in NMED.
- b) Contacted California radiation control program on July 12, 1995.
- c) Follow-up was conducted during routine inspection on September 27, 1995.

File No.: 12

Licensee: Bush Construction

License No.: MS-508-01

Site of Event: DeSoto County, MS

Date of Event: 4/22/94

Type of Event: Damage to Equipment

Investigation Date: Unknown

Investigation Type: Unknown

Summary of Incident and Final Disposition: A moisture/density gauge was run over by a large piece of construction equipment (roller) at a temporary construction site. The sealed source was not damaged. The gauge was returned to the manufacturer for disposal.

Comments:

- a) Reported in NMED.
- b) NRC Form 565 was in the incident file, but no report from DRH.

File No.: 13

Licensee: Cox Nuclear Pharmacy

License No.: MS-794-01

Site of Event: Wiggins, MS

Date of Event: 12/14/95

Type of Event: Transportation

Investigation Date: 12/14/95

Investigation Type: Onsite

Summary of Incident and Final Disposition: An automobile accident involving radiopharmaceuticals occurred. Seven ammo boxes containing radiopharmaceuticals were scattered around the accident site. The DRH gave the licensee's RSO permission to enter the area secured by the fire department to monitor the boxes while the DRH inspectors were in route. The RSO's survey results were confirmed by DRH inspectors, who surveyed the area and the vehicle. No contamination was found. The RSO cleaned up the site.

Comments:

- a) Not in NMED.
- b) No license number on incident report.

File No.: 14

Licensee: University of Mississippi Medical Center

License No.: MS-MBL-01

Site of Event: Jackson, MS

Date of Event: 5/21-23/96

Type of Event: Misadministration

Investigation Date: 5/24/96, 5/28/96

Investigation Type: Site

Summary of Incident and Final Disposition: The licensee reported a brachytherapy misadministration involving the use of sources with the incorrect activity. The licensee reported that two patients were undergoing manual afterloader brachytherapy procedures at the same time. One of the sealed sources from each of the patients was apparently switched so that each patient received a source with an incorrect activity. One patient was under dosed by about 33 percent and the second patient was overdosed by about 35 percent. The patient that received the overdose was scheduled to have her cervix removed at the end of the treatment, so no adverse medical effects are anticipated for either patient. The patients' referring physicians and relatives were notified. The licensee changed its procedures to state the medical physicist would only prepare one source configuration at a time and the sources would be loaded in the patient before preparing the next source configuration for the next patient. The DRH reviewed the modified procedures during an inspection on 6/5/96.

Comments:

- a) Reported in NMED.
- b) No license number on incident report.