October 23, 2002

Fay W. Boozman, M.D., M.P.H.
Director
Arkansas Department of Health
4815 West Markham Street, Slot 30
Little Rock, Arkansas 72205-3867

Dear Dr. Boozman:

The Nuclear Regulatory Commission (NRC) uses the Integrated Materials Performance Evaluation Program (IMPEP) in the evaluation of Agreement State programs. Enclosed for your review is the draft IMPEP report which documents the results of the Agreement State review held in your office on September 9-13, 2002. Ms. Patricia Larkins, Health Physicist, Office of State and Tribal Programs, NRC, was the team leader for the Arkansas review. The review team's preliminary findings were discussed with your staff on the last day of the review. The review team's proposed recommendations are that the Arkansas Agreement State program be found adequate, and compatible with NRC's program.

NRC conducts periodic reviews of Agreement State programs to ensure that public health and safety are adequately protected from the hazards associated with the use of radioactive materials and that Agreement State programs are compatible with NRC's program. The process, titled IMPEP, employs a team of NRC and Agreement State staff to assess both Agreement State and NRC Regional Office radioactive materials licensing and inspection programs. All reviews use common criteria in the assessments and place primary emphasis on performance. Two additional areas have been identified as non-common performance indicators and are also included in the assessment. The final determination of the adequacy and compatibility of each Agreement State program, based on the review team's report, will be made by a Management Review Board (MRB) composed of NRC managers and an Agreement State program manager, who serves as a liaison to the MRB.

In accordance with procedures for implementation of IMPEP, we are providing you with a copy of the draft team report for review prior to submitting the report to the MRB. We welcome your comments on the draft report. We request comments within four weeks from your receipt of this letter. This schedule will permit the issuance of the final report in a timely manner that will be responsive to your needs.

The team will review the response, make any necessary changes to the report and issue it to the MRB as the proposed final report. We have scheduled the Arkansas MRB meeting for **Tuesday, November 26, 2002 at 1:30 - 3:30 p.m.** We will provide invitational travel for you or your designee to attend. NRC has video conferencing capability if it is more convenient for the

State to participate through this medium. We will work with your staff to establish a video conference if you so desire.

If you have any questions regarding the enclosed report, please contact me at (301) 415-3340 or Ms. Larkins at (301) 415-2309.

Sincerely,

/RA by Josephine M. Piccone for/

Paul H. Lohaus, Director
Office of State and Tribal Programs

Enclosure:
As stated

cc: Jared Thompson, Program Leader
Radioactive Materials Section

Bernard Bevill, Team Leader
Radiation Control and Emergency
Management Program

Distribution:
DIR RF DCD (SP01) PDR (YES✓)
KSchneider, STP
LRakovan, STP
AMauer, STP
LBolling, STP/ASPO
VCampbell, RSAO, RIV
JCameron, RIII
MStephens, FL
DCool, NMSS/IMNS
LPysk, NMSS/IMNS
Arkansas File

DOCUMENT NAME: C:\ORPCheckout\FileNET\ML023080292.wpd
To receive a copy of this document, indicate in the box: "**C**" = Copy without attachment/enclosure "**E**" = Copy with attachment/enclosure "**N**" = No copy

OFFICE	STP		STP:DD		STP:D				
NAME	PMLarkins:gd		JMPiccone		PHLohaus				
DATE	10/23/02		10/23/02		10/23/02				

INTEGRATED MATERIALS PERFORMANCE EVALUATION PROGRAM

REVIEW OF ARKANSAS AGREEMENT STATE PROGRAM

September 9-13, 2002

DRAFT REPORT

U.S. Nuclear Regulatory Commission

1.0 INTRODUCTION

This report presents the results of the review of the Arkansas Agreement State program. The review was conducted during the period September 9-13, 2002, by a review team consisting of technical staff members from the Nuclear Regulatory Commission (NRC) and the Agreement State of Florida. 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 a Final General Statement of Policy," published in the Federal Register on October 16, 1997, and the November 5, 1999, NRC Management Directive 5.6, "Integrated Materials Performance Evaluation Program (IMPEP)." Preliminary results of the review, which covered the period of March 28, 1998 to September 8, 2002, were discussed with Arkansas management on September 13, 2002.

[A paragraph on the results of the Management Review Board (MRB) meeting will be included in the final report.]

The Arkansas Agreement State Program is administered by the Department of Health (the Department). The Department reorganized in FY2000. Under the reorganization, the Radioactive Materials Section (the Section), which is managed by the Radioactive Materials Section Program Leader (the Program Leader) has direct responsibility for the Agreement State materials program. The Section is located in the Radiation Control and Emergency Management Team, under the Health Systems Group, which consists of five sections, as follows: Programs and Emergency Management, X-Ray, RT Licensure, Mammography, and the Radioactive Materials Section. Each Section reports to the Team Leader for Radiation Control and Emergency Management. The Team Leader is also responsible for budget, administrative operations, and coordination between upper management and the five sections. The Team Leader reports to the Health Systems Group Leader. The Group Leader reports to a seven member Agency Leadership Team (ALT), responsible for strategic agency-wide oversight and fiduciary responsibility. The ALT reports directly to the Department's State Health Officer. The less hierarchal team leader organization structure provides staff increased access to the Department 's State Health Officer, who reports directly to the Governor. Organization charts for the Department and the Section are included in Appendix B.

At the time of the review, the Arkansas Agreement State program regulated 265 specific licenses authorizing Agreement materials. 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 Arkansas.

In preparation for the review, a questionnaire addressing the common and non-common performance indicators was sent to the Department on July 2, 2002. The Department provided a response to the questionnaire dated August 21, 2002. During the review, the review team identified several areas in the questionnaire response that needed to be clarified or modified. The Department provided an amended questionnaire response on September 24, 2002. A copy of the final questionnaire response can be found on NRC's Agencywide Document Access and Management System using the Accession Number ML022890596.

The review team's general approach for conduct of this review consisted of: (1) examination of Arkansas's responses to the questionnaire; (2) review of applicable Arkansas statutes and regulations; (3) analysis of quantitative information from the radiation control program licensing and inspection data base; (4) technical review of selected licensing and inspection actions; (5)

field accompaniments of three Department inspectors; and (6) interviews with staff and management to answer questions or clarify issues. The review team evaluated the information that it gathered against the IMPEP performance criteria for each common and applicable non-common performance indicator and made a preliminary assessment of the Arkansas Agreement State program's performance.

Section 2 below discusses the State's actions in response to recommendations made following the previous IMPEP 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 performance indicators, and Section 5 summarizes the review team's findings. Recommendations made by the review team are comments that relate directly to performance by the State. A response is requested from the State to all recommendations in the final report.

2.0 STATUS OF ITEMS IDENTIFIED IN PREVIOUS REVIEWS

During the previous IMPEP review, which concluded on March 27, 1998, seven recommendations were made and transmitted to Sandra B. Nichols, M.D., Director, Arkansas Department of Health on July 8,1998. The team's review of the current status of the recommendations are as follows:

1. The review team recommends that the Section continue to develop and implement the civil penalty portion of the updated escalated enforcement procedure in order to enhance its compliance program. (Section 3.1)

   Current Status: The review team found that the Section implemented Procedure RAM - 03.8, "Escalated Enforcement Actions" in 1998, and has continued its use of management conferences as an effective escalated enforcement practice to resolve serious compliance issues. This recommendation is closed.

2. The review team recommends that the Section continue efforts to move its reciprocity inspection program towards the guidelines established in IMC 1220. (Section 3.1)

   Current Status: The review team found that the Section developed Procedure RAM - 03.9, "Guideline for Compliance Inspection Frequency of NRC/Agreement State Reciprocity Licensees." Since 1998, the Division continued efforts to move its reciprocity inspection program towards the guidelines established in the previous version of IMC 1220. The review team found that the Section had exceeded the previously established reciprocity guidelines. The team discussed the current revised guidelines for reciprocity inspections, that contain a reduction in the level of effort for inspecting licensees from 50 to 20 percent. This recommendation is closed.

3. The review team recommends that the Section proceed expeditiously with its review and updating of compliance program guidance. (Section 3.2)

   Current Status: The review team found that the inspection and compliance program guidance has been revised and implemented. This recommendation is closed.

4. The review team recommends that the Section staff revise the license reviewer guidance, including checklists, to address comprehensive radiation protection program reviews, annual program audits, and the need for financial assurance. (Section 3.4)

Current Status: The review team found that the revision to the radioactive materials licensing guidance checklists for specific activities, i.e., addressing comprehensive radiation protection program reviews, annual program audits, and the need for financial assurance, have been addressed through the manual addition of the elements to the checklist by each reviewer for each action. Due to time and personnel constraints, efforts to revise and update the generic licensing procedures that can be applied to all licensed activities have been limited. The review team has incorporated this item into the current recommendation in Section 3.3. This recommendation is closed.

5. The review team recommends that the State adequately document and closely follow the progress of investigations of incidents through close out. (Section 3.5)

   Current Status: The review team found that the Section has performed appropriate and thorough investigations when deemed necessary, and that they have been documented adequately. This recommendation is closed.

6. The review team recommends that the State continue to report events and participate in the Nuclear Material Events Database (NMED) system by providing event information and close -out status to be added to the NMED system or by providing compatible information in accordance with the guidance contained in the "Handbook on Nuclear Event Reporting in the Agreement States." (Section 3.5)

   Current Status: The review team found that the Section has developed internal policies and procedures for the use of the NMED system based on Office of State and Tribal Programs (STP) Procedure SA-300, Handbook on Nuclear Event Reporting in the Agreement States. Staff training has been provided on the implementation of these procedures and the Section has successfully submitted event information into the NMED system and all events closed by the State have been closed out in NMED. This recommendation is closed.

7. The review team recommends that any events involving a defective device or source in a device, be evaluated for possible generic implications and such information passed onto the manufacturer and NRC. (Section 4.2.3)

   Current Status: The review team found that the Section has investigated events that involve defective devices or sources in a device. The team found that the Section is promptly notifying the NRC and the vendor of any events involving apparent defective devices, but the Section does not evaluate any apparent defective devices discovered for generic implications. This recommendation is closed.

During the 1998 review, two suggestions were made for the Department to consider. The review team determined that the Department considered the suggestions and took appropriate actions.

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 are: (1) Status of Materials Inspection Program; (2) Technical Quality of Inspections; (3) Technical Staffing and Training; (4) Technical Quality of Licensing Actions; and (5) Response to Incidents and Allegations.

3.1 Status of Materials Inspection Program

The review team focused on four factors in reviewing the status of the materials inspection program: inspection frequency, overdue inspections, initial inspections of new licensees, and timely dispatch of inspection findings to the licensees. The review team's evaluation is based on the Department's questionnaire responses relative to this indicator, data gathered from reports generated from the licensee database, examination of completed licensing and inspection casework, and interviews with the Program Leader, and licensing and inspection staff.

The Section's RAM-01.09 procedure dated January 30, 2002, entitled "Assigning and Tracking Radioactive Material and Particle Accelerator Inspections," established that inspections should be conducted at least as frequent, or more frequent than the priority schedule in NRC Inspection Manual Chapter (IMC) 2800. The Section has an aggressive inspection schedule. Except for Priority 1 licenses, all other licenses are inspected more frequently than IMC 2800. For example, nuclear medicine licenses are Priority 1 or 2 based on volume of use in the Section's schedule versus Priority 3 in IMC 2800. Medical-private practice licenses which are Priority 5 in IMC 2800, are Priority 2 in the Section's schedule. Portable and fixed gauges are Priority 2 or 3 based on the number of sources possessed versus Priority 5 in IMC 2800. The review team noted that at the time of the review the Section had 72 Priority 1 licensees that were inspected annually. Thirty-three of the 72 Priority 1 licensees were inspected more frequently than the intervals specified in IMC 2800.

The Section's RAM-01.12 procedure dated January 30, 2002, entitled "Extension and Reduction of Inspection Frequencies" established a policy and procedure for changing inspection frequencies. Although the Section has procedures for extending inspection intervals on the basis of good licensee performance, the Program Leader indicated that they have rarely extended inspection intervals. The Section does however reduce inspection intervals based on poor licensee performance. Presently, 19 of the 72 Priority 1 licensees were on the annual inspection schedule because of poor performance.

The licensee database contains sufficient information for proper management of the inspection program. The review team noted that the number of inspections performed each year is increasing. In calendar year 1998, the Section performed approximately 92 inspections, 112 inspections in 1999, 135 inspections in 2000; and 152 inspections in 2001. The Section's Program Leader stated that resources had been focused on inspections to ensure that potential health and safety issues resulting from the licensing renewal backlog were identified and addressed. The licensing backlog is further discussed in Section 3.4.

At the time of the review, there were no overdue core inspections, including initial inspections. The review team examined the Section's tracking information for a total of 115 licenses, which included 42 initial inspections. Ten core inspections, including eight initial inspections were conducted overdue during the review period. The overdue inspections ranged from two to 31 months overdue when conducted. The Section has had difficulty inspecting licensees authorized to conduct licensed activities at temporary jobsites when their corporate offices are located out-of-state and they do not have permanent field offices within the State. The Section management recognized that they were not able to meet the inspection goals for these licensees. In order to provide a reasonable opportunity to perform an inspection, the Section amended these licenses to require notification two days prior to entering the State to conduct licensed activities.

During the review period, the Section granted 179 reciprocity permits. The Section's RAM-01.09 procedure is used to establish the priority for inspection frequencies of reciprocity licensees. Consequently, the Priority 3 reciprocity licensees identified in the Section's response to the questionnaire were industrial gauge licensees which are not core inspections under the guidance in IMC 1220. Notwithstanding the aggressive inspection schedule, the Section met and exceeded the reciprocity inspection goals identified in the previous version of IMC 1220 throughout the review period. As noted in Section 2.0, the review team also discussed the current revised guidelines for reciprocity inspections contained in IMC 1220, dated June 6, 2002.

The timeliness of the issuance of inspection findings was evaluated during the inspection file review. The Section has an ambitious goal of transmitting inspection reports with items of noncompliance to the licensee within seven working days after the inspector returns to the office. The review team noted that the Section generally met their goal. For all casework reviewed, all inspection findings were sent to the licensees within 30 days.

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

3.2 Technical Quality of Inspections

The team evaluated the inspection reports, enforcement documentation, and inspection field notes, and interviewed inspectors for 23 materials inspections conducted during the review period. The casework reviewed included inspections by five inspectors, and covered inspections of various types including: industrial radiography, portable gauge, large academic, radiopharmacy, medical private practice, service provider, well logging, gamma knife, medical institution and irradiator facilities. Appendix C lists the inspection casework files reviewed for completeness and adequacy with case-specific comments.

Based on the casework file reviews, the review team found that routine inspections covered all aspects of a licensee's radiation protection program. Inspection reports generally were thorough, complete, consistent, and of high quality, with sufficient documentation to ensure acceptable performance with respect to health and safety by the licensee. The documentation in most cases adequately supported the cited violations, recommendations made to licensees, unresolved safety issues, and discussions held with the licensee during exit meetings. Team inspections were performed when appropriate and for training purposes.

During the review period, the Program Leader accompanied all individuals who performed materials inspections. The accompaniment reports contained sufficient details to document the areas covered. The accompanied inspectors are provided a copy of the accompaniment report in their personnel file and receive an oral report of their individual performance.

The review team accompanied three inspectors during the period of August 12 -16, 2002. One inspector was accompanied on inspections of an academic broad scope licensee and a large medical licensee. The second inspector was accompanied on inspections of a large medical licensee, with the first inspector and a radiopharmacy licensee. The third inspector was accompanied on inspections of an industrial radiography licensee and a private practice medical clinic. The facilities inspected are identified in Appendix C. During the

accompaniments, the inspectors demonstrated appropriate performance-based inspection techniques and knowledge of the regulations. Each of the inspectors were well prepared and thorough in their reviews of the licensees' radiation safety programs. The review team noted that all technical staff members are equipped with a cell phone for communication. Inspectors can contact the office immediately if there is a problem in the field. The inspectors can be reached anywhere in the State of Arkansas if the need arises. Overall, the technical performance of the inspectors was excellent, and their inspections were adequate to assess radiological health and safety at the licensed facilities.

The Section maintains a sufficient number and variety of survey instruments to perform radiological surveys of licensees. The review team examined the staff's instrumentation and observed that the survey instruments were calibrated and operable. Inspectors are assigned calibrated instruments for their routine use. The staff perform their own calibration of survey meters at least annually, with a source that is National Institute of Standards and Technology traceable.

The Section staff receive support from the Arkansas Department of Health Radiochemistry Laboratory, which performs sample counting and assay services. Discussions with Section staff established that the support is timely and dependable. The review team toured the laboratory facilities and discussed laboratory procedures and instrument quality control with the laboratory supervisor. The laboratory is capable of providing accurate and defendable analysis results to support the staff's needs.

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

3.3 Technical Staffing and Training

Issues central to the evaluation of this indicator include the Department's staffing level and staff turnover, as well as the technical qualifications and training histories of the staff. To evaluate these issues, the review team examined the Department's questionnaire responses relative to this indicator, interviewed Department management and staff, reviewed job descriptions and training records, and considered any possible workload backlogs.

Under the recent reorganization, the Section has direct responsibility for the Agreement materials program. The review team found that the Section has 6 full-time technical positions, including the Program Leader, devoting approximately 5.2 FTE to the Agreement material program. The review team found that the Program Leader spends about 0.3 FTE of his time in radioactive materials licensing and inspection activities, and 0.6 FTE in supervisory and administrative activities. The remaining five technical Health Physicist staff, spend about 0.8 FTE in administration, with a combined level of 3.5 FTE in radioactive material licensing and inspection activities. Currently, the Section has no vacant positions. As noted in Section 3.1, the Department was reorganized in FY2000 to a less hierarchal organization based on the team leader concept. The less hierarchal organization structure provides staff increased access to the Department 's State Health Officer, who reports directly to the Governor.

The review team learned that staffing has been relatively stable since December 1999. Prior to that time, and during the previous IMPEP review period, staffing turnovers impacted the program, resulting in considerable time spent training new staff. During the current review

period, there were two new hires, and two inspection staff members departed. The team found that the Program Division Director retired in July 2001. The Section management informed the team that the Program Division Director position was subsequently abolished as part of the reorganization to a less hierarchal organizational structure. As a result of the reorganization the Section lost two staff positions. The review team also learned that the Department recently hired the retired Program Division Director, as a consultant, on a part-time short-term base, (for 20 hours per week). The Section management indicated that the consultant contract is renewable on a six month basis, based on available funds.

As a result of the increased stability in staffing since 1999, the Section currently has well trained experienced personnel to carry out regulatory duties. The review team found that the technical quality of staff products is high. Monthly staff training meetings include discussions of major licensing and compliance issues. The review team also found a significant licensing renewal backlog; pending since the 1995 and 1998 program reviews, that involves approximately one-half of the Section's licensees, indicating an imbalance in the current staffing plan between licensing and inspection activities. During the 1998 IMPEP review, the Section proposed to address this area through a corrective action plan that the review team learned has not been implemented. Section management indicated they have focused resources on inspections to ensure that potential health and safety issues resulting from the licensing renewal backlog are identified and addressed. Although the team found that the consultant has begun working on the licensing renewal backlog, the review team concluded that this effort alone would not address the licensing backlog actions in addition to any new licensing activities. The review team concluded that Department management should consider reviewing the current level of effort to maintain the current level of quality throughout the licensing and inspection program and address any backlogs. Additionally the team found that efficiencies could be achieved through automation of some licensing processes and standardized model templates. The review team recommends that Department management review the current staffing plan to achieve a more effective balance between licensing and inspection activities. This item is further discussed in Section 3.4.

The review team found that the minimum educational requirement for a new hire is a bachelor's degree and preferably 1-2 years of experience or equivalent training and experience. Two current staff exceed or meet the educational and experience qualifications including a bachelors degree and three staff meet the qualifications through a combination of training and experience.

The review team found that five of the six Section staff, including the Program Leader are fully qualified and one staff member is interim qualified. All technical staff members have taken the NRC courses deemed appropriate for their assigned tasks. In addition, the review team noted that new licensing and inspection staff members usually attend three to four NRC training courses, including the five week health physics course, in their first two years with the Section, depending on availability of training courses and training funds.

The review team found that although all but one of the current staff are fully qualified, the training and qualification requirements for licensing and inspection staff have not been formally established in a policy or procedure and were not captured in a tracking system. The review team was provided a copy of a memorandum qualifying one staff member for radioactive material inspections, that identified completed training courses, and inspections and accompaniments used to support the qualification; although similar qualification documents were not available for all members of the staff. Based on discussions with the Program Leader, inspector requirements include NRC, or equivalent, training courses when available. The team

was provided with copies of training certificates for some staff members. The Program Leader stated that inspectors are also required to be accompanied by a senior staff member on an inspection prior to authorizing the inspector to perform an independent inspection. The Program Leader also indicated that prior experience in inspecting in a specialized area is preferred for new license reviewers. The review team discussed the issue of formally documenting the training and qualification process to facilitate training and qualification of new staff, and periodic retraining of current staff. Guidance on training and qualification requirements are provided in the NRC/Organization of Agreement States Training Working Group Recommendations for Agreement State Training Programs report, and NRC IMC 1246.

The review team noted that the Section receives approximately 23.4% of its funding through a licensee fee program and the balance through general funds. The team learned that the Department has approved a request for development of a General License registration program, and plans to seek approval from the State Legislature for this additional activity. The Department has also approved a request for an increase in the licensee fee program, and plans to seek approval from the State Legislature. The team noted that although the Department has authority to issue civil penalty fines, Section management indicated it has never implemented it's authority in this area due to the rather cumbersome process.

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

3.4 Technical Quality of Licensing Actions

The review team interviewed license reviewers, evaluated the licensing process, and examined licensing casework for 15 specific licenses. Licensing actions were reviewed for completeness, consistency, proper radioisotopes and quantities, qualifications of authorized users, adequate facilities and equipment, adherence to good health physics practices, financial assurance, operating and emergency procedures, appropriateness of the license conditions, and overall technical quality. The casework files were also reviewed for timeliness, use of appropriate deficiency letters and cover letters, reference to appropriate regulations, product certifications, supporting documentation, consideration of enforcement history, pre-licensing visits, supervisory review as indicated, and proper signatures. The files were checked for retention of necessary documents and supporting data.

The licensing casework was selected to provide a representative sample of licensing actions that were completed during the review period. The sampling focused on the State's new licenses, amendments, renewals, and licenses terminated during the review period. The sampling included the following types: academic, broad medical, research and development, industrial radiography, portable and fixed gauges, institutional nuclear medicine, private clinics, radioisotope and sealed source radiotherapy, and a large irradiator facility. Licensing casework activities reviewed included, 4 new actions, 5 renewals, over 50 amendments contained in 15 case files, and 1 termination file. The Section completed a total of 1175 licensing actions from January 1999 through August 2002, that included 1073 amendments. A list of licenses reviewed with case-specific comments for license reviews can be found in Appendix D.

Of the 265 active licenses, 121 licenses have been in timely renewal status for more than one year, and 57 of these 121 renewal applications have been in timely renewal for four or more years. The review team found that staff has recently begun processing renewals received in

1997, and several license expiration dates were administratively extended for 1-2 years during 1999-2000. This issue was identified during the 1995 and 1998 IMPEP reviews. The Section proposed to address this area through a corrective action plan during the 1998 IMPEP review, which the team learned had not been implemented. The Program Leader indicated they have focused resources on inspections to ensure that potential health and safety issues resulting from the licensing renewal backlog are identified and addressed. Due to the licensing renewal backlog, the review team encountered difficulty finding renewals completed during the review period that provided a representative sampling of licensed activities and license reviewers. The team found that the majority of the correspondence covering license tie-down conditions dated back to 1992 and 1993. Recently renewed licenses contained corresponding tie-down conditions dating back to 1995 and 1996. The Section did not have a backlog of amendments, which are usually processed within seven days.

The review team learned that staff routinely hand delivers new licenses. The staff considers hand delivery of licenses to be a pre-licensing visit. The visit is documented on a one-page form. License files included all current inspection data, in addition to incident data, providing license reviewers with incident reports and inspection reports during the renewal period. Incidents are cross-referenced in licensing files.

In discussions with management, it was noted that there were no major decommissioning efforts underway with regard to Agreement material in Arkansas and the State is not a certifying entity for industrial radiographers but will accept certification from other certifying entities.

License reviewers have adequate supporting information and documentation readily available in the file to complete renewal license reviews. Monthly staff training meetings include discussions of major licensing and compliance issues.

Application packages containing guidance are sent to license applicants. The applications are reviewed following standard procedures that are similar to those used by the NRC. The licensing guides, as well as other applicable guidance from NRC, are available, although staff has not had time to convert references to NRC regulations to Arkansas regulations. At the time of the 1998 IMPEP, the Program Leader indicated that they had a management Action Plan to update guidance and checklists used for license reviews. The review team was informed that this plan has not been implemented.

At the time of the review, the Section did not track amendment requests received to compare against completed amendment requests. While each license reviewer maintains a paper log of amendment assignments, there is no integrated Section tracking system in place. The current manual process does not provide the Section management with any measures to determine if program and timeliness standards are achieved.

Overall, the review team found that the licensing actions were thorough, complete, consistent, and of acceptable quality with health and safety issues properly addressed. License tie-down conditions were stated clearly, and were backed by information contained in the file, and inspectable. The licensee's compliance history was taken into account when reviewing renewal applications and amendments. Some amendments issued were a result of compliance issues found during inspections because the licensee had submitted changes to their program or possession limits in the renewal application, which had not been processed. Until the renewal backlog is reduced, these amendments are expected to increase as the approved radiation protection programs become more outdated.

The license reviewer reviews licenses and the Program Leader performs a technical review and supervisory review on all licensing actions. As of March 2002, two senior licensing reviewers have been authorized to also perform the technical and supervisory review on other reviewers work on an as needed basis. Only these three individuals have signature authority for the Section. This authority is designated in writing. All licenses are signed by the Program Leader or, on an as needed basis, by an individual who has signature authority.

The review team found that, during the review period, termination actions were well documented, showing appropriate disposal methods and records, confirmatory surveys, and survey records.

The review team recommends that Department management develop and implement an action plan to reduce the licensing renewal backlog. In support of this effort, the team encourages a review of the Section's business processes, which could include the examination of: an office wide tracking system for all licensing actions to include renewals, new actions and amendments; development of standard license templates and standard license condition templates and models. The review team recommends completion of revisions to update licensing guidance documents and checklists (this item was identified in the 1998 IMPEP review).

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

3.5 Response to Incidents and Allegations

In evaluating the effectiveness of the Section's actions in responding to incidents, the review team examined the Section's responses to the questionnaire relative to this indicator, reviewed the incident reports for Arkansas in NMED against those contained in the Section's files, and evaluated reports and supporting documentation for eleven incidents. A list of the incident casework examined with case-specific comments is included in Appendix E. The review team also reviewed the Section's response to four allegations involving radioactive material. The NRC did not refer any allegations to the program during the review period.

The incidents selected for review included the following categories: misadministrations, stolen gauges, overexposures, equipment failure, and damaged equipment. The review team found that the Section's response to incidents was complete and comprehensive. Initial responses were prompt and well-coordinated, and the level of effort was commensurate with the health and safety significance. The Section dispatched inspectors for onsite investigations when appropriate, and took appropriate enforcement and follow-up actions.

The responsibility for initial response and follow-up actions to materials incidents may be assigned to any member of the Section. Upon receipt, Section staff reviews a report, decides on the appropriate response, and logs it into the incident log. Documentation related to an incident is placed in the appropriate license file.

The review team identified 23 incidents in NMED for Arkansas during the review period and reviewed 11 case files. As noted in Section 2.0, the Section has adopted a procedure providing that reports of incidents that require immediate notification to the State be provided to the NRC within 24 hours of notification, and that reports of incidents that require notification to the State

within 30 days be provided to the NRC monthly. The review team noted that all significant events (requiring 24 hour notification) and routine and/or event updates (requiring 30-60 day notification) were reported to the NRC on a monthly basis since the previous IMPEP review. The review team noted that the Section was generally responsive in providing requested followup information to the NMED contractor. The team noted that the Section was using the NMED Agreement State data entry program to provide event information to the NMED contractor.

The Section received and was using the latest NMED software by one staff member who had completed the new Microsoft Access 2000 NMED software training. The Section staff indicated that the NMED training was very helpful and that the latest version of the NMED software is an improvement over the older version, and is very user-friendly. The Section uses the NMED software to track all radioactive material incidents.

In evaluating the effectiveness of Arkansas's actions responding to allegations, the review team examined the Section's questionnaire responses relative to this indicator. The casework for four allegations reported directly to the State were reviewed. The Section evaluates each allegation and determines the proper level of response. The review of the casework and the Section files indicated that the Section took prompt and appropriate action in response to the concerns raised. All of the allegations reviewed were adequately documented and appropriately closed, with one remaining open due to an ongoing legal investigation. The review team also noted that allegations were treated and documented separately from the licensing and incident files, similar to the NRC system. There were no performance issues identified from the review of the casework documentation.

The review team noted that Arkansas law requires that all public documents be made available for inspection and copying unless specifically exempted from disclosure under the State's Freedom of Information laws. The State makes every effort to protect an alleger's identity, but it cannot be guaranteed. During the initial telephone contact, the alleger is advised that their anonymity cannot be guaranteed.

Based on the IMPEP evaluation criteria, the review team recommends that Arkansas'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 Program Elements Required for Compatibility; (2) Sealed Source and Device Evaluation Program; (3) Low-Level Radioactive Waste Disposal Program; and (4) Uranium Recovery Program. Arkansas's Agreement does not authorize regulation of sealed source and device evaluation and uranium recovery activities, so only the first and third non-common performance indicators were applicable to this review.

4.1 Legislation and Program Elements Required for Compatibility

4.1.1 Legislation

Along with the Section's response to the questionnaire, the staff provided the review team with the opportunity to review copies of legislation that affects the radiation control program.

Legislative authority to create the program and enter into an Agreement with the NRC was granted in 1963. The Arkansas Department of Health is designated as the State's radiation control agency. The currently effective statutory authority for the Department is contained in "Arkansas Code of 1987 Annotated, Volume 20A, Title 20, Chapter 21." The legislative statute authorizing a Low-Level Waste Program is the "Arkansas Code of 1987 annotated, Volume 6A, Title 8, Chapter 8." The review team noted that the legislation, except for appropriation legislation, had not changed since the previous IMPEP review.

4.1.2 Program Elements Required for Compatibility

The State regulations for control of radiation are located in the Rules and Regulations for Control of Sources of Ionizing Radiation of the Arkansas State Board of Health and apply to ionizing radiation, whether emitted from radionuclides or devices. Arkansas requires a license for possession and use of radioactive materials, including naturally occurring and accelerator-produced radionuclides. A copy of the effective Arkansas regulations, including the last amendments which became effective as of July 1, 2002, was given to the review team.

The review team examined the procedures used in the State's rule-making process and found that the public and other interested parties are offered an opportunity to comment on proposed regulation changes. Rule-making responsibility is assigned to the Radiation Control and Emergency Management Team. It was noted that draft regulations were sent to the NRC for review and comment, and when necessary, the NRC comments were incorporated. The package of proposed regulations prepared by the Department, requires review by the Arkansas Legislative Council and approval from the State Board of Health. The State has emergency rule capability, if public health and safety are at risk. It was noted that the State's rules and regulations are not subjected to "sunset" laws.

The review team evaluated the Department responses to the questionnaire, reviewed the status of regulations required to be adopted by the State under the Commission's adequacy and compatibility policy and verified the adoption of regulations with data obtained from the State Regulation Status Data Sheet. Since the previous IMPEP review, the Department adopted 17 regulation amendments in one rule package that became effective July 1, 2002.

The Department has not addressed the regulation "Requirements for Certain Generally Licensed Industrial Devices Containing Byproduct Material," (65 FR 79162) parts of which were due for adoption by the Agreement States by August 16, 2001. However, the Team Leader stated that currently there are no Arkansas licensees authorized to distribute generally licensed devices. The Department stated that they could use legally binding requirements to enforce this rule if a licensee was authorized to distribute generally licensed devices. The remaining portions of the regulation are due by February 16, 2004.

The State has no overdue regulations required for compatibility. The Department will need to address the following four regulations in upcoming rule makings or by adopting alternate legally binding requirements:

- "New Dosimetry Technology," 10 CFR Parts 34, 36, and 39 amendments (65 FR 63749) that became effective January 8, 2001.

- "Requirements for Certain Generally Licensed Industrial Devices Containing Byproduct Material," 10 CFR Parts 30, 31 and 32 amendments (65 FR 79162) that became

effective February 16, 2001.

- "Revision of the Skin Dose Limit," 10 CFR Part 20 amendment (67 FR 16298) that became effective April 5, 2002.

- "Medical Use of Byproduct Material," 10 CFR Parts 20, 32 and 35 (67 FR 20249) amendments that became effective on April 24, 2002.

Based on IMPEP evaluation criteria, the review team recommends that Arkansas' performance with respect to the indicator, Legislation and Program Elements Required for Compatibility, be found satisfactory.

4.2 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 Regulatory Authority and Assumption Thereof by States Through Agreement" to allow a State to seek an amendment for the regulation of LLRW as a separate category. Those States with existing Agreements prior to 1981 were determined to have continued LLRW disposal authority without the need of an amendment. Although the Arkansas Agreement State program 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 Arkansas. Accordingly, the review team did not review this indicator.

5.0 SUMMARY

As noted in Sections 3 and 4 above, the review team found Arkansas's performance to be satisfactory for all six performance indicators. Accordingly, the review team recommended finding the Arkansas Agreement State program to be adequate and compatible with NRC's program. Based on the results of the current IMPEP review, the review team recommends that the next full review should be in approximately four years.

Below are recommendations, mentioned earlier in the report, for evaluation and implementation, as appropriate, by the State.

1. The review team recommends that Department management review the current staffing plan to achieve a more effective balance between licensing and inspection activities. (Section 3.3)

2. The review team recommends that Department management develop and implement an action plan to reduce the licensing renewal backlog. (Section 3.4)

3. The review team recommends completion of revisions to update licensing guidance documents and checklists (this items was identified in the 1998 IMPEP review).

LIST OF APPENDICES AND ATTACHMENTS

APPENDIX A

IMPEP REVIEW TEAM MEMBERS

Name	**Area of Responsibility**
Patricia Larkins, STP	Team Leader Technical Staffing and Training Response to Incidents and Allegations
Vivian Campbell, Region IV	Status of Materials Inspection Program Legislation and Program Elements Required for Compatibility
Jamnes Cameron, RIII	Technical Quality of Inspections Inspection Accompaniments
Michael Stephens, Florida	Technical Quality of Licensing Actions

APPENDIX B

ARKANSAS DEPARTMENT OF HEALTH

ORGANIZATION CHARTS

ML022890342

APPENDIX C

INSPECTION CASEWORK REVIEWS

NOTE: CASEWORK LISTED WITHOUT COMMENT ARE INCLUDED FOR COMPLETENESS ONLY; NO SIGNIFICANT COMMENTS WERE IDENTIFIED BY THE IMPEP TEAM.

File No.: 1
Licensee: Angelo Iafrate Construction, LLC — License No.: ARK-852
Location: Ruston, LA & North Little Rock, AR — Inspection Type: Routine, Unannounced
License Type: Portable Gauge — Priority: 1
Inspection Date: 1/10-23/02 — Inspector: GB

Comments:
a) Violation for unauthorized use of gauges does not provide dates of use by the individual. File noted that individual had received training, based on a certificate dated 11/13/01.
b) License category normally assigned Priority 3 by Section. Due to compliance issues, licensee reduced to Priority 1.

File No.: 2
Licensee: Applied Inspection Services — License No.: ARK-576
Location: Benton, AR — Inspection Type: Routine, Unannounced
License Type: Industrial Radiography — Priority: 1
Inspection Date: 12/14/01 — Inspector: LD

File No.: 3
Licensee: Aquaterra, Inc. — License No.: ARK-904
Location: El Dorado, AR — Inspection Type: Initial, Announced
License Type: Portable Gauge — Priority: 3
Inspection Date: 4/13/00 — Inspector: SM

File No.: 4
Licensee: Baker Atlas — License No.: ARK-668
Location: Houston, TX — Inspection Type: N/A
License Type: Well Logging — Priority: 4
Inspection Date: 11/19/01 — Inspector: GB

Comment:
a) Licensee category normally assigned Priority 2 by Section. Increased to Priority 4 due to difficulties inspecting licensee in-State.

File No.: 5
Licensee: Baptist Medical Center — License No.: ARK-058
Location: Little Rock, AR — Inspection Type: Routine, Unannounced
License Type: Large Medical Institution — Priority: 1
Inspection Date: 8/13/02 — Inspector: LD, KW

File No.: 6
Licensee: Caddo Inspection, Inc. — License No.: ARK-881
Location: Crossett, AR — Inspection Type: Routine, Unannounced
License Type: Industrial Radiography — Priority: 1
Inspection Date: 5/9/02 — Inspector: SM, LD

File No.: 7
Licensee: Entergy Operations, Inc. License No.: ARK-774
Location: Russellville, AR Inspection Type: Routine, Announced
License Type: Industrial Radiography Priority: 1
Inspection Date: 8/14/02 Inspector: GB

File No.: 8
Licensee: Fort Smith Central Pharmacy License No.: ARK-801
Location: Fort Smith, AR Inspection Type: Routine, Unannounced
License Type: Radiopharmacy Priority: 1
Inspection Date: 7/30/02 Inspector: CB

Comments:
a) Inspection report reflects a predominantly compliance-based inspection, i.e., extensive discussion of records review and few instances of performance observations.
b) Inspection report describes a single violation that the licensee had self-identified and corrected prior to the inspection. The report includes the licensee's corrective actions. Yet, the transmittal letter required a response to the violation, with the licensee's corrective actions. The licensee's response essentially reiterated the information described in the inspection report.

File No.: 9
Licensee: Ion Beam Applications License No.: ARK-903
Location: West Memphis, AR Inspection Type: Routine, Unannounced
License Type: Irradiator Priority: 1
Inspection Date: 4/9/02 Inspector: GB

File No.: 10
Licensee: Ion Beam Applications License No.: ARK-903
Location: West Memphis, AR Inspection Type: Routine, Unannounced
License Type: Irradiator Priority: 1
Inspection Date: 3/29/01 Inspector: CB

File No.: 11
Licensee: Little Rock Cardiology Clinic License No.: ARK-902
Location: Little Rock, AR Inspection Type: Routine, Unannounced
License Type: Private Practice Medical Priority: 1
Inspection Date: 8/16/02 Inspector: GB

Comment:
a) Licensee category normally assigned Priority 2 by Section. Reduced to Priority 1 due to licensee operations at multiple facilities.

File No.: 12
Licensee: McGeorge Contracting Company License No.: ARK-785
Location: North Little Rock, AR Inspection Type: Routine, Unannounced
License Type: Portable Gauge Priority: 1
Inspection Date: 6/11-12/02 Inspector: CB

Comments:
a) Appropriate regulatory language not used for violation regarding annual notification of worker doses. Paragraph after "contrary to" statement includes an addendum regarding recordkeeping requirements at temporary jobsites. The addendum information should have been addressed as a separate violation.
b) Violation regarding leak testing of sealed sources does not specifically identify the sources in question i.e., gauge model number and serial number.
c) Violation on failure to sign shipper's certification on shipping papers may not have been valid if exception was applicable (shipping in company vehicles, not offered for shipment or transferred from another carrier, 49 CFR 172.204(b)).
d) License category normally assigned Priority 3 by Section. Due to compliance issues, licensee reduced to Priority 1.

File No.: 13
Licensee: Northwest Arkansas Heart & Vascular Center License No.: ARK-894
Location: Fayetteville, AR Inspection Type: Initial, Announced
License Type: Medical Institution Priority: 3
Inspection Date: 10/15/99 Inspector: KW

Comment:
a) License category normally assigned Priority 2 by Section. Licensee extended to Priority 3 due to low volume of licensed activities.

File No.: 14
Licensee: Ortho Arkansas License No.: ARK-937
Location: Little Rock, AR Inspection Type: Initial, Announced
License Type: Medical Institution Priority: 2
Inspection Date: 6/27/02 Inspector: CB

Comment:
a) Violation for exceeding removable contamination action limits not supported. The report provides no indication that the licensee identified contamination and failed to take required action. After discussing issue with inspector, reviewer determined that the issue related to the licensee's nuclear medicine technologist's survey technique using a portable instrument.

File No.: 15
Licensee: R. D. Plant Contracting Co. License No.: ARK-756
Location: Murfreesboro, AR Inspection Type: Routine, Unannounced
License Type: Portable Gauge Priority: 1
Inspection Date: 8/22/02 Inspector: CB, KW

Comments:
a) For violation on DOT labeling on Model 4640 transport container, inspection report was not clear if the gauge had been transported.
b) Section on "Utilization Log" of the report is not clear. Unclear for which gauge a log was not available.
c) For violation on HazMat Trainer identification, the report provides the identity of the trainer.
d) License category normally assigned Priority 3 by Section. Due to compliance issues,

licensee reduced to Priority 1.

File No.: 16
Licensee: Ozark Central Pharmacy License No.: ARK-808
Location: Springdale, AR Inspection Type: Routine, Unannounced
License Type: Radiopharmacy Priority: 1
Inspection Date: 8/15/02 Inspector: KW

Comment:
a) Violation regarding failure to inventory sealed sources includes an example of an exempt source (Barium-133 rod source, 104.8 nanocuries). Based on NRC criteria, license requirements do not apply to exempt materials.

File No.: 17
Licensee: Sparks Medical Center License No.: ARK-021
Location: Fort Smith, AR Inspection Type: Routine, Unannounced
License Type: Medical Institution Priority: 1
Inspection Date: 5/23-24/02 Inspector: LD, GB

Comment:
a) Recommendation regarding conduct of wipe surveys for removable contamination in patient rooms following release of radiopharmaceutical therapy patient was addressed as a licensee commitment, not a violation.

File No.: 18
Licensee: University of Arkansas License No.: ARK-064
Location: Fayetteville, AR Inspection Type: Routine, Unannounced
License Type: Large Academic Priority: 1
Inspection Date: 10/15-18/01 Inspector: SM, LD, KW

Comments:
a) Inspection report does not provide all necessary information to support identified problems and violations, (for example - ventilation hood flow checks) or criteria to substantiate why flow checks were necessary. Furthermore, during inspections of laboratories that contained the referenced hoods, there is no mention of the hoods or the activities that may have been performed in the hoods).
b) Broad scope authority previously revoked for poor compliance history and inadequate program management.

File No.: 19
Licensee: University of Arkansas - Southwest Radiation Calibration Center License No.: ARK-711
Location: Fayetteville, AR Inspection Type: See Comment 1
License Type: Academic Broad Priority: 1
Inspection Date: 10/16/01 Inspector: LD

Comments:

a) Cannot determine scope of licensee's activities from content of inspection report. Although information provided by Section staff indicated that licensee performed instrument calibrations as a service to other persons, neither the license authorization nor inspection reports reviewed (through 11/98) describe this activity.
b) Section assigned Academic broad scope program code to licensee; however, licensee is actually a service provider.

File No.: 20
Licensee: UAMS - Gamma Knife License No.: ARK-914
Location: Little Rock, AR Inspection Type: Routine, Unannounced
License Type: Teletherapy/Gamma Knife Priority: 1
Inspection Date: 2/14-15/02 Inspector: KW

Comments:
a) Inspection performed with Radiation Safety Officer (RSO) present only. RSO was not an authorized user for the gamma knife unit, therefore, inspector did not test unit function, warning lights, or safety interlocks.
b) Licensee treats patients using unit only on Mondays and Fridays of each week. No treatments on dates of inspection.

File No.: 21
Licensee: UAMS - Gamma Knife License No.: ARK-914
Location: Little Rock, AR Inspection Type: Routine, Unannounced
License Type: Teletherapy/Gamma Knife Priority: 1
Inspection Date: 3/6-7/01 Inspector: KW

Comments:
a) Inspection performed with RSO present only. RSO was not an authorized user for the gamma knife unit, therefore, inspector did not test unit function, warning lights, or safety interlocks.
b) Licensee treats patients using unit only on Mondays and Fridays of each week. No treatments on dates of inspection.

File No.: 22
Licensee: UAMS - Gamma Knife License No.: ARK-914
Location: Little Rock, AR Inspection Type: Routine, Unannounced
License Type: Teletherapy/Gamma Knife Priority: 1
Inspection Date: 2/8-9/00, 2/14/00 Inspector: KW

Comments:
a) Inspection performed with RSO present only. RSO was not an authorized user for the gamma knife unit, therefore, inspector did not test unit function, warning lights, or safety interlocks.
b) Licensee treats patients using unit only on Mondays and Fridays of each week. No treatments on dates of inspection.
c) Inspector returned on 2/14/00 and observed two treatment shots. Inspector verified that warning lights illuminated and that treatment team verified treatment parameters for both shots.

File No.: 23
Licensee: University of Central Arkansas License No.: ARK-269
Location: Conway, AR Inspection Type: Routine, Announced
License Type: Academic Broad Scope Priority: 2
Inspection Date: 8/12/02 Inspector: LD

Comment:
a) License category normally assigned Priority 1 by Department. Licensee extended to Priority 2 due to low volume of licensed activities.

The following inspection accompaniments were made as part of the on-site IMPEP review.

Accompaniment No. 1
Licensee: University of Central Arkansas License No.: ARK-269
Location: Conway, AR Inspection Type: Routine, Announced
License Type: Academic Broad Scope Priority: 2
Inspection Date: 8/12/02 Inspector: LD

Accompaniment No. 2
Licensee: Baptist Medical Center License No.: ARK-058
Location: Little Rock, AR Inspection Type: Routine, Unannounced
License Type: Large Medical Institution Priority: 1
Inspection Date: 8/13/02 Inspector: LD & KW

Accompaniment No. 3
Licensee: Entergy Operations, Inc. License No.: ARK-774
Location: Russellville, AR Inspection Type: Routine, Announced
License Type: Industrial Radiography Priority: 1
Inspection Date: 8/14/02 Inspector: GB

Accompaniment No. 4
Licensee: Ozark Central Pharmacy License No.: ARK-808
Location: Springdale, AR Inspection Type: Routine, Unannounced
License Type: Radiopharmacy Priority: 1
Inspection Date: 8/15/02 Inspector: KW

Comment:
a) Inspector's removable contamination surveys were predominantly in locations where contamination was expected. Such surveys could have included areas outside restricted areas and in areas where contamination could be easily spread (i.e., computer keyboards and telephones in restricted area, at pass-through window separating restricted area from office area, etc.).

Accompaniment No. 5
Licensee: Little Rock Cardiology Clinic License No.: ARK-902
Location: Little Rock, AR Inspection Type: Routine, Unannounced
License Type: Private Practice Medical Priority: 1

Inspection Date: 8/16/02

Inspector: GB

APPENDIX D

LICENSE CASEWORK REVIEWS

NOTE: CASEWORK LISTED WITHOUT COMMENT ARE INCLUDED FOR COMPLETENESS ONLY; NO SIGNIFICANT COMMENTS WERE IDENTIFIED BY THE IMPEP TEAM.

File No.: 1
Licensee: Albermarle Corporation — License No.: ARK-717
Location: Magnolia, AR — Amendments: 28-33
License Type: Fixed Gauge — Type of Action: Amendments
Date Issued: 4/23/99, 10/19/99, 5/8/01 10/29/01, 6/7/02, 8/1/02 — License Reviewer: GB,CB

Comment:
a) License has been in timely renewal since 11/99. At the time of the review, the action was assigned but the license review had not yet begun an assignment date was unclear. It appears that it was assigned within the last year. Most amendments were to add or delete fixed gauges and authorized users.

File No.: 2
Licensee: Atlas Asphalt, Inc. — License No.: ARK-787
Location: Jonesboro, AR — Amendment: 6
License Type: Portable Gauge — Type of Action: Renewal
Date Issued: 1/23/02 — License Reviewer: SM

Comment:
a) Renewal received 9/8/97, but first deficiency letter issued 7/30/01 and response received 8/27/01. A second deficiency letter issued 12/10/01 and reply received 12/20/01. No data when renewal was assigned to the license reviewer. Indications are that it was around 7/01.

File No.: 3
Licensee: St. Bernard's Medical Center — License No.: ARK-365
Location: Jonesboro, AR — Amendments: 77-91
License Type: Medical Institution — Type of Action: Amendments
Date Issued: 5/18/98, 7/14/98, 12/29/98 6/16/99, 1/7/00, 3/13/00, 6/2/00, 9/5/00 1/4/01,6/27/01, 7/10/01, 10/9/01, 12/21/01, 4/29/02, 7/15/02, 8/8/02 — License Reviewer: CB, KW, LD, GB

Comments:
a) License has been in a timely renewal status since 5/30/97. At the time of the review, this renewal had not been assigned to a license reviewer. Pending action.
b) Team identified that two amendment numbers 78 had been issued.

File No.: 4
Licensee: Numed Imaging Center, Inc. — License No.: ARK-972
Location: El Dorado, AR — Amendments: 0-3
License Type: Medical - Outpatient — Type of Action: New, Amendment, Termination.
Date Issued: 4/11/01, 7/27/01, 8/2/01 — License Reviewer: SM, KW, CB

12/7/01, 7/1/02

Comments:

a) Poor application received 11/13/00 requiring a 30-item deficiency letter.
b) Amendment 1 reissued to fix spelling error in physicians name.
c) Amendment 2 required because of a calibration standard found during an inspection.
d) Section performed a close-out inspection and required that the licensee address NOVs prior to license termination.

File No.: 5
Licensee: International Testing and Inspection Services, Inc. License No.: ARK-773
Location: Marblevale, AR Amendments: 18, 19
License Type: Industrial Radiography Type of Action: Renewal Amendment
Date Issued: 7/27/01, 7/10/02 License Reviewer: SM, GB

Comment:

a) License renewal application received 12/31/97. First deficiency letter sent 10/10/00 with over 40 items. Reply received 12/14/00 and second deficiency letter sent 1/11/01 (3 items) and its reply was received 2/20/01 and 3/27/01. An amendment request was received 7/20/01 to add a radiographer and the amendment and renewal was processed 7/27/01.

File No.: 6
Licensee: Temple - Inland Forest Products Corp. License No.: ARK-935-BP-12-08
Location: Hope, AR Amendment: 0
License Type: Fixed Gauge Type of Action: New
Date Issued: 11/26/01 License Reviewer: SM

Comment:

a) Poor application received 6/4/01, and a 23 item deficiency letter was sent with reply received 8/13/01. Three other deficiency letters were needed before the license was issued.

File No.: 7
Licensee: Ion Beam Applications, Inc License No.: ARK-903-BP-IRR-01-05
formerly SteriGenics International Amendments: 0-7
Location: West Memphis, AR Type of Action: New, Amendments
License Type: Large (MegaCurie) Irradiator License Reviewer: SM
Date Issued: 1/6/00, 1/27/00, 6/23/00, 8/23/00,12/21/00 GB, CB, KW, LD
1/19/01, 5/22/01, 7/11/01, 11,20/01

Comments:

a) Application received 12/14/98 for 3 million curie Co-60 irradiator to be placed in an existing cell built in 1982 and abandoned in 1984. Multiple deficiency letters sent and State requested NRC provide guidance for standards used since cell was built prior to Part 36 and the cell was located in a seismic area. Pre-license visit performed 11/23/99.
b) Amendment 0 issued for the license to receive a small amount of Co-60 to test interlocks, safety features and shielding for voids. Amendment 1 issued 1/27/00 authorized a full loading for operational irradiation of mostly medical supplies.
c) Amendment 4 was issued (12/21/00) to change the name without proper management review and Amendment 4 issued (1/19/01) to rescinded the previous amendment until

appropriate financial surety was established for the new name.

File No.: 8
Licensee: Arkansas Tech University License No.: ARK-016
Location: Russellville, AR Amendments: 25-27
License Type: Limited Academic Broad Scope Type of Action: Amendments
Date Issued: 2/18/98, 8/3/98, 7/24/01 License Reviewer: DS, JT, KW

Comment:
a) Pending action. Amendment 25 issued 2/18/98 to administratively change the expiration date from 9/98 to 9/99 due to the Department's renewal backlog. Renewal application received 9/30/99 and at the time of the audit had not been assigned to a license reviewer.

File No.: 9
Licensee: Washington Group International, Inc. License No.: ARK-837
Formerly Raytheon Engineers and Constructors Amendments: 2-6
Location: Houston, TX Type of Action: Amendments
License Type: Industrial Radiography License Reviewer: SM, KW, GB
Date Issued: 2/23/99, 6/13/00, 8/4/00, 8/28/00, 4/14/02

Comment:
a) Pending action. License expired 8/1/00 and renewal received 7/31/00 and at the time of the IMPEP review had not been assigned to a license reviewer.

File No.: 10
Licensee: University of Arkansas License No.: ARK-711
Location: Fayetteville, AR Amendments: 11-16
License Type: Non-Broad Academic Type of Action: Amendments
Date Issued: 8/27/98, 10/12/99, 11/30/99, License Reviewer: CB, SM
6/14/00, 6/23/00, 2/22/01, 8/27/01

Comments:
a) Pending action. License expires 12/31/99 and renewal received 12/27/99 and at the time of the IMPEP review had not been assigned to a license reviewer.
b) Licensee provides survey meter calibration services to others. This activity is not authorized by the license and none of the issues listed in NUREG-1556 Vol. 18 have been addressed.

File No.: 11
Licensee: Arkansas State University License No.: ARK-307
Location: State University, AR Amendments: 40, 41
License Type: Limited Broad Scope Academic Type of Action: Renewal, Amendment
Date Issued: 1/30/02, 4/4/02 License Reviewer: SM, LD

Comment:
a) License expired 2/96 and licensee submitted renewal application 1/96. Licensee resubmitted renewal application 3/00. After an initial 28 item deficiency letter with several follow up deficiency letter and replies the license was renewed 1/30/02.

File No.: 12
Licensee: Arkansas Children's Hospital License No.: ARK-572
Location: Little Rock, AR Amendment: 3
License Type: Limited Broad Scope - Medical Type of Action: Renewal, Amendment
Date Issued: 8/23/01, 4/18/02, 7/30/02 License Reviewer: CB, GB, SM

Comment:
a) License expired 2/96 and renewal received 1/96. First deficiency sent 1/3/00, reply received 3/24/00, 10/19/00, 1/04/01. Section request for information again 1/22/01 and licensee sent complete reply 3/22/01. License renewed 8/23/01.

File No.: 13
Licensee: Univ. of Arkansas for Medical Sciences License No.: ARK-914
Location: Little Rock, AR Amendments: 0-10
License Type: Gamma Knife/Teletherapy Type of Action: New, Amendments
Date Issued: 7/23/99, 9/24/99, 11/3/99, 12/10/99 License Reviewer: KW, CB, GB
6/14/00, 7/12/00, 7/27/00, 3/30/00
8/14/00, 8/27/00, 12/21/01, 9/6/02

Comments:
a) The Section's only teletherapy license. Initial issuance was to allow the manufacturer to load and calibrate the device. After an pre-operational site visit on 9/24/99, license was issued to authorized the unit for treatment patients.
b) License was issued only for one set of sources. Therefore the manufacturer must arrive with the replacement sources to possess them under their reciprocity entry.
c) While the license tie-down condition requires the medical physicist and authorized user to be present during each treatment, the authorized user condition does not require the physical presence of an authorized user and medical physicist.
d) Two of the authorized users are neurosurgeons that have the manufacturer's 5 day device specific training program. They do not have any training similar to that specified in §35.940 for teletherapy or brachytherapy authorized users.

File No.: 14
Licensee: Terracon Consultants, Inc. License No.: ARK-829
Location: Springdale, AR Amendments: 2-11
License Type: Portable Gauge Type of Action: Amendments
Date Issued: 3/22/99, 2/16/00, 2/25/00, 4/11/00 License Reviewer: GB, CB, SM, JT, KW
11/20/00, 2/20/01, 7/23/01, 8/13/01
8/22/01, 10/8/01

Comments:
a) Pending action. License expired 12/99 and expiration date was administratively extended to 5/1/00 by amendment 3. License renewal application received 2/17/00 and has not been assigned to a license reviewer at the time of the audit.
b) Amendment 11 added two MC-1 series gauges, identified during an inspection, found in the licensees possession for which they were not authorized to possess by the license. The licensee's reply was that they had asked for MC-1 series gauges in their renewal application date 2/00. This was verified. The amendment corrected the violation.

File No.: 15
Licensee: R.D. Plant Contracting Company, Inc. License No.: ARK-756

Formerly ARK-756-BP-04-95 Amendments: 6-9
Location: Murfreesboro, AR Type of Action: Renewal, Amendment
License Type: Portable Gauge License Reviewer: CB, SM
Date Issued: 7/22/99, 9/16/01, 8/16/01, 5/14/02

Comments:

a) License expired 4/95 and renewal application received 2/95. First deficiency letter sent 3/24/98. Reply received 3/26/98. Second deficiency letter sent 3/31/99 and several phone calls and certified letters to seek response sent between 5/99 and 7/13/99. License renewed 7/22/99.

b) Amendment 9 added a model 3241-C gauge found in the licensee possession during an inspection. The licensee was not authorized for the gauge. The license reviewers 1996 checklist used in the renewal review, identified that the device had been on their 1995 license but was not listed in the 1995 renewal application. The review did result in issuance of a deficiency letter, and the renewal review performed in 1998 did not identify this as an issue, therefore the gauge was never addressed as a deficiency item. The gauge has been in the possession of licensee since 1999 without having been identified on the license. Inspection performed in 1999 listed the gauge in licensees inventory but it was not cited as a violation until the 2001 inspection.

APPENDIX E

INCIDENT CASEWORK REVIEWS

NOTE: CASEWORK LISTED WITHOUT COMMENT IS INCLUDED FOR COMPLETENESS ONLY; NO SIGNIFICANT COMMENTS WERE IDENTIFIED BY THE IMPEP TEAM.

File No.: 1
Licensee: Anderson Engineering. License No.: ARK-519
Site of Incident: Little Rock, AR Type of Incident: Stolen gauge
Date of Incident: 10/28/98 Type of Investigation: On-site
Investigation Date: 10/28/98 Investigator: CB, GB

Summary of Incident and Final Disposition: A Troxler moisture/density gauge was stolen from a locked metal storage shed at a construction site by pulling out the nails holding one panel of the shed together. The event was reported to NRC and the FBI, and received media attention through a press release. The gauge was subsequently found by a public citizen on 10/31/98, who received a nominal reward. The Section cited the licensee for noncompliance and requested they take correctives action. The licensee took appropriate corrective actions. The event has been closed out by the Section. (NMED #981090)

File No.: 2
Licensee: H & H X-Ray Services License No.: ARK-650
Site of Incident: West Monroe, LA Type of Incident: Exposure
Date of Incident: 12/5/01 Type of Investigation: Phone and On-site
Investigation Date: 12/5/01 Investigator: CB

Summary of Incident and Final Disposition: The licensee reported a radiographer overexposure of 10.425 (rem) cSv. The exposure was identified by Landauer, during a scheduled film badge reading. The Section investigation concluded that the radiographer left the worksite to telephone his headquarters office, and may have dropped the film badge at that time, while the radiography assistant continued to conduct radiography shots. Upon returning to the worksite the radiographer noticed that his film badge was missing. He checked his self-reading dosimeter and noted a low reading. He called the office to get a spare film badge. Upon returning to the work location with the spare film badge, he found his film badge in the vicinity of the work area on the ground. The radiographer continued to use his original film badge until the normal badge change-out time. A licensee requested that the Section allow adjustment in the reading based on the radiographer statements. The Section declined to allow the adjustment due to insufficient documentation provided by the licensee. The licensee was cited for six violations of noncompliance, and was requested to take corrective actions. The Section held a management conference with the licensee on 1/17/01. The licensee submitted a corrective action plan and documentation meeting State requirements. The event has been closed by the Section. (NMED #020534)

Comment:
a) The NMED record did not include information regarding the licensees failure to meet the two man rule by leaving the work site. The NMED record indicates that additional information has been requested regarding the cause of the event. Section staff intends to provide an update to ensure the NMED record is complete.

File No.: 3

Licensee: Drew Memorial License No.: ARK-482
Site of Incident: Monticello, AR Type of Incident: Loss of radioactive material
Date of Incident: 11/9/00 Type of Investigation: On-site
Investigation Date: 11/14/00 Investigators: CB, SM

Summary of Incident and Final Disposition: On 11/14/00 the licensee reported four radioactive calibration sources used in nuclear medicine, missing from storage in the nuclear medicine departments hot laboratory, that were last accounted for on 11/9/00. The sources included one Cs-137 source, and three Co-57 sources. The Section, State Police, the Monticello Police Department, and Department of Emergency Management were notified. Local law enforcement recovered the sources on 11/17/00, which were taken into custody by the Section. No removable contamination was identified during leak testing, and on 12/12/01 the sources were picked up for disposal by Syncor. The event has been closed out by the State. (NMED #000863)

Comment:
a) Documentation regarding licensee event notification via a telephone call log, was missing from the file.

File No.: 4
Licensee: St. Joseph's Cancer Treatment License No.: ARK-342
Site of Incident: Hot Springs, AR Type of Incident: Medical event
Date of Incident: 3/7/01 Type of Investigation: On-site
Investigation Date: 4/13/01 Investigators: KW, LD

Summary of Incident and Final Disposition: Licensee reported medical event involving the superficial treatment of skin cancer using Ir-192 in a high dose rate remote afterloader. The Ir-192 source was incorrectly positioned approximately 5 cm from the intended treatment site due to the physicists assumption that the needles were 20 cm long instead of the actual 25 cm long, resulting in a dose to an unintended treatment site. The patient exhibited erythema of the left-hand. A 4/26/01 follow-up licensee letter estimated the patient received 4,800 cGy (rad) to a location on the back of the hand. The licensee was cited for noncompliance. (NMED #010349)

Comment:
a) The NMED record has not been closed out by the Section.

File No.: 5
Licensee: Green Bay Packaging License No.: ARK-197
Site of Incident: Morrilton, AR Type of Incident: Damaged source
Date of Incident: 8/7/01 Type of Investigation: Phone
Investigation Date: 8/8/01 Investigator: GB

Summary of Incident and Final Disposition: A thickness gauge was damaged during normal maintenance activities. The gauge became entangled in a moving wire fabric, was torn from its mounting bracket, fell and struck a roller. The impact tore the shutter from the gauge. The gauge was retrieved without exposure to personnel. Temporary shielding was added to the

gauge and the gauge was placed in storage by the RSO. Leak tests resulted in less than 0.005μCi of removable activity. The gauge was returned on 9/24/01 for repairs or disposal. This event has been closed by the State. (NMED #010754)

File No.: 6
Licensee: Material Testing of AR License No.: ARK-859
Site of Incident:, Little Rock, AR Type of Incident: Stolen gauge
Date of Incident: 2/23/00 Type of Investigation: On-site
Investigation Date: 2/23/00 Investigators: GB, KW

Summary of Incident and Final Disposition: The licensee reported the recovery of a moisture density gauge that was stolen from a licensee truck parked at a Wal-Mart. The case had been secured to the truck by running the chain through the closure hasp, but the hasps had been ripped off the case, freeing the case for removal. The securing chain was still in the truck. The State and Local Police were informed of the theft, and reviewed store video tapes. The gauge and case were recovered about two hours later at the service desk of the Wal-Mart. No one had knowledge regarding who returned the gauge, and there was no damage or indication of tampering. The event has been closed by the Section. (NMED #000139)

File No.: 7
Licensee: St. Bernard's Regional Medical Center License No.: ARK-365
Site of Incident: Jonesborough, AR Type of Incident: Misadministration
Date of Incident: 2/26/02 Type of Investigation: On-site
Investigation Date: 3/4/02 Investigator: KW

Summary of Incident and Final Disposition: While attempting to perform a vascular brachytherapy procedure using a Novost Beta-Cath System, involving a Sr-90 source train, the licensee was unable to visualize the markers, under flouroscopy, resulting in the immediate return of the sources, during three trials. Twenty-four seconds elapsed between the arrival of the distal marker at the treatment site and the source return to the delivery device. The licensee could not verify that an unintended site had been treated with the source train. The licensee stated that the cause of the device failure was an inadequate connection of the treatment catheter or the fluid management system. Section staff discussed the event with NRC/NMSS staff. Based on the amount of fluid accumulated in the sterile bag as well as the lack of pressure experienced by the radiation oncologist during the case, the Section classified the event as a 2.4Gy (240 rad) dose delivered to an unintended area of the patient's body. The licensee implemented corrective actions and the patient and the referring physician were notified of the medical event. This event has been closed by the Section. (NMED #020260)

File No.: 8
Licensee: Sparks Regional Medical Center License No.: ARK-021
Site of Incident: Fort Smith, AR Type of Incident: Equipment failure
Date of Incident: 3/13/02 Type of Investigation: Phone
Investigation Date: 4/18/02 Investigator: CB

Summary of Incident and Final Disposition: A device failure occurred during setup for a brachytherapy treatment using a Novost Beta-Cath System, that contained (60 mCi) 2.22 GBq of Sr-90. A cardiologist was unable to lock the catheter into placed inside the transfer device. The sources inside the device separated and failed to allow the locking device that holds the catheter to close. After taping the device on a tabletop to get the sources together, the unit operated properly. A cardiologist ran several dummy runs with the active source train to ensure the unit was operating properly. During the time the source train was out, it was noted that the counter on the back of the unit was not functioning. The licensee notified the manufacturer. The problems with the device did not affect patient treatment. The event has been closed by the Section. (NMED #020535)

File No.: 9
Licensee: Albermarle Corporation License No.: ARK-717-BP
Site of Incident: Magnolia, AR Type of Incident: Equipment failure
Date of Incident: 6/6/02 Type of Investigation: On-site
Investigation Date: 6/7/02 Investigator: GB

Summary of Incident and Final Disposition: An equipment failure occurred with a Ronan Engineering level gauge that contained two 0.19 GBq, (5 mCi) Cs -137 sources. It was determined that one of the sources had become disconnected from its source rod, and the other source had not fully retracted into the shield position. The State shared the information with the Kentucky program. The licensee contracted with a gauge manufacturer to provide assistance in the recovery, packaging, and shipment of the sources. The two sources were safely removed and prepared for shipment. The source recovery contractor received approximately 30 μ Sv (3 mrem). Contamination survey results indicated no contamination and no release of radioactive material. The licensee and the Section calculated maximum dose estimates of l22 μ Sv (12.2 mrem) whole body and 330 μ Sv (33 mrem) extremity. The gauge was sent to Roman Engineering for repair. The event has been closed by the Section. (NMED #020582)

File No.: 10
Licensee: University of AR License No.: ARK-064
Site of Incident: Fayetteville, AR Type of Incident: Contamination event
Date of Incident: 6/17/02 Type of Investigation: On-site
Investigation Date: 6/17/02 Investigator: GB

Summary of Incident and Final Disposition: A graduate research student discovered a carbon 14 spill in the Microbe Growth Chamber Room. The student came in contact with the material and followed protocol and washed his hands. A Geiger counter scan of the individual indicated no contamination. The local Fire Department, University Hazmat team, and the Section responded to the event. The University Hazmat team conducted containment and cleanup.

The event has been closed by the Section. (NMED #020822)

File No.: 11
Licensee: Arkansas Childrens Hospital
License No.: ARK-064
Site of Incident: Little Rock, AK
Type of Incident: Contamination event
Date of Incident: 9/29/99
Type of Investigation: Phone
Investigation Date: 9/29/02
Investigator: JT

Summary of Incident and Final Disposition: Contamination event that occurred during a therapy procedure involving P-32. A problem with the stopcock resulted in a release of approximately 18.5MBq (500 μCi) of P-32, on the table, floor and clothing of two individuals. Individuals were immediately decontaminated, and clothing, shoes and other contaminated items were collected and held for decay. Access was restricted to the therapy room for over 24 hours. The area was successfully decontaminated and released for normal operations. The cause of the event appeared to be a device failure during injection. The licensee plans to use a different type of locking system during delivery. (NMED #990677)

Comment:
a) The NMED record indicates that additional information has been requested regarding the cause of the event. Section staff intends to provide an update to ensure the NMED record is complete.