

May 3, 2010

Michael Anable Policy Advisor on Natural Resources Office of the Governor 1700 West Washington Street Phoenix, AZ 85007

Dear Mr. Anable:

The U.S. 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 that documents the results of the followup review of the Arizona Agreement State Program that took place March 29 – April 1, 2010. I was the team leader for the Arizona review. The review team's preliminary findings were discussed with you and Arizona Radiation Regulatory Agency (the Agency) staff on April 1, 2010.

This followup review was conducted to evaluate your State's response to recommendations from the 2008 IMPEP review. The review team's preliminary finding with respect to the indicator "Technical Quality of Inspections" is satisfactory. The review team is making a preliminary finding of satisfactory, but needs improvement, for the indicators "Technical Staffing and Training," "Status of Materials Inspection Program," and "Technical Quality of Licensing Actions." The State has made progress in management oversight of the Agreement State program activities for these three performance indicators through the use of technical staff from other programs within the Agency, the recent hiring of an experienced technical staff member, and additional training of Agency staff members; however, the review team believes that additional time and actions are necessary before the Agency reaches and sustains a level of satisfactory performance.

The review team is recommending that the Arizona Agreement State Program remain on Heightened Oversight and that a periodic meeting be held approximately 1 year after this followup IMPEP to review the progress the Agency has made in the areas that need improvement. In addition, as part of the continued Heightened Oversight process, the Agency must submit to NRC a revised Program Improvement Plan that incorporates actions the Agency will take to address the recommendations in the enclosed draft report.

Overall, the review team is recommending that the Arizona Agreement State Program continue to be found "adequate to protect public health and safety, but needs improvement," and "compatible with NRC's program." The final determination of adequacy and compatibility of each Agreement State program is 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 review team's draft report for your review and comment prior to submitting the report to the MRB. Comments are requested within 4 weeks from your receipt of this letter. This

schedule will permit the issuance of the final report in a timely manner 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 a proposed final report. Coordinating with the Agency Director, I scheduled the Arizona MRB meeting for Tuesday, June 22, 2010, from 1:00 p.m. – 2:30 p.m. (EDT). NRC will provide invitational travel for you or your designee to attend the MRB meeting at NRC Headquarters in Rockville, Maryland. NRC has videoconferencing capability if it is more convenient for the State to participate through this medium. Please contact me if you desire to establish a videoconference for the meeting.

If you have any questions regarding the enclosed report, please contact me at (610) 337-5371. Thank you for your cooperation.

Sincerely,

/RA/

Donna M. Janda State Agreements Officer Division of Nuclear Materials Safety

Enclosure: Arizona Draft Followup IMPEP Report

cc w/encl.: A. Godwin, Director Arizona Radiation Regulatory Agency schedule will permit the issuance of the final report in a timely manner that will be responsive to your needs.

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Enclosure: Arizona Draft Followup IMPEP Report

cc w/encl.: A. Godwin, Director Arizona Radiation Regulatory Agency

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INTEGRATED MATERIALS PERFORMANCE EVALUATION PROGRAM FOLLOWUP REVIEW OF THE ARIZONA AGREEMENT STATE PROGRAM

March 29 - April 1, 2010

DRAFT REPORT

Enclosure

1.0 INTRODUCTION

This report presents the results of the followup review of the Arizona Agreement State Program, conducted March 29–April 1, 2010. The followup review was conducted by a review team composed of technical staff members from the U.S. Nuclear Regulatory Commission (NRC) and the State of New Mexico. Review team members are identified in Appendix A. The followup review was conducted in accordance with NRC Management Directive 5.6, "Integrated Materials Performance Evaluation Program (IMPEP)," dated February 26, 2004. Preliminary results of the followup review, which covered the period of March 15, 2008 to April 1, 2010, were discussed with Arizona managers on the last day of the review.

[A paragraph on the results of the MRB meeting will be included in the final report.]

The Arizona Agreement State Program is administered by the Radiation Regulatory Agency (the Agency). The Agency Director reports directly to the Governor. An organization chart for the Agency is included as Appendix B.

At the time of the review, the Agency regulated 376 specific licenses authorizing byproduct, source, and certain special nuclear materials (radioactive materials). The review focused on the radioactive materials program as it is carried out under the Section 274b. (of the Atomic Energy Act of 1954, as amended) Agreement between NRC and the State of Arizona.

On July 21, 2008, the Management Review Board (MRB) found the Arizona Agreement State Program adequate to protect public health and safety, but needs improvement, and compatible with NRC's program. Because of the significance of the findings, the MRB placed the State be placed on Heightened Oversight. The MRB requested that a followup review take place approximately 1 year after the 2008 IMPEP review. This followup review was delayed for 1 additional year to provide the Agency adequate time to implement the actions necessary to address the recommendations from the 2008 IMPEP review, as outlined in the Agency's Program Improvement Plan (the Plan).

As part of the Heightened Oversight process, NRC conducted bimonthly conference calls with the Agency to discuss Arizona's progress in implementing the Plan. The Agency submitted the Plan on September 22, 2008; however, NRC did not approve the Plan until May 19, 2010, at which point the bimonthly conference calls began. Conference calls were held July 30, 2009; September 30, 2009; and January 14, 2010. A listing of correspondence and summaries from the bimonthly calls is included as Appendix C. Arizona's actions and their status, as documented in the Plan and subsequent status updates, were reviewed in preparation for this followup review

The followup review focused on the State's performance in regard to the common performance indicators: Technical Staffing and Training, Status of Materials Inspection Program, Technical Quality of Inspections, and Technical Quality of Licensing Actions. The followup review also included evaluation of the actions taken by the State to address the recommendations made during the 2008 IMPEP review. Other aspects of the program not fully evaluated as part of the followup review were discussed at a periodic meeting held in conjunction with the review. The periodic meeting summary is included as Appendix D.

In preparation for the followup review, a questionnaire addressing the applicable performance indicators was sent to the Agency on December 11, 2009. The Agency provided responses to the questionnaire on March 18, 2010, and March 26, 2010. A consolidated copy of the questionnaire responses can be found in NRC's Agencywide Documents Access and Management System (ADAMS) using the Accession Number ML101120109.

The review team's general approach for conduct of this followup review consisted of: (1) examination of Arizona's response to the questionnaire; (2) review of the Heightened Oversight information, including status reports; (3) review of applicable Arizona statutes and regulations; (4) analysis of quantitative information from the Agency's licensing and inspection database; (5) technical evaluation of selected regulatory actions; (6) field accompaniments of three Arizona inspectors; and, (7) interviews with staff and managers. The review team evaluated the information gathered against the IMPEP performance criteria for the four common performance indicators and made a preliminary assessment of the Agreement State program's performance.

Results of the review of four common performance indicators are presented in Section 2.0. Section 3.0 summarizes the followup review team's findings and the open recommendations.

2.0 COMMON PERFORMANCE INDICATORS

The followup review addressed four of the five common performance indicators used to review NRC Regional and Agreement State radioactive materials programs. These indicators that were reviewed during the followup review were: (1) Technical Staffing and Training, (2) Status of Materials Inspection Program, (3) Technical Quality of Inspections, and (4) Technical Quality of Licensing Actions.

2.1 Technical Staffing and Training

During the followup review, the review team evaluated actions taken by the Agency in response to the finding of satisfactory, but needs improvement, made during the 2008 IMPEP review, as well as the status of the staffing and training of the Agency.

Issues central to the evaluation of this indicator include the Agency'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 Agency's questionnaire responses relative to this indicator, interviewed Agency managers and staff, reviewed job descriptions and training records, and considered any possible workload backlogs.

The Agency is composed of several regulatory programs, one of which is the Radioactive Materials Program (the Program), which handles the day-to-day operations of the Arizona Agreement State Program. The Program is responsible for radioactive materials licensing, inspection, and some emergency response activities. Since the 2008 IMPEP, there have been no major reorganizations. Within the Agency, activities involving non-ionizing radiation have been moved out of the Program. Since the 2008 IMPEP review, three staff members, including the Program Manager, left the Program. One staff member, who was already a qualified materials inspector and previously worked in the Nevada and Arizona programs, was hired in

March 2010. At the time of the followup review, the Program was budgeted for one vacant Program Manager position and four technical staff positions, two of which were vacant.

Due to State budget constraints, the vacant positions in the Program can only be filled on a case-by-case basis. In order to maintain Program stability, the Agency Director has been using two qualified technical staff members from the Emergency Response Program to conduct radioactive materials inspections. In addition, the X-Ray Program Manager has assumed the duties of the Radioactive Materials Program Manager, which now accounts for approximately 30 percent of his duties. By sharing resources between Agency programs, the Program has worked off the backlog of overdue inspections that were identified during the 2008 IMPEP; however, the review team believes that long-term stability of the Program could be at risk if the vacant positions are not filled in a timely manner. During the 2006 IMPEP review, a recommendation was made that the Agency develop and implement a staffing plan to meet Program needs and maintain long-term stability. In response to the recommendation, the Agency submitted a staffing and budget plan covering Arizona Fiscal Years 2007 to 2011. The plan was last updated for Fiscal Year 2008. The review team recommends that the State review and update, if appropriate, the Agency's staffing and budget plan to ensure Program needs are met and to maintain long-term stability of the Program.

The Agency has a documented training plan equivalent to the guidance in NRC's Inspection Manual Chapter (IMC) 1246, "Formal Qualification Programs in the Nuclear Material Safety and Safeguards Program Area." Managers and technical staff who participate in Program activities, including those staff members who are assigned to the Emergency Response and X-Ray Programs, are aware of the Agency's training plan and qualification journals. Technical staff members continue to attend NRC training courses, including two X-Ray inspectors who are being cross-trained to perform radioactive materials inspections in the future.

The review team's evaluation of the Agency's responses to Recommendations 1 and 2 of the 2008 IMPEP report is presented below:

Recommendation 1:

The review team recommends that the State develop and use qualification journals to track and monitor training for technical staff. (Section 3.1 of the 2008 IMPEP report)

Current Status:

The Agency has developed a training program for radioactive materials inspectors and license reviewers and implemented the use of qualification journals to track and monitor training for technical staff. The qualification journals are maintained by the X-Ray/Radioactive Materials Program Manager. This recommendation is closed.

Recommendation 2:

The review team recommends that the State ensure that license reviewers be provided appropriate training to ensure familiarity with medical license modalities. (Section 3.1 of the 2008 IMPEP report)

Current Status:

The review team noted that, since the last review, the materials license reviewer has received additional training in the medical licensing area. This training included on-the-job mentoring from a qualified NRC license reviewer and successful completion of two NRC qualification courses, Diagnostic and Therapeutic Nuclear Medicine and Brachytherapy and Gamma Knife. In addition, since the last review, the technical quality of medical licensing has improved. This recommendation is closed.

The review team concludes that the Agency's training program improved; however, staffing continued to be a concern due to the number of vacant positions in the Program. Based on the IMPEP evaluation criteria, the review team recommends that Arizona's performance with respect to the indicator, Technical Staffing and Training, continues to be found satisfactory, but needs improvement.

2.2 <u>Status of Materials Inspection Program</u>

During the followup review, the review team evaluated actions taken by the Agency in response to the finding of unsatisfactory made during the 2008 IMPEP review, as well as the status of the inspections performed since the 2008 review and the current status of due and overdue inspections.

The review team evaluated the timeliness of inspections performed since the last review period, the current and projected backlog of overdue inspections, and the timeliness of communication of inspection findings to licensees. The team reviewed data provided by the Agency from their inspection tracking system to determine the timeliness of inspections, and reviewed inspection files to determine the date of the issuance of inspection findings to licensees relative to the date of inspection.

Arizona law requires, in part, that when an agency conducts an inspection, they must provide a copy of the inspection report to the licensee within 30 working days after the inspection. The review team evaluated the Program's timeliness of issuance of inspection reports. In most cases, the preliminary findings of inspection reports were sent to the licensees within 30 calendar days of the inspection date.

The review team's evaluation of the Agency's response to Recommendation 3 of the 2008 IMPEP report is presented below:

Recommendation 3:

The review team recommends that the State take appropriate measures to conduct core inspections (including initial inspections) in accordance with the inspection priority schedule in IMC 2800, "Materials Inspection Program," and conduct reciprocity inspections in accordance with IMC 1220, "Processing of NRC Form 241 and Inspection of Agreement State Licensees Operating under 10 CFR 150.20." (Section 3.2 of the 2008 IMPEP Report)

Current Status:

The review team noted that the Agency's inspection priorities are determined by a license category assigned to each license. During the 2008 IMPEP, the review team identified a significant number of licenses authorized for medical uses requiring a written directive that were incorrectly categorized and assigned a longer inspection frequency than prescribed by IMC 2800. After this issue was identified, the Agency revised their inspection frequencies for these types of licenses. The review team determined that the Agency's inspection frequencies for all types of radioactive material licenses are now, at least, the same as NRC's inspection frequencies listed in IMC 2800.

The review team evaluated inspection files for 161 Priority 1, 2, and 3 and initial inspections conducted by the Agency during the review period. The review team determined that 14 percent of these inspections were conducted overdue per the criteria in IMC 2800. In addition, one initial inspection was overdue at the time of the review. This represents a significant improvement in the timeliness of inspections since the 2008 IMPEP, when the Agency was found to have 77 percent of its Priority 1, 2, and 3 and initial inspections performed overdue.

During 2008 and 2009, the Agency received reciprocity requests from 44 licensees that were candidates for inspection. The review team determined that the Agency conducted 20 percent of the candidate reciprocity inspections during 2008 and 2009, which meets the requirements prescribed by IMC 1220." At the time of the review, for Calendar Year 2010, the Agency received reciprocity requests from 14 licensees that were candidates for inspections. The review team determined that the Agency had not conducted any reciprocity inspections at the time of the on-site review because the Agency was focusing its inspection efforts on the backlog of overdue inspections. The Agency intends to increase its inspection of reciprocity licensees now that the inspection backlog has been significantly decreased.

This recommendation is closed.

The review team concludes that the Agency's materials inspection program significantly improved with respect to timeliness of conducting Priority 1, 2, and 3 and initial inspections. Based on the IMPEP evaluation criteria, the review team recommends that Arizona's performance with respect to the indicator, Status of Materials Inspection Program, be found satisfactory, but needs improvement.

2.3 <u>Technical Quality of Inspections</u>

During the followup review, the review team evaluated actions taken by the Agency in response to the finding of satisfactory, but needs improvement, made during the 2008 IMPEP review, as well as the status of the technical quality of inspections performed since the 2008 review.

The review team evaluated inspection reports, enforcement documentation, and inspection field notes; interviewed inspectors for 24 radioactive materials inspections conducted during the review period; and conducted accompaniments of 3 of the Agency's inspectors. The casework examined included a cross-section of inspections conducted by two former and four current inspectors and covered a wide variety of inspection types. These included medical and academic broadscope licensees, industrial radiography, self-shielded irradiator, service

provider, gamma knife, positron emission tomography (PET), high dose-rate remote afterloader (HDR), veterinarian teletherapy, Strontium-90 eye applicator, nuclear medicine, and reciprocity licensees. The review also included followup Increased Controls inspections, as well as the Agency's review of licensee compliance with the National Source Tracking System requirements. Appendix E lists the inspection casework files reviewed, with case-specific comments.

Based on the evaluation of casework, the review team determined that inspections covered all aspects of the licensees' radiation safety and security programs. The review team noted that inspection reports were generally thorough, complete, consistent, and of high quality with sufficient documentation to ensure that licensees' performances with respect to health, safety, and security were acceptable. Inspection report documentation supported violations, recommendations made to licensees, unresolved safety issues, and discussions held with licensees during exit interviews. The review team noted that the Agency issues separate reports for health and safety inspections and security inspections.

The review team also accompanied three of the Agency's inspectors during the week of March 1-3, 2010. The inspectors conducted inspections at a cancer center authorized for PET radiopharmaceuticals and HDR treatments, a hospital authorized for radioiodine therapy and prostate seed implants, and an industrial radiography facility. Appendix E lists the inspector accompaniments. The inspectors demonstrated appropriate performance-based inspection techniques and knowledge of the regulations. The inspectors were well trained, prepared for the inspections, and thorough in their audits of the licensees' radiation safety and security programs. The inspectors conducted interviews with appropriate personnel, observed licensed operations in progress, conducted confirmatory measurements, and utilized good health physics practices. The inspectors also reviewed the licensees' continued implementation of the additional security measures and compliance with fingerprinting requirements, when applicable. The inspectors performed confirmatory reviews of source inventories under the National Source Tracking System, when applicable. The review team determined that the inspections were adequate to assess radiological health, safety, and security at the licenseed facilities.

The review team's evaluation of the Agency's responses to Recommendations 4-6 of the 2008 IMPEP report is presented below:

Recommendation 4:

The review team recommends that the Agency conduct followup inspections of licensees with unresolved violations or issues with regard to the Increased Controls requirements to ensure that appropriate corrective actions were implemented. (Section 3.3 of the 2008 IMPEP Report)

Current Status:

The review team reviewed 10 of the Agency's Increased Controls inspection files. The review team found that most inspections were without violations; however, of the reports identifying violations with regard to the Increased Controls requirements, all had response letters from the licensees in the files.

Followup discussions with Agency staff revealed a practice not identified until approximately 1 month after the 2008 IMPEP review team completed their review. Agency staff stated they discovered that the former Program Manager had received the missing documentation and filed it in a separate drawer in her office. This information was not conveyed to the staff; therefore, the documents had not been placed into the appropriate licensee file prior to the 2008 IMPEP review. In addition, because the licensee responses were not in the files, this prevented the inspectors from following up at subsequent inspections.

Following the 2008 IMPEP review, the Agency placed the missing documentation into the appropriate licensee files. Agency staff conducted followup inspections for those licensees identified during the 2008 IMPEP and continue to conduct followup inspections for licensees with IC violations to ensure that appropriate corrective actions are implemented. In addition, Agency staff ensure that all incoming licensee response documentation is properly placed into the inspection files by holding onto the inspection files until the response documentation is received. At that time, the inspection files are returned to the file cabinets. This recommendation is closed.

Recommendation 5:

The review team recommends that the State review its Increased Controls files to ensure that all sensitive, security-related documents are labeled accordingly. (Section 3.3 of the 2008 IMPEP Report)

Current Status:

The review team noted, during a review of inspection files, that sensitive, security-related information was properly marked. Agency staff indicated that initially they did not have a complete understanding of how to properly mark non-Safeguards, security-related documentation; however, in response to the recommendation, the Agency obtained a stamp to denote sensitive information, and Agency staff now mark each page containing sensitive information. Each individual who creates sensitive information is required to properly mark each page at the time of creation.

The review team also found that file folders containing sensitive information are marked so that anyone picking up the files can ascertain that sensitive information is contained in the file. This recommendation is closed.

Recommendation 6:

The review team recommends that an Agency manager accompany each inspector, at least annually, to ensure quality and consistency in the inspection program. (Section 3.3 of the 2008 IMPEP Report)

Current Status:

The Program Manager is responsible for performing annual supervisory accompaniments. The review team noted that, during the review period, supervisory accompaniments were not performed for two inspectors in 2008 and two inspectors in 2009. The Program Manager stated

that during this 2-year period, one inspector was out of work with a long-term illness and, therefore, was not accompanied in 2008. The Program Manager also noted that, during the same time, the previous Program Manager left the Agency and the current Program Manager transitioned into the position. The new Program Manager then experienced health-related issues in 2009 and missed two accompaniments. The team noted that even though some of the 2008 and 2009 supervisor accompaniments were not performed in a timely manner no inspector went more than 2 years without being accompanied.

While the Agency is working towards timely completion of annual inspector accompaniments, they have yet to demonstrate long-term success in this area. This recommendation remains open.

The review team concludes that the technical quality of the inspection program has improved since the 2008 review. Based on the IMPEP evaluation criteria, the review team recommends that Arizona's performance with respect to the indicator, Technical Quality of Inspections, be found satisfactory.

2.4 <u>Technical Quality of Licensing Actions</u>

During the followup review, the review team evaluated actions taken by the Agency in response to the finding of unsatisfactory made during the 2008 IMPEP review, as well as new licensing actions completed since that review. During this period, the State processed over 631 actions (431 amendments, 119 renewals, 45 new applications, and 36 terminations). The review team evaluated licensing actions, deficiency correspondence, and checklists for 36 licensing actions.

Licenses were reviewed for accuracy, appropriateness of the license and its conditions, tiedown conditions, markings, and overall technical quality. Casework was evaluated for timeliness; adherence to good radiation safety practices; references to appropriate regulations; documentation of safety evaluation reports, product certifications or other supporting documents; pre-licensing visits; peer or supervisory review, as indicated; and proper signature authority.

The 36 licensing actions selected for review included work by the single license reviewer on staff. Other staff members performed license reviews in the past but did not during this review period. The cross-section sampling included all of the State's major licenses as defined by the State, including the following types of licenses: academic and medical broad scopes, limited scope medical, academic and industrial, portable gauge, self-shielded irradiator, radiography, and nuclear pharmacy. The selected licensing actions included 3 new applications, 4 renewals, 5 terminations, and 23 amendments. A list of the licenses reviewed, with case-specific comments, can be found in Appendix F.

The review team's evaluation of the Agency's responses to Recommendations 7-10 of the 2008 IMPEP report is presented below:

Recommendation 7:

The review team recommends that the State ensure its licensees are properly categorized and assigned the correct inspection frequency. (Section 3.4 of the 2008 IMPEP Report)

Current Status:

Each of the selected licenses reviewed had its category listed on the license. The review team compared the category listed on the licenses to the description of the activities that comprise the categories and found that all licenses reviewed were appropriately categorized. The review team cross-referenced the categories used by the State with a list of the NRC program codes and the inspection frequencies for those program codes, and determined that the selection of the program codes for the various categories was appropriate. This recommendation is closed.

Recommendation 8:

The review team recommends that the State ensure proper documentation of training and experience for authorized users, authorized medical physicists, authorized nuclear pharmacists and radiation safety officers. (Section 3.4 of the 2008 IMPEP Report)

Current Status:

At the time of the last review, the State allowed training and experience information for medical applicants to be provided by letter. Since that time, the State has required new applicants for these positions on medical licenses to submit the training and experience information on forms similar to those used by NRC to ensure that all the required information is provided for the various options. Individuals who are already named on another medical license to perform the requested activities do not need to submit the forms. Persons who request to be named as authorized users or radiation safety officers on non-medical licenses may still provide their training and experience by letter, as is also accepted by NRC. The review of medical licensing actions included several actions requesting approval of authorized users, authorized nuclear pharmacists, and radiation safety officers. The review team determined that the documentation of training and experience for these actions were acceptable. This recommendation is closed.

Recommendation 9:

The review team recommends that the State implement a detailed and documented license review system to ensure accuracy and consistency for all licensing actions. (Section 3.4 of the 2008 IMPEP Report)

Current Status:

The State has license application guidance documents that they send to licensees to ensure that licensees provide sufficient information for the requested activities. Since the last IMPEP review, the State developed new checklists for the review of the license applications. License review checklists were used with all the new license applications reviewed and were maintained in the license files. License review checklists were not used for most amendment actions

because the scope of most amendment requests did not require the use of the full checklist. The full checklist could be used, if needed or desired. The review team determined that the majority of the licensing actions received a thorough review and contained all necessary documentation. Exceptions are noted as comments in the licensing casework files listed in Appendix F. This recommendation is closed.

Recommendation 10:

The review team recommends that the State implement the pre-licensing checklist and guidance for all licensing actions to provide assurance that radioactive material will be used as specified on the license. (Section 3.4 of the 2008 IMPEP Report)

Current Status:

At the time of the last IMPEP review, the use of the pre-licensing checklist and guidance was required for all licensing actions. In September 2008, NRC revised the guidance so that the checklist is required only for all new license applications and for transfer of control (change-of-ownership) actions. The review team found that the Agency used the pre-licensing checklist on all new licensing actions that were selected for review, but did not use it for the one change-of-ownership action that was selected for review. In addition, on two checklists, the reviewer identified that a new applicant was a known entity because individuals who were to be named as authorized users or radiation safety officers were listed on other licenses; however, these individuals were not the entity responsible for those licenses and this would not justify considering the new license applicant to be a known entity. The review team discussed with the Agency staff the essential elements of the revised pre-licensing guidance and how to properly implement them. This recommendation remains open.

During the followup review, the review team identified several issues related to financial assurance that require review and clarification of pertinent licenses. State regulations reference the financial assurance requirements contained in 10 CFR 30.35, 40.46, and 70.25; however, the license condition that limits quantities of radioactive materials to amounts below those that require financial assurance references only 10 CFR 30.35 quantities. This limiting license condition does not address the four separate categories of materials that require financial assurance: unsealed byproduct material (10 CFR 30.35), sealed byproduct material (10 CFR 30.35), dispersible source material (10 CFR 40.46) and unsealed special nuclear material (10 CFR 70.25). Because of this, the review team found some licenses that need to have financial assurance or need to be amended to limit quantities below those that require financial assurance. In addition, although the unity rule (sum-of-fractions) applies within each category, the total financial assurance to be provided is the sum of that required for each category. Examples of these licensing actions can be found in Appendix F, Licensing Casework Reviews. The review team recommends that the State review its radioactive materials licenses regarding the requirements for financial assurance, and either obtain financial assurance for licenses that are authorized to possess the applicable quantities, or revise the license conditions to ensure clear quantity limits that will not require provision of financial assurance.

The review team also identified that decay-in-storage requirements are not consistently applied. The review team determined that the Agency authorizes radioactive waste disposal by decay-in-

storage by tying the procedures in the license application to the license. The review team found that, in at least two actions reviewed, the licensees did not specify that decay-in-storage would be limited to radionuclides with half-lives of 120 days or less, although most other license applications did state that limit. One license authorized, by license condition, decay-in-storage for radionuclides with half-lives up to 207 days. The reviewer explained this was done by license condition because it was different from the Agency's normal expectation. If the Agency intends to restrict decay-in-storage to short-lived radioactive materials, by tie-down condition, applications must include this restriction. The review team discussed with the Agency staff the inconsistencies in their approach to decay-in-storage authorizations. The Agency staff agreed to review their approach and make any necessary changes.

The review team concludes that the technical quality of the licensing program has improved. Based on the IMPEP evaluation criteria, the review team recommends that Arizona's performance with respect to the indicator, Technical Quality of Licensing Actions, be found satisfactory, but needs improvement.

3.0 SUMMARY

The review team found Arizona's performance to be satisfactory for the indicator, Technical Quality of Inspections, and satisfactory, but needs improvement, for the indicators Technical Staffing and Training, Status of Materials Inspection Program, and Technical Quality of Licensing Actions. The review team noted that State has made progress in management oversight of the Agreement State program activities for the three performance indicators found satisfactory, but needs improvement, through the use of technical staff from other programs within the Agency, the recent hiring of an experienced technical staff member, and additional training of Agency staff members; however, the review team believes that additional time and actions are necessary before the Agency reaches and sustains a level of satisfactory performance.

Accordingly, the review team recommends that the Arizona Agreement State Program continue to be found adequate to protect public health and safety, but needs improvement, and compatible with NRC's program. The review team recommends that the period of Heightened Oversight of the Arizona Agreement State Program continue and that the Agency's Program Improvement Plan be amended to address the recommendations of the followup IMPEP review.

Based on the results of the review, the review team recommends that a periodic meeting take place in approximately 1 year and the next full IMPEP review take place in approximately 2 years.

Below are the recommendations, as mentioned in Section 2.0, for evaluation and implementation by the State:

RECOMMENDATIONS

1. The review team recommends that the State review and update, if appropriate, the Agency's staffing and budget plan to ensure Program needs are met and to maintain long-term stability of the Program. (Section 2.1)

- 2. The review team recommends that an Agency manager accompany each inspector, at least annually, to ensure quality and consistency in the inspection program. (Section 2.3)
- 3. The review team recommends that the State implement the pre-licensing checklist and guidance for all licensing actions to provide assurance that radioactive material will be used as specified on the license. (Section 2.4)
- 4. The review team recommends that the State review its radioactive materials licenses regarding the requirements for financial assurance, and either obtain financial assurance for licenses that are authorized to possess the applicable quantities, or revise the license conditions to ensure clear quantity limits that will not require provision of financial assurance. (Section 2.4)

LIST OF APPENDIXES

- Appendix A IMPEP Review Team Members
- Appendix B Arizona Organization Charts
- Appendix C Heightened Oversight Program Correspondence
- Appendix D Periodic Meeting Summary
- Appendix E Inspection Casework Reviews
- Appendix F License Casework Reviews

APPENDIX A

IMPEP REVIEW TEAM MEMBERS

Name	Area of Responsibility
Donna Janda, Region I	Team Leader Technical Staffing and Training Periodic Meeting
Santiago Rodriguez, New Mexico	Status of Materials Inspection Program
Randy Erickson, Region IV	Technical Quality of Inspections Inspector Accompaniment Periodic Meeting
Elizabeth Ullrich, Region I	Technical Quality of Licensing Actions

APPENDIX B

ARIZONA ORGANIZATION CHARTS

ADAMS ACCESSION NO.: ML101120125

APPENDIX C

HEIGHTENED OVERSIGHT PROGRAM CORRESPONDENCE

Summaries of Bimonthly Conference Calls:

- 1 July 30, 2009 Summary (ML092310424)
- 2 September 30, 2009 Summary (ML092820511)
- 3 January 14, 2010 Summary (ML100211158)

Letters from/to Arizona:

- 1. August 13, 2008 Letter to Dennis Burke from M. J. Virgilio Arizona Final IMPEP Report (ML082060548)
- 2. September 22, 2008 Letter to M. J. Virgilio from Aubrey Godwin Response to Final IMPEP Report, including Program Improvement Plan (ML082730307)
- 3. May 19, 2009 Letter to Aubrey V. Godwin from Robert J. Lewis Approval of Program Improvement Plan (ML091330010)

APPENDIX D

PERIODIC MEETING SUMMARY

A periodic meeting was held with the Agency Director and the Program Manager by Donna Janda, Team Leader, and Randy Erickson, Team Member and Regional State Agreements Officer, during the followup IMPEP review pursuant to the Office of Federal and State Materials and Environmental Management Programs (FSME) Procedure SA-116, "Periodic Meetings Between IMPEP Reviews." Topics normally documented during periodic meetings that were reviewed and documented as part of the followup IMPEP review will not be discussed in this Appendix. The following topics were discussed:

1. Status of Recommendations from Previous IMPEP Reviews

See Section 2.0 for details on the status of recommendations identified during previous IMPEP reviews.

2. <u>Strengths and/or weaknesses of the State program as identified by the State including</u> identification of actions that could diminish weaknesses.

The Agency Director noted that, following the termination of two former staff members, the staff enjoys better communication between the programs and they work much more cohesively. He also acknowledged the resilience of the staff to the ever changing budget situation and the uncertainty associated with those changes as positive strengths. The staff seems resolute to stay the course until they become more stable.

The Agency Director noted the loss of staff and frozen positions and the vulnerable position it now places the Program in as a weakness for the Program. If the Program experiences staff losses, they could easily have those positions frozen, which will make it increasingly difficult to function effectively. They have been able to replace one position, but those hires are on a case-by-case basis with no guarantee the request will be successful. The Agency Director noted that not having a Deputy Director position available to him adds to the difficulty in managing the Program.

According to the Agency Director, the fee collection system and the State rules associated with that function need to be improved. There is a designation between "old money versus new money" and how those funds are handled. It makes it difficult for the Program to adequately assess fees related to budgeting, and that a lot of resources are used in the collection of fees that, with a better system, could be used in other areas.

The Agency Director also noted the new database as a true weakness for the program. Following the previous IMPEP review, a decision was made to implement a new database; however, during the time they were building the system, a new Governor was elected and the system was never completed; therefore, it does not work as expected. It has been a huge hindrance to the program to the point that they decided to reactivate their old database. They have made a few changes to the old database and are now using it as the Program's primary database. Arizona Draft Followup Report Periodic Meeting Summary

3. <u>Feedback on NRC's program as identified by the State and including identification of any</u> action that should be considered by NRC.

The Agency Director stated that NRC should consider clearly defining the requirements and responsibilities for authorized users utilizing diagnostic quantities of radioactive materials to treat patients. He indicated that for therapy (10 CFR 35.300 and above), the authorized user must select the patient for treatment, and in some cases be there for the treatment. However, with diagnostic use, the referring physician refers the patient and the authorized user generally has no part in selecting them, instead they rely on standing orders, etc., to allow the technologist to effectively perform the test. The Agency Director believes that there are tests that if incorrectly performed, including those involving iodine-131 in diagnostic quantities, that a patient could be harmed in the process. He believes that this is a hole in NRC's regulations that needs to be corrected.

4. Status of State Program Including:

a. Staffing and Training:

See Section 2.1 for details on the status of recommendations identified during previous IMPEP reviews.

b. Materials Inspection Program:

See Sections 2.2 and 2.3 for details on the status of recommendations identified during previous IMPEP reviews.

c. Regulations and Legislative Changes:

Earlier this year, the Arizona Legislature proposed legislation that would require the Agency, prior to adopting any regulations, to prepare two economic impact statements on new regulations. The Agency and the Governor's Regulatory Review Council must consider any submission that compares the cost of new regulations with the costs in other western states and its effect on business competitiveness. For promulgation of new rules, the Agency must submit clear and convincing evidence that the benefits of the new rule outweigh the costs of the new rule. After finalized, any affected individual can petition to repeal the rule on the grounds of having a negative economic impact. At the time of the followup review, this legislation had not yet been adopted.

To better facilitate rule development, in May 2009, the Agency replaced the former individual responsible for regulation development with an individual from their X-ray program.

d. Program Reorganizations:

There have been no major reorganizations. Internally, the non-ionizing program has been moved out of the radioactive materials program. The radioactive materials program is now an independent program.

Arizona Draft Followup Report Periodic Meeting Summary

e. Changes in Program Budget/Funding:

Arizona's budget is ever changing. This is in part due to disagreements between the Legislature and the Governor's Office on how to manage shrinking revenues. A budget for FY 2011 has been passed by the Legislature assuming a one cent sales tax requested by the governor passes a public vote. If not, the real possibility exists for additional budget cuts. In March 2010, the Legislature passed a bill that requires cuts to staff performance pay and adds six furlough days for the next two fiscal years. These changes become effective on June 15, 2010.

5. Event Reporting:

The Agency has responded to five events since the 2008 IMPEP review. The Program reported that all NMED information is up to date.

6. Response to Incidents and Allegations:

The Program continues to be sensitive to notifications of incidents and allegations. Incidents are reviewed for their affect on public health and safety. Staff is dispatched to perform onsite investigations, when necessary. The Agency Director has placed a high emphasis on maintaining an effective response to incidents and allegations.

7. Information Exchange and Discussion:

a. Current State Initiatives:

None noted at the time of the meeting.

b. State's Mechanisms to Evaluate Performance:

The Agency Director noted that, in addition to inspector accompaniments, the staff conducts peer reviews of 100 percent of all licensing and inspection activities. The peer reviews require staff signatures verifying the review. Additionally, managers also review all licensing and inspection documentation. They cited these activities as another method for ensuring that performance is continuously evaluated.

APPENDIX E

INSPECTION CASEWORK REVIEWS

NOTE: CASEWORK LISTED WITHOUT COMMENT IS INCLUDED FOR COMPLETENESS ONLY.

File No.: 1 Licensee: Ironwood Cancer & Research Centers, PC Inspection Type: Initial, Unannounced Inspection Date: 3/1/10 File No.: 2 Licensee: Banner Estrella Medical Center Inspection Type: Routine, Unannounced Inspection Date: 3/2/10 Comment: The Agency conducted the inspection 51 days overdue. File No.: 3 Licensee: AMEC Earth and Environmental, Inc. Inspection Type: Special, Unannounced Inspection Date: 3/3/10 File No.: 4 Licensee: Desert Samaritan Medical Center Inspection Type: Routine, Unannounced Inspection Date: 3/17/10 Comment: The Agency conducted the inspection 145 days overdue. File No.: 5 Licensee: Banner Desert Surgery Center Inspection Type: Initial, Unannounced Inspection Date: 3/22/10 Comment: The Agency conducted the inspection 82 days overdue. File No.: 6 Licensee: Arizona Oncology Associates Inspection Type: Initial, Unannounced Inspection Dates: 2/19/10 Comment:

The Agency conducted the inspection 127 days overdue.

License No.: 07-571 Priority: 2 Inspector: PK

License No.: 07-547 Priority: 3 Inspector: DK

License No.: 07-369 Priority: 1 Inspector: BG

License No.: 07-106 Priority: 3 Inspector: WY

License No.: 07-614 Priority: 3 Inspector: DK

License No.: 07-639 Priority: 2 Inspector: DK Arizona Draft Followup Report Inspection Casework Reviews File No.: 7 Licensee: John C. Lincoln Hospital-Deer Valley Inspection Type: Routine, Unannounced Inspection Date: 3/23/10 Comment: The Agency conducted the inspection 184 days overdue. File No.: 8 Licensee: Southwest Veterinary Oncology Inspection Type: Special, Unannounced Inspection Date: 9/17/08 File No.: 9 Licensee: Arizona Oncology Associates Inspection Type: Routine, Unannounced Inspection Dates: 2/19/10 Comment: The Agency conducted the inspection 156 days overdue. File No.: 10 Licensee: American Red Cross Blood Services Inspection Type: Special, Unannounced Inspection Date: 9/18/08 File No.: 11 Licensee: Saint Joseph's Medical Center Inspection Type: Special, Unannounced Inspection Date: 12/23/08 File No.: 12 Licensee: Nucletron Corporation Inspection Type: Reciprocity, Unannounced Inspection Date: 11/14/08 File No.: 13 Licensee: Elekta Inc. Inspection Type: Reciprocity, Unannounced Inspection Date: 12/23/08 File No.: 14 Licensee: Varian Medical Systems Inspection Type: Reciprocity, Unannounced Inspection Date: 4/16/09

License No.: 07-311 Priority: 2 Inspector: WY

License No.: 10-132 Priority: 2 Inspector: BG

License No.: 10-141 Priority: 3 Inspector: BG

License No.: 10-143 Priority: 5 Inspector: BG

License No.: 07-424 Priority: 2 Inspector: BG

License No.: MD 27-03501 Priority: 2 Inspector: BG

License No.: GA 1153-1 Priority: 2 Inspector: BG

License No.: NRC 45-30957-01 Priority: 3 Inspector: BG

File No.: 15 Licensee: Payson Regional Medical Center Inspection Type: Routine, Unannounced Inspection Date: 6/24/08

File No.: 16 Licensee: Canyon State Inspection Inspection Type: Special, Unannounced Inspection Date: 4/24/09

File No.: 17 Licensee: Phoenix National Laboratories, Inc. Inspection Type: Special, Unannounced Inspection Date: 2/26/10

File No.: 18 Licensee: Spectra Eye Institute Inspection Type: Routine, Unannounced Inspection Date: 5/7/08

File No.: 19 Licensee: Western Technologies, Inc. Inspection Type: Routine, Unannounced Inspection Date: 3/19/09

File No.: 20 Licensee: 21st Century Oncology of Arizona Inspection Type: Routine, Unannounced Inspection Date: 3/24/10

File No.: 21 Licensee: University Medical Center Corporation Inspection Type: Special, Unannounced Inspection Dates: 1/21-22/10

File No.: 22 Licensee: University Medical Center Corporation Inspection Type: Routine, Unannounced Inspection Dates: 5/19-22/08

File No.: 23 Licensee: Surgery Center of Gilbert Inspection Type: Routine, Unannounced Inspection Date: 6/3/09 License No.: 04-016 Priority: 3 Inspector: HS

License No.: 10-101 Priority: 1 Inspector: PK

License No.: 07-415 Priority: 1 Inspector: DK

License No.: 07-601 Priority: 3 Inspector: JS

License No.: 07-049 Priority: 1 Inspector: BG

License No.: 07-153 Priority: 2 Inspector: WY

License No.: 10-044 Priority: 2 Inspectors: BG, PK

License No.: 10-024 Priority: 2 Inspectors: BG, PK

License No.: 07-549 Priority: 3 Inspector: HS

File No.: 24 Licensee: Arizona Center for Cancer Care Inspection Type: Initial, Unannounced Inspection Date: 6/25/09

License No.: 07-606 Priority: 2 Inspector: BG

INSPECTOR ACCOMPANIMENTS

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

Accompaniment No.: 1 Licensee: Ironwood Cancer & Research Centers, PC Inspection Type: Initial, Unannounced Inspection Date: 3/1/10

Accompaniment No.: 2 Licensee: Banner Estrella Medical Center Inspection Type: Routine, Unannounced Inspection Date: 3/2/10

Accompaniment No.: 3 Licensee: AMEC Earth and Environmental, Inc. Inspection Type: Special, Unannounced Inspection Date: 3/3/10 License No.: 07-571 Priority: 2 Inspector: PK

License No.: 07-547 Priority: 3 Inspectors: DK

License No.: 07-369 Priority: 1 Inspectors: BG

APPENDIX F

LICENSING CASEWORK REVIEWS

NOTE: CASEWORK LISTED WITHOUT COMMENT IS INCLUDED FOR COMPLETENESS ONLY.

File No.: 1 Licensee: Board of Regents dba The University of Arizona Type of Action: Amendment Date Issued: 3/25/10

License No.: 10-24 Amendment No.: 77 License Reviewer: PK

Comment:

License conditions regarding authorized possession limits and financial assurance are contradictory. License review did not include determination of the financial assurance requirement for source and special nuclear material.

File No.: 2

Licensee: Board of Regents dba Arizona State University Type of Action: Amendment Date Issued: Not recorded License No.: 7-737 Amendment Nos.: 81 License Reviewer: PK

Comment:

License conditions regarding authorized possession limits and financial assurance are contradictory. License review did not include determination of the financial assurance requirement for source and special nuclear material.

File No.: 3 Licensee: Gateway Community College Type of Action: Renewal Date Issued: 7/16/09

File No.: 4 Licensee: Univ. Medical Ctr and Board of Regents dba Univ. of AZ Type of Action: Amendment Date Issued: 5/6/09 License No.: 7-464 Amendment No.: 05 License Reviewer: PK

License No.: 10-44

Amendment No.: 63 License Reviewer: PK

Comment:

License conditions regarding authorized possession limits and financial assurance are contradictory.

File No.: 5 Licensee: VHS of Phoenix, Inc. dba Phoenix Baptist Hospital & Med Ctr Type of Action: Amendment Date Issued: In progress

License No.: 7-146

Amendment No.: 63 License Reviewer: PK

File No.: 6 Licensee: Carondelet St. Joseph's Hospital Type of Actions: Amendments Dates Issued: 6/2/09, 8/19/09

Comment:

License authorized use of SirSpheres under 10 CFR 35.300 and not under 10 CFR 35.1000. Because the State has not yet adopted 10 CFR 35.1000, the Agency does not require the additional training and experience for authorized users described in 10 CFR 35.1000.

File No.: 7 Licensee: Flagstaff Medical Center Type of Action: Renewal Date Issued: Not recorded

License No.: 3-3 Amendment No.: 75 License Reviewer: PK

Comment:

Radioactive waste disposal by decay-in-storage is authorized by tie down; however, the application does not commit to any limitations on the half-life of the radioactive materials that will be disposed by this method.

File No.: 8 Licensee: Scottsdale Memorial Health Services Co., Inc. Type of Action: Amendment Date Issued: Not recorded

File No.: 9 Licensee: MD MED, Inc. Type of Action: Termination Date Issued: In progress

File No.: 10 Licensee: Banner Del E. Webb Medical Center Type of Action: Amendment Date Issued: 12/9/08 License No.: 7-265 Amendment No.: 72 License Reviewer: PK

License No.: 02-106 Amendment No.: 09 License Reviewer: PK

License No.: 7-324 Amendment No.: 47 License Reviewer: PK

File No.: 11 Licensee: Banner Health dba Banner Lakes Imaging Center Type of Action: Amendment Date Issued: 11/11/09

License No.: 7-539 Amendment No.: 05 License Reviewer: PK

Comment:

Decay-in-storage authorization does not limit the half-life of the radioactive materials that will be disposed in this manner; "group" material authorization is not restricted to radionuclides with short half-lives and would require financial assurance if restriction is not in place; no documentation was in the file regarding the reason that the material authorization was limited to an amount different from the licensee's request.

License No.: 10-40

Amendment Nos.: 75.76

License Reviewer: PK

File No.: 12 Licensee: Prescott Cardiology Type of Action: New Date Issued: 11/16/09

Comment:

RSO was authorized on the license without documentation of RSO credentials. No additional clarification was requested on discrepancy in licensee's application regarding use of dosimetry.

File No.: 13 Licensee: Red Rock Health Care LLC Type of Action: New Date Issued: 1/5/09

License No.: 4-023 Amendment No.: N/A License Reviewer: PK

License No.: 13-030

Amendment No.: N/A

License Reviewer: PK

Comment:

RSO was authorized on the license without documentation of RSO credentials. The licensee was incorrectly identified as a "known entity" on the pre-licensing checklist; no pre-licensing visit was conducted.

File No.: 14 Licensee: Advanced Medical Imaging System LLC Type of Action: Termination Date Issued: 1/9/10

License No.: 7-435 Amendment No.: 09 License Reviewer: PK

File Nos.: 15 Licensee: Yavapai Regional Medical Center Type of Actions: Amendment, Termination Dates Issued: 1/14/10, 2/10/10

Comment:

No documentation in file regarding amending this license to reflect new owner and new name when the licensee had requested that another license, No. 13-06, not this one, be amended to reflect the new information. Subsequently, the new owner submitted a request to amend license no.13-06 as originally requested and to terminate this license.

File No.: 16 Licensee: AZ Tech Radiology and Open MRI Type of Action: Amendment Date Issued: 2/6/09

File No.: 17 Licensee: Sonoran Heart, PC Type of Action: Amendment Date Issued: 12/3/09 License No.: 13-025 Amendment Nos.: 04, 05 License Reviewer: PK

> License No.: 11-024 Amendment No.: 04 License Reviewer: PK

> License No.: 7-603 Amendment No.: 01 License Reviewer: PK

File No.: 18 Licensee: Alliance Healthcare Services Inc. Type of Action: Amendment Date Issued: 1/13/10

File No.: 19 Licensee: Phoenix Children's Hospital Type of Action: Amendment Date Issued: 9/15/09

File No.: 20 Licensee: Medtronics Microelectronics Center Type of Action: New Date Issued: 2/2/10

Comment:

License reviewer did not request SSD sheet for tritium foils because the reviewer considers foils to be unsealed material; however, if foils are considered unsealed materials, this license, based on the maximum possession limit, would require financial assurance be provided.

File No.: 21 Licensee: Immunodiagnostic Systems Inc. Type of Action: Renewal Date Issued: 2/17/09

File No.: 22 Licensee: Arizona Department of Transportation Type of Action: Amendment Date Issued: Not recorded

Comment:

The license did not have any procedures tied down or a license condition prohibiting the licensee from possessing "risk significant quantities" at any one location on this portable gauge license.

File No.: 23 Licensee: Krazen and Associates Type of Action: Amendment Date Issued: 12/2/08

Comment:

The licensee requested Series 3241 gauges, but was authorized for only the Model 3241-C gauge. There was no documentation in the file regarding this decision.

License No.: 15-78 Amendment No.: 32 License Reviewer: PK

License No.: 7-505 Amendment No.: 11 License Reviewer: PK

License No.: 7-633 Amendment No.: N/A License Reviewer: PK

License No.: 7-521 Amendment No.: 03 License Reviewer: PK

License No.: 7-31 Amendment No.: 64 License Reviewer: PK

License No.: 7-560 Amendment No.: 01 License Reviewer: PK

File No.: 24 Licensee: American Soils Engineering LLC Type of Action: Termination Date Issued: 2/16/10

File No.: 25 Licensee: Staker and Parson Companies dba Western Rock Products Type of Action: Amendment Date Issued: Not recorded

File No.: 26 Licensee: Professional Service Industries Type of Action: Amendment Date Issued: 9/24/08

File No.: 27 Licensee: Acclaim Materials Testing and Inspections LLC Type of Action: Amendment Date Issued: 12/5/08

File No.: 28 Licensee: Team Industrial Services, Inc. Type of Action: Amendment Date Issued: 7/27/09

File No.: 29 Licensee: American Red Cross Blood Services Type of Action: Amendment Date Issued: 11/16/09

File No.: 30 Licensee: PETNET Solutions Inc. Type of Action: Amendment Date Issued: Not recorded

File No.: 31 Licensee: Cardinal Health 414 LLC Type of Action: Amendment, Renewal Date Issued: Not recorded, In progress

File No.: 32 Licensee: Patient Care Infusion LLC Type of Action: Amendment Date Issued: 6/10/09 License No.: 8-039 Amendment No.: 05 License Reviewer: PK

License No.: 15-74

Amendment No.: 04 License Reviewer: PK

License No.: 7-430 Amendment No.: 24 License Reviewer: PK

License No.: 8-042 Amendment No.: 1 License Reviewer: PK

License No.: 7-493 Amendment No.: 53 License Reviewer: PK

License No.: 10-143 Amendment No.: 08 License Reviewer: PK

License No.: 7-515 Amendment No.: 08 License Reviewer: PK

License No.: 8-036 Amendment Nos.: 03, 04 License Reviewer: PK

> License No.: 7-572 Amendment No.: 05 License Reviewer: PK

File No.: 33 Licensee: Medical Radiation Physics Inc. Type of Action: Termination Date Issued: 2/24/09

License No.: 7-553 Amendment No.: 01 License Reviewer: PK