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

May 16, 2014

Larry Wolk, M.D.
Executive Director and Chief Medical Officer
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, CO 80246-1530

Dear Dr. Wolk:

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, which documents the results of the Agreement State review held in Colorado on April 7-11, 2014. Mr. Jim Lynch was the team leader for the review. The review team's preliminary findings were discussed with you and other members of your staff on the last day of the review. The review team's proposed recommendations are that the Colorado Agreement State Program be found adequate to protect public health and safety but not compatible with NRC's program.

The NRC conducts periodic reviews of Agreement State programs to ensure that public health and safety are adequately protected from the potential hazards associated with the use of radioactive materials and that Agreement State programs are compatible with the NRC's program. The process, titled IMPEP, employs a team of NRC and Agreement State staff to assess Agreement States' and NRC Regional Offices' radioactive materials programs. All reviews use common criteria in the assessment and place primary emphasis on performance. Three additional areas applicable to your program were identified as non-common performance indicators and are also addressed in the assessment. The final determination of adequacy and compatibility of each Agreement State program, based on the review team's report, 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 draft team report for your review and comment prior to submitting the report to the MRB. Comments are requested 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 a proposed final report. Our preliminary scheduling places the Colorado MRB meeting on June 30, 2014. NRC will provide invitational travel for you or your designee to attend the MRB meeting at NRC Headquarters in Rockville, Maryland. The 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 video conference for the meeting.

If you have any questions regarding the enclosed report, please contact me at (301) 415-2598.

Thank you for your cooperation.

Sincerely,

/RA/

Duncan White, Chief
Agreement State Programs Branch
Division of Materials Safety and State Agreements
Office of Federal and State Materials
and Environmental Management Programs

Enclosure:
Colorado Draft IMPEP Report

cc: Gary Baughman, Director
Hazardous Materials & Waste Management Division

Steve Tarlton, Manager
Radiation Control Program

Jennifer Opila, Leader
Radioactive Materials Unit

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Distribution: (SP08)
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ML

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NAME	JLynch via email w/edits	LDimmick / mrb	DWhite via email w/edits
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INTEGRATED MATERIALS PERFORMANCE EVALUATION PROGRAM

REVIEW OF THE COLORADO AGREEMENT STATE PROGRAM

April 7-11, 2014

DRAFT REPORT

Enclosure

EXECUTIVE SUMMARY

This report presents the results of the Integrated Materials Performance Evaluation Program (IMPEP) review of the Colorado Agreement State Program. The review was conducted during the period of April 7-11, 2014, by a review team composed of technical staff members from the U.S. Nuclear Regulatory Commission (NRC), the State of Texas, and the Commonwealth of Pennsylvania.

Based on the results of this review, Colorado's performance was found satisfactory for seven of the eight performance indicators reviewed: Technical Staffing and Training, Status of Materials Inspection Program, Technical Quality of Inspections, Technical Quality of Licensing Actions, Technical Quality of Incident and Allegation Activities, Sealed Source and Device Evaluation Program, and Uranium Recovery Program were satisfactory. Compatibility Requirements was determined to be unsatisfactory.

The cause of the unsatisfactory finding in the compatibility indicator was due to a number of modifications to Colorado statutes which are not compatible with NRC requirements. The modifications were made by the State Legislature without concurrence by the Radiation Control Program. Efforts by the Program have thus far been unsuccessful in changing the statutes back to a compatible condition. The Program provided the review team with a proposed plan to make those corrections, as discussed in Section 4.1 of this report.

The review team did not make any recommendations and determined that the five recommendations from the 2010 IMPEP review should be closed. The review team also identified a Good Practice during the review, regarding the State’s implementation of the NRC’s Web Based Licensing program.

Accordingly, the review team recommends that the Colorado Agreement State Program be found adequate to protect public health and safety but not compatible with the NRC's program. The review team recommends that an early Periodic Meeting be scheduled in approximately one year to review progress on the statute revision, and that the next IMPEP review take place in approximately four years.

1.0 INTRODUCTION

This report presents the results of the review of the Colorado Agreement State Program. The review was conducted during the period of April 7-11, 2014, by a review team composed of technical staff members from the U.S. Nuclear Regulatory Commission (NRC), the State of Texas, and the Commonwealth of Pennsylvania. Team members are identified in Appendix A. The review was conducted in accordance with the "Implementation of the Integrated Materials Performance Evaluation Program and Rescission of Final General Statement of Policy," published in the *Federal Register* on October 16, 1997, and NRC Management Directive 5.6, "Integrated Materials Performance Evaluation Program (IMPEP)," dated February 26, 2004. Preliminary results of the review, which covered the period of April 17, 2010, to April 11, 2014, were discussed with Colorado managers on the last day of the review.

The Colorado Agreement State Program is administered by the Radiation Control Program (the Program). The Program is part of the Hazardous Materials & Waste Management Division, within the Department of Public Health and Environment (the Department). Organization charts for the Department and the Program are included in Appendix B.

At the time of the review, the Colorado Agreement State Program regulated approximately 332 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 the NRC and the State of Colorado.

In preparation for the review, a questionnaire addressing the common and applicable non-common performance indicators was sent to the Program on November 5, 2013. The Program provided its response to the questionnaire on March 24, 2014. A copy of the questionnaire response may be found in NRC's Agencywide Documents Access and Management System (ADAMS) using the Accession Number ML14083A644.

The review team's general approach for conduct of this review consisted of (1) examination of the Program's response to the questionnaire, (2) review of applicable Colorado statutes and regulations, (3) analysis of quantitative information from the Program's database, (4) technical review of selected regulatory actions, (5) field accompaniments of seven inspectors, and (6) interviews with staff and managers. The review team evaluated the information gathered against the established criteria for each common and applicable non-common performance indicator and made a preliminary assessment of the Colorado Agreement State Program's performance.

Section 2.0 of this report covers the State's actions in response to recommendations made during previous reviews. Results of the current review of the common performance indicators are presented in Section 3.0. Section 4.0 details the results of the review of the applicable non-common performance indicators, and Section 5.0 summarizes the review team's findings and recommendations. The review team's recommendations are comments that relate directly to program performance by the State.

2.0 STATUS OF ITEMS IDENTIFIED IN PREVIOUS REVIEWS

During the previous IMPEP review, which concluded on April 16, 2010, the review team made five recommendations in regard to program performance. The status of each recommendation is as follows:

1. "The review team recommends that the State develop and implement a policy and procedure for the handling, marking, transmitting, and storing of documents containing sensitive information. (Section 3.3) (Recommendation also applies to Sections 3.4 and 3.5)"

   Status: Shortly after the 2010 IMPEP review, the Program developed and implemented a policy and procedure to address this recommendation. The review team determined that files with sensitive information are being segregated, securely stored, handled and transmitted. The contents of these file are also being marked appropriately. This recommendation is closed.

2. "The review team recommends that the State evaluate its license termination and decommissioning processes to ensure that reviews are appropriate, thorough, and consistent. (Section 3.4 of the 2006 IMPEP Review) (Modified in 2010)"

   Status: The Program developed a procedure, "Procedure for Specific Radioactive Materials License Termination," for license termination and decommissioning processes. The Program fully implemented the procedure and conducted staff training in April 2012. The Program also made modifications to the termination application to ensure that licensees submit pertinent records required by State regulations. Additionally, the Program developed a new checklist, "Termination Checklist for Specific Radioactive Material Licenses." The review team evaluated termination licensing actions and verified that all the license reviewers were appropriately utilizing the termination and decommissioning procedure and new checklist. The licensing reviews were complete and adequately documented termination activities. The review team concluded that termination licensing actions were appropriate, thorough and consistent. This recommendation is closed.

3. "The review team recommends that the State develop and implement guidance that outlines the roles and responsibilities for staff and the expectations regarding record retention to ensure that the Program's files are complete and comprehensive. (Section 3.4) (Recommendation also applies to Sections 3.5 and 4.4.2)"

   Status: The Program transitioned to an electronic filing system and to the Nuclear Regulatory Commission's (NRC) Web-Based Licensing system in March 2014. The Program implementation of these systems will eliminate license files and improve record keeping capabilities. The Program conducted discussions with staff to increase emphasis on record retention. The review team identified that all licensing files evaluated were complete and comprehensive. This recommendation is closed.

4. "The review team recommends that the State review its implementation of the pre-licensing guidance to ensure that all of the essential elements of the guidance are consistently met. (Section 3.4)"

   Status: The Program revised its pre-licensing procedure and implemented the revisions and conducted staff training on the revisions in September 2010. A revision to the procedure included the development of a checklist to document the pre-licensing reviews. The Program's pre-licensing procedure parallels NRC's pre-licensing guidance and appropriately incorporates the essential elements to verify that the applicant will use requested radioactive materials as intended. The procedure requires license reviewers to conduct a pre-licensing site visit if it is determined that the applicant is an unknown entity. The review team determined that the license reviewers effectively use the checklist and pre-licensing procedure. Pre-license site-visits were conducted as required for unknown entities. This recommendation is closed.

5. "The review team recommends that the State establish a means to ensure that SS&D evaluations are appropriately documented and conducted with thoroughness; consistency with the current version of NUREG-1556, Volume 3; and adherence to existing guidance in product evaluations. (Section 4.2.2)"

   Status: The Program developed a procedure for SS&D safety evaluations. The review team determined that the Program has effectively implemented the procedure into the State's SS&D evaluation process and determined that the procedure adequately addresses the issues related to the recommendation. All of the issues raised during the last IMPEP review have been adequately resolved. This recommendation is closed.

3.0 COMMON PERFORMANCE INDICATORS

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

3.1 Technical Staffing and Training

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

The review team evaluated the Program's staffing and training as three individual components: the radioactive materials program, the sealed source and device evaluation program, and the uranium recovery program. This section of the report focuses on the radioactive materials program. Staffing and training for the sealed source and device evaluation program and uranium recovery program are discussed in Section 4.2.1 and Section 4.4.1, respectively. The Program Manager oversees all of the components that comprise the Colorado Agreement State

Program. The Program expends approximately 13 full-time equivalents to administer the Agreement State program.

The Radioactive Materials Unit (the Unit) is responsible for radioactive materials licensing, inspection, and emergency response activities. The Unit is composed of the Unit Leader, eight health physicists and one program assistant. The health physicists perform licensing and inspection activities, as well as respond to incidents and allegations. Additional oversight of the Unit is provided by two of the health physicists, one who functions as the compliance lead and another as the licensing lead.

At the time of the review, the Unit was fully staffed; however, one technical staff member has resigned and will be leaving the Unit on the last day of the review. Program management expects to fill that position by June 2014. During the review period, five individuals left the Program and five individuals were hired into the Program. The Program was able to manage the turnover during the review period by recruiting and retaining highly qualified and capable staff. The Program requires new hires to have a Master's degree or equivalent experience in a physical or biological science or engineering.

The Unit has a training and qualification program that is consistent in most respects with NRC Inspection Manual Chapter (IMC) 1248, "Qualification Programs for Federal and State Materials and Environmental Programs". Qualification for both inspection and licensing is achieved through a comprehensive combination of education and experience, formal classroom training, and on-the-job training. The inspection program has a documented qualification process which includes in part, the Unit Leader's signature when full qualification is achieved. The team noted that the licensing program does not have the same type of documented qualification process. Licensing qualification is achieved through a systematic assignment of work that increases in complexity with reviewer knowledge and experience, and involves close working interactions between the individual reviewer and the Licensing Lead. As noted in later sections of this report, the review team did not identify any performance issues that could be attributed to the Unit's lack of a formalized qualification process for licensing. The review team determined that the Unit has an adequate number of qualified inspectors and license reviewers for all active license types. The review team concluded that the Unit's staffing and training is adequate to carry out its regulatory duties.

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

3.2 Status of Materials Inspection Program

The review team focused on five factors while reviewing this indicator: inspection frequency, overdue inspections, initial inspections of new licenses, timely dispatch of inspection findings to licensees, and performance of reciprocity inspections. The review team's evaluation was based on the Program's questionnaire response relative to this indicator, data gathered from the Program's database, examination of completed inspection casework, and interviews with the Program managers and staff.

The review team's evaluation of the Program's inspection priorities verified that inspection frequencies for all types of Colorado material licenses are at the same frequency as those listed in NRC's IMC 2800, "Materials Inspection Program."

The Program conducted a total of 274 Priority 1, 2 and 3 inspections over the review period. The review team determined that none of these inspections were conducted overdue by more than 25 percent of the inspection frequency prescribed by IMC 2800. The review team did not identify any inspections that were overdue at the time of the review.

The review team also evaluated the Program's timeliness for conducting initial inspections. The review team noted that the Program conducted 48 initial inspections during the review period, of which none were conducted greater than 12 months after license issuance as prescribed by IMC 2800. The review team verified that there were no overdue initial inspections at the time of the review. Overall, the review team found that the Program did not complete any inspections overdue during the review period.

The review team evaluated the Program's timeliness in issuing inspection findings. The Program has a goal of communicating inspection findings to licensees within 30 days following completion of an inspection. The majority of inspection findings are communicated to the licensee using Colorado Form RCD-59, "Compliance Inspection Report," a form similar to NRC's Form 591, "Safety Inspection Report and Compliance Inspection." A completed form is typically issued on-site upon the completion of an inspection. The review team determined that, if a Colorado Form RCD-59 was not issued at the conclusion of the on-site inspection, a "Notice of Violation" was issued from the office within 30 days of the inspection. Of the 35 inspection files reviewed by the review team, all inspection findings were communicated within the 30-day goal.

The Program considers all companies that request to work in Colorado under reciprocity each calendar year to be candidates for inspection, which is more conservative than the guidance for identifying candidate reciprocity licensees in IMC 1220. The review team determined that the Program received requests for reciprocity from approximately 91 candidate reciprocity licensees, as defined in IMC 1220, over the review period. The review team determined that the Program exceeded the NRC's criteria of inspecting 20 percent of candidate licensees operating under reciprocity in each of the years covered by the review period.

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

3.3 Technical Quality of Inspections

The review team evaluated inspection reports, enforcement documentation, inspection field notes, and interviewed inspectors for 35 radioactive materials inspections conducted by the Program over the review period. The casework reviewed included inspections conducted by seven current and three former inspectors and covered various inspection types. These included academic broad scope, medical broad scope, high dose rate remote after-loader, permanent implant brachytherapy, industrial radiography, panoramic and self-shielded irradiators, gamma knife, nuclear pharmacy and reciprocity. Appendix C lists the inspection

casework files reviewed, with case specific comments, as well as the results of the inspector accompaniments.

Based on the evaluation of the casework, the review team noted that inspections covered all aspects of the licensee's radiation safety programs. The review team found that inspection reports were thorough, complete, consistent, and of high quality, with sufficient documentation to ensure that a licensee's performance with respect to health, safety and security was acceptable. The documentation supported violations, recommendations made to licensees, unresolved safety issues, and discussions held with licensees during exit interviews.

The inspection procedures utilized by the Program are equivalent to the inspection guidance outlined in IMC 2800. The majority of inspections findings are documented on a RCD 59 Form, which a copy is then left with the licensee at the conclusion of the inspection. Other inspection findings are routinely dispatched within 30 days of completing an inspection. The review team determined that the Program's inspection findings were prompt and appropriate, and regulatory actions were taken when necessary. Inspection findings were found to be clearly stated and documented in the reports.

The Program has a policy to accompany all staff performing radioactive materials inspections on an annual basis. All inspector accompaniments were performed annually during the review period except for two missed accompaniments in 2010 and one in 2011 due to a managerial transition. The accompaniment reports contained sufficient details to document the areas covered during the accompaniments.

The review team noted that the Program has an adequate supply of survey instruments to support the inspection program, as well as responding to incidents. Appropriate, calibrated survey instrumentation, such as Geiger-Mueller (GM) meters, scintillation detectors, ion chambers, micro-R meters, multi-channel analyzers and neutron detectors, were available. Instruments are calibrated at least annually, or as needed, by the manufacturer with National Institute of Standards and Technology traceable sources. The program tracks each instrument, its current location, and next calibration date.

Accompaniments of seven Program inspectors were conducted on February 4-6, 2014, March 10-11, 2014 and April 1, 2014. The Program inspectors were accompanied at a uranium recovery mill, an industrial radiography facility, a well logging site, an industrial gauge user, and a medical center that utilizes a high dose-rate remote afterloader. The inspector accompaniments are identified in Appendix C. During each of the accompaniments, the inspectors demonstrated appropriate inspection techniques, knowledge of the regulations, and conducted performance based inspections. The inspectors were trained, well-prepared for the inspection, and thorough in their audits of the licensees' radiation safety programs. The inspectors conducted interviews with appropriate personnel, observed licensed operations, conducted confirmatory measurements, and utilized good health physics practices. The inspections were adequate to assess radiological health, safety and security at each of the licensed facilities.

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

3.4 Technical Quality of Licensing Actions

The review team examined completed licensing casework and interviewed license reviewers for 23 specific licensing actions. Licensing actions were reviewed for completeness, consistency, proper radioisotopes and quantities, qualifications of authorized users, adequacy of facilities and equipment, adherence to good health physics practices, financial assurance, operating and emergency procedures, appropriateness of license conditions, increased controls and overall technical quality. The casework was 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, peer/supervisory review, and proper signatures.

The review team noted that the State of Colorado manages a comprehensive registry program for its generally licensed devices. The State provides each general licensee with an inventory and self-certification of compliance documents. The general licensees are required to return the documentation with a fee. All general licensees are required to register their devices annually with the State.

The licensing casework was selected to provide a representative sample of licensing actions completed during the review period. Licensing actions selected for evaluation included seven new licenses, three renewals, four decommissioning or termination actions and nine amendments. Files reviewed included a cross-section of license types, including broadscope medical, medical diagnostic and therapy, gamma knife, industrial radiography, nuclear pharmacy, research and development, accelerator production, gauges, well logging, and a manufacturer. The casework sample represented work from each of the Program's license reviewers. A listing of the licensing casework reviewed, with case-specific comments, is provided in Appendix D.

The Program instituted the use of the NRC’s Web Based Licensing (WBL) system and converted to a paperless system for document management in March 2014. The WBL system is an electronic system used to track assignment progress and completion of all licensing actions and inspections. The review team noted that Colorado is the first state to fully embrace the live WBL system. The review team identified this as a Good Practice by the State.

License actions are sent to the State e-mail box for processing. The License Lead is responsible for checking the e-mail box and initiating licensing actions into the WBL system. The License Lead assigns the license actions in WBL to individual license reviewers. If needed, a license reviewer can generate deficiency correspondence via email. The reviewer is responsible for uploading deficiency correspondence into the WBL system. Once deficiency items are resolved, the reviewer produces a draft licensing action. The draft licensing action and all backup correspondence is forwarded through WBL to the License lead for a second technical review and final approval and processing. All completed licensing actions are forwarded through WBL to the Unit Leader for a review, digital signature and issuance. Licenses are issued for a five year period under a timely renewal system.

The review team concluded that the licensing actions were of high technical quality, thorough, complete and consistent with the NRC's NUREG-1556 series guidance documents, the State's regulations and licensing procedures, and good health physics practices. License tie-down

conditions were stated clearly and were supported by information contained in the file. Deficiency letters clearly stated regulatory positions, were used at the appropriate time, and identified substantive deficiencies in the licensee's documents. The licensee's compliance history was taken into account during the review process. Health and safety issues were properly addressed and tie-down conditions were complete and enforceable. The review team evaluated the termination process and determined that the reviews were appropriate, thorough, and consistent. The termination actions were well documented showing appropriate transfer and survey records. The review team attributed the consistent use of templates and a secondary technical review to the overall quality noted in the casework reviews.

The review team assessed the Program's implementation of the pre-licensing guidance. The Program performs pre-licensing site visits of all new applicants. The Program's methods incorporate the essential elements of NRC's pre-licensing guidance to verify that the applicant will use requested radioactive materials as intended. The Program checks to ensure that applicants are registered with the Secretary of State's Office and in good standing prior to granting approval of any license. In addition, the Program uses various on-line search mechanisms and interagency communications to verify the identity of individuals. If a pre-licensing site visit is necessary, each applicant is subject to an on-site evaluation of their radiation safety and security programs prior to receipt of the initial license. Program reviewers effectively use the checklist to provide a basis for confidence that radioactive material will be used as specified on a license and the checklist for risk-significant radioactive materials.

The review team examined the Program's licensing practices in regards to the Increased Controls, Fingerprinting, and National Source Tracking System (NSTS) requirements. The review team noted that the Unit added legally binding license conditions to the licenses that met the criteria for implementing the Increased Controls, Fingerprinting, and NSTS requirements, as appropriate. The review team analyzed the Program's methodology for identifying those licenses and found the rationale was thorough and accurate. The review team confirmed that the Program has a process in place for identifying new and amended licenses that meet the criteria to implement the Increased Controls.

The review team examined the Program's procedures for the control of sensitive information. The Program procedure addressed the identification, marking, control, handling, and preparation of documents that contained sensitive information related to the Increased Controls. The review team concluded that files that contained sensitive information were appropriately identified and secured.

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

3.5 Technical Quality of Incident and Allegation Activities

In evaluating the effectiveness of the Program's actions in responding to incidents and allegations, the review team examined the Program's response to the questionnaire relative to this indicator, evaluated selected incidents reported for Colorado in the Nuclear Material Events Database (NMED) against those contained in the Program's files, and evaluated the casework for 20 radioactive materials incidents. A listing of the casework examined, with case-specific

comments, can be found in Appendix E. The review team also evaluated the Program's response to 16 allegations involving radioactive materials, including 3 that the NRC referred to the State during the review period.

The review team identified 41 radioactive material incidents in NMED for Colorado during the review period. Twelve non-reportable incidents in NMED were also reviewed for reporting and found to be correctly categorized as non-reportable by the Program. The review team selected 20 reportable radioactive material incidents for evaluation. These incidents included the following types of events: lost and stolen radioactive material, overexposures, medical events, equipment failure, damaged equipment, leaking sources, and contamination. The Program's responses to the incidents were found to be complete and comprehensive, and the level of effort was commensurate with the potential health and safety significance of the event. Inspectors were dispatched for onsite investigations when appropriate. Colorado places a high priority on on-site responses as evidenced by an on-site response in 13 of the 20 incidents evaluated during this review. Enforcement and other regulatory actions were taken as appropriate, including the issuance of large civil penalties. If the incident met the reporting thresholds, as established in the Office of Federal and State Materials and Environmental Management Programs (FSME) Procedure SA-300 "Reporting Material Events," the State notified the NRC Headquarters Operations Center and entered the information into NMED, in a prompt manner.

During the review period, the Program updated incident response guidance to specifically address different types of potential incidents. Implicit in the guidance is the Program management's message that on-site investigations should be the default response unless there is a compelling reason to not do so.

In evaluating the effectiveness of the Program's response to allegations, the review team evaluated the completed casework for 16 allegations, including 3 that the NRC referred to the State during the review period. The review team concluded that the Program took prompt and appropriate actions in response to concerns raised. The review team noted that the Program documented the investigations of concerns and retained all necessary documentation to appropriately close the allegations. The Program notified the concerned individuals of the conclusion of their investigations. The review team determined that the Program adequately protected the identity of concerned individuals.

Based on the IMPEP evaluation criteria, the review team recommends that Colorado's performance with respect to the indicator, Technical Quality of Incident and Allegation Activities, be found satisfactory.

4.0 NON-COMMON PERFORMANCE INDICATORS

Four non-common performance indicators are used to review Agreement State Programs: (1) Compatibility Requirements, (2) Sealed Source and Device Evaluation Program, (3) Low-level Radioactive Waste Disposal Program, and (4) Uranium Recovery Program. All four non-common performance indicators applied to this review.

4.1 Compatibility Requirements

4.1.1 Legislation

The Department is authorized as the State's radiation control agency under the Colorado Revised Statutes Title 25, Article 11 (the Radiation Control Act). The Radiation Control Act provides the authority for the Program, consistent with the State Agreement. The Radiation Control Act also gives the Department specific powers and duties among which are authorities to promulgate regulations, issue licenses, perform inspections, collect fees, and issue civil penalties. Changes made to Colorado statutes in recent years have resulted in significant differences with the NRC requirements. Those issues are discussed in the next section.

4.1.2 Program Elements Required for Compatibility

The review team examined the procedures used in the Program's regulation promulgation process. The Program drafts all proposed rules and obtains Department approval to submit the proposed rules to the Radiation Advisory Committee (the Committee) and the affected community for preliminary review and comments. During this time, the Program provides the NRC a draft of the rules for a compatibility review. Once the preliminary comments from the Committee, the NRC, and the affected community are received, the Program requests a public hearing with the State's Board of Health (the Board) to formally present and discuss the proposed rules. Once a hearing date is established, the Board issues a notice requesting public comments on the proposed rules. The comment period lasts 60 days, at the end of which, the hearing is held. The Program and the Committee will meet, if necessary, before the hearing to address any changes considered necessary as a result of comments received during the comment period. Once the Board approves the new rule, it goes into effect two months after the hearing. On average, the State can promulgate final effective regulations in four to six months, depending on the resolution of comments received during the various comment periods. The Program's rules and regulations are exempt from the State's "sunset" law.

During the review period, Colorado completed 13 regulation packages, 6 of which were overdue at the time of their completion. NRC policy requires that Agreement States adopt certain equivalent regulations or legally binding requirements no later than 3 years after the effective date of NRC's regulations. The review team identified two currently overdue regulation amendments that the State will need to address NRC comments in future rulemakings or by the adoption of alternate legally binding requirements:

- "Compatibility With IAEA Transportation Safety Standards and Other Transportation Safety Amendments," 10 CFR Part 71 amendment (69 FR 3697), that was due for Agreement State adoption by October 1, 2007.
- "Medical Use of Byproduct Material – Authorized User Clarification," 10 CFR Part 35 amendment (74 FR 33901), that was due for Agreement State adoption by September 28, 2012.

At the time of the review, the Program was in the process of addressing all overdue and upcoming regulation amendments. The Program had several rulemaking packages at various stages in its rule promulgation process that will address these regulation amendments.

A complete list of regulation amendments can be found on the NRC website at the following address: http://nrc-stp.ornl.gov/rss_regamendents.html.

"In 2010 and 2011, individuals raised concerns regarding Colorado's process for public participation during licensing decisions relating to uranium recovery operations. In particular, the concerns were that Colorado did not provide for a notice and opportunity for public comment on proposed 11e.(2) byproduct material licenses or license amendments, provide for a public hearing, and make the Agreement State's environmental analysis of the proposed licensing action available to the public prior to such notice and public comment opportunities. As a result of discussions with State officials on the requirements of the relevant Colorado statutes and regulations, NRC staff determined, and the Program agreed, that the State, in its promulgation and implementation of its regulations needed to clearly provide public notice of an opportunity for the public to submit comments and participate in a public hearing regarding uranium licensing actions potentially impacting the environment. For the one site licensed for uranium recovery during the review period, Colorado provided the opportunity for a public hearing regarding the issuance of the new license and Environmental Impact Analysis for the Piñon Ridge Uranium Mill. Public hearings were held in late 2012".

In January 2014, external stakeholders indicated their intent to propose changes to the Radiation Control Act and changes to those areas impacting uranium and thorium processing facilities. As a result, the Program has been limited in its ability to address prior NRC comments on legislative changes and proposed revisions to the Radiation Control Act. The staff is continuing to work with department management and legislative liaison personnel with the intent of addressing prior NRC comments.

On October 24, 2011, the NRC provided comments on the Radiation Control Act legislative changes contained in statutes 25-11-101 through 25-11-305 sent to the NRC in April 2011. The NRC's comments were related to authority provided to the Department under the 274b agreement with the NRC. These comments remain, as the Program has been stymied in its attempt to get legislation passed that would resolve the issues raised by the NRC.

On January 14, 2014, the NRC provided comments to the proposed revisions to the final Colorado Rules and Regulations Pertaining to Radiation Control, 6 CCR 1007-1, Part 18, "Licensing Requirements for Uranium and Thorium Processing," received by the NRC on November 8, 2013. These comments addressed issues including those relating to Colorado's hearing requirements and the need for Colorado to be able to provide a notice of opportunity for a public hearing with cross examination after the State's environmental assessment has been made available to the public.

The following seven issues, involving Colorado statutes, need to be resolved in order for Colorado to be compatible with the NRC's program:

1. "**Radioactive waste" definition**

   In 25-11-201-(3), Colorado Revised Statutes, Colorado defines the term "Radioactive waste" which appears to encompass both high level and low-level radioactive waste. By defining this term in this manner, there appears to be duplication of regulatory authority with the inclusion of material not covered by the 274b agreement with Colorado and

reserved to the NRC. Colorado does not have a specific definition for low-level radioactive waste, but does have a definition for waste found in Colorado regulations, which does meet the Compatibility Category B designation associated with the definition of "waste" in 10 CFR 61.2.

The definition of "Radioactive Waste" in 25-11-201-(3) needs to be revised to meet the Compatibility Category B designation assigned to the definition of "waste" in 10 CFR 61.2.

2. "Classified material" definition

In 25-11-201-(1), Colorado defines a term "classified material" which is not used in the NRC regulation scheme. This definition appears to cause conflicts as it groups 11e.(2) material with the other materials that do not need to meet the additional requirements for 11e.(2) byproduct material under Uranium Mill Tailings Radiation Control Act and Part 40. Although Part 2, "Radioactive Waste", 25-11-201 to 25-11-203, appears to apply to radioactive material, the rest of Part 2 appears to mix the terms radioactive waste with classified material as it lays out requirements for both low-level radioactive waste and uranium recovery facilities.

The definition of "classified material" in 25-11-201-(1) must be removed and the legislation must be revised and restructured to clearly incorporate the appropriate definitions and requirements that Colorado is responsible for under the Section 274b Agreement.

3. "Radioactive" definitions

Colorado has two definitions for the term "radioactive." In 25-11-101(5), the definition means "emitting radiation." In 25-11-201(2), the definition means "*emitting alpha rays, beta rays, gamma rays, high-energy neutrons or protons, or other high-level radioactive particles. The term "radioactive" does not include material in which the estimated specific activity is not greater than .002 microcurie per gram of material, and in which the radioactivity is essentially uniformly distributed.*"

The last sentence of the second definition is inconsistent with the responsibilities and authority assumed by the State of Colorado under the 274b Agreement and appears to create a gap in the orderly pattern of regulations on a nationwide basis. The second definition needs to be either revised or removed.

4. Terms are not defined in legislation

In 25-11-101 and 25-11-201, Colorado does not define byproduct, source or special nuclear material, although these terms are defined in Colorado regulations and meet the compatibility category designations assigned to them.

Colorado needs to add these definitions to the legislation to clarify the materials covered by the Agreement.

5. Provisional licenses

In 25-11-109, Colorado's legislation permits the issuance of a provisional license by the Department. The provisional license is issued if the Department has failed to issue or has denied a request for a license, or an amendment thereto, as authorized by 25-11-109, within 30 days of the date of receipt by the Department of a completed application made on the appropriate forms designated by the Department to a hospital as licensed or certified pursuant to section 25-1.5(1)(a)(I) and (1)(a)(II). These provisional licenses can be in effect for up to 180 days and apply only to licensed or certified hospitals when the purpose is to acquire, possess, and use radioactive material for diagnostic or therapeutic human use.

This is contrary to the requirement to issue licenses that have addressed health and safety requirements in the regulations and affects the adequacy of the State's program under 274b. This provision needs to be removed from the legislation.

6. Financial surety calculations

In 25-11-110(4)(d), Colorado requires that the amount of a long-term care warranty shall be enough that, with the assumed six percent annual real interest rate, the annual interest earning will be sufficient to cover the annual costs of site surveillance by the Department, including reasonable administrative costs incurred by the Department, in perpetuity, subsequent to the termination of the radioactive materials license for that site.

This is less restrictive than the provision in Part 40, Appendix A, Criterion 10, which assumes a one percent annual real interest. The six percent annual real interest rate will greatly underestimate the amount of funding necessary for the long term surveillance necessary to meet the Compatibility Category C designation assigned to Part 40, Appendix A, Criterion 10. The annual real interest rate needs to be changed to one percent.

7. Hearing Requirements

Colorado must adopt a public hearing process in its statutes and regulations that is comparable to the NRC requirements. This process must avoid conflicts, duplications or gaps in the oversight of uranium recovery facilities throughout the country.

During the review, the review team asked Colorado management for "a path forward" to resolve the statutory compatibility issues. In response, on April 17, 2014, Colorado sent a letter to the NRC indicating that the Colorado Department of Public Health and Environment has obtained permission from the Governor's Office to conduct a stakeholder process in the summer of 2014 to address incompatible sections of the Radiation Control Act. Further, the letter indicated that this process would lead to the submission of statutory language changes in the legislative session starting in January 2015 that would bring the statute into compatibility with NRC requirements.

Based on the IMPEP evaluation criteria, the review team recommends that Colorado's performance with respect to the indicator, Compatibility Requirements, be found unsatisfactory.

4.2 Sealed Source and Device Evaluation Program

In reviewing this indicator, the review team used three subelements to evaluate the Program's performance regarding the Sealed Source and Device (SS&D) evaluation program. These subelements were (1) Technical Staffing and Training, (2) Technical Quality of the Product Evaluation Program, and (3) Evaluation of Defects and Incidents Regarding SS&Ds.

In assessing the State SS&D evaluation activities, the review team examined the information provided in response to the IMPEP questionnaire and evaluated the SS&D registry sheets and supporting documents processed during the review period. The team also interviewed the staff currently conducting SS&D evaluations.

4.2.1. Technical Staffing and Training

The SS&D evaluation responsibilities are distributed between license evaluators who are fully qualified to perform SS&D evaluations. Since the last review, three individuals have been trained to perform SS&D evaluations and have attended the NRC's SS&D Workshop. During the review period, one of the fully qualified SS&D evaluators left the program.

At the time of the review, the Program had eight reviewers who are qualified to perform safety evaluations of SS&D applications. The review team interviewed staff members involved in the reviews and determined that they were familiar with the procedures used in the evaluation of a source/device and had access to applicable reference documents. The review team determined that the Program's staffing and training with respect to SS&D evaluations is adequate, based on the Program's SS&D workload.

4.2.2 Technical Quality of the Product Evaluation Program

During the review period, the Program conducted no new evaluations, issued 5 amendments to existing registrations, and inactivated 54 registrations. The review team evaluated 17 of the 59 SS&D actions. The selected casework represented the work of four of the individuals involved with SS&D evaluations during the review period. During the review, the Program compiled an updated list of registrations and determined that there are currently four active SS&D registrations in the State of Colorado. A list of SS&D casework examined can be found in Appendix F.

In assessing the Program's SS&D evaluation activities, the review team examined information contained in the Program's response to the IMPEP questionnaire for this indicator, evaluated casework, and interviewed program staff and managers. The review team verified that the Program's SS&D reviewers had access to the guidance in NRC's SS&D workshop; NUREG-1556, Volume 3, Revision 1; had applicable and pertinent American National Standards Institute standards, when conducting SS&D evaluations. The review team found that these documents were generally used and followed during SS&D reviews.

4.2.3 Evaluation of Defects and Incidents Regarding SS&Ds

No incidents related to SS&D defects involving sources or devices registered by the State of Colorado were reported during the review period. Utilizing NMED, the review team

determined that there were no incidents involving SS&D registered products reported during the review period. Incident procedures are in place should an SS&D-related incident occur. The Program is aware of the need to review such incidents as potentially generic in nature with possible wide-ranging effects.

Based on the IMPEP evaluation criteria, the review team recommends that Colorado's performance with respect to the indicator, Sealed Source and Device Evaluation Program, be found satisfactory.

4.3 Low-level Radioactive Waste Disposal Program

In 1981, the NRC amended its Policy Statement, "Criteria for Guidance of States and NRC in Discontinuance of NRC Authority and Assumption Thereof by states Through Agreement," to allow a State to seek an amendment for the regulation of low-level radioactive waste (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 Colorado Agreement State Program has authority to regulate a LLRW disposal facility, the NRC has not required States to have a program for licensing a disposal facility until such time as the State has been designated as a host State for a LLRW disposal facility. When an Agreement State has been notified or becomes aware of the need to regulate a LLRW disposal facility, it is expected to put in place a regulatory program that will meet the criteria for an adequate and compatible LLRW program. There are no plans for a commercial LLRW disposal facility in Colorado. Accordingly, the review team did not review this indicator.

4.4 Uranium Recovery Program

In reviewing this indicator, the review team used five subelements to evaluate the Program's performance regarding the uranium recovery program. These subelements were (1) Technical Staffing and Training, (2) Status of the Uranium Recovery Inspection Program, (3) Technical Quality of Inspections, (4) Technical Quality of Licensing Actions, and (5) Technical Quality of Incident and Allegation Activities.

During the review period, Colorado's uranium recovery program regulated eight licensees under State regulations in Part 18, "Milling of Uranium, Thorium and Related Radioactive Materials" and under Part 3, "Licensing of Radioactive Material." The uranium recovery program manages one additional site, the George E. Davis Mill, for decommissioning activities that were formerly licensed by the NRC's Grant Program.

The uranium recovery program manages the following uranium recovery sites:

1. Energy Fuels Resources Piñon Ridge Mill
2. Cotter Corporation Cañon City Mill
3. UMETCO Uravan Mill
4. Hecla Durita Mill
5. Sweeney Mill
6. George E. Davis Mill

The uranium recovery program manages the following uranium decay chain contamination sites:

7. Cotter Corporation Schwartzwalder Mine
8. Colorado School of Mines Creekside
9. Colorado School of Mines Research Institute Table Mountain Research Center

There were no operational facilities in the State at the time of the review. All of the facilities listed above were in standby, storage-only or decommissioning status. During the review period, the uranium recovery program issued a license for the Energy Fuels Resources Piñon Ridge conventional uranium mill. The Cotter Corporation Cañon City Mill is in closure status. The Program has been instructed by the Colorado Governor's office not to address additional decommissioning activities outside of the CERCLA process. Decommissioning at the UMETCO Uravan Mill has been completed and is awaiting finalization of the Completion Report Review by the NRC and the Department of Energy, and the NRC decisions on transfer boundaries for license termination. The Hecla Durita Mill has been decommissioned and is awaiting the NRC review and decision. The Sweeney Mill is closed and stable with no funding available. The Cotter Corporation Schwartzwalder Mine is a former uranium mine site and is being remediated by removing uranium from groundwater. The license for the Colorado School of Mines Research Institute Creekside and a second Cotter Corporation Schwartzwalder Mine license were terminated. The Colorado School of Mines Research Institute Table Mountain Research Center is in decommissioning status and stable with no funding available.

4.4.1 Technical Staffing and Training

In reviewing this subelement, the review team considered staffing level, technical qualifications of the staff, staff training, and staff turnover.

At the time of the review, the uranium recovery program had two technical staff members (approximately 1.5 FTE total) who perform the vast majority of the project management, inspections, and licensing action reviews for Colorado's uranium recovery program. The uranium recovery program staff has training in physics, health physics, geology/geophysics, and inspection procedures. They also receive annual facility safety refresher training and attend NRC, Environmental Protection Agency (EPA) and Department of Energy technical training courses and webinars.

The uranium recovery program also has access to individuals from within the Program and others in the Hazardous Materials and Waste Management Division, and the Department, for technical support. The uranium recovery program staff indicated that Divisional geotechnical and process engineers assisted with the Energy Fuels Resources Piñon Ridge review. The uranium recovery program has contracts with consulting firms to assist with construction inspections, site characterization reviews, and remedial proposals, as needed.

One individual resigned from the uranium recovery program during the review period. That individual was replaced and there are no vacancies in the uranium recovery program. The other uranium recovery program staff member was assigned to mentor, assist in training and transfer knowledge of the uranium recovery program to the new staff member.

The two uranium recovery program technical staff members demonstrated thorough understanding of State regulations and the NRC guidance related to uranium recovery. Uranium recovery program technical staff developed a Training Packet for Uranium Mill Licensing. The packet contains a table containing the name of the guidance documents and their applicability to uranium mill licensing. The NRC NUREGs, standard review plans, regulatory guides, and interim staff guidance was listed in the table. The training packet also contained an outline of the content summary for a conventional mill application and an outline of the applicable regulations and guidance used for each area of review.

The uranium recovery program has a training matrix titled, "Suggested Background and Experience for Certified Uranium Mill Inspectors for Radiation Safety" that is contained within the "Inspection Procedure for Uranium Recovery Facilities." The training matrix and certification program in the Inspection Procedure contained subheadings for Training, Knowledge, Experience and Inspection Accompaniment. The inspector certification process was similar, but not as detailed, as the NRC's formal qualification program found in IMC 1248.

The review team determined that the Program's staffing levels and qualifications for the uranium recovery program were adequate for the Program's workload at the time of the review. Staff was well balanced between inspectors, reviewers, and management.

4.4.2 Status of the Uranium Recovery Inspection Program

The review team focused on several factors in evaluating this subelement, including inspection frequency, overdue inspections, and timely issuance of inspection reports and findings to licensees. The review team's evaluation is based on the Program's response to the questionnaire relative to this indicator, the Uranium Mills program inspection schedule, inspection casework files, and interviews with inspection staff and management.

The review team determined that the uranium inspection frequencies were consistent with IMC 2801, "Uranium Mill and 11e.(2) Byproduct Material Disposal Site and Facility Inspection Program."

The Program performed 21 inspections (including one initial inspection) during the review period at licensed uranium mill/mine sites representing a range of activities in various stages of license operations. In addition, the Program conducted groundwater sampling and reviewed groundwater and progress reports submitted by licensees.

The review team identified that two uranium recovery inspections were conducted overdue, by five and six months, respectively. Three instances of late reports to licensees were also noted, sent from 56 to 129 days after the inspection. Although not all inspections were completed in a timely manner or had inspection results conveyed to the licensee in a timely manner, the review team determined that the Program's inspection program is performance based and adequate. A listing of the inspection casework reviewed can be found in Appendix C.

4.4.3 Technical Quality of Inspections

In reviewing this subelement, the review team examined inspection reports for 21 inspections conducted by the Program during the review period and accompanied two inspectors at a licensed uranium mill site. The review of records represented a range of uranium recovery inspection activities in different stages of license operations. There was no enforcement action for the period of review. A listing of the inspection files reviewed and the inspectors' accompaniments can be found in Appendix C.

The uranium recovery inspectors followed the Program's inspection manual (revised 12/26/13) for conducting inspections. The Program has inspection procedures specific to the uranium recovery program. Inspectors use checklists and/or memoranda to document inspections. The review team found that the inspection reports provided appropriate depth of coverage, addressed license conditions and the regulations, and demonstrated that the inspectors pursued corrective actions for items of noncompliance that were identified. Inspection files contained photographs documenting both general facility features and items of interest or concerns. The inspectors focused on health physics and radiation safety issues. They also addressed environmental monitoring, groundwater observation and sampling, laboratory inspections and procedures, licensee management structure and organizational issues.

The Program's records indicated that supervisor accompaniments of the inspectors were performed during the review period. The accompaniment documentation contained comments on inspector performance and appeared to provide a sufficient evaluation for each inspector. The review team noted that accompaniments were not performed in 2010 or 2011, and that Program managers identified this failure and have conducted staff accompaniments since.

On February 4, 2014, three members of the review team accompanied two uranium recovery program inspectors during an inspection of the Cotter Mill facility. The review team noted that the inspectors did not carry a radiation survey instrument during the inspection. The inspectors stated that this was an oversight, and that the usual inspection practice at a uranium mill facility included independent and confirmatory surveys. The review team's analysis of other inspection reports identified the consistent use of survey instruments during uranium recovery inspections.

4.4.4 Technical Quality of Licensing Actions

For this subelement, the review team examined files and associated documentation related to licensing conventional uranium recovery mill facilities and other facilities licensed and regulated by the uranium recovery program. Appendix D lists the 17 licensing files reviewed. The licensing actions during the review period consisted of the licensing of a new conventional uranium mill application, license renewals, various amendments, decommissioning plans, annual financial assurance updates, compliance monitoring, and post-decommissioning monitoring for groundwater compliance. The uranium recovery program reported over 250 licensing actions completed during the review period. The review team interviewed management and staff members about the status of each regulated uranium recovery program site. Management and staff were knowledgeable and understood the technical details and conditions existing at each site.

The uranium recovery program staff has a review procedure and checklist for licensing reviews. The review team found that each incoming request, report, or other action was assigned a docket number. Each action docketed and reviewed was accompanied by a letter responding to the licensee. Each licensee response letter was tracked using the docket number in an electronic database and all response letters reviewed by the review team contained secondary technical or management review and approval. The uranium recovery program also uses a licensing template for new licenses.

A large portion of the licensing actions consisted of document reviews for one licensee, the Cotter Corporation Cañon City Mill. The review team evaluated several actions related to this site. During the review period, the uranium recovery program has denied several requests by the licensee to perform decommissioning-type activities and reviews related to evaporation pond design, tailings impoundment design, and ore pad removal. The Program indicated in its denial letters that future site characterization, remediation, decommissioning and reclamation of this site will occur as part of the road map process established in May 2013. The review team was informed that the Colorado Governor's office had placed a work pause on Cañon City Mill work-related activities in March 2012. Since the Cañon City Mill is also a Superfund site, the State, EPA, and licensee continue to negotiate an agreement on cleanup at the site using the CERCLA decision-making process. All required monitoring and reporting continue for the Cañon City Mill. The review team asked the uranium recovery program staff if the pause in work-related activities due to direction from the Governor's office or the CERCLA decision making process has led to any health, safety or environmental issues at the site. Staff indicated that the work pause and on-going negotiations had not caused any health, safety or environmental issues at the site at this time.

The review team evaluated the Decision Analysis and the license for the Energy Fuels Resources Piñon Ridge conventional mill. The Piñon Ridge Decision Analysis document contained a thorough evaluation of the application and contained regulatory and guidance citations and a basis for the staff's licensing decision. The basis and regulatory citations were outlined in the Decision Analysis for each subelement in the review, including Proposed Milling Facility, Environmental Baseline, Effluent and Environmental Measurements and Monitoring Program, Ground Water and Surface Water Monitoring Program, and Decommissioning (slope stability, impoundment design, settlement, liquefaction potential, long-term stability, disposal cell cover design, cell engineering parameters, final cover water balance, flood potential, disposal cell material selection). The uranium recovery program utilized a geologist/hydrogeologist, health physicist, process engineer, geotechnical engineer, and environmental protection specialist (meteorology) to complete the technical review. The uranium recovery program utilized the Department of Natural Resources and the State Historic Preservation Office to complete the environmental review. The review team evaluated the Piñon Ridge license and found that license conditions were clearly stated and inspectable.

The files evaluated by the review team were complete, consistent and of acceptable quality. Based on the casework evaluated, the review team concluded that the licensing actions were of high technical quality and were consistent with Program procedures and State regulations and were protective of public health, safety, and the environment.

4.4.5 Technical Quality of Incident and Allegation Activities

The uranium recovery program did not report any incidents; nor did the review team identify any during casework reviews or inspector accompaniments. The NRC referred two allegations to the State during the review period. Based on Colorado's interactions with the NRC regarding the allegations, the review team concluded that the Program took prompt and appropriate actions in response to the concerns raised. The review team found that the Program has appropriate procedures in place for handling incidents and allegations.

Based on the IMPEP evaluation criteria, the review team recommends that Colorado's performance with respect to the indicator, Uranium Recovery Program, be found satisfactory.

5.0 SUMMARY

As noted in Sections 3.0 and 4.0, Colorado's performance was found satisfactory for seven of the eight performance indicators. The Compatibility Requirements indicator was found to be unsatisfactory, based on legislative changes made to Colorado statutes. The review team did not make any recommendations regarding program performance by the State. A Good Practice was noted regarding Colorado's implementation of the NRC's Web Based Licensing program.

Overall, the review team recommends that the Colorado Agreement State Program is adequate to protect public health and safety. The review team also recommends that Colorado be found not compatible with NRC's program, due to significant changes made to State statutes. Based on the results of the current IMPEP review, the review team recommends that the next full IMPEP review take place in approximately 4 years. The review team also recommends that an early Periodic Meeting be scheduled one year from this review to monitor the State's progress in resolving the statutory differences.

LIST OF APPENDICES

APPENDIX A

IMPEP REVIEW TEAM MEMBERS

Name	**Area of Responsibility**
Jim Lynch, Region III	Team Leader Technical Quality of Incident and Allegation Activities Inspector Accompaniments
Randy Erickson, Region IV	Technical Staffing and Training Status of Materials Inspection Program Inspector Accompaniments
Dwight Shearer, Pennsylvania	Technical Quality of Inspections
Cassandra Frazier, Region III	Technical Quality of Licensing Actions
Stephen Poy, FSME	Compatibility Requirements Sealed Source and Device Evaluation Program
Ron Linton, FSME	Uranium Recovery Program Inspector Accompaniments
Muhammadali Abbaszadeh, Texas	Uranium Recovery Program Inspector Accompaniments

APPENDIX B

COLORADO ORGANIZATION CHARTS

ADAMS ACCESSION NO.: ML14083A641

APPENDIX C

INSPECTION CASEWORK REVIEWS

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

File No.: 1
Licensee: Exempla Healthcare / Lutheran Medical Center — License No.: 227-01
Inspection Type: Routine, Announced — Priority: 2
Inspection Date: 4/1/14 — Inspector: JJ

File No.: 2
Licensee: KRW Consulting, Inc. — License No.: 976-01
Inspection Type: Routine, Announced — Priority: 5
Inspection Date: 4/25/13 — Inspector: SW

File No.: 3
Licensee: Halliburton Energy Services, Inc. — License No.: 120-01
Inspection Type: Routine, Announced — Priority: 3
Inspection Date: 4/17/13 — Inspectors: ES, PP

File No.: 4
Licensee: High Mountain Inspection Services — License No.: 1042-01
Inspection Type: Routine, Announced — Priority: 1
Inspection Date: 4/8/13 — Inspectors: CR, CE

File No.: 5
Licensee: Cardinal Health — License No.: 392-03
Inspection Type: Routine, Announced — Priority: 2
Inspection Date: 9/19/13 — Inspector: MB

File No.: 6
Licensee: Bowie Resources — License No.: 1017-01
Inspection Type: Routine, Announced — Priority: 5
Inspection Date: 3/21/13 — Inspector: JJ

File No.: 7
Licensee: Environmental Resource Associates — License No.: 1046-01
Inspection Type: Routine, Announced — Priority: 5
Inspection Date: 6/27/13 — Inspector: CR

File No.: 8
Licensee: Red Rocks Imaging Center — License No.: 1181-01
Inspection Type: Routine, Announced — Priority: 5
Inspection Date: 11/25/13 — Inspector: CH

File No.: 9
Licensee: Pasha Environmental Services, LLC — License No.: 1220-01
Inspection Type: Routine, Initial — Priority: D
Inspection Date: 6/27/13 — Inspectors: EE, SW

File No.: 10
Licensee: Boulder Community Hospital — License No.: 262-01
Inspection Type: Routine, Unannounced — Priority: 2
Inspection Date: 4/3/13 — Inspectors: PP, MB

File No.: 11
Licensee: Lambert and Associates — License No.: 556-01
Inspection Type: Routine, Announced — Priority: 5
Inspection Date: 4/22/13 — Inspectors: PE, MD

File No.: 12
Licensee: Shannon & Wilson, Inc. — License No.: 1119-01
Inspection Type: Routine, Announced — Priority: 5
Inspection Date: 5/10/11 — Inspector: PC

File No.: 13
Licensee: NuQuest, Inc. — License No.: 1022-01
Inspection Type: Routine, Announced — Priority: 2
Inspection Date: 4/25/13 — Inspectors: PP, MD

File No.: 14
Licensee: Rocky Mountain Biosystems, Inc. — License No.: 1037-01
Inspection Type: Routine, Announced — Priority: 5
Inspection Date: 5/16/12 — Inspector: JG

File No.: 15
Licensee: MISTRAS Group, Inc. — License No.: 963-01
Inspection Type: Routine, Announced — Priority: 1
Inspection Date: 8/8/13 — Inspector: CR

File No.: 16
Licensee: Cesare, Inc. — License No.: 1017-01
Inspection Type: Routine, Announced — Priority: 5
Inspection Date: 11/9/12 — Inspectors: ES, CH

File No.: 17
Licensee: Montrose Memorial Hospital — License No.: 228-01
Inspection Type: Routine, Announced — Priority: 3
Inspection Date: 8/13/13 — Inspector: CE

File No.: 18
Licensee: ThruBit, LLC License No.: 1179-01
Inspection Type: Routine, Announced Priority: 3
Inspection Date: 2/5/14 Inspector: PP

File No.: 19
Licensee: Yeh and Associates, Inc. License No.: 984-01
Inspection Type: Routine, Announced Priority: 5
Inspection Date: 2/6/14 Inspector: CH

File No.: 20
Licensee: Bonfils Blood Center License No.: 209-01
Inspection Type: Routine/Special, Announced Priority: 5
Inspection Date: 3/10/14 Inspector: ES

File No.: 21
Licensee: Team Industrial Services, Inc. License No.: 388-01
Inspection Type: Routine/Special, Announced Priority: 1
Inspection Date: 3/11/14 Inspector: CR

File No.: 22
Licensee: Rocky Mountain Gamma Knife License No.: 857-01
Inspection Type: Routine, Announced Priority: 2
Inspection Date: 3/2/12 Inspector: JD

File No.: 23
Licensee: Colorado School of Mines Research Institute License No.: 617-01
Inspection Type: Routine, Announced Priority: 1
Inspection Date: 9/28/12 Inspector: EE

File No.: 24
Licensee: North Colorado Medical Center License No.: 857-01
Inspection Type: Routine, Announced Priority: 2
Inspection Date: 1/30/13 Inspector: MB

File No.: 25
Licensee: Colorado Heart & Vascular, P.C. License No.: 726-01
Inspection Type: Routine, Announced Priority: 3
Inspection Date: 3/2/12 Inspector: MD

File No.: 26
Licensee: Inspection Specialties, Inc. License No.: 1187-01
Inspection Type: Routine, Unannounced Priority: 1
Inspection Date: 10/22/13 Inspector: ES

File No.: 27
Licensee: A.G. Wassenaar, Inc. License No.: 212-01
Inspection Type: Routine, Unannounced Priority: 5
Inspection Date: 4/25/13 Inspector: CH

File No.: 28
Licensee: Colorado State University License No.: 002-27
Inspection Type: Routine, Announced Priority: 3
Inspection Date: 7/20/12 Inspectors: CE, MB, CR

File No.: 29
Licensee: University of Colorado Hospital License No.: 828-01
Inspection Type: Routine, Announced Priority: 2
Inspection Dates: 2/20-22/13 Inspectors: MB, PP

File No.: 30
Licensee: Cardinal Health 414, LLC License No.: 1219-01
Inspection Type: Routine, Initial Priority: 2
Inspection Date: 10/22/13 Inspectors: PP, CR

File No.: 31
Licensee: Instro Tek, Inc. License No.: 122-01
Inspection Type: Routine, Initial Priority: 2
Inspection Date: 3/26/14 Inspectors: ES, DB

File No.: 32
Licensee: Acuren Inspection, Inc. License No.: 997-01
Inspection Type: Routine, Unannounced Priority: 1
Inspection Date: 7/30/13 Inspector: ES

File No.: 33
Licensee: JANX Integrity Group License No.: NRC 21-16560-01
Inspection Type: Reciprocity, Unannounced Priority: 1
Inspection Date: 1/15/13 Inspectors: CR, PP

File No.: 34
Licensee: DBI, Inc. License No.: NE 02-46-01
Inspection Type: Reciprocity, Unannounced Priority: 1
Inspection Date: 6/11/13 Inspectors: PP, MB

File No.: 35
Licensee: Energy Solutions License No.: NRC 06-20775-01
Inspection Type: Reciprocity, Unannounced Priority: 2
Inspection Date: 7/10/13 Inspector: MB

File No.: 36
Licensee: Cotter Corporation, Cañon City License No.: 369-01
Inspection Type: Routine, Announced Priority: 1
Inspection Dates: 3/29-31/10 Inspectors: PVE, EE, JG, CE

Comment: The inspection findings were sent to the licensee 129 days after the inspection.

File No.: 37
Licensee: Cotter Corporation, Cañon City License No.: 369-01
Inspection Type: Routine, Announced Priority: 1
Inspection Dates: 6/15-16/11 Inspectors: PVE, EE

Comment: The inspection findings were sent to the licensee 56 days after the inspection.

File No.: 38
Licensee: Cotter Corporation, Cañon City License No.: 369-01
Inspection Type: Routine, Announced Priority: 1
Inspection Dates: 8/15-16/12 Inspectors: EE, ED, SW

File No.: 39
Licensee: Cotter Corporation, Cañon City License No.: 369-01
Inspection Type: Routine, Announced Priority: 1
Inspection Date: 9/24-25/13 Inspectors: EE, SW

File No.: 40
Licensee: Cotter Corporation, Cañon City License No.: 369-01
Inspection Type: Routine, Announced Priority: 1
Inspection Date: 2/4/14 Inspectors: EE, SW

File No.: 41
Licensee: CSMRI, Table Mountain Research Facility License No.: 617-02
Inspection Type: Routine, Announced Priority: 2
Inspection Date: 10/18/10 Inspector: EE

File No.: 42
Licensee: CSMRI, Table Mountain Research Facility License No.: 617-02
Inspection Type: Routine, Announced Priority: 2
Inspection Date: 7/14/11 Inspector: EE

File No.: 43
Licensee: CSMRI, Table Mountain Research Facility License No.: 617-02
Inspection Type: Routine, Announced Priority: 2
Inspection Date: 9/28/12 Inspector: EE

File No.: 44
Licensee: Cotter Corporation Schwartzwalder Mine License No.: 396-06
Inspection Type: Initial, Announced Priority: 5
Inspection Date: 4/20/11 Inspector: JG

Comment: The inspection findings were sent to the licensee 107 days after the inspection.

File No.: 45
Licensee: Cotter Corporation Schwartzwalder Mine License No.: 369-03
Inspection Type: Routine, Announced Priority: 2
Inspection Date: 10/20/10 Inspector: EE

Comment: The inspection was performed six months late.

File No.: 46
Licensee: UMETCO Minerals Corporation, Uravan License No.: 660-02
Inspection Type: Routine, Announced Priority: 1
Inspection Dates: 5/4-8/3/11 Inspector: PVE

File No.: 47
Licensee: UMETCO Minerals Corporation, Uravan License No.: 660-02
Inspection Type: Routine, Announced Priority: 1
Inspection Date: 11/15/12 Inspectors: EE, SW

File No.: 48
Licensee: UMETCO Minerals Corporation, Uravan License No.: 660-02
Inspection Type: Routine, Announced Priority: 1
Inspection Date: 7/25/13 Inspector: EE

File No.: 49
Licensee: Hecla Mining, Durita License No.: 317-02
Inspection Type: Routine, Announced Priority: 2
Inspection Date: 5/19/10 Inspector: EE

File No.: 50
Licensee: Hecla Mining, Durita License No.: 317-02
Inspection Type: Routine, Announced Priority: 2
Inspection Date: 5/18/11 Inspector: EE

File No.: 51
Licensee: Hecla Mining, Durita License No.: 317-02
Inspection Type: Routine, Announced Priority: 2
Inspection Date: 5/24/12 Inspector: EE

File No.: 52
Licensee: Hecla Mining, Durita License No.: 317-02
Inspection Type: Routine, Announced Priority: 2
Inspection Date: 5/24/13 Inspectors: EE, SW

File No.: 53
Licensee: CSMRI, Creekside License No.: 617-01
Inspection Type: Routine, Announced Priority: 2
Inspection Date: 10/18/10 Inspector: EE

Comment: The inspection was performed five months late.

File No.: 54
Licensee: CSMRI, Creekside License No.: 617-01
Inspection Type: Routine, Announced Priority: 2
Inspection Date: 10/29/10 Inspector: EE

File No.: 55
Licensee: CSMRI, Creekside License No.: 617-01
Inspection Type: Routine, Announced Priority: 2
Inspection Date: 7/14/11 Inspector: EE

File No.: 56
Licensee: CSMRI, Creekside License No.: 617-01
Inspection Type: Routine, Announced Priority: 2
Inspection Date: 9/28/12 Inspector: EE

INSPECTOR ACCOMPANIMENTS

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

Accompaniment No.: 1
Licensee: Cotter Corporation License No.: 369-01
Inspection Type: Routine, Announced Priority: 1
Inspection Date: 2/4/14 Inspectors: SW, EE

Comment: Inspectors did not perform radiation surveys of licensee operations.

Accompaniment No.: 2
Licensee: ThruBit, LLC License No.: 1179-01
Inspection Type: Routine, Announced Priority: 3
Inspection Date: 2/5/14 Inspector: PP

Accompaniment No.: 3
Licensee: Yeh and Associates, Inc. License No.: 984-01
Inspection Type: Routine, Announced Priority: 5
Inspection Date: 2/6/14 Inspector: CH

Accompaniment No.: 4
Licensee: Bonfils Blood Center License No.: 209-01
Inspection Type: Routine/Special, Announced Priority: 5
Inspection Date: 3/10/14 Inspector: ES

Accompaniment No.: 5
Licensee: Team Industrial Services, Inc. License No.: 388-01
Inspection Type: Routine/Special, Announced Priority: 1
Inspection Date: 3/11/14 Inspector: CR

Accompaniment No.: 6
Licensee: Exempla Healthcare / Lutheran Medical Center License No.: 227-02
Inspection Type: Routine, Announced Priority: 2
Inspection Date: 4/1/14 Inspector: JJ

APPENDIX D

LICENSE CASEWORK REVIEWS

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

File No.: 1
Licensee: VCA Alameda East Veterinary Hospital — License No.: 1214-01
Type of Action: New — Amendment No.: 00
Date Issued: 8/2/13 — License Reviewer: PP

Comment: The tie-down license condition referenced the wrong letter date (March 7, 2013 vs. March 17, 2013).

File No.: 2
Licensee: Castle Rock Adventist Hospital — License No.: 1218-01
Type of Action: New — Amendment No.: 00
Date Issued: 5/1/13 — License Reviewer: CR

File No.: 3
Licensee: Exempla St. Joseph Hospital — License No.: 038-02
Type of Action: Amendment — Amendment No.: 09
Date Issued: 1/10/13 — License Reviewer: MD

File No.: 4
Licensee: Rocky Mountain Gamma Knife, LLC — License No.: 857-01
Type of Action: Amendment — Amendment No.: 23
Date Issued: 2/9/11 — License Reviewer: CE

File No.: 5
Licensee: Heart Center of Colorado, LLP — License No.: 844-01
Type of Action: Termination — Amendment No.: 07
Date Issued: 1/9/14 — License Reviewer: CH

File No.: 6
Licensee: Cardinal Health 414, LLC — License No.: 1219-01
Type of Action: New — Amendment No.: 00
Date Issued: 5/8/13 — License Reviewer: CE

File No.: 7
Licensee: Front Range Nuclear Services — License No.: 1096-01
Type of Action: Amendment — Amendment No.: 27
Date Issued: 10/31/13 — License Reviewer: CH

File No.: 8
Licensee: Cardinal Health 418, Inc. License No.: 162-06
Type of Action: Renewal Amendment No.: 13
Date Issued: 8/20/13 License Reviewer: PP

File No.: 9
Licensee: Colorado Heart and Vascular, PC License No.: 1205-01
Type of Action: New Amendment No.: 00
Date Issued: 9/28/12 License Reviewer: MD

Comments:
a) Licensee correspondence contained personal private information and was not properly marked with “sensitive confidential”.
b) The pre-licensing checklist did not contain documentation to support the basis for not conducting a pre-licensing site visit.

File No.: 10
Licensee: Luca Technologies, LLC License No.: 1061-01
Type of Action: Termination Amendment No.: 08
Date Issued: 10/10/13 License Reviewer: CR

File No.: 11
Licensee: ACZ Laboratories, Inc. License No.: 799-01
Type of Action: Amendment Amendment No.: 20
Date Issued: 3/21/13 License Reviewer: PP

File No.: 12
Licensee: Parsons Brinckerhoff, Inc. License No.: 1215-01
Type of Action: New Amendment No.: 00
Date Issued: 2/1/13 License Reviewer: CH

File No.: 13
Licensee: University of Colorado Denver License No.: 835-01
Type of Action: New Amendment No.: 40
Date Issued: 8/23/12 License Reviewer: CE

File No.: 14
Licensee: Allied Wireline Services, LLC License No.: 1210-01
Type of Action: New Amendment No.: 00
Date Issued: 12/10/12 License Reviewer: PP

File No.: 15
Licensee: Centura Health-Littleton Adventist Hospital License No.: 765-01
Type of Action: Amendment Amendment No.: 20
Date Issued: 10/27/10 License Reviewer: JD

File No.: 16
Licensee: Baker Hughes Oilfield Operations, Inc. License No.: 1072-01
Type of Action: Amendment Amendment No.: 12
Date Issued: 5/3/11 License Reviewer: MB

File No.: 17
Licensee: Colorado School of Mines License No.: 627-01
Type of Action: Renewal Amendment No.: 66
Date Issued: 4/10/14 License Reviewer: CR

File No.: 18
Licensee: Southway Construction, Co., Inc. License No.: 692-01
Type of Action: Termination Amendment No.: 07
Date Issued: 4/4/13 License Reviewer: MD

File No.: 19
Licensee: Analytical Instrument Recycle, Inc. License No.: 974-01
Type of Action: Amendment Amendment No.: 08
Date Issued: 1/3/14 License Reviewer: CR

File No.: 20
Licensee: OSI Pharmaceuticals, Inc. License No.: 841-04
Type of Action: Termination Amendment No.: 05
Date Issued: 10/2/12 License Reviewer: CE

File No.: 21
Licensee: Centura Health Penrose-St. Francis Health Services License No.: 197-02
Type of Action: Amendment Amendment No.: 124
Date Issued: 11/20/13 License Reviewer: MD

File No.: 22
Licensee: GCC Rio Grande License No.: 1136-01
Type of Action: Renewal Amendment No.: 05
Date Issued: 2/12/13 License Reviewer: CH

File No.: 23
Licensee: GlobeImmune, Inc. License No.: 1079-01
Type of Action: Amendment Amendment No.: 09
Date Issued: 8/20/13 License Reviewer: MD

File No.: 24
Licensee: Cotter Corporation, Cañon City License No.: 369-01
Type of Action: Document Review Amendment No.: N/A
Date Issued: 8/16/13 License Reviewer: EE

File No.: 25
Licensee: Cotter Corporation, Cañon City License No.: 369-01
Type of Action: Document Review Amendment No.: N/A
Date Issued: 8/16/13 License Reviewer: EE

File No.: 26
Licensee: Cotter Corporation, Cañon City License No.: 369-01
Type of Action: Document Review Amendment No.: N/A
Date Issued: 10/2/13 License Reviewer: SW

File No.: 27
Licensee: Cotter Corporation, Cañon City License No.: 369-01
Type of Action: Document Review Amendment No.: N/A
Date Issued: 10/10/13 License Reviewer: SW

File No.: 28
Licensee: Cotter Corporation, Cañon City License No.: 369-01
Type of Action: Document Review Amendment No.: N/A
Date Issued: 10/10/13 License Reviewer: JO

File No.: 29
Licensee: Cotter Corporation, Schwartzwalder Mine License No.: 369-06
Type of Action: Amendment Amendment No.: 2
Date Issued: 8/21/12 License Reviewer: EE

File No.: 30
Licensee: Cotter Corporation, Schwartzwalder Mine License No.: 369-06
Type of Action: Document Review Amendment No.: N/A
Date Issued: 9/5/12 License Reviewer: EE

File No.: 31
Licensee: CSMRI Creekside License No.: 617-01
Type of Action: Document Review Amendment No.: N/A
Date Issued: 5/25/12 License Reviewer: EE

File No.: 32
Licensee: CSMRI Table Mountain License No.: 617-02
Type of Action: Renewal Amendment No.: 11
Date Issued: 3/1/11 License Reviewer: EE

File No.: 33
Licensee: Energy Fuels Resources Corporation, Piñon Ridge License No.: 1170-01
Type of Action: Document Review Amendment No.: N/A
Date Issued: 3/22/11 License Reviewer: ST

Comment: The file did not contain a basis why the Decommissioning Funding Plan was adequate.

File No.: 34
Licensee: Energy Fuels Resources Corporation, Piñon Ridge — License No.: 1170-01
Type of Action: Document Review — Amendment No.: N/A
Date Issued: 9/30/13 — License Reviewer: ST

File No.: 35
Licensee: Energy Fuels Resources Corporation, Piñon Ridge — License No.: 1170-01
Type of Action: Document Review — Amendment No.: N/A
Date Issued: 7/22/13 — License Reviewer: CR

File No.: 36
Licensee: Energy Fuels Resources Corporation, Piñon Ridge — License No.: 1170-01
Type of Action: Licensing Decision Analysis — Amendment No.: N/A
Date Issued: 4/25/13 — License Reviewers: Various

File No.: 37
Licensee: Energy Fuels Resources Corporation, Piñon Ridge — License No.: 1170-01
Type of Action: Amendment — Amendment No.: 2
Date Issued: 4/25/13 — License Reviewer: ST

File No.: 38
Licensee: UMETCO Minerals Corporation, Uravan — License No.: 660-02
Type of Action: Document Review — Amendment No.: N/A
Date Issued: 3/8/11 — License Reviewer: PE

File No.: 39
Licensee: UMETCO Minerals Corporation, Uravan — License No.: 660-02
Type of Action: Document Review — Amendment No.: N/A
Date Issued: 8/19/13 — License Reviewer: SW

File No.: 40
Licensee: UMETCO Minerals Corporation, Uravan — License No.: 660-02
Type of Action: Document Review — Amendment No.: N/A
Date Issued: 9/25/12 — License Reviewer: CE

APPENDIX E

INCIDENT CASEWORK REVIEWS

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

File No.: 1
Licensee: Midwest Inspection Services
Date of Incident: 6/11/10
Investigation Date: 6/30/10
License No.: 902-01
NMED No.: 100324
Type of Incident: Damaged Equipment
Type of Investigation: Site

File No.: 2
Licensee: Prostate Seed Center, LLC
Date of Incident: 12/2/10
Investigation Date: 12/21/10
License No.: 972-01
NMED No.: 100591
Type of Incident: Medical Event
Type of Investigation: Site

File No.: 3
Licensee: St. Mary-Corwin Hospital
Date of Incident: 12/8/10
Investigation Date: 12/10/10
License No.: 235-02
NMED No.: 110083
Type of Incident: Lost RAM
Type of Investigation: Telephone

File No.: 4
Licensee: Nuquest Pharmacy
Date of Incident: 2/21/11
Investigation Date: 2/21/11
License No.: 1022-01
NMED No.: 110119
Type of Incident: Contamination
Type of Investigation: Telephone

File No.: 5
Licensee: University of Colorado Hospital
Date of Incident: 7/8/11
Investigation Date: 7/13/11
License No.: 828-01
NMED No.: 110351
Type of Incident: Medical Event
Type of Investigation: Site

File No.: 6
Licensee: University of Colorado
Date of Incident: 8/12/11
Investigation Date: 8/29/11
License No.: 082-08
NMED No.: 110452
Type of Incident: Lost RAM
Type of Investigation: Telephone

File No.: 7
Licensee: Test America
Date of Incident: 2/1/12
Investigation Date: 2/16/12
License No.: 486-03
NMED No.: 120127
Type of Incident: Leaking Source
Type of Investigation: Telephone

File No.: 8
Licensee: High Mountain Inspection Services
Date of Incident: 3/13/12
Investigation Date: 3/16/12
License No.: 1042-01
NMED No.: 120176
Type of Incident: Lost RAM
Type of Investigation: Site

File No.: 9
Licensee: Public Service Company of Colorado
Date of Incident: 3/23/12
Investigation Date: 5/30/12
License No.: 032-01
NMED No.: 120315
Type of Incident: Overexposure
Type of Investigation: Site

File No.: 10
Licensee: Kumar and Associates, Inc.
Date of Incident: 6/15/12
Investigation Date: 7/17/12
License No.: 778-01
NMED No.: 120370
Type of Incident: Damaged Equipment
Type of Investigation: Site

File No.: 11
Licensee: A. G. Wassenaar
Date of Incident: 7/30/12
Investigation Date: 9/5/12
License No.: 212-01
NMED No.: 120453
Type of Incident: Stolen RAM
Type of Investigation: Site

File No.: 12
Licensee: Schlumberger Technologies Corp.
Date of Incident: 8/28/12
Investigation Date: 9/6/12
License No.: 039-01
NMED No.: 120609
Type of Incident: Lost RAM
Type of Investigation: Telephone

File No.: 13
Licensee: Terracon, Inc.
Date of Incident: 3/29/13
Investigation Date: 3/29/13
License No.: 664-02
NMED No.: 130155
Type of Incident: Damaged Equipment
Type of Investigation: Telephone

File No.: 14
Licensee: Libertytown USA 2
Date of Incident: 6/18/13
Investigation Date: 7/22/13
License No.: 1191-01
NMED No.: 130286
Type of Incident: Equipment Failure
Type of Investigation: Site

File No.: 15
Licensee: Thrubit, LLC
Date of Incident: 7/28/13
Investigation Date: 7/30/13
License No.: 1179-01
NMED No.: 130339
Type of Incident: Lost RAM
Type of Investigation: Site

File No.: 16
Licensee: St. Mary's Hospital and Medical Center
Date of Incident: 10/9/13
Investigation Date: 10/11/13
License No.: 228-01
NMED No.: 130480
Type of Incident: Contamination
Type of Investigation: Telephone

File No.: 17
Licensee: Martinez Associates, LLC
Date of Incident: 10/13/13
Investigation Date: 10/15/13
License No.: 1076-01
NMED No.: 130492
Type of Incident: Stolen RAM
Type of Investigation: Site

File No.: 18
Licensee: Midwest Inspection Services
Date of Incident: 11/7/13
Investigation Date: 11/14/13
License No.: 902-01
NMED No.: 130542
Type of Incident: Equipment Failure
Type of Investigation: Site

File No.: 19
Licensee: Porter Adventist Hospital
Date of Incident: 11/22/13
Investigation Date: 12/11/13
License No.: 210-01
NMED No.: 130583
Type of Incident: Medical Event
Type of Investigation: Site

File No.: 20
Licensee: De-Ray Engineering, Inc.
Date of Incident: 3/10/14
Investigation Date: 4/15/14
License No.: 1097-01
NMED No.: 140135
Type of Incident: Stolen RAM
Type of Investigation: Site

APPENDIX F

SEALED SOURCE & DEVICE CASEWORK REVIEWS

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

File No.: 1
Registry No.: CO-1012-D-101-S
Applicant Name: Thermo MF Physics
Date issued: 2/2/12
SS&D Type: (T) Other: Neutron Generator
Type of Action: Amendment
SS&D Reviewers: PP, JG

File No.: 2
Registry No.: CO-1012-D-103-S
Applicant Name: Thermo MF Physics
Date issued: 2/2/12
SS&D Type: (T) Other: Neutron Generator
Type of Action: Amendment
SS&D Reviewers: PP, JG

File No.: 3
Registry No.: CO-1012-D-101-S
Applicant Name: Thermo MF Physics
Date issued: 4/18/13
SS&D Type: (T) Other: Neutron Generator
Type of Action: Amendment
SS&D Reviewers: PP, JG

File No.: 4
Registry No.: CO-1012-D-103-S
Applicant Name: Thermo MF Physics
Date issued: 4/18/13
SS&D Type: (T) Other: Neutron Generator
Type of Action: Amendment
SS&D Reviewers: PP, JG

File No.: 5
Registry No.: CO-1012-D-102-G
Applicant Name: Particle Measuring Systems
Date issued: 12/31/13
SS&D Type: (N) Ion Generator
Type of Action: Amendment
SS&D Reviewers: PP, JG

File No.: 6
Registry No.: CO-1217-D-801-G
Applicant Name: Particle Measuring Systems
Date issued: 4/12/12
SS&D Type: (N) Ion Generator
Type of Action: Inactivation
SS&D Reviewers: JO, JJ

File No.: 7
Registry No.: CO-0136-S-801-S
Applicant Name: Amersham Corporation
Date issued: 1/9/13
SS&D Type: (T) Other: Air Monitoring
Type of Action: Inactivation
SS&D Reviewers: MB, JO

File No.: 8
Registry No.: CO-0476-S-801-S
Applicant Name: E.I. DuPont de Nemours & Co.
Date issued: 1/9/13
SS&D Type: (T) Other: Air Monitoring
Type of Action: Inactivation
SS&D Reviewers: MB, JO

File No.: 9
Registry No.: CO-0837-D-801-S SS&D Type: (D) Gamma Gauge
Applicant Name: Boulder Scientific Company Type of Action: Inactivation
Date issued: 1/9/13 SS&D Reviewers: MB, JO

File No.: 10
Registry No.: CO-8181-D-802-U SS&D Type: (P) Ion Generators
Applicant Name: Fire Alert Company Type of Action: Inactivation
Date issued: 1/9/13 SS&D Reviewers: MB, JO

File No.: 11
Registry No.: CO-8182-D-801-S SS&D Type: (P) Ion Generators
Applicant Name: Statitrol Corporation Type of Action: Inactivation
Date issued: 1/9/13 SS&D Reviewers: MB, JO

File No.: 12
Registry No.: CO-8220-D-801-S SS&D Type: (U) X-ray Fluorescence
Applicant Name: Bondar-Clegg & Co Type of Action: Inactivation
Date issued: 1/9/13 SS&D Reviewers: MB, JO

File No.: 13
Registry No.: CO-8221-D-804-S SS&D Type: (H) General Neutron Source
Applicant Name: Kamen Sciences Type of Action: Inactivation
Date issued: 1/9/13 SS&D Reviewers: MB, JO

File No.: 14
Registry No.: CO-8223-D-801-U SS&D Type: (P) Ion Generators
Applicant Name: Val-tron, Inc. Type of Action: Inactivation
Date issued: 1/9/13 SS&D Reviewers: MB, JO

File No.: 15
Registry No.: CO-8224-D-801-U SS&D Type: (P) Ion Generators
Applicant Name: Vicon Instrument Company Type of Action: Inactivation
Date issued: 1/9/13 SS&D Reviewers: MB, JO

File No.: 16
Registry No.: CO-8251-D-806-G SS&D Type: (E) Beta Gauge
Applicant Name: BK Sweeny Manufacturing Type of Action: Inactivation
Date issued: 1/9/13 SS&D Reviewers: MB, JO

File No.: 17
Registry No.: CO-8265-S-801-S SS&D Type: (V) General Medical Use
Applicant Name: Syncor Pharmaceuticals, Inc. Type of Action: Inactivation
Date issued: 1/9/13 SS&D Reviewers: MB, JO