

**INTEGRATED MATERIALS PERFORMANCE EVALUATION PROGRAM**  
**QUESTIONNAIRE**

**Reporting Period: April 12, 2014 – March 9, 2018**

Note: If there has been no change in the response to a specific question since the last IMPEP questionnaire, the State or Region may copy the previous answer, if appropriate.

**A. GENERAL**

1. Please prepare a summary of the status of the State's or Region's actions taken in response to each of the open recommendations from previous IMPEP reviews.

*The review team made no recommendations in regard to program performance by the Colorado Agreement State Program during the 2014 review.*

**B. COMMON PERFORMANCE INDICATORS**

**I. Technical Staffing and Training**

2. Please provide the following organization charts, including names and positions:

- (a) A chart showing positions from the Governor down to the Radiation Control Program Director;

*See Attachment A*

- (b) A chart showing positions of the radiation control program, including management; and

*See Attachment A*

- (c) Equivalent charts for sealed source and device evaluation, low-level radioactive waste and uranium recovery programs, if applicable.

*See Attachment A*

3. Please provide a staffing plan, or complete a listing using the suggested format below, of the professional (technical) full-time equivalents (FTE) applied to the radioactive materials program by individual. Include the name, position, and, for Agreement States,

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<sup>1</sup>Estimated burden per response to comply with this voluntary collection request: 53 hours. Forward comments regarding burden estimate to the Records Management Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0183), Office of Management and Budget, Washington, DC 20503. If an information collection does not display a currently valid OMB control number, NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

the fraction of time spent in the following areas: administration, materials licensing & compliance, emergency response, low-level radioactive waste, uranium recovery, other. If these regulatory responsibilities are divided between offices, the table should be consolidated to include all personnel contributing to the radioactive materials program. If consultants were used to carry out the program's radioactive materials responsibilities, include their efforts. The table heading should be:

<u>Name</u>	<u>Position</u>	<u>Area of Effort</u>	<u>FTE%</u>
Jennifer Opila	Radiation Management Program Manager	Oversees Program that includes both materials and machines regulation	50%
James Jarvis	Special Projects	40% Regulatory Development 10% Materials Licensing 10 % Materials Inspections 5% Emergency Response 10% data base support	75%
James Grice	Radioactive Materials Unit Leader	Supervisor of Unit responsible for Materials Licensing and Inspections	100%
Phillip Peterson	Compliance Lead	95% Work leader for Materials Inspections, 5% Emergency Response	100%
Cheri Hall	Licensing Lead	95% Work leader for Materials Licensing, 5% Emergency Response	100%
Mark Dater	Health Physicist	47.5 % Materials Licensing 47.5 % Materials Inspections 5% Emergency Response	100%
Derek Bailey	Health Physicist	47.5 % Materials Licensing 47.5 % Materials Inspections 5% Emergency Response	100%
Ramon Li	Health Physicist	47.5 % Materials Licensing 47.5 % Materials Inspections 5% Emergency Response	100%
Peter Rottenborn	Health Physicist	47.5 % Materials Licensing 47.5 % Materials Inspections 5% Emergency Response	100%
Tim Thorvaldson	Health Physicist	47.5 % Materials Licensing 47.5 % Materials Inspections 5% Emergency Response	100%
Matt Gift	Health Physicist	47.5 % Materials Licensing 47.5 % Materials Inspections 5% Emergency Response	100%
Kathryn Mote	General License Coordinator	General Licensing	100%
Shiya Wang	Environmental Protection Specialist	75% Uranium Recovery, 15% Materials Inspections, 5% Materials Licensing, 5% Emergency Response	100%

4. Please provide a listing of all new professional personnel hired into your radioactive materials program since the last review, indicate the date of hire; the degree(s) they received, if applicable; additional training; and years of experience in health physics or other disciplines, as appropriate.

<b>Name</b>	<b>Formal Education</b>	<b>Health Physics experience</b>
<i>Derek Bailey Hired 06/23/2014</i>	<i>MS Health Physics BS Health Care Management</i>	<i>None</i>
<i>Ramon Li Hired 07/14/2014</i>	<i>MS Nuclear Engineering BS Engineering Physics</i>	<i>1.5 years - Health Physics Technician</i>
<i>Nick Dorrell Hired 08/11/2014 Left 09/01/2017</i>	<i>MS Health Physics BS Physics</i>	<i>2.5 years as ARSO for Licensee and HP Consultant</i>
<i>Peter Rottenborn Hired 06/06/2016</i>	<i>MS Nuclear Engineering BS Engineering Physics</i>	<i>2 years - Health Physics Technician</i>
<i>Tim Thorvaldson Hired 06/13/2016</i>	<i>BS Electronic Technology AS Haz Mat Management</i>	<i>27 years - Radiological Control Technician</i>
<i>Matt Gift Hired 09/25/2017</i>	<i>MS Health Physics BS Physics &amp; Mathematics</i>	<i>None</i>
<i>Kathryn Mote Hired 10/02/2017</i>	<i>AS Law Enforcement</i>	<i>27 years - Radiological Control Technician</i>

5. Please list all professional staff who have not yet met the qualification requirements for a radioactive materials license reviewer or inspector. For each, list the courses or equivalent training/experience they need and a tentative schedule for completion of these requirements.

*Completed training for all Radiation Program Staff members is identified in Attachment B-Staff training summary. In addition, at the time of hiring, new staff are evaluated based on their prior experience and training to determine what specific functions they are qualified for and what additional training or experience is necessary. Individual training plans are reviewed at least twice a year along with the individual's mid-year and final performance review. Programmatically, training is prioritized based on the types of facilities being regulated and the level of training among the available staff.*

6. Identify any changes to your qualification and training procedure that occurred during the review period.

*The Training Plan for Radioactive Materials Licensing and Inspection was revised and updated June 2016.*

7. Please identify the technical staff that left your radioactive materials program during the review period and indicate the date they left.

<b>Name</b>	<b>Date Departed</b>
<i>Steve Tarlton - Program Manager</i>	<i>09/2014</i>
<i>Ed Stroud - Compliance Lead</i>	<i>07/2014</i>
<i>Chastiti Etherton - Health Physicist</i>	<i>04/2014</i>

<i>Edgar Ethington - Environmental Protection Specialist</i>	<i>05/2015</i>
<i>Carrie Romanchek - Health Physicist</i>	<i>12/2016</i>
<i>Nick Dorrell - Health Physicist</i>	<i>09/2017</i>

8. List any vacant positions in your radioactive materials program, the length of time each position has been vacant, and a brief summary of efforts to fill the vacancy.

*None at this time*

9. For Agreement States, does your program have an oversight board or committee which provides direction to the program and is composed of licensees and/or members of the public? If so, please describe the procedures used to avoid any potential conflict of interest.

*As required by Colorado Radiation Control Act, the Radiation Program has a nine member, governor appointed committee which provides technical guidance and advice to the program. The statute requires that there be three representatives from each of the following areas: higher education, healing arts, and industry, and that no more than four be from any one political party. There is not a specific requirement that the representatives be licensees, however at this time all of the current committee members are Colorado licensees, consult with licensees, or have previously worked for a licensee. The committee is governed by bylaws which address conflict of interest issues.*

## II. Status of Materials Inspection Program

10. Please identify individual licensees or categories of licensees the State is inspecting less frequently than called for in NRC's Inspection Manual Chapter (IMC) 2800 and explain the reason for the difference. The list only needs to include the following information: license category or licensee name and license number, your inspection interval, and rationale for the difference.

*Colorado uses WBL and follows IMC 2800 for most license categories. Minor differences include:*

- Program code 03900 has a priority code D. Colorado inspects sites that are actively decommissioning annually and sites that have completed decommissioning and are in long term care every three years.*

11. Please provide the number of routine inspections of Priority 1, 2, and 3 licensees, as defined in IMC 2800 and the number of initial inspections that were completed during each year of the review period.

- Priority 1, 2, and 3*
  - April 7 – December 31, 2014 routine: 26*
  - 2015 routine: 57*
  - 2016 routine: 43*
  - 2017 routine: 53*
  - January – February 28, 2018 routine: 5*

- *Initial*
  - *April 7 – December 31, 2014 initial: 6 (3 initial, 3 major program changes)*
  - *2015 initial: 10 (8 initial, 2 major program change)*
  - *2016 initial: 9 (6 initial, 3 major program change)*
  - *2017 initial: 18 (15 initial, 3 major program change)*
  - *January - February 28, 2018 initial: 2 (2 initial)*

12. Please submit a table, or a computer printout, that identifies inspections of Priority 1, 2, and 3 licensees and initial inspections that were conducted overdue.

At a minimum, the list should include the following information for each inspection that was conducted overdue during the review period:

- (1) Licensee Name
- (2) License Number
- (3) Priority (IMC 2800)
- (4) Last inspection date or license issuance date, if initial inspection
- (5) Date Due
- (6) Date Performed
- (7) Amount of Time Overdue
- (8) Date inspection findings issued

<i>Licensee Name</i>	<i>License Number</i>	<i>Priority</i>	<i>License issuance date</i>	<i>Date Due</i>	<i>Date Performed</i>	<i>Amount of Time Overdue</i>	<i>Date findings issued</i>
<i>Rose Medical Center</i>	<i>CO 229-03</i>	<i>2</i>	<i>Initial (major program change, added HDR), 10/26/12</i>	<i>10/26/13</i>	<i>7/31/14</i>	<i>278 days</i>	<i>8/19/14</i>
<i>St. Anthony Hospital – Centura Health</i>	<i>CO 152-01</i>	<i>2</i>	<i>Initial (major program change, added spheres), 6/26/13</i>	<i>6/26/14</i>	<i>12/18/14</i>	<i>175 days</i>	<i>12/18/14</i>
<i>Centura Health – Parker Adventist Hospital</i>	<i>CO 1063-01</i>	<i>2</i>	<i>Initial (major program change, added spheres), 12/6/13</i>	<i>12/6/14</i>	<i>12/9/15</i>	<i>368 days</i>	<i>12/9/15</i>
<i>Rose Medical Center</i>	<i>CO 229-03</i>	<i>2</i>	<i>Initial (major program change, added spheres), 12/23/13</i>	<i>12/23/14</i>	<i>8/21/15</i>	<i>241 days</i>	<i>9/2/15</i>

13. Please submit a table or computer printout that identifies any Priority 1, 2, and 3 licensees-and initial inspections that are currently overdue, per IMC 2800. At a minimum, the list should include the same information for each overdue inspection

provided for Question 12 plus your action plan for completing the inspection. Also include your plan for completing the overdue inspections.

<i>Licensee Name</i>	<i>License Number</i>	<i>Priority</i>	<i>Last Inspection Date</i>	<i>Date Due</i>	<i>Date Performed</i>	<i>Amount of Time Overdue</i>	<i>Date findings issued</i>
Sweeney Mining & Milling Corporation	CO 149-01	2	4/28/15	4/28/17			

*The Sweeney Mining & Milling Corporation is overdue because the inspection findings from the 2015 inspection have not been delivered in a fashion that complied with the Radiation Control Act. Should there be an inability to deliver the inspection results, a new draft inspection in WBL will be created prior to an inspection being closed in the WBL database. The plan moving forward is to inspect the Sweeney Mining & Milling Corporation location in the spring of 2018 (weather dependent).*

14. Please provide the number of reciprocity licensees that were candidates for inspection per year as described in IMC 1220 and indicate the number of reciprocity inspections of candidate licensees that were completed each year during the review period.

*2014 reciprocity candidate licensees: 20  
2014 reciprocity inspections of candidates: 8*

*2015 reciprocity candidate licensees: 21  
2015 reciprocity inspections of candidates: 9*

*2016 reciprocity candidate licensees: 13  
2016 reciprocity inspections of candidates: 3*

*2017 reciprocity candidate licensees: 19  
2017 reciprocity inspections of candidates: 7*

*2018 reciprocity candidate licensees: 6 (through February 28)  
2018 reciprocity inspections of candidates: 1 (through February 28)*

### III. Technical Quality of Inspections

15. What, if any, changes were made to your written inspection procedures during the reporting period?

*The inspection manual was revised in 2016 to make the written procedure more accurate for the inspection methods implemented by the Unit. The use of WBL was also incorporated into the procedure.*

16. Prepare a table showing the number and types of supervisory accompaniments made during the review period. Include:

<i>Inspector</i>	<i>Termination Date</i>	<i>Supervisor</i>	<i>License Category</i>	<i>Date</i>
Derek Bailey		P. Peterson	3.P (03121)	7/23/14
Derek Bailey		P. Peterson	3.O (03320)	3/24-25/15

Derek Bailey		P. Peterson	Part 22 (37)	5/4/16
Derek Bailey		P. Peterson	5.A (03111)	5/24/16
Derek Bailey		P. Peterson	7.C (02120)	3/9/17
Mark Dater		P. Peterson	7.C (02120)	7/21/14
Mark Dater		P. Peterson	3.C (02500)	2/12/15
Mark Dater		P. Peterson	Part 22 (37)	4/29/16
Mark Dater		P. Peterson	7.C (02230)	3/1/17
Nick Dorrell	Sept. 2017	P. Peterson	3.P (03121)	11/6/14
Nick Dorrell	Sept. 2017	P. Peterson	7.C (02120)	12/9/15
Nick Dorrell	Sept. 2017	P. Peterson	3.C (02500)	12/16/15
Nick Dorrell	Sept. 2017	P. Peterson	3.C (02500)	12/9/16
Nick Dorrell	Sept. 2017	P. Peterson	7.B (02110)	1/30 – 2/3/17
Nick Dorrell	Sept. 2017	P. Peterson	7.C (02230)	3/7/17
Edgar Ethington	May 2015	P. Peterson	14.A (03900)	8/5/14
Jim Grice	12/9/14*	P. Peterson	3.L (01100)	12/9/14
<i>*This was a non-routine inspection. The last routine inspection assigned to Jim was prior to the review period. No other routine, reactive, or special inspections were assigned to Jim after this date.</i>				
Cheri Hall	11/17/16*	P. Peterson	3.O (03320)	6/24, 7/30/14
Cheri Hall	11/17/16*	P. Peterson	7.C (02230)	3/30/15
Cheri Hall	11/17/16*	P. Peterson	3.C (02500)	6/4/15
Cheri Hall	11/17/16*	P. Peterson	7.C (02120, 02240)	8/18/15
Cheri Hall	11/17/16*	P. Peterson	3.L (01100)	9/29 – 10/2/15
Cheri Hall	11/17/16*	P. Peterson	3.O (03320)	6/16, 6/24/16
<i>*Inspection date for last assigned routine inspection</i>				
James Jarvis	12/15/14*	P. Peterson	3.M (03620)	12/15/14
<i>*Inspection date for last assigned routine inspection</i>				
Ramon Li		P. Peterson	3.P (03121)	12/29/14
Ramon Li		P. Peterson	7.C (02120)	5/13/15
Ramon Li		P. Peterson	7.C (02120, 02240)	7/18, 7/20/15
Ramon Li		P. Peterson	7.C (02230)	5/13/16
Ramon Li		P. Peterson	7.C (02240)	9/20/17
Ramon Li		P. Peterson	3.C (02500)	1/25/18
Phillip Peterson		E. Stroud	7.C (02230)	5/20/14
Phillip Peterson		J. Opila	7.C (02120, 02240)	7/21/14
Phillip Peterson		J. Jarvis	7.A (02310, 02240)	10/22/14
Phillip Peterson		J. Grice	7.C (02240)	11/4, 12/22/15
Phillip Peterson		J. Grice	3.B (03214)	12/7/16
Phillip Peterson		J. Grice	7.C (02240)	10/24/17
Carrie Romanchek	Dec. 2015	P. Peterson	3.L (01100)	9/15 – 18/14
Carrie Romanchek	Dec. 2015	P. Peterson	5.A (03111)	10/8/14
Carrie Romanchek	Dec. 2015	P. Peterson	7.C (02120)	3/5/15
Carrie Romanchek	Dec. 2015	P. Peterson	3.C (02500)	5/14/15
Peter Rottenborn		P. Peterson	3.P (03121)	11/30/16
Peter Rottenborn		P. Peterson	3.O (03320)	6/13, 7/5/17
Tim Thorvaldson		P. Peterson	3.P (03121)	12/8/16



<i>Tim Thorvaldson</i>		<i>P. Peterson</i>	<i>3.M (03620)</i>	<i>10/30/17</i>
<i>Shiya Wang</i>		<i>P. Peterson</i>	<i>14.A (03900)</i>	<i>9/23 - 24/14</i>
<i>Shiya Wang</i>		<i>P. Peterson</i>	<i>3.P (03121)</i>	<i>9/22/15</i>
<i>Shiya Wang</i>		<i>P. Peterson</i>	<i>4.A (03234)</i>	<i>12/1/16, 2/7/17</i>
<i>Shiya Wang</i>		<i>P. Peterson</i>	<i>14.A (03900)</i>	<i>10/27/17</i>

17. Describe or provide an update on your instrumentation, methods of calibration, and laboratory capabilities. Are all instruments properly calibrated at the present time? Were there sufficient calibrated instruments available throughout the review period?

*CDPHE has the following instrumentation currently available to use for inspections:*

- 4 Bicron micro-rem meters to measure dose rate*
- 1 Eberline PRM-7 meter to measure dose rate*
- 2 Invision 451B meters to measure dose rate*
- 10 Ludlum model 3 meters with GM probes to measure contamination*
- 1 Ludlum model 3 meter with a 2x2 NaI detector*
- 3 Ludlum model 19 meters to measure dose rate*
- 4 Ludlum model 2 meters with GM probes to measure contamination*
- 2 Ludlum model 9 meters with ion chambers to measure dose rate*
- 1 Ludlum model 2241 scaler with multiple probes*
- 1 Ludlum model 12-4 meter to measure neutron dose rate*
- 1 Ludlum model 12 meters with NaI probe to measure contamination*
- 3 Ludlum model 12 meters with GM probe to measure alpha contamination*
- 1 Ludlum model 12 meter with multiple probes*
- 1 Ludlum model 15 meter to measure neutron dose rate*
- 2 SE International Inspector + meters to measure dose rate and contamination*
- 1 Victoreen 450B with ion chamber to measure dose rate*
- 1 Victoreen 290 with GM probe to measure contamination*
- 1 FLIR Radiation, Inc. IdentiFinder 2 for field isotope identification*
- 1 Berkeley SAM for field isotope identification*
- 1 ThermoFisher RadEye PRD-ER meter to measure dose rate*
- 1 Bicron Analyst meter to measure contamination*

*All meters are calibrated on an annual basis and all have been calibrated within the last year. Meters are calibrated at Ludlum Measurements, Inc. or at ThermoFisher. Any meter found to be out of calibration or not working properly is removed from service until required calibrations or maintenance is performed.*

*The state radiochemistry laboratory has closed during the review period. Any samples requiring liquid scintillation or gamma spectroscopy analysis are sent to an accredited radiochemistry laboratory.*

*All instruments have been properly calibrated during the review period. Sufficient instrumentation was available during the review period.*

#### IV. Technical Quality of Licensing Actions



18. How many specific radioactive material licenses does your program regulate at this time?

*316 total active licenses; 10 of which are provisional*

19. Please identify any major, unusual, or complex licenses which were issued, received a major amendment, were terminated, decommissioned, submitted a bankruptcy notification or renewed in this period.

CO 828-01	University of Colorado Hospital	MC 592197	expand to 7.B authorization	11/10/2017
CO 002-19	Colorado State University	MC 592209	Update manual/Add Serpa	11/3/2017
		MC 589828	Add authorizations/decommissioning	6/1/2016
		MC 584253	Decommissioning plan waste facility	11/5/2014
CO 627-01	Colorado School of Mines	MC 594318	Decommissioning labs in 2 facilities	12/23/2015
CO 082-08	University of Colorado	MC 583257	Renewal (Amendment 45)	6/17/2015
CO 835-01	University of Colorado Denver	MC 584560	revised training program	6/5/2015

20. Discuss any variances in licensing policies and procedures or exemptions from the regulations granted during the review period.

Children's Hospital Colorado	CO 075-02 A44	This variance allowed neurodiagnostic technologists an exemption from appendix 7N training requirements to administer Tc-99m doses to patients undergoing brain-imaging seizure studies. Due to the time sensitive nature of the test, a nuclear medicine technologist is unable to perform the injection; however, through provisions, procedures, and training provided the health and safety of all involved will be preserved in accord with the spirit of the regulatory requirements.
Authorized User approval for previously authorized users - updated policy	Colorado Implementation Guidance	This variance allows an exemption from Section 7.4.2 of the Regulations which requires a licensee to apply for and have received a license amendment prior to the licensee permitting an individual to work as an authorized user. Until Colorado Regulations can be updated to align with current SSR and NRC language that allows AUs currently listed on licenses to perform work, Colorado will allow a licensee to permit anyone, who is identified as an authorized user on a NRC or Agreement State license that authorizes the use of radioactive material in medical use, to work as an authorized user with prior written approval from management prior to receiving a license amendment with the condition they provide a request within 30 days with all required documentation to the Department.

21. What, if any, changes were made in your written licensing procedures (new procedures, updates, policy memoranda, etc.) during the reporting period?
- *Termination procedure - updated internal administrative processes*
  - *Financial Assurance procedure - updated internal administrative processes*
  - *WBL processing document development and updates*
  - *Reciprocity - updated administrative processes*
  - *Part 22 implementation, license conditions, and checklist development*
  - *Implementation Guidance for residency requirement of RSOs*
  - *Addition of standard new license conditions*
    - *New licensees are required to notify the Department when material is acquired*
    - *Additional limitations to possession that prevents exceeding Schedule 3E which would require a contingency plan*
    - *Number of material use specific license conditions (Microspheres, RSL, Gliasite, Ga-68 generators, 3.P notification and emergency LC, CDPHE phone numbers)*
22. Identify by licensee name and license number any renewal applications that have been pending for one year or more. Please indicate why these reviews have been delayed and describe your action plan to reduce the backlog.

CO 1102-01	Clean Harbors Deer Trail LLC	<i>The current process and authorizations have been reviewed and approved. There has been a delay due to a request for new waste acceptance criterion which has required more information and demonstration of meeting public and worker dose limits.</i>
CO 486-03	TestAmerica Laboratories Inc.	<i>A high-level transfer of ownership occurred during the renewal process which required considerable correspondence to get the necessary paperwork. There are no concerns for health or safety.</i>
CO 644-01	Aeroflex RAD, Inc.	<i>Historical inaccuracies were identified during this renewal evaluation and a concurrent compliance inspection. Compliance actions are in process to correct the concerns prior to issuing a renewed license. There are no health or safety concerns for the remainder of the program.</i>
CO 835-01	University of Colorado Denver	<i>This renewal process was delayed by an amendment and long wait times due to priorities and heavy workloads. There are no concerns for health or safety. Priority has been put on this renewal to speed its completion.</i>

V. Technical Quality of Incident and Allegation Activities

23. For Agreement States, please provide a list of any reportable incidents not previously submitted to NRC (See Procedure SA-300, *Reporting Material Events*, for additional guidance, OMB clearance number 3150-0178). The list should be in the following format:
- None*
24. Identify any changes to your procedures for responding to incidents and allegations that occurred during the period of this review.

*The Incident Response Documentation Procedure was updated in 2017. Part of that update included changing how incidents and allegations are tracked. Beginning in 2017, the Department uses the local NMED database and submits transfer files to INEL monthly if there are any files to submit.*

## **C. NON-COMMON PERFORMANCE INDICATORS**

### **I. Compatibility Requirements**

25. Please list all currently effective legislation that affects the radiation control program. Denote any legislation that was enacted or amended during the review period.

*Colorado's radiation control authority and regulations are authorized by Title 25, Article 11, C.R.S. Colorado's legislature is a part time legislative body, with each regular session taking place January through May of each year. Legislation enacted during the regular session typically takes effect by August of the same year pending approval by the Governor.*

*During the review period, Colorado's enabling legislation was amended in 2014 and 2015. A 2016 legislative change was also completed but it pertained only to Radon in homes.*

- *The 2014 legislation was initiated by parties outside the Department. The amendment addressed:*
  - *A provision pertaining to groundwater standards being met;*
  - *A provision pertaining to notification of toxic or radioactive spills for radioactive waste facilities;*
  - *Provisions pertaining to public processes for radioactive waste facilities.*
- *The 2015 legislation was initiated by the Department with the intent to address all outstanding legislative comments from NRC. The amendment addressed:*
  - *Updates and corrections to definitions for consistency with NRC requirements;*
  - *Updates to a provision pertaining to regulatory consistency with CRCPD and NRC regulations;*
  - *Updates to a provision pertaining to groundwater standards and use of best monitoring techniques;*
  - *Updates to a provision pertaining to exclusion of non-ionizing radiation items being excluded from regulation;*
  - *Repeal of a provision pertaining to provisional medical licenses;*
  - *Updates to a provision pertaining to adjustment of assumed long term care warranty interest rates to 1 %;*
  - *Updates to a provision updating select definitions and the public hearing and notice processes for radioactive waste processing facilities;*
  - *Repeal of provisions no longer applicable.*

*Throughout this time, legislation changes were submitted to NRC for review, and in correspondence from NRC to Colorado dated July 15, 2016, NRC indicated that it had no further comments on Colorado's legislation.*

26. Are your regulations subject to a "Sunset" or equivalent law? If so, explain and include the next expiration date for your regulations.

*Under the Colorado Administrative Procedure Act (APA), all regulations in the state expire each May 15 of every year unless that expiration is postponed by the legislature (C.R.S. §24-4-103(8)(c)(I)). Every year, the legislature initiates a bill postponing nearly all regulatory expirations, including those of the Colorado Radiation Program. Those regulations required for compliance with federal requirements are typically renewed annually, although this is at the discretion and purview of the legislature. Historically, the Colorado Rules and Regulations Pertaining to Radiation Control have always been approved each year, especially since such regulations are necessary for Colorado to maintain its authority under the agreement with the NRC which is the state's policy (C.R.S. §25-11-102).*

27. Please review and verify that the information in the enclosed State Regulation Status (SRS) sheet is correct. For those regulations that have not been adopted by the State, explain why they were not adopted, and discuss actions being taken to adopt them. If legally binding requirements were used in lieu of regulations and they have not been reviewed by NRC for compatibility, please describe their use.

*Colorado has reviewed the Colorado State Regulation Status (SRS) sheet and believes it to be correct.*

*Since the prior IMPEP in April 2014, Colorado has submitted final rule packages for all currently available NRC Regulatory Action Tracking System (RATS) items through 2015-5 and has addressed all outstanding non-RATS items identified on the SRS. During the review period, approximately 19 draft and final rule, enabling legislation, and other non-RATS document packages have been submitted to NRC for review.*

28. If you have not adopted all amendments within three years from the date of NRC rule promulgation, briefly describe your State's procedures for amending regulations in order to maintain compatibility with the NRC, showing the normal length of time anticipated to complete each step.

*The Program strives to complete all NRC driven regulatory amendments within 3 years of NRC's rule promulgation and typically within the second year. At the time of the prior IMPEP in 2014, the state had a backlog of regulatory changes needed, and some of which required changes to statute to complete. Some of this backlog continued into the current review period, with some regulatory changes requiring coordination of regulatory and statutory efforts. All state agencies are required to plan for future regulatory changes at least one year ahead through establishment of a regulatory agenda which is issued in November of each year. Depending upon the NRC rule change issuance date will determine whether the rulemaking activity will take place in the 2<sup>nd</sup> or possibly 3<sup>rd</sup> year following NRC issuance. Except where a regulatory change may be particularly controversial, most rulemaking efforts can typically be completed within approximately 12-14 months.*

*During the review period, Colorado completed final rule packages with effective dates prior to the adoption due date for RATS 2011-1, 2012-1, 2012-2, 2012-3, 2013-1, 2013-2, 2015-1, and 2015-2. Regulatory changes associated with RATS 2011-2 (due 11/14/14) and RATS 2012-4 (due 10/23/15) were delayed but became effective in 2016. The primary reason for the delay was due to the focus of resources on addressing prior NRC regulatory comments and to initiate changes to the enabling legislation associated with NRC comments. As the program was progressing towards developing rule changes needed to address NRC RATS items and comments in 2013, external parties initiated statutory changes in early 2014 which placed some rulemaking efforts on hold. In 2015, the Department was allowed to pursue changes to the enabling legislation to address the outstanding NRC items. Additionally, during the 2013-14 time period, focus and regulatory efforts and resources were also devoted to x-ray machine and fee related regulatory changes.*

*The enclosed table in Attachment C outlines the specific rule package completion dates corresponding to NRC RATS items for the review period. Although not due until the next review period, Colorado has also submitted final rule packages for RATS 2015-3, 2015-4, and 2015-5.*

## II. Sealed Source and Device (SS&D) Evaluation Program

29. Prepare a table listing new and amended (including transfers to inactive status) SS&D registrations of sources and devices issued during the review period. The table heading should be:

<i>SS&amp;D Registry number</i>	<i>Manufacturer</i>	<i>Product Type or Use</i>	<i>Date Issued</i>	<i>Type of Action</i>
<i>CO-1012-D-103-S</i>	<i>Thermo MF Physics</i>	<i>neutron generator tube</i>	<i>Pending</i>	<i>amendment to change labels</i>

30. Please include information on the following questions in Section A, as they apply to the SS&D Program:

### Technical Staffing and Training - Questions 2-9

*See Section B responses. The following staff members have been trained to perform SS&D evaluations: Jennifer Opila, James Grice, James Jarvis, Phillip Peterson, Cheri Hall, Ramon Li, and Mark Dater.*

### Technical Quality of Licensing Actions - Questions 18-22

*See Section B responses. SS&D actions are handled as part of the overall license program.*

### Technical Quality of Incident and Allegation Activities - Questions 23-24

*See Section B responses. SS&D actions are handled as part of the overall incident and allegation program.*

III. Low-level Radioactive Waste Disposal Program

31. Please include information on the following questions in Section A, as they apply to the Low-Level Radioactive Waste Disposal Program:

*See Section B responses. We have one potential Low-Level radioactive waste disposal license, Clean Harbors Deer Trail, which is authorized to accept for disposal NORM and TENORM. This licensee is regulated as any other licensee.*

Technical Staffing and Training - Questions 2-9  
Status of Materials Inspection Program - Questions 10-14  
Technical Quality of Inspections - Questions 15-17  
Technical Quality of Licensing Actions - Questions 18-22  
Technical Quality of Incident and Allegation Activities - Questions 23-24

IV. Uranium Recovery Program

32. Please include information on the following questions in Section A, as they apply to the Uranium Recovery Program:

*See Section B responses. All Uranium Recovery Licensees are regulated as all other licensees.*

Technical Staffing and Training - Questions 2-9  
Status of Materials Inspection Program - Questions 10-14  
Technical Quality of Inspections - Questions 15-17  
Technical Quality of Licensing Actions - Questions 18-22  
Technical Quality of Incident and Allegation Activities - Questions 23-24



*Attachment B*  
*Staff Training Summary*

		Mote	Gift	Rottenborn	Thorvaldson	Bailey	Li	Wang	Dater	Peterson	Hall	Grice	Jarvis	Opila
<b>Formal Education</b>														
<b>BS in Health Physics or Related field</b>			X	X	X	X	X	X		X	X	X	X	X
<b>OSHA 40-Hour</b>		04/05/17	10/20/17			X	X	X	X	X	X	X	X	X
<b>NRC Introductory Health Physics</b>	<b>H-117</b>		EQ	EQ		EQ	EQ	EQ	EQ	EQ	EQ	EQ	EQ	EQ
<b>NRC Fundamental Health Physics I &amp; II</b>	<b>H-122</b>				12/16/16	EQ	EQ	8/1/2012	1/11	EQ	EQ	EQ	EQ	EQ
<b>NRC Intermediate Health Physics</b>	<b>H-123</b>					EQ	EQ	12/1/2012		EQ	EQ	EQ	EQ	EQ
<b>NRC Advanced Health Physics</b>	<b>H-201</b>					EQ	08/19/16	8/1/2015	10/09	8/11	EQ	EQ	EQ	EQ
<b>NRC Licensing Practices and Procedures</b>	<b>G-109</b>		OJT	OJT	OJT	OJT	OJT	OJT	2007	OJT	OJT	2007	2003	2004
<b>NRC Inspection Procedures</b>	<b>G-108</b>			OJT	OJT	OJT	10/31/14	3/1/2013	2007	4/10	9/12	2007	2003	EQ
<b>NRC Diagnostic &amp; Therapeutic Nuclear Medicine</b>	<b>H-304</b>		Registered	05/19/17	03/10/17	03/11/16	04/15/15		8/10	3/10	8/13	3/08	EQ	2005
<b>NRC Brachytherapy and Gamma Knife</b>	<b>H-313</b>		Registered	05/12/17	03/17/17	03/18/16	06/12/15		08/12/16	8/13	6/13	7/08	EQ	2006
<b>NRC Safety Aspects of Industrial Radiography</b>	<b>H-305</b>			01/27/17		10/14/15	10/21/16		12/07	2/11	1/14	9/09	2005	2006
<b>NRC Transportation of Radioactive Materials</b>	<b>H-308</b>		Registered	07/21/17	07/21/17	12/14/15	12/14/15	3/13	9/10	3/12	6/13	EQ	6/08	EQ
<b>NRC Safety Aspects of Well Logging</b>	<b>H-314</b>					09/14/15	04/29/16		11/07	4/12	9/13	10/10	2004	2008
<b>NRC Security Systems and Principles</b>	<b>S-201</b>		Application	05/26/17	05/26/17	02/05/15	06/02/15		4/08	6/11	5/13	1/09	2006	2006
<b>NRC Sealed Source and Device Evaluation</b>	<b>G-116</b>						06/23/17		5/09	9/11	4/14	5/09	2003	5/09
<b>NRC MARSSIM: Multi-Agency Radiation Survey and Site Investigation</b>	<b>H-121</b>					02/16/18	02/26/16							
<b>NRC Internal Dosimetry</b>	<b>H-312</b>													
<b>NRC Root Cause/Incident Investigation Workshop</b>	<b>G-205</b>			09/01/17	09/01/17	09/01/17	09/01/17	09/01/17	09/01/17	06/19/15	09/01/17		09/01/17	
<b>First On Scene Training for Emergency Responders – (FOSTER) (online, .5 to 2 hrs)</b>										10/09			EQ	
<b>Modular Emergency Response Radiological Transportation Training (MERRTT)</b>									2007	9/10		2006	EQ	EQ
<b>RERO or other Emergency Management Training</b>													EQ	EQ
<b>NMED</b>				11/17/16	11/17/16	11/17/16	11/17/16	11/17/16	2007	11/17/16	11/17/16	2007	2007	11/17/16
<b>Nuclear Gauge Radiation Safety Officer Training</b>										4/10				
<b>NRC Health Physics in Uranium Recovery</b>	<b>F-104</b>											7/10		
<b>NRC RESRAD Training Workshop (H-410)</b>	<b>H-410</b>													
<b>NRC RESRAD-OFFSITE Training Workshop (H-411)</b>	<b>H-411</b>					08/04/17		08/19/16						

			Dorrell*	Stroud*	Ethington*	Etherton*	DeWolfe*	Brown*	Chittum*	Romanchek*	Egidi*
<b>Formal Education</b>											
<b>BS in Health Physics or Related field</b>			X	X	X	X	X	X	X		
<b>OSHA 40-Hour</b>			X	X	X	X	4/09	X	X	X	X
<b>NRC Introductory Health Physics</b>	H-117		EQ	EQ	2005	EQ	EQ	EQ	EQ	EQ	EQ
<b>NRC Fundamental Health Physics I &amp; II</b>	H-122		EQ	EQ	2007	EQ	8/09	EQ		8/12	EQ
<b>NRC Intermediate Health Physics</b>	H-123		EQ					EQ		12/12	
<b>NRC Advanced Health Physics</b>	H-201		EQ	EQ		4/13	EQ	10/10		9/14	EQ
<b>NRC Licensing Practices and Procedures</b>	G-109		OJT	EQ	2005	OJT	OJT	OJT	OJT	OJT	2001
<b>NRC Inspection Procedures</b>	G-108		03/01/15	1996	2006	EQ/OJT	EQ/OJT	9/11		10/12	2002
<b>NRC Diagnostic &amp; Therapeutic Nuclear Medicine</b>	H-304		08/07/15	1996		3/09	EQ	8/11		12/13	2006
<b>NRC Brachytherapy and Gamma Knife</b>	H-313		08/01/15	2002		8/12	12/09			3/14	
<b>NRC Safety Aspects of Industrial Radiography</b>	H-305			1995		9/09	10/10	3/12	11-Sep	10/12	2004
<b>NRC Transportation of Radioactive Materials</b>	H-308		12/14/15	1995, 2004		EQ	6/10			7/14	2005
<b>NRC Safety Aspects of Well Logging</b>	H-314			1997		10/11	2012	5/13	11-Apr	5/14	2004
<b>NRC Security Systems and Principles</b>	S-201			2006		3/10	8/10	5/12	11-Jun	5/12	2006
<b>NRC Sealed Source and Device Evaluation</b>	G-116		06/23/17	1995				9/11		4/14	
<b>NRC MARSSIM: Multi-Agency Radiation Survey and Site Investigation</b>	H-121										
<b>NRC Internal Dosimetry</b>	H-312		12/16/16								
<b>NRC Root Cause/Incident Investigation Workshop</b>	G-205										
<b>First On Scene Training for Emergency Responders – (FOSTER) (online, .5 to 2 hrs)</b>				EQ			3/09				EQ
<b>Modular Emergency Response Radiological Transportation Training (MERRTT)</b>				EQ			5/09				EQ
<b>RERO or other Emergency Management Training</b>				1995							2002
<b>NMED</b>			11/17/16	1997, 2001							
<b>Nuclear Gauge Radiation Safety Officer Training</b>											
<b>NRC Health Physics in Uranium Recovery</b>	F-104						7/11	40735			
<b>NRC RESRAD Training Workshop (H-410)</b>	H-410		04/25/17								
<b>NRC RESRAD-OFFSITE Training Workshop (H-411)</b>	H-411										

*Attachment C*  
*NRC RATS Completions*

RATS	RATS DUE DATE	CFR PARTS	CO RULE EFFECTIVE DATE	STATUS	NRC FINAL LETTER DATE
2011-1	12/17/2015	20	PART 4: 4/14/2013	COMPLETED BEFORE DUE DATE	9/16/2013
		30	PART 3: 6/14/2014	COMPLETED BEFORE DUE DATE	9/29/2015
		40	PART 3: 6/14/2014	COMPLETED BEFORE DUE DATE	9/29/2015
		70	PART 3: 6/14/2014	COMPLETED BEFORE DUE DATE	9/29/2015
2011-2	11/14/2014	30	PART 1: 2/14/16	DELAYED COMPLETION	8/30/2016
		36	PART 19: 9/14/16	DELAYED COMPLETION	11/10/2016
		39	PART 16: 9/14/16	DELAYED COMPLETION	10/31/2016
			PART 1: 2/14/16		
		40	PART 3: 2/14/16	DELAYED COMPLETION	8/30/2016
		70	PART 1: 2/14/16	DELAYED COMPLETION	8/30/2016
			PART 1: 2/14/16		
2012-1	1/25/2015	31.5	PART 3: 6/14/14	COMPLETED BEFORE DUE DATE	11/19/2014
		31.6	PART 3: 6/14/14	COMPLETED BEFORE DUE DATE	11/19/2014
2012-2	8/10/2015	71	PART 17: 08/14/14	COMPLETED BEFORE DUE DATE	7/5/2016
2012-3	8/6/2015	30	PART 3: 6/14/14	SUBMITTED EARLY	11/19/2014
		34	PART 5: 12/30/12	COMPLETED BEFORE DUE DATE	7/5/2016
		40	PART 18: 10/01/14	COMPLETED BEFORE DUE DATE	7/5/2016
		71	PART 17: 8/14/14	COMPLETED BEFORE DUE DATE	7/5/2016
2012-4	10/23/2015	30	PART 3: 02/14/16	DELAYED COMPLETION	8/3/2016
		31	PART 3: 02/14/16	DELAYED COMPLETION	8/3/2016
		32	PART 3: 02/14/16	DELAYED COMPLETION	8/3/2016
			N/A - Not required		
		40	for compatibility	COMPLETED BY DUE DATE	8/3/2016
			N/A - Not required		
2013-1	3/19/2016		N/A - Not required		
		20	for compatibility	COMPLETED BY DUE DATE	N/A
		30	PART 3: 2/14/16	COMPLETED BY DUE DATE	8/7/2017
			N/A - Not required		
		32	for compatibility	COMPLETED BY DUE DATE	N/A
			N/A - Not required		
		33	for compatibility	COMPLETED BY DUE DATE	N/A
			N/A - Not required		
		34	for compatibility	COMPLETED BY DUE DATE	N/A
			N/A - Not required		
		35	for compatibility	COMPLETED BY DUE DATE	N/A

		36	N/A - Not required for compatibility	COMPLETED BY DUE DATE	N/A
		37	<b>PART 22: 7/5/15</b>	COMPLETED BY DUE DATE	8/7/2017
		39	N/A - Not required for compatibility	COMPLETED BY DUE DATE	N/A
		71	<b>PART 17: 10/01/14</b>	COMPLETED BY DUE DATE	7/5/2016
<b>2013-2</b>	<b>8/27/2016</b>	30	N/A - Not required for compatibility	COMPLETED BY DUE DATE	8/3/2016
			<b>PART 1: 2/14/16</b>		
		40	<b>PART 3: 2/14/16</b>	COMPLETED BY DUE DATE	8/3/2016
		70	N/A - Not required for compatibility	COMPLETED BY DUE DATE	8/3/2016
<b>2015-1</b>	<b>1/26/2018</b>	70	<b>PART 4: 4/14/13</b>	COMPLETED BY DUE DATE	6/8/2015
<b>2015-2</b>	<b>1/28/2018</b>	30	N/A - Not required for compatibility	COMPLETED BY DUE DATE	11/3/2015
		37	<b>PART 22: 7/15/15</b>	COMPLETED BY DUE DATE	11/3/2015
		73	N/A - Not required for compatibility	COMPLETED BY DUE DATE	11/3/2015
		150	N/A - Not required for compatibility	COMPLETED BY DUE DATE	11/3/2015

DATA AS OF 3/16/18