



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

**REGION IV
1600 EAST LAMAR BOULEVARD
ARLINGTON, TEXAS 76011-4511**

May 6, 2020

James Grice, Manager
Radiation Control Program
Hazardous Material & Waste
Management Division
Colorado Department of Public
Health & Environment
HMWMD-RAD-B2
4300 Cherry Creek Drive South
Denver, Colorado 80246-1530

Dear Mr. Grice:

A periodic meeting with Colorado was conducted telephonically on April 8, 2020. The purpose of this meeting was to review and discuss the implementation of Colorado's Agreement State Program. The Nuclear Regulatory Commission (NRC) was represented by Mary Muessle, Director, Division of Nuclear Materials Safety, and Randy Erickson, Regional State Agreements Officer, from the NRC's Region IV office. Also attending were Robert Johnson, IMPEP Project Manager, from the NRC's Office of Nuclear Materials Safety and Safeguards, and Darren Piccirillo, Regional State Agreements Officer, from the NRC Region III office.

I have completed and enclosed a general meeting summary. If you feel that our comments, conclusions, or actions to be taken do not accurately summarize the meeting discussion, or have any additional remarks about the meeting in general, please contact me at (817) 200-1143 or via email at Randy.Erickson@nrc.gov to discuss your concerns.

Sincerely,

/RA/

Randy Erickson
Regional State Agreements Officer

Enclosure:
Periodic Meeting Summary for Colorado

DISTRIBUTION:

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NAME	RErickson	MMuessle				
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INTEGRATED MATERIALS PERFORMANCE EVALUATION PROGRAM

PERIODIC MEETING WITH THE STATE OF COLORADO

TYPE OF OVERSIGHT: NONE

April 8, 2020

Enclosure

PERIODIC MEETING PARTICIPANTS

NRC

- Mary Muessle: Director, DNMS, NRC Region IV
- Randy Erickson: RSAO, NRC Region IV
- Robert Johnson: IMPEP Project Manager, NMSS
- Darren Piccirillo: RSAO, NRC Region III

State of Colorado

- Jennifer Opila, Director, Hazardous Material & Waste Management Division
- James Grice, Manager, Radiation Control Program
- Phillip Peterson, Unit Leader, Radiation Control Program
- James Jarvis, Health Physicist, Radiation Control Program
- Shiya Wang, Health Physicist, Radiation Control Program

1.0 INTRODUCTION

This report presents the results of the periodic meeting held between the U.S. Nuclear Regulatory Commission (NRC) and the State of Colorado. The meeting was held on April 8, 2020, and was conducted in accordance with Nuclear Materials Safety and Safeguards (NMSS) Procedure SA-116, "Periodic Meetings between IMPEP Reviews," dated June 3, 2009.

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 (the Division), within the Department of Public Health and Environment (the Department). At the time of the meeting, the Colorado Agreement State Program regulated approximately 316 specific radioactive materials licensees authorizing the possession and use of radioactive materials. The review focused on the Colorado Agreement State 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.

The Program is fee funded. Fees are collected and go into general revenue with a yearly appropriation made for the Program. Their last fee increase was in 2014. Fees are reviewed every few years and adjusted based on workload and program costs. The agency cannot reallocate funds; however, the Governor can reallocate funds during an emergency using an executive order. The legislature can also reallocate funds through normal legislative actions.

The Program last underwent an Integrated Materials Performance Evaluation Program (IMPEP) review from April 9-12, 2018 (located in the NRC's Agencywide Documents Access and Management System (ADAMS) Accession ML18180A318). A Management Review Board (MRB) meeting to discuss the outcome of the IMPEP review was held on June 26, 2018.

During the June 26, 2018, MRB meeting, the Colorado Agreement State Program's performance was found to be satisfactory for all indicators reviewed. The team made no new recommendations and there were no open recommendations from previous review for the team to consider. Accordingly, the team recommended, and the MRB agreed, that the Colorado Agreement State Program is adequate to protect public health and safety and compatible with the NRC's program. The team recommended, and the MRB agreed, that the next IMPEP review will take place in approximately 4 years with a periodic meeting in approximately 2 years.

2.0 COMMON PERFORMANCE INDICATORS

Five common performance indicators are used to review the NRC's Regional Office and Agreement State radioactive materials programs during an IMPEP review. 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.

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2.1 Technical Staffing and Training (2018 IMPEP Rating: Satisfactory)

The materials section when fully staffed is comprised of nine full time equivalents, which includes one work lead for the inspection program, one work lead for the licensing program, one staff member who oversees the general license program, and six technical staff members who perform licensing actions, inspections; and, event and allegation investigations. Since the 2018 IMPEP review, one person left the program, and the program manager was promoted to division director. Several individuals within the program promoted upward and the resulting two entry level positions were rapidly filled. At the time of the meeting, the materials program had no vacancies.

The Program has a training and qualification plan program that is consistent with NRC's Inspection Manual Chapter (IMC) 1248, "Qualification Programs for Federal and State Materials and Environmental Management Programs." Program management tracks continuing education requirements of 24 hours every 2 years and provides ample opportunities for staff to fulfill this requirement.

2.2 Status of the Materials Inspection Program (2018 IMPEP Rating: Satisfactory)

The Program's inspection frequencies are the same as the NRC's inspection frequencies identified in IMC 2800. At the time of the meeting, no inspections were currently overdue, and none had been performed overdue since the 2018 IMPEP review. The Program had issued a total of nine new licenses since the 2018 IMPEP review. Two of those initial licensees received an onsite inspection in excess of 12 months, but within 18 months of license issuance. The first licensee did not receive material until approximately 15 months after license issuance. The Program kept in contact with the licensee and performed their initial inspection within 3 months of their first receipt of radioactive material.

The second license was originally issued in December 2017 and as of the date of the periodic meeting, has not received any radioactive material. The Program has performed inspections to confirm that no material has been acquired. The Program continues to follow the licensee to ensure they are made aware when their first acquisition of radioactive material occurs.

The Program reported that they are currently under travel restrictions and stay at home orders due to the Coronavirus (COVID-19) pandemic. Initially in March 2020, the Program did not have any overdue inspections as a result of the pandemic. However, the Program reported that if its restrictions continue to exist through April 2020 and into May 2020, they may have up to 10 inspections that will be performed beyond the grace period identified in IMC 2800. If the travel restrictions due to the pandemic goes beyond May 2020 that number could be greater.

The Program reported that in 2018 they performed inspections on a total of 35.7 percent of candidate licensees coming into Colorado under reciprocity. In 2019, they performed 29.4 percent and through March 31, 2020, they had not yet performed any reciprocity inspections. The changes to IMC 2800 were discussed with the program to ensure they were aware that the 20 percent annual goal for conducting reciprocity inspections as previously identified in IMC 1220 would no longer be used. The Program reported that while they may not be required to meet the 20 percent goal in the future, they will attempt

to reach that 20 percent goal for conducting reciprocity inspections because they believe those inspections are important to their program.

Inspection findings are routinely sent to licensees within 30 days of the inspection exit.

2.3 Technical Quality of Inspections
(2018 IMPEP Rating: Satisfactory)

The Program uses inspection procedures that are consistent with the inspection guidance outlined in IMC 2800. Final inspection findings may be issued in the field by the inspection staff using pre-established criteria and are issued on a Colorado Form 59 (Form 59), which is similar to the NRC's Form 591.

For inspections that have four or less minor violations, inspectors can issue a Form 59 describing the violations. Alternatively, instead of issuing a Form 59 in the field, inspectors may choose to draft a Notice of Violation letter, which is issued from the office and goes out under the compliance work lead's signature. Inspection reports are created summarizing the information reviewed and are also submitted to the compliance work lead for review. Inspections that have five or more violations, or any violations that may lead to an escalated enforcement action, are required to have a letter drafted by the inspector and signed out by the compliance work lead.

Licensee replies are evaluated by the inspector and compliance work lead to determine if the corrective actions are appropriate. Any clarification on the corrective actions are initiated by the inspector. After the corrective actions are deemed to be appropriate by the inspector and compliance work lead, an acknowledgement letter is drafted that either affirms or dismisses the violations. This letter is signed by the unit lead and closes the inspection. Any escalated enforcement actions are decided upon by the unit leader in consultation with the inspector and compliance work lead.

Inspector accompaniments continue to be performed for everyone performing inspections on an annual basis. Senior management has delegated the accompaniments to be performed by the compliance work lead. The compliance work lead is accompanied annually by the unit lead position.

2.4 Technical Quality of Licensing Actions
(2018 IMPEP Rating: Satisfactory)

The Program had approximately 316 specific licensees at the time of the periodic meeting. The inspection staff also performs all licensing actions, which after completion are signed out by the unit leader. Since the 2018 IMPEP review, the Program completed 568 licensing actions, which includes 328 license amendments, 132 license renewals, 23 new license applications, 21 license terminations, and 62 documents reviews.

The Program reported they have two variances that were issued to two licensees since the 2018 IMPEP review. One includes a licensee who was provided a waiver to select requirements of Part 7, Appendix 7N, and 7.18 (10 CFR 35.63) in order to administer a diagnostic test while a patient is experiencing a seizure. Another licensee was issued a license that allowed for the disposal of waste radioactive tracer materials generated by well logging sandouts, fluid reversals, flowback events, and well returns at a solid waste disposal site that is not a radioactive materials licensee.

The Program also reported that they received two requests from separate licensees to add a Ruby-Fill generator as an approved device. A Ruby-Fill generator is a rubidium-82 generator used for Cardiac Positron Emission Tomography (PET) imaging in the evaluation of heart conditions. At the time of license issuance, the Program did not have standard license conditions to be used specifically for a Ruby-Fill generator, so they compared the license conditions used for a CardioGen generator, which is another type of rubidium-82 generator also used for PET imaging in the evaluation of heart conditions, which they received from a different agreement state and adapted those for use for the Ruby-Fill generator. Additionally, the Radioactive Materials Unit received training from the vendor to learn more about the Ruby-Fill device and how it differed from the CardioGen device.

The Program also reported that licensing guidance used by the materials section is equivalent to the NRC's NUREG-1556 Series guidance, Pre-licensing Guidance, and Risk Significant Radioactive Materials Checklist.

All generally-licensed devices in Colorado are controlled by the Program. The Program requires all generally-licensed devices to be registered and the licensees must update their inventory through a self-certification on an annual basis. In addition, the Program requires holders of any generally-licensed device with a quantity exceeding 1/10 of Category 3 radioactive material to have a specific license. The Program reported 44 lost generally-licensed devices to the NRC's Headquarters' Operations Officer (HOO) between the 2018 IMPEP review and the date of the periodic meeting.

The Program reported that the tracking and oversight of generally-licensed devices, specifically tritium exit signs, continues to be a challenge. Tritium exit signs, while considered to be of low safety significance due to their emission of low energy beta radiation, are registered and tracked by Colorado as part of their generally-licensed registration program. Obtaining proper, clear, and accurate information from manufacturers regarding where and to whom devices are being distributed continues to be challenging. This is compounded by the involvement of "intermediate persons" who may at times not install these items at the intended place of use and are difficult to track. The manufacturers and distributors of these devices are typically not licensed in Colorado and as a result if there are issues, the Program does not have an adequate level of oversight for those programs in order to effect change.

2.5 Technical Quality of Incident and Allegation Activities (2018 IMPEP Rating: Satisfactory)

The Colorado Agreement State Program has procedures and processes in place to maintain effective responses to incidents and allegations. When an event is reported to the Program, the Program evaluates the event to determine its health and safety significance and then decides on the appropriate response. That response can range anywhere from responding immediately to reviewing the event during the next inspection. When an event is determined to have high health and safety significance, inspectors are dispatched immediately.

Since the 2018 IMPEP review, the Program reported a total of 20 non-generally-licensed events to the NMED database. At the time of the periodic meeting, all 20 events remained open, although the Program reported that 8 of the events were complete and ready to be

closed in NMED with others ready to be closed pending closure of enforcement action, and some were still open and being actively worked.

When an event is received requiring reporting to the NRC's HOO, those events are identified and HOO reporting is performed within the required timeframe and in accordance guidance found in SA-300.

One allegation was received from the NRC since the 2018 IMPEP review. It was evaluated, investigated and closed. No other allegations were received directly by the Program during this time; however, when allegations are received, they are reviewed and investigated by the Program, concerned individuals are notified of the actions taken, and alleged identities are protected whenever possible in accordance with state law.

3.0 NON-COMMON PERFORMANCE INDICATORS

Four non-common performance indicators are used to review Agreement State programs: (1) Compatibility Requirements, (2) Sealed Source and Device (SS&D) Evaluation Program, (3) Low-Level Radioactive Waste Disposal (LLRW) Program, and (4) Uranium Recovery Program. The NRC's Agreement with Colorado relinquishes regulatory authority for all but the LLRW Program, so three non-common performance indicators were discussed.

3.1 Legislation, Regulations and Other Program Elements (2018 IMPEP Rating: Satisfactory)

Legislative actions since the last 2018 IMPEP review included modifications to the Program, which address elements not related to the Agreement. These include an initiative to obtain funding for the radon program and adding the authority to regulate technologically enhanced naturally occurring radioactive material.

At the time of the 2018 IMPEP review no amendments were overdue. Regulatory changes associated with the Colorado Regulation Amendment Tracking Sheet (RATS) items due during the current 2018-2022 IMPEP review period are in process and on schedule. Rule amendments to address comments on final rules for RATS IDs 2015-3 and 2015-5 are also scheduled for completion in 2020. New amendments to address RATS IDs 2018-1 and 2018-2 are in process and are also expected to be completed in 2020.

Regulatory changes associated with future RATS items due during the next (2022-2026) IMPEP review period (e.g., 2018-3, 2019-1, and 2019-2) are ahead of schedule and are expected to be completed prior to the end of calendar year 2020. Regulations applicable to the Colorado Agreement State Program are not subject to sunset requirements.

3.2 Sealed Source and Device Evaluation Program (2018 IMPEP Rating: Satisfactory)

While Colorado's agreement with the NRC authorizes an SS&D program, Colorado does not have a highly active program. Currently they have three active SS&D manufacturers/distributors and five staff who have attended the NRC's SS&D training course. During the previous IMPEP review period, they did not perform any SS&D actions, nor did they perform any actions between the 2018 IMPEP review and the date of

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the periodic meeting. The Program reported that should they receive a complex action, they will reach out to other state programs with more active programs for assistance.

3.3 Uranium Recovery Program (2018 IMPEP Rating: Satisfactory)

The Program reported that the uranium recovery program has one full-time equivalent who performs all licensing, inspections, technical review, and project management of the uranium recovery program. 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 if needed. There were no vacancies at the time of the meeting.

The Program reported that since the 2018 IMPEP review, it had performed four inspections of uranium recovery sites and a total of six overall inspections. It also reported that no inspections were performed overdue, none were currently overdue and there were no initial inspections performed. Inspections can be performed and documented using the same criteria as noted for the materials program in Section 2.3 of this summary. The Program also reported that between the 2018 IMPEP review and the date of the periodic meeting, they performed a total of 67 licensing actions, including 7 amendments, 1 renewal, 1 termination, 1 revocation, and 57 document reviews.

The Program reported that no allegations were received directly by the Program or referred by the NRC. They experienced no significant events. The Program noted that they had three spill incidents reported by Colorado Legacy Land, LLC, in 2019. All three spills were minor and were contained within the restricted area; two were spills of contaminated groundwater and one was spill of used oil. These events were not reportable to the NRC.

Updates on the following sites:

There were no operational facilities in the State at the time of the 2018 IMPEP review except for the Cotter Corporation Schwartzwald Mine, which is a water treatment facility. All the remaining facilities were in standby, storage-only, or decommissioning status and not operational at the time of the periodic meeting.

Uranium recovery sites:

- **Energy Fuels Resources Piñon Ridge Mill**

2018 IMPEP Review: The license was in litigation and “held in abeyance”. Construction had not begun.

2020 Periodic Meeting: On April 17, 2018, the Denver District Court ruled that the application of Energy Fuels for the Piñon Ridge Mill license should be denied. On April 26, 2018, the Department revoked the license. The mill was never constructed.

- **Colorado Legacy Land (Cotter) Cañon City Mill**

2018 IMPEP Review: The site ownership was just transferred from Cotter Corporation to Colorado Legacy Land, LLC, in March 2018.

2020 Periodic Meeting: The program continues working with the Remediation Program of the Department and Environmental Protection Agency (EPA) to oversee the site decommissioning following the Superfund process. Colorado Legacy Land is currently working on preparing the draft Remedial Investigation Report. No remedial action has been approved and conducted. Current site activities include routine site inspections, dust control, occupational and environmental monitoring, and recordkeeping and reporting.

- **Umetco Uravan Mill**

2018 IMPEP Review: The program continued working on the Completion Review Report (CRR) and working with EPA to implement the Superfund process.

2020 Periodic Meeting: A Record of Decision for Uravan's institutional controls was issued by the EPA and the Department in June 2018. The program continues working with the EPA, Umetco, the U.S. Department of Energy (DOE), the U.S. Bureau of Land Management, and Montrose County to implement the long-term institutional controls. The program is also working on the CRR.

- **Hecla Durita Mill**

2018 IMPEP Review: the NRC was reviewing the Durita CRR.

2020 Periodic Meeting: the NRC is reviewing the Durita CRR, but should complete the review in the near future. The DOE requested a few items of action to be taken by Hecla before DOE can accept the site transfer; the program will be working with Hecla to address these items. The DOE continues working with the NRC to address the long-term care fund issue.

- **Sweeney Mill**

2018 IMPEP Review: The Sweeney Mill was closed and stable with no funding available.

2020 Periodic Meeting: In November 2019, the program learned that Mr. Gordon Sweeney, the primary (and potentially only) responsible individual passed away; however, the corporation still exists as it was never legally closed. The program has taken steps to place a Restrictive Notice on the property to prevent the property from being sold or manipulated to disturb the mill tailings on the property.

- **George E. Davis Mill –This is no longer a licensee.**

2018 IMPEP Review: The George E. Davis Mill site was under covenant.

2020 Periodic Meeting: The site is still under covenant and stable.

Uranium decay chain contamination sites:

- **Colorado Legacy Land (Cotter) Schwartzwalder Mine**

2018 IMPEP Review: The site ownership was just transferred from Cotter Corporation to Colorado Legacy Land, LLC, in March 2018.

2020 Periodic Meeting: The mine is primarily regulated under a mine reclamation permit issued by Colorado Division of Reclamation, Mining, and Safety. The site has also been under a radioactive materials license for water treatment of uranium. The site is a former uranium mine site and is being remediated by removing uranium from groundwater.

- **Colorado School of Mines Creekside –This is no longer a licensee.**

2018 IMPEP Review: The Colorado School Mines Creekside license was terminated and was under covenant.

2020 Periodic Meeting: The site is still under covenant and stable.

- **Colorado School of Mines Research Institute Table Mountain Research Center**

2018 IMPEP Review: The Table Mountain Research Center (used to be owned by Colorado School of Mines Research Institute) was in decommissioning status and stable with no funding available. The site was in the license termination process.

2020 Periodic Meeting: The site is still in license termination process. The program, the Remediation Program of the Department, site owner, adjacent property owners, and potential buyer of the site are working together on putting environmental covenants on the site and adjacent areas impacted by the past license activities. The license will be terminated once covenants are in place. The Program anticipates that the covenant process will be completed by the end of 2020.

- **Homestake Mining**

2018 IMPEP Review: The mine site was in standby awaiting mine reclamation and closure.

2020 Periodic Meeting: The mine is primarily regulated under a mine reclamation permit issued by Colorado Division of Reclamation, Mining, and Safety. The site has also been under a radioactive materials license for possession of water treatment residual containing naturally occurring uranium and its progeny from past

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water treatment activity on site. A license amendment was issued to authorize pilot testing of water treatment to reduce the uranium concentrations at the water discharge point. Another license amendment was issued in February 2019 for a modification to the pilot water treatment system. The pilot water treatment is ongoing. Mine reclamation continues being in standby status.

3.4 Low-Level Radioactive Waste Disposal Program (2018 IMPEP Rating: Satisfactory)

In 1981, the NRC amended its Policy Statement, "Criteria for Guidance of States and NRC in Discontinuance of NRC Regulatory Authority and Assumption Thereof by States Through Agreement," to allow a State to seek an amendment for the regulation of LLRW as a separate category. Although the Colorado Agreement State Program has LLRW disposal authority, the NRC has not required States to have a program for licensing a LLRW disposal facility until such time as the State has been designated as a host State for a LLRW disposal facility. When an Agreement State has been notified or becomes aware of the need to regulate a LLRW disposal facility, they are expected to put in place a regulatory program which will meet the criteria for an adequate and compatible LLRW disposal program. There are no plans for a LLRW disposal facility in Colorado.

4.0 SUMMARY

The Program continues to be an effective and well managed Agreement State program. Currently there are no vacancies. The Program is effectively managing its licensing and inspection activities well, even in the face of the COVID-19 pandemic. The Program will respond to events as appropriate, and they currently have no overdue regulation amendments.

The Program has also developed a division level strategic plan that includes an initiative to gather data from inspections on common violations and to develop an outreach program for compliance assistance. The goal of this initiative is to increase compliance rates. The Program plans to develop a tool to compile data on violations, to categorize data by violation type and occurrence rate, prioritize areas of noncompliance accounting for critical nature, quantity, and resource requirements, and then perform targeted outreach in the form of specific guidance document distribution, training sessions, and other communications with the licensees or registrants.

The NRC staff recommends that the next IMPEP review for the Colorado Program be conducted as scheduled in 2022. The Program did not request a Special MRB.