



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

July 18, 2019

**MEMORANDUM TO:** Scott A. Morris, Regional Administrator  
Region IV

**FROM:** K. Steven West */RA/*  
Deputy Executive Director for Materials, Waste,  
Research, State, Tribal, Compliance, Administration,  
and Human Capital Programs  
Office of the Executive Director for Operations

**SUBJECT:** FINAL REPORT OF THE INTEGRATED MATERIALS  
PERFORMANCE EVALUATION PROGRAM REVIEW OF THE  
U.S. NUCLEAR REGULATORY COMMISSION'S REGION IV  
MATERIALS PROGRAM

On June 25, 2019, a Management Review Board (MRB), which consisted of U.S. Nuclear Regulatory Commission (NRC) senior managers and an Organization of Agreement States liaison to the MRB, met to consider the proposed final Integrated Materials Performance Evaluation Program (IMPEP) report on the NRC Region IV materials program. The MRB found Region IV's program adequate to protect public health and safety. The enclosed final report contains a summary of the IMPEP team's findings (Section 5.0). Based on the results of the current IMPEP review, the next IMPEP review will take place in approximately 5 years and a periodic meeting will take place in approximately 2.5 years.

I appreciate the courtesy and cooperation extended to the IMPEP team during the review, and we applaud your staff's efforts during the IMPEP review period.

Enclosure:  
Final NRC Region IV IMPEP Report

cc: David Matos, Program Manager  
Radioactive Materials Program  
State of Georgia  
OAS Liaison to the MRB

**CONTACT:** Robert K. Johnson, NMSS/MSST  
301-415-7314

SUBJECT: FINAL REPORT OF THE INTEGRATED MATERIALS PERFORMANCE EVALUATION PROGRAM REVIEW OF THE U.S. NUCLEAR REGULATORY COMMISSION REGION IV MATERIALS PROGRAM DATED: July 18, 2019

**DISTRIBUTION: (SP08)**

Chairman Svinicki	VGaddy, RIV	OAS Board
Commissioner Baran	LRoldan-Otero, SALB	RidsOgcMailCenterResource
Commissioner Caputo	KModes, SALB	RidsSecyMailCenterResource
Commissioner Wright	DPiccirillo, RIII	RidsEdoMailCenterResource
MSpencer, OGC	RCraffey, RIII	RidsNmssOdResource
KWilliams, MSST	LForney, PA	RidsRgn4MailCenterResource
MShaffer, RIV	PPeterson, CO	
LHowell, RIV	MAbbaszadeh, TX	

**ADAMS Accession No.: ML19184A011**

**\*via email**

OFFICE	MSST	MSST	MSST	MSST
NAME	LRakovan*	RJohnson	PMichalak	AKock
DATE	06/28/2019	07/02/2019	07/03/2019	07/03/2019
OFFICE	NMSS/QTE	NMSS	OEDO/DEDCM	
NAME	LMoorin	RLewis	SWest	
DATE	07/12/2019	07/12/2019	07/ 18 /2019	

**OFFICIAL RECORD COPY**



INTEGRATED MATERIALS PERFORMANCE EVALUATION PROGRAM

REVIEW OF THE NRC REGION IV PROGRAM

April 1–5, 2019

**FINAL REPORT**

Enclosure

## **EXECUTIVE SUMMARY**

The results of the Integrated Materials Performance Evaluation Program (IMPEP) review of the U.S. Nuclear Regulatory Commission's (NRC's) Region IV radioactive materials program are contained in this report. The review was conducted during the period of April 1–5, 2019.

Based on the results of this IMPEP review, the team recommended, and the Management Review Board (MRB) agreed, that the NRC Region IV's performance is satisfactory for all six performance indicators reviewed. The findings for the indicators remain unchanged from the previous three IMPEP reviews. The team did not make any recommendations and there were no open recommendations for the team to consider.

Accordingly, the team recommended, and the MRB agreed, that the NRC's Region IV radioactive materials program be found adequate to protect public health and safety. The team recommended, and the MRB agreed, that the next IMPEP review take place in approximately 5 years with a periodic meeting in approximately 2.5 years.

## 1.0 INTRODUCTION

The U.S. Nuclear Regulatory Commission's (NRC's) Region IV radioactive materials program (Region IV) Integrated Materials Performance Evaluation Program (IMPEP) review was conducted during the period of April 1–5, 2019, by a team comprised of technical staff members from the NRC, the State of Colorado, the Commonwealth of Pennsylvania, and the State of Texas. Team members are identified in Appendix A.

The review was conducted in accordance with the "Agreement State Program Policy Statement," published in the *Federal Register* on October 18, 2017 (82 FR 48535), and NRC Management Directive (MD) 5.6, "Integrated Materials Performance Evaluation Program (IMPEP)," dated February 26, 2004. Preliminary results of the review, which covered the period of May 2, 2014 to April 5, 2019, were discussed with NRC's Region IV managers on the last day of the review.

In preparation for the review, a questionnaire addressing the common and applicable non-common performance indicators was sent to Region IV on October 16, 2018. Region IV provided its response to the questionnaire on March 27, 2019. A copy of the questionnaire response is available in the NRC's Agencywide Documents Access and Management System (ADAMS) (ADAMS Accession Number ML19106A430).

A draft of this report was issued to Region IV on May 3, 2019, for factual comment (ADAMS Accession Number ML19123A195). Region IV responded to the draft report by letter dated June 3, 2019, from Scott A. Morris, Regional Administrator, Region IV, (ADAMS Accession Number ML19155A150). The team addressed Region IV's comments, as appropriate.

The NRC Region IV radioactive materials program is administered by the Director of the Division of Nuclear Materials Safety (the Division) who reports directly to the Regional Administrator. The Region IV organization charts are available in ADAMS (ADAMS Accession Number ML19091A136). At the time of the review, the Division regulated 563 specific licenses authorizing possession and use of radioactive materials.

The 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 Division's performance.

## 2.0 PREVIOUS IMPEP REVIEW AND STATUS OF RECOMMENDATIONS

The previous IMPEP review concluded on May 2, 2014. The final report is available in ADAMS (ADAMS Accession Number ML14212A360). The results of the review are as follows:

Technical Staffing and Training: Satisfactory  
Recommendation: None

Status of Materials Inspection Program: Satisfactory  
Recommendation: None

Technical Quality of Inspections: Satisfactory  
Recommendation: None

Technical Quality of Licensing Actions: Satisfactory  
Recommendation: None

Technical Quality of Incident and Allegation Activities: Satisfactory  
Recommendation: None

Uranium Recovery Program: Satisfactory  
Recommendation: None

Overall finding: Adequate to protect public health and safety.

The team noted that the Division conducted a pre-IMPEP audit between July and December 2018. Through the audit, staff reviewed the Division's performance under each applicable IMPEP indicator. The pre-IMPEP audit identified 13 corrective actions that, at the time of the review, had either been implemented or were in the process of being implemented.

### 3.0 COMMON PERFORMANCE INDICATORS

Five common performance indicators are used to review the 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

The ability to conduct effective licensing and inspection programs is largely dependent on having a sufficient number of experienced, knowledgeable, well-trained technical personnel. Under certain conditions, staff turnover could have an adverse effect on the implementation of these programs and could affect public health and safety. Apparent trends in staffing must be explored. Review of staffing also requires consideration and evaluation of the levels of training and qualification. The evaluation standard measures the overall quality of training available to, and taken by, materials program personnel.

##### a. Scope

The team used the guidance in State Agreements procedure SA-103, "Reviewing the Common Performance Indicator: Technical Staffing and Training," and evaluated the Division's performance with respect to the following performance indicator objectives:

- A well-conceived and balanced staffing strategy has been implemented throughout the review period.
- Qualification criteria for new technical staff are established and are followed, or qualification criteria will be established if new staff members are hired.
- Any vacancies, especially senior-level positions, are filled in a timely manner.
- There is a balance in staffing of the licensing and inspection programs.
- Management is committed to training and staff qualification.
- Individuals performing materials licensing and inspection activities are adequately qualified and trained to perform their duties.
- License reviewers and inspectors are trained and qualified in a reasonable period of time.

b. Discussion

At the time of the review, the Division was comprised of 24 staff members which equaled approximately 22.7 full-time equivalent (FTE) for the radioactive materials program when fully staffed. This includes management, administrative support, materials licensing, materials inspection, uranium recovery, and associated decommissioning activities. At the time of the review, there were no vacancies, although one staff member was on active military duty and it is unknown when they will return and resume their NRC-related duties. Additionally, one staff member was on a temporary detail to another part of the agency. During the review period, seven staff members left the materials program and seven managers retired or transferred to other responsibilities. Vacancies were quickly filled and had minimal impact on performance. One staff member was hired from outside the agency and four staff members transferred from other NRC organizations. The Division's FTE dedicated to radioactive materials ultimately reduced in size by approximately 2.2 FTE during the review period.

Management changes created sustained periods of transition for staff. However, the team determined that management turnover had minimal impact on performance. Although many staff members noted a high workload, the team concluded that while staffing levels were reduced during the review period, there was no degradation in performance; the Division had adequate staff for the work assigned. There was a balance in staffing the licensing and inspection programs.

The Division followed the NRC's Inspection Manual Chapter (IMC) 1248, "Formal Qualifications Program for Federal and State Material and Environmental Management Programs," regarding staff training and qualification. The team noted management support for attending training courses and that qualification of license reviewers and inspectors was achieved in a reasonable period.

The team noted that staff was receiving the expected, or greater, amount of refresher training. A pre-IMPEP audit completed by the Division prior to the IMPEP review noted that refresher training was not being adequately tracked. In response, the Division developed a Division Post Qualification Refresher Training Job Aid and also instituted a

new refresher training tracker in March 2019. At the time of the review, further training was planned to ensure the staff was proficient in using the new refresher training tracker.

c. Evaluation

The team determined that, during the review period, the Division met the performance indicator objectives listed in Section 3.1.a., and, based on the criteria in MD 5.6, recommended that Region IV's performance with respect to the indicator, Technical Staffing and Training, be found satisfactory.

d. Management Review Board (MRB) Decision

The MRB agreed with the team's recommendation and found the Region satisfactory for this indicator.

3.2 Status of Materials Inspection Program

Periodic inspections of licensed operations are essential to ensure that activities are being conducted in compliance with regulatory requirements and consistent with good safety practices. The frequency of inspections is specified in NRC's IMC 2800, "Materials Inspection Program," and is dependent on the amount and kind of material, the type of operation licensed, and the results of previous inspections. There must be a capability for maintaining and retrieving statistical data on the status of the inspection program.

a. Scope

The team used the guidance in State Agreements procedure SA-101, "Reviewing the Common Performance Indicator: Status of Materials Inspection Program," and evaluated the Division's performance with respect to the following performance indicator objectives:

- Initial inspections and inspections of Priority 1, 2, and 3 licensees are performed at the frequency prescribed in NRC's IMC 2800.
- Candidate licensees working under reciprocity are inspected in accordance with the criteria prescribed in NRC's IMC 1220, "Processing of NRC Form 241, Report of Proposed Activities in Non-Agreement States, Areas of Exclusive Federal Jurisdiction, and Offshore Waters, and Inspection of Agreement State Licensees Operating Under 10 CFR 150.20."
- Deviations from inspection schedules are normally coordinated between technical staff and management.
- There is a plan to perform any overdue inspections and reschedule any missed or deferred inspections, or a basis has been established for not performing any overdue inspections or rescheduling any missed or deferred inspections.
- Inspection findings are communicated to licensees in a timely manner (30 calendar

days, or 45 days for a team inspection, as specified in NRC's IMC 0610, "Nuclear Material Safety and Safeguards Inspection Reports").

b. Discussion

The Division performed 437 Priority 1, 2, 3, and initial inspections during the review period. No Priority 1, 2, 3, or initial inspections were conducted overdue. With the turnover in staff described in Section 3.1 of this report, the Division obtained the assistance from inspectors in the other NRC Regions to ensure completion of inspections in a timely manner.

The team reviewed Web-Based Licensing (WBL) data and inspection reports, and conducted staff interviews. Following validation of the WBL report data, the team identified 4 of the 437 inspection reports were issued greater than 30 days after the exit with the licensee. These 4 reports, which ranged from 5 to 14 days late, involved enforcement or escalated enforcement and represent less than 1 percent of the total number of inspection reports being issued to licensees.

As identified in the previous IMPEP reviews, the Division had a history of not meeting the 20 percent goal for reciprocity inspections established in NRC's IMC 1220. The Division performed 7 percent of reciprocity inspections in 2014, 13 percent in 2015, 13 percent in 2016, 14 percent in 2017, 12 percent in 2018, and 7 percent as of April 3, 2019. Following the 2009 IMPEP review, the Division developed an action plan to determine the cause of the missed target and implemented a strategy to achieve the reciprocity goal. However, the Division continued to be challenged in this area due primarily to geography and timing issues.

Following the 2014 IMPEP review, the Division committed to implement a process to provide greater Branch Chief oversight and better coordination of reciprocity inspections with routine inspections or with inspection trips focused on reciprocity. Following the 2017 periodic meeting, the Division revised its management process for reciprocity to include: (1) during scheduled inspection trips, staff assess the timing and location of candidate licensees working under reciprocity in the vicinity of the inspection, and (2) the Division prioritizes Priority 1, 2, and 3 licensees who file for reciprocity and notify senior inspectors and the Branch Chief of these inspection opportunities. The senior inspectors and the Branch Chief subsequently determine whether an inspector can be dispatched from the office or whether an active inspection is occurring in the vicinity of a candidate licensee working under reciprocity.

c. Evaluation

The team determined that, except as noted below, during the review period the Division met the performance indicator objectives listed in Section 3.2.a.

- Candidate licensees working under reciprocity were not inspected in accordance with the criteria prescribed in NRC's IMC 1220, "Processing of NRC Form 241, Report of Proposed Activities in Non-Agreement States, Areas of Exclusive Federal

Jurisdiction, and Offshore Waters, and Inspection of Agreement State Licensees Operating Under 10 CFR 150.20.”

The team identified that the Region continued to not meet the 20 percent goal for each year for reciprocity inspections established in the NRC’s IMC 1220. The team determined that a number of factors, primarily geography and timing, contributed to the failure to meet the 20 percent reciprocity inspection goal.

Based on the IMPEP evaluation criteria in MD 5.6, the team recommended that the Region IV’s performance with respect to the indicator, Status of Materials Inspection Program, be found satisfactory.

d. MRB Decision

The MRB agreed with the team’s recommendation and found the Region satisfactory for this indicator.

3.3 Technical Quality of Inspections

Inspections, both routine and reactive, provide assurance that licensee activities are carried out in a safe and secure manner. Accompaniments of inspectors performing inspections, and the critical evaluation of inspection records, are used to assess the technical quality of an NRC’s inspection program.

a. Scope

The team used the guidance in State Agreements procedure SA-102, “Reviewing the Common Performance Indicator: Technical Quality of Inspections,” and evaluated the Division’s performance with respect to the following performance indicator objectives:

- Inspections of licensed activities focus on health, safety, and security.
- Inspection findings are well-founded and properly documented in reports.
- Management promptly reviews inspection results.
- Procedures are in place and used to help identify root causes and poor licensee performance.
- Inspections address previously identified open items and violations.
- Inspection findings lead to appropriate and prompt regulatory action.
- Supervisors, or senior staff as appropriate, conduct annual accompaniments of each inspector to assess performance and assure consistent application of inspection policies.
- For programs with separate licensing and inspection staffs, procedures are established and followed to provide feedback information to license reviewers.
- An adequate supply of calibrated survey instruments is available to support the inspection program.

b. Discussion

The team evaluated inspection reports and enforcement documentation, and interviewed staff involved in materials inspections conducted during the review period. The casework reviewed included 26 inspections conducted by 15 of the Division's inspectors and covered broad-scope academic research and development, limited-scope medical, radiopharmacy, irradiator, accelerator, manufacturing and distribution, well logging, radiography, fixed and portable gauges, complex decommissioning, and reciprocity licensees, as well as the Region's sole master materials licensee.

The team found that inspection documents were thorough, complete, consistent, and of acceptable technical quality with health, safety, and security issues properly addressed. Inspection findings were clearly communicated to the licensee and violations were written with a direct link to a regulation or license condition. In the casework reviewed, all but one inspection addressed previously identified open items and violations; however, this appeared to be due to a lack of explicit documentation.

Team members accompanied five radioactive material inspectors during the months of February and March 2019. No performance issues were noted during the inspector accompaniments. The inspectors were well-prepared and thorough, and assessed the impact of licensed activities on health, safety, and security. The inspector accompaniments are identified in Appendix B.

Supervisory accompaniments were performed annually during the review period by either a Branch Chief or Division Director. These supervisors accompanied nearly all inspectors. The only exceptions were staff who performed only one inspection for the Division in a calendar year. The Division identified this in its pre-IMPEP audit and developed a "DNMS Branch Chief Accompaniments Job Aid."

The team verified that the Division maintains a suitable number and variety of appropriately calibrated survey instruments to support the materials inspection program. Calibration records for the instruments are maintained on file. Detection instruments are available for gamma, beta, and alpha contamination, as well as exposure and dose rates. The Division also maintains several intrinsically safe instruments for use at job sites such as offshore oil rigs, where inadvertent electrical discharge presents an increased safety risk.

c. Evaluation

The team determined that, during the review period, Region IV met the performance indicator objectives listed in Section 3.3.a., and, based on the criteria in MD 5.6, recommended that the Division's performance with respect to the indicator, Technical Quality of Inspections be found satisfactory.

d. MRB Decision

The MRB agreed with the team's recommendation and found the Region satisfactory for this indicator.

3.4 Technical Quality of Licensing Actions

The quality, thoroughness, and timeliness of licensing actions can have a direct bearing on public health and safety, as well as security. An assessment of licensing procedures, actual implementation of those procedures, and documentation of communications and associated actions between the Division licensing staff and regulated community is a significant indicator of the overall quality of the licensing program.

a. Scope

The team used the guidance in State Agreements procedure SA-104, "Reviewing the Common Performance Indicator: Technical Quality of Licensing Actions," and evaluated the Division's performance with respect to the following performance indicator objectives:

- Licensing action reviews are thorough, complete, consistent, and of acceptable technical quality with health, safety, and security issues properly addressed.
- Essential elements of license applications have been submitted and elements are consistent with current regulatory guidance (e.g., financial assurance, increased controls, pre-licensing guidance).
- License reviewers, if applicable, have the proper signature authority for the cases they review independently.
- License conditions are stated clearly and can be inspected.
- Deficiency letters clearly state regulatory positions and are used at the proptime.
- Reviews of renewal applications demonstrate a thorough analysis of a licensee's inspection and enforcement history.
- Applicable guidance documents are available to reviewers and are followed (e.g., NUREG-1556 series, pre-licensing guidance, regulatory guides, etc.).
- Licensing practices for risk-significant radioactive materials are appropriately implemented including increased controls and fingerprinting orders (Part 37 equivalent).
- Documents containing sensitive security information are properly marked, handled, controlled, and secured.

b. Discussion

During the review period, the Division performed 1,915 radioactive materials licensing actions. The team evaluated 18 of those licensing actions. The actions selected for review included four new applications, nine amendments, two renewals, two terminations, and one bankruptcy filing. The team evaluated casework which included

the following license types and actions: broad scope, medical diagnostic and therapy, accelerator, commercial manufacturing and distribution, industrial radiography, academic, commercial nuclear pharmacy, gauges, self-shielded irradiators, waste brokers, decommissioning actions, financial assurance, bankruptcies, and notifications. The casework sample represented work from seven license reviewers.

The team found that, except for minor errors, which were identified prior to license issuance, licensing actions were thorough, complete, consistent, and of acceptable quality with health, safety, and security issues properly addressed. Licensing actions were performed and completed by license reviewers formally designated with the authority to sign and issue the action. During the review period, senior staff assisted more junior staff, as needed, to help ensure the technical quality of products.

During the majority of the review period, quarterly audits were performed to spot check the quality of licensing actions taken by Region IV license reviewers. The audits revealed that license reviewers strictly adhered to current licensing guidance and applicable checklists. Subsequent to the pre-IMPEP audit, the Division instituted a peer review process of all licensing actions prior to issuance. This new process is intended to promote the uniform quality of the licensing actions taken by the Division. The team reviewed the latest peer review process and noted that errors were being identified. These errors included: minor typographical errors, no license reviewer signature on the Risk Significant Radioactive Materials checklist, and a failure to stamp the cover sheet of a licensing action to indicate the information was sensitive. All of these errors were promptly corrected by the Region prior to the issuance of the licensing actions.

License reviewers used up-to-date guidance documents. Requests for additional information clearly stated deficiencies and adequately addressed health and safety concerns. License conditions were stated clearly and could be inspected. Consideration was given to compliance history of licensees and instances of enforcement were addressed through careful coordination with the Division staff. Documents containing sensitive security information were properly marked, handled, controlled, and secured.

License reviewers utilized the risk significant radioactive material checklist and the pre-licensing guidance checklist. License reviewers documented the basis of confidence in issuing the licensing actions. The Division conducted pre-licensing site visits for all unknown entities in accordance with the checklist and coordinated with Agreement States where a potential licensee operated. The Division ensured that proper infrastructure was established, and that the facility had a properly trained Radiation Safety Officer and authorized users prior to issuance of the license.

The team determined that the licenses requiring financial assurance had adequate funding plans and remained in compliance with applicable financial assurance requirements. Financial assurance records were protected from loss or theft and audited on an annual basis for compliance.

c. Evaluation

The team determined that, during the review period, Region IV met the performance indicator objectives listed in Section 3.4.a., and, based on the criteria in MD 5.6, recommended that the Division's performance with respect to the indicator, Technical Quality of Licensing Actions, be found satisfactory.

d. MRB Decision

The MRB agreed with the team's recommendation and found the Region satisfactory for this indicator.

3.5 Technical Quality of Incident and Allegation Activities

The quality, thoroughness, and timeliness of response to incidents and allegations of safety concerns can have a direct bearing on public health and safety. An assessment of incident response and allegation investigation procedures, actual implementation of these procedures, internal and external coordination, and investigative and follow-up actions, are a significant indicator of the overall quality of the incident response and allegation programs.

a. Scope

The team used the guidance in State Agreements procedure SA-105, "Reviewing the Common Performance Indicator: Technical Quality of Incident and Allegation Activities," and evaluated the Division's performance with respect to the following performance indicator objectives:

- Incident response, investigation, and allegation procedures are in place and followed.
- Response actions are appropriate, well-coordinated, and timely.
- On-site responses are performed when incidents have potential health, safety, or security significance.
- Appropriate follow-up actions are taken to ensure prompt compliance by licensees.
- Follow-up inspections are scheduled and completed, as necessary.
- Notifications are made to the NRC Headquarters Operations Center for incidents requiring a 24-hour or immediate notification to the Agreement State or NRC.
- Incidents are reported to the Nuclear Material Events Database (NMED).
- Allegations are investigated in a prompt, appropriate manner.
- Concerned individuals are notified of investigation conclusions.
- Concerned individuals' identities are protected, as allowed by law.

b. Discussion

During the review period, 137 incidents were reported to the Division. The team evaluated 19 radioactive materials incidents which included 6 lost/stolen radioactive

materials incidents, 2 potential overexposures, 2 medical events, 6 damaged equipment incidents, and 3 leaking source incidents. The Division dispatched inspectors for on-site follow-up for six of the incidents reviewed. The team found that reported incidents were promptly reviewed upon receipt, and that reactive inspections, when warranted, were timely and thorough. The Division maintained adequate focus on risk-significance, root cause analysis, and independent verification of licensee assessments during in-office and on-site reviews.

During the review period, 60 allegations were received by the Division. The team evaluated 14 allegations received during the review period. The Division took prompt and appropriate action in response to the concerns raised in the allegations. All the allegations reviewed were appropriately closed. Concerned individuals were notified of the actions taken and concerned individual's identities were protected.

c. Evaluation

The team determined that, during the review period, the Division met the performance indicator objectives listed in Section 3.5.a., and, based on the criteria in MD 5.6, recommended that the Division's performance with respect to the indicator, Technical Quality of Incident and Allegation Activities, be found satisfactory.

d. MRB Decision

The MRB agreed with the team's recommendation and found the Region satisfactory for this indicator.

#### 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. Only the Uranium Recovery Program non-common performance indicator applied to this review.

##### 4.1 Uranium Recovery Program

The objective of this review is to determine if the Division's uranium recovery program is adequate to protect public health and safety. Five sub-elements are used to make this determination: (1) Technical Staffing and Training; (2) Status of Uranium Recovery Inspection Program; (3) Technical Quality of Inspections; (4) Technical Quality of Licensing Actions; and (5) Technical Quality of Incident and Allegation Activities. However, since the Division does not perform uranium recovery licensing actions, this sub-element was not evaluated during the review.

a. Scope

The team used the guidance in State Agreements procedure SA-110, "Reviewing the Non-Common Performance Indicator: Uranium Recovery Program," and evaluated the Division's performance with respect to the following performance indicator objectives:

Technical Staffing and Training

- Qualified and trained technical staff are available to license, regulate, control, inspect, and assess the operation and performance of the uranium recovery program.
- Qualification criteria for new uranium recovery technical staff are established and are being followed or qualification criteria will be established if new staff members are hired.
- Any vacancies, especially senior-level positions, are filled in a timely manner.
- There is a balance in staffing the uranium recovery licensing and inspection programs.
- Management is committed to training and staff qualification.
- Individuals performing uranium recovery licensing and inspection activities are adequately qualified and trained to perform their duties.
- Uranium recovery license reviewers and inspectors are trained and qualified in a reasonable period of time.

Status of Uranium Recovery Inspection Program

- The uranium recovery facility is inspected at prescribed frequencies.
- Statistical data on the status of the inspection program are maintained and can be retrieved.
- Deviations from inspection schedules are coordinated between uranium recovery technical staff and management.
- There is a plan to perform any overdue inspections and reschedule any missed or deferred inspections; or a basis has been established for not performing overdue inspections or rescheduling any missed or deferred inspections.
- Inspection findings are communicated to licensees in a timely manner.

Technical Quality of Inspections

- Inspections of uranium recovery licensed activities focus on health, safety, and security.
- Inspection findings are well-founded and properly documented in reports.
- Management promptly reviews inspection results.
- Procedures are in place and used to help identify root causes and poor licensee performance.
- Inspections address previously identified open items and violations.
- Inspection findings lead to appropriate and prompt regulatory action.

- Supervisors, or senior staff as appropriate, conduct annual accompaniments of each uranium recovery inspector to assess performance and assure consistent application of inspection policies.
- Inspection guides are consistent with NRC guidance.
- An adequate supply of calibrated survey instruments is available to support the inspection program.

#### Technical Quality of Incident and Allegation Activities

- Uranium recovery incident response, investigation, and allegation procedures are in place and followed.
- Response actions are appropriate, well-coordinated, and timely.
- On-site responses are performed when incidents have potential health, safety, or security significance.
- Appropriate follow-up actions are taken to ensure prompt compliance by licensees.
- Follow-up inspections are scheduled and completed, as necessary.
- Notifications are made to the NRC Headquarters Operations Center for incidents requiring a 24-hour or immediate notification to the Agreement State or the NRC.
- Incidents are reported to the NMED.
- Allegations are investigated in a prompt, appropriate manner.
- Concerned individuals are notified of investigation conclusions.
- Concerned individuals' identities are protected, as allowed by law.

#### b. Discussion

Prior to the State of Wyoming becoming an Agreement State on September 30, 2018, the Division's uranium recovery program consisted of 10 in-situ recovery licenses (6 operating/groundwater restoration status and 4 pre-construction status) and 11 decommissioning licenses in various phases of decommissioning, standby, or waiting to be transferred to the Department of Energy. On October 1, 2018, after the State of Wyoming became an Agreement State, the Division's uranium recovery program consisted of three in-situ recovery licenses (one operating/groundwater restoration status and two pre-construction status) and four decommissioning licenses in various phases of decommissioning.

#### Technical Staffing and Training

There were no vacancies in the uranium recovery program inspection staff at the time of the review, although as noted in Section 3.1 one staff member was on extended military leave. The team noted there was sufficient staff at the time of the review to perform the work, although staffing levels and management turnover did have an impact during the review period (see below in Status of Uranium Recovery Inspection Program). In 2014 and 2015, the Division had two fully qualified uranium recovery inspectors. One of the inspectors was dedicated full-time and the other inspector was dedicated part-time (approximately 50 percent) to the uranium recovery inspection program. In October 2015, two additional staff were added to the uranium recovery program. Once Wyoming became an Agreement State on September 30, 2018, and the Division

transferred 14 licenses, there was a reduction in uranium recovery inspectors. One of the four inspectors was transferred to another Division and two inspectors transferred to another branch within the Division in 2018. The Division retained one full-time inspector and utilized another of the inspectors part-time for the one operating uranium recovery facility, as well as the decommissioning uranium recovery facilities. Additionally, the Division experienced significant management turnover during the review period. For example, one Branch Chief position was held by six different individuals.

The Division follows NRC's IMC 1248 for its uranium recovery inspector training program. In October 2015, the Division began training the two new additional staff to perform uranium recovery inspections. One was previously qualified as a radioactive materials inspector, the other was previously qualified as a reactor health physics inspector. The team noted that these two new staff had documented interim qualification inspector certifications to perform independent uranium recovery inspections dated April 2017. However, these two staff performed independent uranium recovery inspections in June 2016, August 2016, September 2016, November 2016, and March 2017. Through interviews, the two inspectors stated that they had received supervisory approval in 2016 for interim qualification to perform uranium recovery inspections. Specifically, one inspector stated receiving verbal approval to conduct inspections, and the other inspector was provided a hand-written approval to conduct inspections after a supervisory inspection accompaniment. The team determined that the interim qualification was not documented, but the inspectors were appropriately qualified.

Subsequently, one inspector became fully qualified in August 2018, and the other inspector was awaiting management approval to be fully qualified. The Division identified this issue during its pre-IMPEP audit.

#### Status of Uranium Recovery Inspection Program

The Division performed 65 uranium recovery inspections during the review period (38 operational inspections and 27 decommissioning inspections). There were no initial inspections conducted during the review period. At the time of the review, there were no overdue inspections. During the review period, 41 percent of all uranium recovery inspections were conducted overdue; exceeding the inspection intervals in NRC's IMC 2641, "In-Situ Leach Facilities Inspection Program" and IMC 2801, "Uranium Mill 11e.(2) Byproduct Material Disposal Site and Facility Inspection Program" by more than 25 percent.

Eighteen of the 38 operational uranium recovery inspections were completed overdue (34 percent). The inspections were overdue by a range of 2 to 220 days. Only five of the inspections were greater than 100 days, seven were overdue by less than 30 days, and an additional six were overdue between 30 and 100 days. Sixteen of the 18 overdue inspections were for facilities that were expected to be inspected at a 6-month frequency. Several factors contributed to the overdue inspections including staffing, workload, management turnover, and inclement weather. In addition, 11 of the overdue inspections occurred near the beginning of the review period (i.e., 2014 and 2015). The Division informed the team that they discussed changes to inspection schedules with

NRC headquarters, Office of Nuclear Material Safety and Safeguards (NMSS), but did not document those conversations.

The Division conducted 9 of 27 decommissioning uranium recovery program inspections overdue during the review period (37 percent). The team noted that most of the overdue inspections occurred near the beginning of the review period (i.e., 2014 and 2015). Five of these inspections were deferred by direction or consultation with NMSS or were for sites where the Division was waiting to receive a final, long-term surveillance plan. As a result, these facilities were not inspected for several years, although they were identified and tracked in the master inspection plan. For the remaining four overdue inspections, the Division identified there were no significant activities occurring at the sites and the sites were consequently judged to be of low safety significance. Due to the low safety significance of the sites and limited availability of inspectors at that time, the scheduled inspections were delayed.

The team noted that rescheduling or postponing of the inspections was not documented. The Division identified the lack of documentation for rescheduled or postponed inspections during the pre-IMPEP audit and had taken steps to conduct inspections at the operating and decommissioning uranium facilities in accordance with the frequency described in NRC's IMC 2641 and IMC 2801. As a result of the pre-IMPEP audit, the Division implemented a process in October 2018 to document any changes to inspection frequencies and has started to document the decision to reschedule or postpone inspections using an internal memorandum approved by management as described in NRC's IMC 2641 and IMC 2801. The Division also provided the team with a newly developed "Inspection Interval Change Desk Guide" to document the justification for changing the inspection frequency.

The team noted that the four facilities that are licensed but have not started any construction activities were not inspected during the review period. The NRC's IMC 2641 does not specify an interval for pre-operation or initial inspections. In October 2018, the Division developed a plan to contact the licensees annually and document the status of each facility to determine when to start inspection activities.

The Division issued 9 of 65 inspection reports to the licensee greater than 30 days after the exit meeting. Seven of the late reports were for operational uranium recovery sites during the 2014-2015 timeframe. The team determined that the causes for the overdue inspections and delay for completion of the inspection reports for the 2014-2015 timeframe were primarily staff and staffing-level related (e.g., workload in comparison to available staff, inability to catch up on overdue reports, management turnover, and staff absence due to illness). The Division stated that a large majority of the inspection findings were communicated to the licensees in a timely manner. Additionally, the Division typically extends the final exit date under the following conditions: the inspector is waiting on laboratory results for radioactive samples associated with the inspection, the inspector is continuing to perform in-office reviews associated with the inspection, or management review of potential enforcement issues is ongoing.

The team noted that two inspection reports did not include which inspection modules were considered during the inspection or the reason for not including the inspected modules in the inspection documentation. The Division also identified this issue in its pre-IMPEP audit and on October 1, 2018, the Division finalized a Master Inspection Plan to keep track of the inspection manual chapters and inspection procedures used for each inspection.

The team noted that for eight inspections, there were multiple exit meetings which extended the inspection by more than a month. The inspection reports did not document a reason for these multiple exit meetings. The Division identified this during the pre-IMPEP audit, and in October 2018, the Division developed a Decommissioning Desk Guide which requires documentation for any re-exits with the licensee either in the cover letter transmitting the inspection results or in the inspection report itself.

### Technical Quality of Inspections

The team evaluated 20 inspection reports which included radiation protection; effluents control and environmental monitoring; radioactive waste processing, handling, and storage; radiation work permits; radiation safety instrumentation; transportation; and audits and inspections. The inspectors prepared for inspections by reviewing the relevant inspection manual chapters, inspection procedures, previous inspection reports, licenses, incident reports, notices of violations, and other background information. The inspectors consulted with the uranium recovery licensing staff in NRC headquarters before inspections. During the review period, staff from the NRC's NMSS Division of Fuel Cycle Safety, Safeguards and Environmental Review Branches and the Division of Decommissioning, Uranium Recovery, and Waste Programs Branches, as well as the Wyoming Department of Environmental Quality accompanied the inspectors.

Based on the review of the 20 inspection reports and interviews with inspectors, the team determined that the non-compliance findings during the review period were properly identified and clearly communicated to the licensees, and corrective actions were properly identified and enforced. The team concluded that the inspections were adequate to assess radiological health and safety. The inspection reports included sufficient information to support the inspection findings, contained the appropriate level of detail, and were approved by management. Management was debriefed after each inspection. Licensees were given 30 days to reply to the inspection findings. An acknowledgement letter was sent to the licensees indicating if the response and/or corrective actions were acceptable.

The team determined that supervisory accompaniments of qualified inspectors were conducted annually except for one inspector in 2016 and another inspector in 2017. In 2016, the inspector performed one inspection. In 2017, the inspector conducted two inspections and was on sick leave for a prolonged period of time. The Division identified this in its pre-IMPEP audit and developed a "DNMS Branch Chief Accompaniments Job Aid."

On November 5-6, 2018, a team member accompanied one inspector at the Crow Butte uranium recovery and processing facility. The inspection included a review of the

license, a central processing plant, selected production areas/wellfields, selected header houses, a waste disposal well, evaporation ponds, byproduct storage area, site security, on-site laboratory, and facility postings. The inspector was well prepared, used a properly calibrated survey instrument, and demonstrated adequate knowledge of the requirements of the license. During the inspection, the inspector conducted interviews, observed groundwater sampling and mechanical integrity testing activities, and obtained independent measurements. The inspector accompaniment is identified in Appendix B.

The team noted that the Division maintained an adequate supply of calibrated and operational survey instruments to support its uranium recovery inspection program.

#### Technical Quality of Incident and Allegation Activities

The team evaluated two incidents and three allegations involving the Division's uranium recovery program. The Division follows the Regional Policy Guide for the handling, review, analysis, response, and follow-up of incidents and allegations.

For the two incident files reviewed, the incidents were investigated and addressed in an appropriate manner. The incidents were resolved and closed appropriately.

For the three allegation files reviewed, the allegations were investigated in a prompt, suitable manner, and closed appropriately. Concerned individuals were notified of investigation conclusions and concerned individuals' identities were protected, as allowed by NRC policy.

#### c. Evaluation

The team determined that, except as noted below, during the review period the Division met the performance indicator objectives listed in Section 4.4.a.

- The uranium recovery facilities were not inspected at prescribed frequencies.
- No basis was established for performing inspections overdue or rescheduling any missed or deferred inspections.
- Inspection findings were not communicated to licensees in a timely manner.
- Supervisors, or senior staff as appropriate, did not conduct annual accompaniments of each uranium recovery inspector to assess performance and assure consistent application of inspection policies.

Inspection staff deferred a number of the inspections after discussion with NMSS or Division management; however, these discussions and decisions were not documented. In response, the Division developed a process to document management decisions when inspections needed to be deferred or rescheduled. The Division also created Desk Guides intended to reduce the occurrence of overdue inspections and ensure inspection findings were communicated to the licensee in a timely manner. In addition, the Division developed a supervisory job aid to better identify and document when supervisory inspection accompaniments are necessary and completed.

When licensees are inspected at intervals that exceed the NRC's IMC by more than 25 percent, but less than 100 percent, and some of the inspection findings are delayed or not communicated to the licensee within 30 days, the MD 5.6 indicates that a finding of satisfactory, but needs improvement, should be considered under the sub-element Status of Uranium Recovery Program. The team noted that the qualification certification was a documentation issue and not a performance issue; inspectors generated well founded and well documented inspection reports; the Division took prompt action for incidents and allegations; and overall, the work completed during the review period was of high technical quality. Since the indicator rating is based on the evaluation and combination of all of the sub-elements reviewed, the team concluded that the overall performance of the Division's uranium recovery program met a large majority of the criteria for a satisfactory rating.

Based on the IMPEP evaluation criteria in MD 5.6, the team recommended that Region IV's performance with respect to the indicator, Uranium Recovery Program, be found satisfactory.

d. MRB Decision

The MRB agreed with the team's recommendation and found the Region satisfactory for this indicator.

5.0 SUMMARY

As noted in Sections 3.0 and 4.0 above, the Division's performance was found to be satisfactory for all six performance indicators reviewed. The team did not make any recommendations and there were no open recommendations for the team to consider.

Accordingly, the team recommended, and the MRB agreed, that the NRC's Region IV radioactive materials program be found adequate to protect public health and safety. Based on the results of the current IMPEP review, the team recommended, and the MRB agreed, that the next full IMPEP review take place in approximately 5 years, with a periodic meeting in approximately 2.5 years.

## LIST OF APPENDICES

Appendix A	IMPEP Review Team Members
Appendix B	Inspection Accompaniments

## APPENDIX A

### IMPEP REVIEW TEAM MEMBERS

<b>Name</b>	<b>Areas of Responsibility</b>
Lance Rakovan, NMSS	Team Leader Technical Staffing and Training
Kathy Modes, NMSS	Team Leader in Training Status of Materials Inspection Program Materials Inspection Accompaniments Technical Quality of Incident and Allegation Activities Uranium Recovery Program - Allegations
Darren Piccirillo, NRC Region III	Assisted with the Technical Staffing and Training Assisted with the Status of Materials Inspection Program
Ryan Craffey, NRC Region III	Technical Quality of Inspections Materials Inspection Accompaniments
Lisa Forney, PA	Technical Quality of Licensing Actions
Phillip Peterson, CO	Technical Quality of Incidents and Allegation Activities
Muhammadali Abbaszadeh, TX	Uranium Recovery Program Uranium Recovery Inspection Accompaniment

APPENDIX B

INSPECTION ACCOMPANIMENTS

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

Accompaniment No. 1	License No.: 11-27384-01
Licensee: Portneuf Medical Center	Priority: 2
License Type: Medical Broad-scope (medical therapy)	Inspector: JVE
Inspection Date: 2/11/2019	

Accompaniment No.: 2	License No.: 17-19236-01
Licensee: H&H X-Ray Services	Priority: 1
License Type: Industrial Radiography	Inspector: JVE
Inspection Date: 2/12/2019	

Accompaniment No.: 3	License No.: 11-29226-02
Licensee: Xcell Engineering, LLC	Priority: 5
License Type: Portable Gauge	Inspector: JVE
Inspection Date: 2/12/2019	

Accompaniment No.: 4	License No.: 11-27610-01
Licensee: Qal-Tek Associates	Priority: 2
License Type: Service Provider	Inspector: JVE
Inspection Date: 2/13/2019	

Accompaniment No.: 5	License No.: 49-29415-01
Licensee: Strathmore Resources (US) Ltd.	Priority: 3
License Type: Well Logging	Inspector: JT
Inspection Date: 2/26/2019	

Accompaniment No.: 6	License No.: 49-26808-02
Licensee: High Mountain Inspection Service, Inc.	Priority: 1
License Type: Industrial Radiography	Inspector: LG
Inspection Date: 2/27/2019	

Accompaniment No.: 7	License No.: 15-29301-02
Licensee: DBI, Inc.	Priority: 1
License Type: Industrial Radiography	Inspector: JT
Inspection Date: 2/27/2019	

Accompaniment No.: 8	License No.: 49-29379-01
Licensee: Casper Medical Center, LLC dba Mountain View Regional Hospital	Priority: 3
License Type: Medical with written directive required	Inspector: LG
Inspection Date: 2/28/2019	

Accompaniment No.: 9	License No.: 42-23539-01AF
Licensee: The Department of the Air Force	Priority: 2
License Type: Master Materials License	Inspector: JD
Inspection Date: 3/4/2019	

Accompaniment No.: 10	License No.: 40-16775-01
Licensee: Prairie Lakes Healthcare Systems, Inc.	Priority: 3
License Type: Medical with written directive required	Inspector: AB
Inspection Date: 3/6/2019	

Accompaniment No.: 11	License No.: SUA-1534
Licensee: Crow Butte Resources, Inc.	Priority: 1
License Type: Uranium Recovery	Inspector: MP
Inspection Date: 11/5-8/2018	