



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

May 22, 2018

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Dear Ms. Sullivan:

On April 24, 2018, the Management Review Board (MRB) met, which consisted of U.S. Nuclear Regulatory Commission (NRC) senior managers and an Organization of Agreement States Liaison to the MRB, to consider the proposed final Integrated Materials Performance Evaluation Program (IMPEP) report on the Texas Agreement State Program. The MRB found the Texas program adequate to protect public health and safety, and compatible with the NRC program.

The enclosed final report contains a summary of the IMPEP team's findings (Section 5.0) and recommendations. The review team made five recommendations regarding the performance of the Texas Agreement State Program during this review. Based on the results of the current IMPEP review, the next full IMPEP review will take place in approximately four years, with a periodic meeting in approximately two years.

I appreciate the courtesy and cooperation extended to the IMPEP team during the review. I also wish to acknowledge your continued support for the Agreement State program. I look forward to our agencies continuing to work cooperatively in the future.

Sincerely,

/RA/

Daniel H. Dorman
Acting Deputy Executive Director for Materials,
Waste, Research, State, Tribal, Compliance,
Administration, and Human Capital Programs
Office of the Executive Director for Operations

Enclosure:
Texas Final IMPEP Report

cc: Santiago Rodriguez, NM
Organization of Agreement States
Liaison to the MRB



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May 22, 2018

Charles Maguire, Director
Radiation Materials Division
MC233
Commission on Environmental Quality
P.O. Box 13087
Austin, TX 78711-3087

Dear Mr. Maguire:

On April 24, 2018, the Management Review Board (MRB) met, which consisted of U.S. Nuclear Regulatory Commission (NRC) senior managers and an Organization of Agreement States Liaison to the MRB, to consider the proposed final Integrated Materials Performance Evaluation Program (IMPEP) report on the Texas Agreement State Program. The MRB found the Texas program adequate to protect public health and safety, and compatible with the NRC program.

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INTEGRATED MATERIALS PERFORMANCE EVALUATION PROGRAM
REVIEW OF THE TEXAS AGREEMENT STATE PROGRAM

JANUARY 29 – FEBRUARY 9, 2018

FINAL REPORT

Enclosure

EXECUTIVE SUMMARY

This report presents the results of the Integrated Materials Performance Evaluation Program (IMPEP) review of the Texas Agreement State Program. The review was conducted during the period of January 29 – February 9, 2018, by a team comprised of technical staff members from the U.S. Nuclear Regulatory Commission (NRC) and the States of Louisiana, North Dakota, and Utah.

Based on the results of this review, the team recommended, and the Management Review Board (MRB) agreed, that the Texas Agreement State Program's performance was satisfactory for seven indicators: Technical Staffing and Training, Status of Materials Inspection Program, Technical Quality of Inspections, Technical Quality of Incident and Allegation Activities, Compatibility Requirements, Sealed Source and Device Evaluation Program, and Low-Level Radioactive Waste Program. The performance was satisfactory, but needs improvement, for two indicators: Technical Quality of Licensing Actions, and Uranium Recovery Program.

The MRB supported the team's five recommendations (see Section 5.0) and agreed that the recommendations from the 2014 IMPEP review and the 2016 IMPEP special review should be closed (see Section 2.0).

When weaknesses in a program result in less than fully satisfactory performance for one or more performance indicators, the NRC's Management Directive 5.6, "Integrated Materials Performance Evaluation Program (IMPEP)," states that the MRB should consider whether Monitoring by the NRC is warranted. The team discussed whether or not Monitoring should be recommended based on the less than satisfactory findings in the indicators Technical Quality of Licensing Actions and Uranium Recovery Program. The team determined that the weaknesses demonstrated in the Technical Quality of Licensing Actions indicator involved matters that the Texas Agreement State Program was aware of and was in the process of implementing corrective actions for; however, no sustained period of performance was able to be evaluated by the team. The Texas Agreement State Program staff responsible for the Uranium Recovery Program initiated actions to address program weaknesses, including revising inspection procedures to specify issuance of inspection results within 30 days and scheduling the necessary training for staff. Also, the team concluded that the actions needed by the Texas Agreement State Program to improve its performance for the two indicators that were found less than satisfactory will not affect other parts of the Agreement State Program such that Monitoring would be necessary. Therefore, the team did not recommend Monitoring for Texas as an outcome for this review. The MRB agreed.

Accordingly, the team recommended, and the MRB agreed, that the Texas 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 take place in approximately four years with a periodic meeting in approximately two years.

1.0 INTRODUCTION

This report presents the results of the review of the Texas Agreement State Program. The review was conducted during the period of January 29 – February 9, 2018, by a team comprised of technical staff members from the U.S. Nuclear Regulatory Commission (NRC) and the States of Louisiana, North Dakota, and Utah. 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, 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 February 15, 2014, to February 9, 2018, were discussed with Texas Agreement State Program managers on the last day of the review.

In preparation for the review, a questionnaire addressing the common performance indicators and applicable non-common performance indicators was sent to Texas on October 10, 2017. Texas provided its responses to the questionnaire on January 11 and 12, 2018. Copies of the questionnaire responses are available in the NRC’s Agencywide Documents Access and Management System (ADAMS) using the Accession Numbers ML18016A557 and ML18016A552.

A draft of this report was issued to Texas on March 13, 2018, for factual comment (ADAMS Accession Number ML18066A122). Texas responded to the findings and conclusions of the review by letters dated April 9 and 10, 2018. A copy of these responses are available in ADAMS (Accession Numbers ML18107A662 and ML18107A667). The Management Review Board (MRB) convened on April 24, 2018, to discuss the team’s findings.

The Texas Agreement State Program is comprised of staff located in three Divisions within two State Agencies: the Consumer Protection Division, the Radioactive Materials Division, and the Critical Infrastructure Division. The Consumer Protection Division is located in the Texas Department of State Health Services (the Department) and the Radioactive Materials and Critical Infrastructure Divisions are located in the Texas Commission on Environmental Quality (the Commission). Organization charts for the Texas Agreement State Program are available in ADAMS (ML18016A493, ML18016A518, and ML18023B581).

At the time of the review, the Texas Agreement State Program regulated 1,591 specific licenses authorizing: the possession and use of radioactive materials, the disposal of low-level radioactive waste, and uranium recovery. The review focused on the radioactive materials program as it is carried out under the Section 274b. Agreement (of the Atomic Energy Act of 1954, as amended) between the NRC and the State of Texas.

The team evaluated the information gathered against the established criteria for each common and the applicable non-common performance indicator and made a preliminary assessment of the Texas Agreement State Program’s performance.

2.0 PREVIOUS IMPEP REVIEW AND STATUS OF RECOMMENDATIONS

The previous IMPEP review concluded on February 14, 2014. The final report is available in ADAMS (Accession Number ML14212A521). Additionally, at the request of the Commission, an IMPEP special review was performed on April 4-5, 2016. The IMPEP special review focused on the Commission's licensing process for reviewing depleted uranium disposal in its Low-Level Radioactive Waste Disposal Program. The final report for the IMPEP special review is available in ADAMS (Accession Number ML16271A532). The results of both reviews and the status of the recommendations 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

Compatibility Requirements: Satisfactory
Recommendation: None

Sealed Source and Device Evaluation Program: Satisfactory
Recommendation: None

Low-Level Radioactive Waste Disposal Program: Satisfactory

Recommendation:

The team recommends that the Commission develop and implement a strategy to address staffing in the low-level radioactive waste disposal and uranium recovery inspection programs in order to enhance the effectiveness and efficiency of those programs. (Sections 3.3.1 and 3.4.1 of the 2014 IMPEP review report)

Status:

The 2014 IMPEP report stated that, "The review team is concerned that any losses in staff or increases in workload could severely impact the State's performance in the low-level radioactive waste and/or uranium recovery inspection functions." Critical Infrastructure Division managers developed and implemented a strategy to hire one additional staff person to perform low-level radioactive waste and uranium recovery inspections. A full-time equivalent

position was allocated to the Radioactive Materials Compliance Team which is located in the Homeland Security Section of the Critical Infrastructure Division. This position was filled in February 2015. These actions increased the inspection capacity of the low-level radioactive waste and uranium recovery programs. In addition, to ensure better coordination and communication of low-level radioactive waste and uranium recovery licensing and inspection activities between the Radioactive Materials and Critical Infrastructure Divisions, the managers added a part-time liaison position. The liaison is a former manager with the Commission and brought a significant amount of historical knowledge and experience to the position. The team determined that these actions have enhanced the effectiveness and efficiency of the low-level radioactive waste and uranium recovery programs. This recommendation is closed.

Recommendation:

The team recommends that the Critical Infrastructure Division, in coordination with the Radioactive Materials Division, develop detailed inspection procedures for low-level radioactive waste inspections to provide feedback to the low-level radioactive waste program and enhance the inspection program. (Section 3.3.3 of the 2014 IMPEP review report)

Status:

The Commission has developed an inspection procedure for the low-level radioactive waste program that is separate from the uranium recovery program. Under the procedure, prior to an inspection, the inspector coordinates with the Radioactive Materials Division to identify any existing followup items. Additionally, Radioactive Materials Division staff are given the opportunity to attend site inspections with the inspectors and inspection results are shared with the Radioactive Materials Division. The inspectors also review all new, amended, and renewed licenses created by the Radioactive Materials Division prior to issuance. The team determined that the changes in process and revised procedures address the intent of the 2014 recommendation. This recommendation is closed.

Recommendation:

The Commission should improve the documentation of its communications with the licensee. Specifically,

- a) Questions about a licensee's submittal should be developed and provided to the licensee in a formal Request for Additional Information format. Upon resolution of the questions, the outcomes should be documented. During the evaluation process, issues raised by the Commission, issues self-identified by Waste Control Specialists, and the resolution of these issues should be adequately documented.
- b) The Commission should improve the documentation of the assessment process when reviewing new versions of the performance assessment models that are provided annually by the licensee.
- c) The Commission should improve the documentation of the safety technical bases for the disposition of a licensing action. This should be completed in a

Safety Evaluation Report (SER) or similar document. The SER would allow the Commission to document how the licensee is addressing compliance with regulatory requirements and why the Commission has determined that the information provided by the licensee is acceptable. If the licensing action is subject to a hearing or an allegation, the associated regulatory process could be followed and supported by the contents of the SER. (Section 2.0 c. of the 2016 IMPEP special review report)

Status:

The team reviewed the Radioactive Materials Division's technical review of the annual Waste Control Specialists Performance Assessment (PA) Update that was completed after the 2016 IMPEP special review. During the Radioactive Materials Division's evaluation, staff developed requests for additional information and provided documented correspondence to the licensee. Technical issues were also identified and submitted to the licensee, and the responses were documented.

The Radioactive Materials Division documents the technical review in interoffice memoranda that are transmitted from reviewer to manager(s). Management creates summaries that provide a technical basis for approval or disapproval for a licensing action. The "Reviewing Performance Assessment Update from Waste Control Specialist (WCS) Radioactive Material License R04100" standard operating procedure was updated to capture this new process in a guidance document for staff. The team determined that the technical documentation associated with the review and the revised standard operating procedure adequately addresses the recommendation. This recommendation is closed.

Recommendation:

The Commission should improve the documentation of its process related to the resolution of placeholder inputs in the performance assessment models. The Commission should document how placeholder inputs have been removed along with suitable justification. (Section 2.0 c. of the 2016 IMPEP special review report)

Status:

The team reviewed the performance assessment technical review and standard operating procedures. Technical requests are provided to the licensee to address outstanding questions. Additionally, the replacement of placeholder input values with input values based on site-specific or other relevant data are reviewed and documented in interoffice memoranda. The team determined that through changes in work processes and updates to procedures, the intent of the recommendation has been met. This recommendation is closed.

Recommendation:

The Commission should have a documented process to track and identify both the technical analyses upon which a regulatory decision has been made and the significance of errors or changes that may be identified in the supporting performance assessment model. Resolution of significant errors or changes

should be documented and in the case of errors, appropriate corrective actions taken. (Section 2.0 c. of the 2016 IMPEP special review report)

Status:

The team reviewed the documented process to track and identify both the technical analyses that supported the regulatory decision and the standard operating procedure that provides structure for the technical staff's review. The technical staff identified issues, requested licensee updates, and documented the technical justification. The team noted that the technical staff identified errors in the performance assessment, when present, as well as any necessary updates needed for the performance assessment. Issues with the performance assessment were identified, and the resolution and justification were documented. The Commission updated the procedure for reviewing the performance assessment. The technical staff's implementation of the procedure demonstrated the technical justifications of their regulatory decisions along with the documentation of findings. The team determined the updated performance assessment procedures and the documentation of findings has satisfied the intent of this recommendation. This recommendation is closed.

Uranium Recovery Program: Satisfactory

Recommendation:

The team recommends that the Commission develop and implement a strategy to address staffing in the low-level radioactive waste and uranium recovery inspection programs in order to enhance the effectiveness and efficiency of the inspection programs. (Sections 3.3.1 and 3.4.1 of the 2014 IMPEP review report)

Status:

An identical recommendation was made for both the Low-Level Radioactive Waste Disposal Program indicator and the Uranium Recovery Program indicator. The status for the recommendation as it pertains to uranium recovery is discussed above under the Low-Level Radioactive Waste Program.

Recommendation:

The team recommends that the Critical Infrastructure Division, in coordination with the Radioactive Materials Division, develop detailed inspection procedures for the uranium recovery inspections to provide feedback to the Uranium Recovery Program and enhance the inspection program. (Section 3.4.3 of the 2014 IMPEP review report)

Status:

The Commission has developed an inspection procedure for the uranium recovery program that is separate from the low-level radioactive waste program. Under the procedure, prior to an inspection being performed, the inspector coordinates with the Radioactive Materials Division to identify any existing followup items. Additionally, Radioactive Materials Division staff are given the opportunity to attend site inspections with the inspectors. Inspection results are

shared with the Radioactive Materials Division. The inspectors also review all new, amended, and renewed licenses created by the Radioactive Materials Division prior to issuance. The team determined that the changes in process and revised procedures address the intent of the 2014 recommendation. This recommendation is closed.

Overall finding: Adequate to protect public health and safety and compatible with the NRC's program.

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 Texas' performance with respect to the following performance indicator objectives:

- A well-conceived and balanced staffing strategy has been implemented throughout the review period.
- Agreement State training and qualification program is equivalent to NRC Inspection Manual Chapter (IMC) 1248, "Formal Qualifications Program for Federal and State Material and Environmental Management Programs."
- 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

The Department implements the Texas Agreement State Program for radioactive materials licensees. The responsibilities for implementing the program are divided among three sections in the Consumer Protection Division of the Department. These are the Business Filing and Verification Section, which oversees the radioactive materials licensing and sealed source and device evaluation program; the Policy Standards and Quality Assurance Section, which oversees regulation adoption and enforcement; and the Surveillance Section, which oversees radioactive materials inspections.

At the time of the IMPEP review, the Business Filing and Verification Section's Radioactive Material Licensing Group was budgeted for 11.5 full-time equivalents (FTE). These FTE are comprised of the group manager, three administrative staff, two licensing program coordinators, and eight radioactive materials licensing staff positions. At the time of the review, three of the eight radioactive materials licensing staff positions were vacant. All radioactive materials licensing staff in place at the time of the review were qualified to perform licensing actions independently; however, only the two program coordinators and the group manager have signature authority. During the review period, a total of three staff members and two managers left and one manager was hired. The other managerial position, previously known as the Radiation Safety Licensing Branch manager, was dissolved and the duties were assumed by the Business Filing and Verification Section manager.

One of the three technical staff vacancies has been open since June 2015. The reason for the prolonged vacancy was initially due to the lack of qualified candidates after the first posting. Subsequently, a hiring freeze prevented the position from being posted and a Government Accountability Office (GAO) audit prolonged posting the vacancy. After an internal review of the GAO audit results, the two managers directly involved in the licensing program resigned, which further delayed the posting. One of the manager positions was dissolved (see discussion above) and the remaining manager position, the Licensing Group Manager, was filled in September 2016. Subsequent to the new manager joining the Radioactive Material Licensing Group, Texas again had a hiring freeze for most of 2017, which further delayed posting the technical staff vacancy.

Additionally, in July and December of 2017, two technical staff members resigned to pursue opportunities in the private sector. At the time of the IMPEP review, the three licensing technical staff positions had been posted and closed and the Business Filing and Verification Section was in the process of reviewing the applications.

The Surveillance Section's Radioactive Materials Inspection Group is comprised of 13.5 FTE which includes the group manager, one administrative assistant, and 14 inspectors located in various field offices throughout the State of Texas. The inspectors are also assigned administrative and emergency response duties; however, 92 percent of their time is spent on inspections. At the time of the review, there were no vacancies in the Radioactive Materials Inspection Group. During the review period, seven inspectors left the program – two inspectors retired, two transferred internally, one left for graduate school, one took a job with the University of Texas, and one left for private industry.

Seven inspectors were hired to replace the departed inspectors. The longest period a vacancy remained open was nine months. Most vacancies were filled within seven months.

The Radioactive Materials Inspection Group manager indicated that completing the Department's inspector training and qualification program takes approximately one year. Twelve of the 14 inspectors are fully qualified to perform radioactive materials inspections for all license types. The two other inspectors, hired in 2017, are qualified on several license types and are expected to be fully qualified by the end of 2018. The IMPEP team determined that staff turnover did not have a significant impact on the inspection program based on: interviews with the majority of the inspectors and their manager; the timeliness of completion of Priority 1, 2, 3, and initial inspections; and the timeliness of the issuance of inspection results.

The Surveillance Section's Environmental Monitoring Group is comprised of the group manager and 14 technical staff, of which one technical staff position is vacant. Additionally, the Environmental Monitoring Group is allocated one administrative assistant which is vacant. The Environmental Monitoring Group's primary responsibility with respect to the Agreement State Program is investigating radioactive material incidents and allegations. Approximately 4.5 FTE, which includes the group manager and five fully qualified investigators, are responsible for implementing the incident response and allegation program. There were no vacancies among the staff performing these activities during the review period. The Environmental Monitoring Group's other responsibilities include emergency response, environmental monitoring around the nuclear power plants in the State, and coordination of State and Federal partnerships including Waste Isolation Pilot Plant and Pantex sites. The Environmental Monitoring Group also performs the radiation survey instrument calibrations for the Department. Due to the environmental specialist vacancy at the time of the review, the Department's Radiation Safety Officer performed instrument calibrations.

The Policy, Standards, and Quality Assurance's Radiation Unit consists of 12 technical staff, two administrative staff, and the manager. Within the Radiation Unit, the Radiation Group is comprised of approximately 5.0 FTE to support the radioactive materials program through collaboration with the Compliance Section, as well as to develop rules and coordinate staff training including NRC-provided training. During the review period, four staff members and the manager left the Radiation Group. Two staff members and the manager retired and two other technical staff members resigned for personal reasons. The manager position and two technical specialist positions were filled during the review period. Another technical specialist position was reassigned internally and is now the lead reviewer for inspection reports within the Radiation Group. All three technical specialists have been trained and qualified to implement the radioactive materials enforcement program. The fourth vacant technical position job duties were reassigned and moved out of the Agreement State Program area. Currently, there are no vacancies in the Radiation Group.

The team reviewed training and qualification manuals for each group and determined that the Department has a training and qualification program that is compatible with the NRC's IMC 1248. However, the team identified deficiencies with respect to the

performance of Yttrium-90 microsphere inspections during inspector accompaniments conducted prior to the onsite IMPEP review and through interviews with inspection staff. The team determined that this weakness was not the result of the practical application of the training and qualification program, but rather resulted from the lack of knowledge of the criteria used in Yttrium-90 microsphere inspections. Therefore, the team concluded that this knowledge deficiency was not indicative of a performance weakness with respect to this indicator, and as such did not make a recommendation. Additional information about the Yttrium-90 microsphere inspections can be found in Section 3.3. All qualified staff met the refresher training requirements directed by IMC 1248 during the review period.

c. Evaluation

The team determined that, during the review period, Texas met the performance indicator objectives listed in Section 3.1.a., and recommends that Texas' performance with respect to the indicator, Technical Staffing and Training, be found satisfactory.

d. MRB Decision

The MRB agreed with the team's recommendation and found Texas' performance with respect to this indicator to be satisfactory.

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 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 the Materials Inspection Program," and evaluated Texas' 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 IMC 2800.
- Candidate licensees working under reciprocity are inspected in accordance with the criteria prescribed in 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 Code of Federal Regulations 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 IMC 0610, “Nuclear Material Safety and Safeguards Inspection Reports”).

b. Discussion

When evaluating this indicator, the team considered five factors, including inspection frequency, performance of reciprocity inspections, overdue inspections, initial inspection of new licenses, and timely dispatch of inspection results to licensees. Texas’ inspection frequencies are equivalent to or more frequent than those established in IMC 2800. Texas performed 1,456 Priority 1, 2, and 3 and initial inspections during the review period. Eighteen of 1,193 Priority 1, 2, and 3 inspections and 9 of 263 initial inspections were conducted overdue. Texas conducted 1.8 percent of Priority 1, 2, 3, and initial inspections overdue during the review period.

A sampling of 30 inspection reports indicated that no inspection results were communicated to the licensees beyond Texas’ goal of 30 days after the inspection exit. Additionally, the team determined that during each year of the review period, Texas performed greater than 20 percent of candidate reciprocity inspections.

c. Evaluation

The team determined that, during the review period, Texas met the performance indicator objectives listed in Section 3.2.a. and recommends that Texas’ 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 Texas’ performance with respect to this indicator to be satisfactory.

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 Agreement State’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 Texas’ 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.
- For Agreement States, inspection guides are consistent with NRC guidance.
- An adequate supply of calibrated survey instruments is available to support the inspection program.

b. Discussion

The team evaluated the inspection reports and enforcement documentation, and interviewed inspectors involved in 31 materials inspections conducted during the review period. The casework reviewed included inspections that covered medical, industrial, commercial, academic, research, and service licenses for initial, routine, special, and reciprocal inspections. The inspection casework and inspector accompaniments were also assessed for implementation of security requirements for risk significant radioactive material, as applicable.

The team determined that inspection findings were well-founded and appropriately documented, and inspection reports were complete with timely review by the Policy, Standards, and Quality Assurance Unit prior to sending close-out letters to the licensee or pursuing enforcement actions.

Team members accompanied seven inspectors during the week of December 4, 2017. The inspector accompaniments are identified in Appendix B. The inspectors were accompanied during health, safety, and security inspections of industrial radiography, well logging, gamma knife, cyclotron, self-shielded irradiator, and high dose rate remote afterloader licensees. During the accompaniments, the inspectors demonstrated appropriate use of inspection checklists, knowledge of the regulations, and appropriate use of calibrated survey instruments. Less experienced inspectors performed the inspections using a compliance-based approach adhering to developed inspection checklists. More experienced inspectors performed the inspections using a combined compliance-based and performance-based approach. The Department's inspection checklists addressed each of the focus elements in the NRC's Inspection Procedures for each type of inspection. The inspectors were trained, adequately prepared for the inspection, conducted interviews with appropriate personnel, observed licensed operations, conducted independent and confirmatory measurements, and utilized good health physics practices. The inspections were adequate to assess radiological health and safety and security at the licensed facilities with one exception.

During one inspection accompaniment, the individual being accompanied failed to review the Yttrium-90 microsphere portion of the licensee's program. The team observed that the inspector only inquired how many Yttrium-90 microsphere treatments had been performed during the inspection period, but did not review written directives to identify any possible medical events or interview licensee staff concerning the administration of the microspheres. The team discussed this issue with the inspector at the conclusion of the accompaniment and determined that the oversight occurred because the inspector lacked sufficient knowledge and experience to adequately review Yttrium-90 microsphere administrations. Despite the lack of review of treatment plans and treatment records associated with the Yttrium-90 microsphere program, the team determined that the inspection of all other areas was sufficient to evaluate public health and safety and security of licensed materials.

Additionally, the team investigated whether this was an individual issue or an issue applicable to all inspectors who inspect Yttrium-90 microsphere programs. During the onsite review, the team interviewed other staff who were qualified to perform this type of inspection and determined that they did not appear to have adequate knowledge and/or experience necessary to properly review Yttrium-90 microsphere operations. The team determined this was a knowledge deficiency in one narrow issue that applied to all inspectors qualified to inspect Yttrium-90 microsphere programs for the Department; inspectors were well versed in the other inspection areas. These findings were discussed with Department management during the onsite review. The team recommends that the Department develop and implement a plan to ensure that inspectors performing Yttrium-90 inspections get additional training in this area including accompanying experienced inspectors.

The team also evaluated the performance of supervisory accompaniments of the program's qualified inspectors. All qualified inspectors were accompanied at least annually during the review period.

c. Evaluation

The team determined that, during the review period, Texas met the performance indicator objectives listed in Section 3.3.a, with one exception:

- Inspections of licensed activities did not always focus on health and safety and security.

The team evaluated the weakness associated with Yttrium-90 inspections and its impact on the overall inspection program for the Department to determine whether a finding of satisfactory or satisfactory, but needs improvement, was warranted. The team determined that since the performance issue concerned the lack of knowledge with respect to the inspection of one type of medical procedure, which is typically not a standalone modality for a licensee, and did not reflect the quality of the rest of the inspection program, a finding of satisfactory, but needs improvement, was not justified for the indicator.

Based on the IMPEP evaluation criteria in MD 5.6, the team recommends that Texas' 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 Texas' performance with respect to this indicator to be satisfactory.

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 Texas 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 Texas' 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 proper time.
- 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 Department performed over 7,000 radioactive materials licensing actions. For this review, the team evaluated 27 radioactive materials licensing actions. The licensing actions selected for review included ten new applications, ten

amendments, five renewals, and two terminations. The team evaluated casework which included the following license types and actions: broad scope, medical diagnostic and therapy, commercial manufacturing and distribution, industrial radiography, research and development, academic, gauges, well-logging, service providers, decommissioning actions, and financial assurance. The casework sample represented work from 10 license reviewers who performed licensing actions during the review period.

As of February 2018, the State has 1,576 specific licenses. Licensing actions received are assigned a log number in the computer tracking system. The licensing action is then provided to one of the two licensing program coordinators who assign the action to a license reviewer in their group. The license reviewer is responsible for reviews, deficiency letters, coordination, and finalizing the licensing action. Deficiencies are typically communicated to the licensee by telephone, facsimile, e-mail, and/or a formal deficiency letter. When a licensing action is complete, a program coordinator reviews the action for quality assurance and signs the licensing action. Licenses are issued for a 10-year period under a timely renewal system.

In 15 of the 27 licensing actions reviewed, the team found licensing actions to be thorough, complete, consistent, and of high quality with health and safety and security issues properly addressed. License tie-down conditions were stated clearly and were supported by information contained in the file. Deficiency letters clearly stated regulatory positions, were used at the proper time, and identified deficiencies in the licensees' documents. Terminated licensing actions were well documented, showing appropriate transfer and survey records. For medical licenses, the Department's review of preceptor attestations was found to be thorough. The Radioactive Material Licensing Group manager or program coordinators perform a technical and supervisory review on all licensing actions. However, for the 12 remaining licensing actions reviewed, the team identified issues with thoroughness in four of the actions, consistency in four of the actions, and technical quality in four of the actions.

In four of the licensing actions reviewed, the team identified conditions that were not applicable to the material authorized on the license. This was an issue with four of the nine medical licensing actions evaluated. The team determined that this is a quality issue. As an example, one license contained license conditions pertaining to sealed sources when the license only authorized unsealed radioactive material. Additionally, based on interviews with license reviewers, the team determined that the reviewers did not know why the condition was on the license. A license reviewer indicated that the "unofficial" process was to find an existing license that was similar to the license being generated and use the existing license as a guide/sample license. This issue was identified prior to the IMPEP review by the Department and as a corrective action, the manager of the Radioactive Material Licensing Group revised the list of standard license conditions in late 2017 for all modalities. The new standard conditions became effective as of January 1, 2018, and the Department is in the process of implementing these conditions.

In four of the licensing actions reviewed, the team identified that a leak test license condition was not used. This was an issue with four of the 13 industrial licensing actions evaluated; two portable gauge licenses and two fixed gauge licenses. The team

reviewed the sample license used by the Department and found that the leak test license condition was listed on the sample license. The team determined that this is a consistency issue. The team interviewed the licensing staff member who worked on the licensing actions with the missing license condition. The licensing staff member indicated that although the licenses did not contain the leak test license condition, the requirement is covered under the State of Texas regulation. The license reviewer also indicated that the new standard license conditions for industrial licenses will not contain the leak test license condition. The Department identified this licensing inconsistency prior to the IMPEP review and, as a corrective action, the Radioactive Material Licensing Group Manager revised the list of standard license conditions in late 2017 for all modalities and is in the process of implementing them.

In four of the license renewal actions reviewed, the team identified that documentation indicating that the licensee's compliance history was reviewed was not present. This was an issue with four of the five license renewal actions evaluated by the team. The team interviewed license reviewers to better understand what each reviewer evaluates when processing a renewal. All of the license reviewers interviewed indicated that the licensee's inspection and enforcement history is reviewed during the renewal, but that the requirement to document that review is new. The Department had identified this issue prior to the IMPEP review and had put in place new policies and procedures that were finalized in January 2018. The new procedures made it a requirement to document the review of the compliance history of the licensee. This documentation is necessary to ensure commitments made by the licensee as a result of an enforcement action are carried through to the renewed license. The team was able to identify one license renewal that was issued after the new policies and procedures were put in place that contained a documented review of the licensee's compliance history.

Texas has a current backlog of 83 license renewal actions greater than one year. This is an increase from the backlog mentioned in the 2014 IMPEP review of 68 renewals in house over one year. The oldest renewal in the current backlog has a license expiration date of March 31, 2015. In the five license renewals reviewed, the team found that two of the renewals took 4 years to complete. The team determined that one reason for the increase in the backlog was due to Texas' response to the 2015 GAO audit. In response to this audit, the Department shifted its focus from license renewal applications to new license applications received from unknown and known entities. Additionally, the Department hired a new manager for the Radioactive Material Licensing Group in October 2016 after the departure of the previous group manager. Since being hired, the new manager of the Radioactive Material Licensing Group has identified several weaknesses in the licensing program and is developing new processes and procedures to address each one. Because a significant license renewal backlog existed at the time of the previous review and the backlog was larger at the time of this review, the team recommended that Texas develop and implement an action plan to reduce the license renewal backlog.

Texas performs pre-licensing action reviews for all new applicants, transfers of control, and name changes. The Radioactive Material Licensing Group's pre-licensing review incorporates the essential elements of the NRC's "Checklist to Provide a Basis for Confidence that Radioactive Material will be used as Specified on the License"

(pre-licensing guidance). Applicants must fill out a “Business Information Form” and provide their tax identification number. Texas suspended the practice of hand delivering the license at the time of the pre-licensing site visit after the 2015 GAO audit. All unknown applicants receive a pre-licensing site visit. The Radioactive Material Licensing Group requests a pre-licensing site visit from the Surveillance Section’s Radioactive Materials Inspection Group. Only inspectors perform pre-licensing site visits. The results of the visit are provided to the Radioactive Material Licensing Group. The team reviewed the pre-licensing visit records and found them to be adequate.

c. Evaluation

The team determined that, during the review period, Texas met the performance indicator objectives listed in Section 3.4.a., with the following exceptions:

- Licensing action reviews for 12 of 27 actions were not thorough, complete, consistent, or of acceptable technical quality with health, safety, and security issues properly addressed.
 - License conditions on 8 of 27 actions were not stated clearly and are not enforceable.
 - For four of five renewal applications, there was no documentation of the staff’s review of the licensee’s inspection and enforcement history.

The team found examples of inconsistencies and quality issues amongst licenses. In four of the nine medical licensing actions reviewed, the team identified conditions that were not applicable to the material authorized on the license. The team identified that for four of the 13 industrial licensing actions reviewed, the leak test license condition was not used. The team identified that in four of the five license renewal actions evaluated by the team, only one contained documentation indicating that the licensee’s compliance history was reviewed. Although the Radioactive Material Licensing Group had recently revised its standard license conditions list, the team was unable to evaluate a sustained period of performance to determine if the revisions will improve the consistency of the licenses. At the time of the review, there was a backlog of 83 license renewal applications with the longest renewal submitted in March 2015.

Based on the IMPEP evaluation criteria in MD 5.6, the team recommends that Texas’ performance with respect to the indicator, Technical Quality of Licensing Actions, be found satisfactory, but needs improvement.

d. MRB Decision

The MRB agreed with the team’s recommendation and found Texas’ performance with respect to this indicator to be satisfactory, but needs improvement.

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 followup 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 Texas' 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 and safety, or security significance.
- Appropriate followup actions are taken to ensure prompt compliance by licensees.
- Followup 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

The team identified 221 radioactive materials incidents in NMED for the Department during the review period, of which 206 required reporting to the NRC. The team evaluated 20 NRC-reportable radioactive materials incidents and 2 that did not require NRC notification. The casework reviewed included five events involving lost/stolen radioactive materials, five potential overexposures, two medical events, five events involving damaged equipment, one event involving a leaking source, and two contamination events. Texas dispatched inspectors for onsite followup for 11 of the cases reviewed.

The team examined the Department's implementation of the incident and allegation processes, including written procedures for handling incidents and allegations, file documentation, and notification of incidents to the NRC Headquarters Operations Center for inclusion in NMED. The team found that inspectors properly evaluated each event, interviewed involved individuals, and thoroughly documented their findings. Enforcement actions were taken where appropriate. When an event is reported to the incident investigation program, the receiving staff evaluates the event to determine its health and safety significance and decides on the initial response. If an immediate response is warranted, the Incident Investigation Program manager is notified to make a decision about the appropriate level of response. Incident response may be conducted on-site, by telephone interview, or a combination of the two. The Department reported

events to the NRC Headquarters Operation Center in a prompt manner and provided the NMED contractor with information to update the NMED database.

During the review period, 78 allegations pertaining to radioactive material were received by the Department of which 12 were referred to the Department by the NRC. The team evaluated 10 allegations and found that the Department took prompt and appropriate action in response to the concerns raised. All of the allegations reviewed were appropriately closed, concerned individuals were notified of the actions taken, and alleged identities were protected.

c. Evaluation

The team determined that, during the review period, Texas met the performance indicator objectives listed in Section 3.5.a., and recommends that Texas' 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 Texas' performance with respect to this indicator to be satisfactory.

4.0 NON-COMMON PERFORMANCE INDICATORS

Four non-common performance indicators are used to review Agreement State programs: (1) Compatibility Requirements; (2) Sealed Source and Device (SS&D) Evaluation Program; (3) Low-Level Radioactive Waste (LLRW) Disposal Program; and (4) Uranium Recovery Program. All four non-common performance indicators applied to this review.

4.1 Compatibility Requirements

State statutes should authorize the State to establish a program for the regulation of agreement material and provide authority for the assumption of regulatory responsibility under the agreement. The statutes must authorize the State to promulgate regulatory requirements necessary to provide reasonable assurance of protection of public health, safety, and security. The State must be authorized through its legal authority to license, inspect, and enforce legally binding requirements, such as regulations and licenses. The NRC regulations that should be adopted by an Agreement State for purposes of compatibility or health and safety should be adopted in a time frame so that the effective date of the State requirement is not later than 3 years after the effective date of the NRC's final rule. Other program elements, as defined in Appendix A of State Agreements procedure SA-200, "Compatibility Categories and Health and Safety Identification for NRC Regulations and Other Program Elements," that have been designated as necessary for maintenance of an adequate and compatible program, should be adopted and implemented by an Agreement State within 6 months following NRC designation.

a. Scope

The team used the guidance in State Agreements procedure SA-107, "Reviewing the Non-Common Performance Indicator: Compatibility Requirements," and evaluated Texas' performance with respect to the following performance indicator objectives. A complete list of regulation amendments can be found on the NRC Web site at the following address: <https://scp.nrc.gov/regtoolbox.html>.

- The Agreement State program does not create conflicts, duplications, gaps, or other conditions that jeopardize an orderly pattern in the regulation of radioactive materials under the Atomic Energy Act, as amended.
- Regulations adopted by the Agreement State for purposes of compatibility or health and safety were adopted no later than three years after the effective date of the NRC regulation.
- Other program elements, as defined in SA-200 that have been designated as necessary for maintenance of an adequate and compatible program, have been adopted and implemented within six months of NRC designation.
- The State statutes authorize the State to establish a program for the regulation of agreement material and provide authority for the assumption of regulatory responsibility under the agreement.
- The State is authorized through its legal authority to license, inspect, and enforce legally binding requirements such as regulations and licenses.
- Impact of sunset requirements, if any, on the State's regulations.

b. Discussion

Texas became an Agreement State on March 1, 1963. The Texas Agreement State Program's current effective statutory authority is contained in the Texas Radiation Control Act, Chapter 401, of the Texas Health and Safety Code. Section 401.011 designates the Department as the State's radiation control agency. However, Section 401.11(b) provides an exception which gives the Commission jurisdiction to regulate and license: (1) the disposal of radioactive substances; (2) the processing or storage of low-level radioactive waste or naturally occurring radioactive material (NORM) waste received from other persons, except oil and gas NORM; (3) the recovery or processing of source material in accordance with Subchapter G; (4) the processing of by-product material as defined by Section 401.003(3)(B); and (5) sites for the disposal of: (a) low-level radioactive waste; (b) by-product material; or (c) naturally occurring radioactive material waste.

Two Bills were passed by the legislature during the IMPEP review period that directly impacted the Department: Senate Bill 347 and House Bill 1678. Senate Bill 347 delineated several areas of jurisdiction by amending the Memorandum of Understanding between the Department and the Commission in order to coordinate responsibilities and eliminate duplication. Additionally, Senate Bill 347 amended fees, raised the cap on the environmental perpetual care account from \$500,000 to \$100,000,000, required changes to packaging and transportation fees assessed to low-level radioactive waste shippers, and added a provision for utilizing perpetual care funds for first responder training.

House Bill 1678 directed a five percent fee collection to be placed into the Department's perpetual care account. Impacts to the Department as a result of the passed legislation were minimal.

Three Bills were passed by the legislature during the IMPEP review period that directly impacted the Commission: House Bill 2662 and Senate Bills 1667 and 1330. House Bill 2662 temporarily suspended the collection of five percent of gross receipts for the upcoming biennium and then reinstates the collection in September 2019. The Senate Bills addressed issues with fees and the status of the Texas Low-Level Radioactive Waste Disposal Compact Commission as a State Agency. Impacts to the Commission as a result of the passed legislation were minimal.

The Department's administrative rulemaking process takes approximately two years and the Commission's administrative rulemaking process takes approximately one year from drafting to finalizing a rule. The public, the NRC, other agencies, and potentially impacted licensees and registrants are offered an opportunity to comment during the process. Comments are considered and incorporated, as appropriate, before the regulations are finalized and approved. Once approval is received, the rules are submitted to the Secretary of State's office for publication. The rules are effective 20 days after publication. The team noted that the State's rules and regulations are subject to a "sunset" equivalent law. All rules must be reviewed every four years to determine if the rule is still relevant and if so, if changes need to be made.

During the review period, the Department submitted 20 proposed regulation amendments and 16 final regulation amendments and the Commission submitted 8 proposed regulation amendments, 11 final regulation amendments, and 1 legally binding license condition to the NRC for a compatibility review. The Department submitted one amendment overdue at the time of submission and the Commission submitted two amendments overdue at the time of submission.

At the time of this review, no amendments were overdue for adoption. The Department has outstanding comments associated with final rules for six Regulation Amendment Tracking Sheets (RATS IDs: 1993-1, 2007-2, 2007-3, 2011-2, 2012-4, and 2013-2) and the Commission has one outstanding comment associated with final rules for one Regulation Amendment Tracking Sheet (RATS ID: 2011-1). Both the Department and the Commission expect to have these comments addressed before the end of calendar year 2018.

c. Evaluation

The team determined that, during the review period, Texas met the performance indicator objectives listed in Section 4.1.a., with one exception:

- Regulations adopted by the Agreement State for purposes of compatibility or health and safety were not always adopted within three years after the effective date of the NRC regulation.

Texas adopted 3 of the 28 submitted final regulation amendments overdue during the review period. No significant impacts to public health and safety were noted by the team as a result of the delayed adoption.

Based on the IMPEP evaluation criteria in MD 5.6, the team recommends that Texas' performance with respect to the indicator, Compatibility Requirements, be found satisfactory.

d. MRB Decision

The MRB agreed with the team's recommendation and found Texas' performance with respect to this indicator to be satisfactory.

4.2 Sealed Source and Device (SS&D) Evaluation Program

Adequate technical evaluations of SS&D designs are essential to ensure that SS&Ds will maintain their integrity and that the design is adequate to protect public health and safety. NUREG-1556, Volume 3, "Consolidated Guidance about Materials Licenses: Applications for Sealed Source and Device Evaluation and Registration," provides information on conducting SS&D reviews and establishes useful guidance for teams. Under this guidance, three sub elements: Technical Staffing and Training, Technical Quality of the Product Evaluation Program, and Evaluation of Defects and Incidents Regarding SS&D's are evaluated to determine if the SS&D program is satisfactory. Agreement States with authority for SS&D evaluation programs who are not performing SS&D reviews are required to commit in writing to having an SS&D evaluation program in place before performing evaluations.

a. Scope

The team used the guidance in State Agreements procedure SA-108, "Reviewing the Non-Common Performance Indicator: Sealed Source and Device Evaluation Program," and evaluated Texas' performance with respect to the following performance indicator objectives:

Technical Staffing and Training

- A well-conceived and balanced staffing strategy has been implemented throughout the review period.
- Qualification criteria for new 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.
- Management is committed to training and staff qualification.
- Individuals performing SS&D evaluation activities are adequately qualified and trained to perform their duties.

- SS&D reviewers are trained and qualified in a reasonable period of time.

Technical Quality of the Product Evaluation Program

- SS&D evaluations are adequate, accurate, complete, clear, specific, and consistent with the guidance in NUREG-1556, Volume 3.

Evaluation of Defects and Incidents

- SS&D incidents are reviewed to identify possible manufacturing defects and the root causes of these incidents.
- Incidents are evaluated to determine if other products may be affected by similar problems. Appropriate action and notifications to the NRC, Agreement States, and others, as appropriate, occur in a timely manner.

b. Discussion

Technical Staffing and Training

The Department has three fully qualified SS&D reviewers. At the time of the review, there was one vacancy in the SS&D program. This position became vacant in July 2017 when the individual left the Department for another employment opportunity. This vacancy was subsequently posted and had closed prior to the IMPEP review. Applications for the position are being reviewed and the Department hopes to fill the position in the near future. The team determined that the Department was managing the workload despite having one vacancy. The Department's training and qualification program is equivalent to the training requirements identified in Appendix D of the NRC's IMC 1248.

Technical Quality of the Product Evaluation

Since the 2014 IMPEP review, the Department received 10 new SS&D applications from manufacturers and licensees (custom devices). Additionally, the Department processed 40 amendments and 42 inactivations during the review period.

The team evaluated 65 of the 92 SS&D actions. Based on the information reviewed, the team determined that the technical evaluation of the applications were adequate, accurate, complete, clear, specific, and consistent with the guidance in NUREG-1556, Volume 3. Additionally, the team determined that all actions reviewed were performed by qualified SS&D reviewers.

Evaluation of Defects and Incidents Regarding SS&Ds

There were no incidents involving an SS&D registered product reported to the Department during the review period.

c. Evaluation

The team determined that, during the review period, Texas met the performance indicator objectives listed in Section 4.2.a., and recommends that Texas' performance with respect to the indicator, Sealed Source and Device Evaluation Program, be found satisfactory.

d. MRB Decision

The MRB agreed with the team's recommendation and found Texas' performance with respect to this indicator to be satisfactory.

4.3 Low-Level Radioactive Waste Disposal Program

The objective of the review is to determine if the Texas low-level radioactive waste disposal 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 Low-Level Radioactive Waste Inspection Program; (3) Technical Quality of Inspections; (4) Technical Quality of Licensing Actions; and (5) Technical Quality of Incident and Allegation Activities.

a. Scope

The team used the guidance in State Agreements procedure SA-109, "Reviewing the Non-Common Performance Indicator: Low-Level Radioactive Waste Disposal Program," and evaluated Texas' 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 low-level radioactive waste disposal facility.
- Qualification criteria for new low-level radioactive waste 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 the low-level radioactive waste licensing and inspection programs.
- Management is committed to training and staff qualification.
- Individuals performing low-level radioactive waste licensing and inspection activities are adequately qualified and trained to perform their duties.
- Low-level radioactive waste license reviewers and inspectors are trained and qualified in a reasonable period of time.

Status of Low-Level Radioactive Waste Disposal Inspection Program

- The low-level radioactive waste 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 low-level radioactive waste 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.

Technical Quality of Inspections

- Inspections of low-level radioactive waste 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 low-level radioactive waste 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 Licensing Actions

- Licensing action reviews are thorough, complete, consistent, and of acceptable technical quality with health, safety, and security issues properly addressed.
- Applicable low-level radioactive waste guidance documents are available to reviewers and are followed (e.g., pre-licensing guidance, regulatory guides, etc.).
- Essential elements of license applications have been submitted and elements are consistent with current NRC or Agreement State regulatory guidance for describing the isotopes and quantities used, qualifications of authorized users, facilities, equipment, locations of use, operating and emergency procedures, and any other requirements necessary to ensure an adequate basis for the licensing action (e.g., financial assurance, increased controls/Part 37, etc.).
- Low-level radioactive waste license reviewers, if applicable, have the proper signature authority for the cases they review independently.
- License tie-down conditions are stated clearly and can be inspected.
- Deficiency letters clearly state regulatory positions and are used at the proper time.

- Reviews of renewal applications demonstrate a thorough analysis of a licensee's inspection and enforcement history.
- 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.

Technical Quality of Incident and Allegation Activities

- Low-level radioactive waste 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 followup actions are taken to ensure prompt compliance by licensees.
- Followup 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 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

Technical Staffing and Training

The Texas low-level radioactive waste program is implemented by two divisions within the Commission. Licensing of low-level radioactive waste activities is implemented by staff in the Radioactive Materials Division. Inspection of low-level radioactive waste activities is implemented by staff in the Critical Infrastructure Division. At the time of the review, there was a total of 10.25 FTE for the low-level radioactive waste program. The licensing program is allocated 7.15 FTE and the inspection program is allocated 3.1 FTE. The licensing program currently has one vacancy and the inspection program has no vacancies. Many of the staff that support licensing and inspection of low-level radioactive waste activities also support licensing and inspection in the uranium recovery program.

At the time of the review, the low-level radioactive waste licensing staff consisted of the Work Group Leader, four license reviewers, a program coordinator, the Radioactive Materials Section Manager, a technical specialist, a special assistant to the Radioactive Materials Division Director, and the Radioactive Materials Division Director. During the review period, three low-level radioactive waste licensing staff left the program – one retired, one left for personal reasons, and one transferred to another position within the Commission. The longest period of time a vacancy existed was seven months. Two new staff were hired for the low-level radioactive waste licensing program leaving one

vacant license reviewer position at the time of the review. The low-level radioactive waste licensing vacancy was authorized to be posted in late 2017. Just prior to the IMPEP review, in January 2018, the posting closed and management was in the process of making a selection for the position.

The low-level radioactive waste inspection staff consists of: two fully qualified inspectors based in Austin, Texas; one fully qualified resident inspector at the Waste Control Specialist (WCS) disposal facility in Andrews County, Texas; one resident inspector in training at the WCS disposal facility; the Homeland Security Section Manager; a liaison between licensing and inspection staff; a special assistant to the Critical Infrastructure Division Director; and the Critical Infrastructure Division Director. The two qualified low-level radioactive waste inspectors based in Austin, Texas also perform uranium recovery inspections.

During the review period, the Commission did not have a training program equivalent to the NRC's IMC 1248. The training of new staff consisted of peer-to-peer instruction mixed with supervisory oversight and some NRC training courses. A formal documented training program was not established for license reviewers. The inspection staff has a documented program that provides high-level guidelines about training requirements. However, the training program did not provide the details of the specific requirements, as described in IMC 1248, needed to be fully qualified to perform inspections. As described below under Technical Quality of Inspection, during inspector accompaniments one inspector demonstrated weaknesses. Based on the quality of the inspection files reviewed (discussed below under Technical Quality of Inspection), and discussions with the inspector and management, the team determined that these weaknesses were not related to the lack of a compatible training and qualification program. In January 2018, the Commission began the development of a combined training program for both low-level radioactive waste and uranium recovery license reviewers and inspectors to address the essential objectives of IMC 1248. The team recommends that Texas review and update the recently developed formal training and qualification program to identify the training needs of the low-level radioactive waste program and ensure it meets the essential objectives of IMC 1248 and apply it to staff currently going through the qualification process.

Status of Low-Level Radioactive Waste Disposal Inspection Program

The Commission performs inspections in accordance with its *Low-Level Radioactive Waste Disposal Program Inspection Procedures for the Waste Control Specialists, LLC Facility, Revision 7*. The team determined that the Commission completed low-level radioactive waste inspections in accordance with the frequency established in the NRC's IMC 2401, "Near-Surface Low-Level Radioactive Waste Disposal Facility Inspection Program." The Division performed 12 inspections at the WCS disposal facility during the review period. The team determined that the Division performed complete inspections at the WCS disposal facility during each year of the review period. There were no deviations from the prescribed inspection schedule during this review period and no inspection was completed overdue.

The team noted that the Commission's procedure states that inspection results should

be issued within 60 days of the completion of an inspection. This criteria is less restrictive than the NRC's criteria of within 30 days of the completion of an inspection as stated in the NRC's IMC 0610, "Nuclear Material Safety and Safeguards Inspection Reports." In reviewing inspections performed during the review period, the team determined that the Commission did not issue inspection results for 11 of the 12 WCS inspections completed during the review period. Inspection results for the one WCS inspection that were issued were neither communicated by formal correspondence to the licensee within the NRC's criteria of 30 days nor within the Commission's criteria of 60 days. The team recommends that Texas revise its low-level radioactive waste program inspection procedures to state inspection results will be communicated to licensees within 30 days of the completion of the inspection and issue those findings accordingly. Additionally, the team recommends that Texas ensure that future inspection results are sent to licensees within 30 days of the completion of an inspection.

The low-level radioactive waste program regulates three licenses in addition to the WCS disposal facility: Ascend Performance Materials Texas Inc. (Ascend), Iso-Tex Corp., and Nuclear Sources and Services Inc. The team reviewed all the inspection reports for each of these licensees for inspections completed during the review period (eight total). The Commission did not complete an inspection of Ascend, in either 2014 or 2015. Per IMC 2401, inspections of this facility should be completed annually. The team identified that the Commission completed the 2016 inspection overdue by two years and eleven months. The Commission did not complete inspections of the Iso-Tex Corp., facility in either 2014 or 2015. The team identified that this facility should be inspected annually and that the 2016 inspection was completed overdue by three years and one month. The team identified that all inspections were completed within the appropriate frequency for Nuclear Services and Sources Inc. This licensee falls under program code 03234 and per IMC 2800 should be inspected every two years. The Commission stated that, prior to the 2016 periodic meeting, there was confusion over whether the inspections for both Ascend and Iso-Tex should be completed on an annual or two-year cycle. The periodicity of these inspections was clarified following the 2016 periodic meeting at which time the Commission committed to performing the inspections annually. Thus, for these three licensees, two inspections (one for Ascend and one for Iso-Tex), which occurred before the 2016 periodic meeting, were conducted at a frequency more than 100 percent greater than the established frequency. Written communication of the inspection results was provided to the licensee in four of the eight inspections reviewed; however, no communications were issued within either 30 calendar days (NRC criteria), or within 60 calendar days (Commission criteria).

Technical Quality of Inspections

The team assessed the quality of low-level radioactive waste program inspections by evaluating inspector performance during accompaniments, inspection field notes and completed reports, inspection procedures, followup on previous inspection findings, including regulatory actions taken, and annual supervisory accompaniments.

The team accompanied two inspectors and one resident inspector on October 23 and 24, 2017. The two inspectors (inspector 1 and inspector 2) were accompanied during a team inspection of the WCS disposal facility, and the resident inspector was observed

conducting a vehicle and shipment inspection of an incoming low-level radioactive waste shipment. The resident inspector and inspector 1 demonstrated that they were experienced, prepared, and knowledgeable of the facility, the inspection requirements, and the regulations. The inspections were adequate to assess the safety and radiological hazards at the WCS disposal facility. However, the team observed that inspector 2 had knowledge gaps involving the performance areas covered. The team found that inspector 1 covered the areas missed by inspector 2 during portions of the inspection being led by inspector 2. The team determined that since this inspection was a team inspection, the overall inspection was adequate and covered all areas required. The team discussed performance weaknesses with inspector 2 during the onsite portion of the review. Additionally, based on the quality of the inspection files reviewed (discussed below) and discussions with the inspector and management, the team determined that the weaknesses demonstrated by inspector 2 were not related to the lack of a compatible training and qualification program as described above under Technical Staffing and Training.

The team evaluated 12 inspection files which included: inspections of waste acceptance; hydrogeological, radiological, and security topics; and environmental hazards. The team determined that the inspections were thorough, complete, consistent, and had sufficient documentation to ensure that licensee performance with respect to health and safety and security was acceptable. The results were well-founded, supported by regulations, and appropriately documented, but not consistently transmitted to the licensee.

The team verified that inspectors receive supervisory accompaniments on an annual basis.

Technical Quality of Licensing Actions

The Commission has four licenses: one waste storage and processing license, one low-level radioactive waste disposal and radioactive waste storage and processing license, one alternative method of disposal license, and one decommissioning license. The team reviewed a sample of 12 licensing actions that occurred during the review period. The team also reviewed the Standard Operating Procedures that provide process guidance for the Commission's staff regarding licensing action development. Following the 2014 IMPEP review, the Commission performed thirteen amendments including seven administrative amendments, four minor amendments, and two major amendments. Additionally, at the time of the review, one license renewal application was in-house. The team reviewed a selection of licensing actions that were completed during the review period, including administrative, engineering, and environmental monitoring amendments. The team determined that licenses were thorough, complete, consistent, and of acceptable technical quality and found that health and safety issues were properly addressed.

In 2016, the NRC performed an IMPEP special review which focused on the Commission's licensing process for reviewing depleted uranium disposal. The scope of the review included the basis for granting a license amendment to dispose of depleted uranium at the WCS low-level radioactive waste disposal facility, the associated

performance assessment model for such disposal, and procedures and guidance related to the use of the performance assessment model. In the IMPEP special review report, the team concluded that the site characteristics at the WCS low-level radioactive waste disposal facility provided adequate margin to protect public health and safety; however, as noted in Section 2.0, the team provided three recommendations to the Commission with regard to the Commission's documentation of this complex licensing action and corresponding decision making process.

During the 2018 IMPEP review, the team evaluated actions taken to address recommendations from the 2016 IMPEP special review. The team reviewed the performance assessment, the Reviewing Performance Assessment Update from WCS, and related licensing documentation. The team found formal documented performance assessment reviews, documentation of the safety technical bases for the disposition of a licensing action, and documented changes to address any necessary corrective actions. The staff documented their acceptance or rejection of the responses and communicated the results to the licensee. As a result of these actions, the team determined that the Commission adequately addressed the three recommendations from the 2016 IMPEP special review. The recommendations and additional information can be found in Section 2.0 of this report.

The team noted that the Commission had revised several procedures for low-level radioactive waste licensing, some of which were in draft at the start of the review and finalized prior to the completion of the review. These procedures had been updated to formalize the licensing process, for knowledge management purposes, and to address recommendations made during the 2016 special review. While the draft procedures were in place, some staff were confused as to what process should be followed. Therefore, the team recommends that Texas provide training to its staff on the newly revised standard operating procedures to ensure consistency in low-level waste licensing actions.

The team examined the financial surety proposed for one of the four licensees. The financial surety vehicle for several categories (e.g., decommissioning, closure, and post-closure) was clearly stated on the license. The team determined that the Commission adequately addressed the financial surety component of the license.

Technical Quality of Incident and Allegation Activities

The team evaluated the one incident that occurred during the review period. The Commission's response to the incident was appropriate, well-coordinated, and timely. The team determined that the Commission made the proper notifications at the time of the event. There were no allegations reported to the Commission during the review period. The Commission has written procedures for the handling, review, analysis, response and followup of incidents and allegations.

c. Evaluation

The team determined that, during the review period, Texas met the performance indicator objectives listed in Section 4.3.a., with the following exceptions:

- Qualification criteria for new low-level radioactive waste technical staff are not established and are not followed;
- The low-level radioactive waste facility is not always inspected at prescribed frequencies; and inspection findings are not always communicated to licensees in a timely manner.

The team determined that the low-level radioactive waste program did not have an established training and qualification program that was compatible with the NRC's IMC 1248. The team also determined that two of twenty low-level radioactive waste inspections were completed at frequencies greater than those prescribed. Specifically, inspections for two facilities were each conducted overdue by approximately three years. Both facilities were not inspected for two years. Additionally, inspection results were communicated to licensees greater than 30 days after the completion of an inspection.

The team considered both, satisfactory; and, satisfactory, but needs improvement, findings for this indicator. The team determined that the Commission identified the need for, and had taken action to create, formal training and qualification procedures for the low-level radioactive waste program. Additionally, the team determined, based on observations during the inspector accompaniments and review of documentation, that preliminary inspection findings for low-level radioactive waste inspections were communicated at exit meetings and, in some cases, discussed via an informal email. Although formal communications were not always issued, and the ones that were issued were not issued within 30 days, Commission staff indicated that they were in constant communication with the licensees.

Therefore, the team determined a finding of satisfactory, but needs improvement, was not warranted.

Based on the IMPEP evaluation criteria in MD 5.6, the team recommends that Texas' performance with respect to the indicator, Low-Level Radioactive Waste Program, be found satisfactory.

d. MRB Decision

The MRB agreed with the team's recommendation and found Texas' performance with respect to this indicator to be satisfactory.

4.4 Uranium Recovery Program

The objective is to determine if Texas' 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.

a. Scope

The team used the guidance in State Agreements procedure SA-110, "Reviewing the Non-Common Performance Indicator: Uranium Recovery Program," and evaluated Texas' 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 any 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 Licensing Actions

- Licensing action reviews are thorough, complete, consistent, and of acceptable technical quality with health, safety, and security issues properly addressed.
- Applicable uranium recovery guidance documents are available to reviewers and are followed (e.g., pre-licensing guidance, regulatory guides, etc.).
- Essential elements of license applications have been submitted and meet current NRC or Agreement State regulatory guidance (e.g., financial assurance, increased controls, etc.).
- Uranium recovery 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 proper time.
- Reviews of renewal applications demonstrate a thorough analysis of a licensee's inspection and enforcement history.
- 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.

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 followup actions are taken to ensure prompt compliance by licensees.
- Followup 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 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

At the time of the IMPEP review, the Texas Uranium Recovery Program consisted of three conventional mill licensees in decommissioning status and currently undergoing groundwater assessments, three in-situ uranium recovery licenses in “standby” status, one new application still under review, and three licenses issued but the facilities were not in operation.

Technical Staffing and Training

The Texas Uranium Recovery Program is implemented by the Commission. Licensing of uranium recovery activities is implemented by staff in the Radioactive Materials Division and inspection of uranium recovery activities is implemented by staff in the Critical Infrastructure Division. At the time of the review, there was a total of 9.88 FTE for the Uranium Recovery Program, 7.55 FTE were dedicated to licensing and 2.33 FTE were dedicated to inspections. There were two vacancies in the licensing program and no vacancies in the inspection program. Many of the staff that support licensing and inspection of uranium recovery activities also support licensing and inspection in the low-level radioactive waste program.

The 7.55 FTE dedicated to uranium recovery licensing consisted of the Work Group Leader, five license reviewers, two vacant license reviewer positions, a program coordinator, the Radioactive Materials Section Manager, a technical specialist, a special assistant to the Radioactive Materials Division Director, and the Radioactive Materials Division Director. During the review period, eight uranium recovery licensing staff left the program – five retired, two left for outside employment, and one transferred to another position within the Commission. The longest period of time a vacancy existed during the review period was 11 months due primarily to a hiring freeze in effect for most of 2017. During the review period, eight new licensing staff were hired; six to fill vacancies that occurred during the review period and two to fill vacancies in place at the time of the last review. The two vacant licensing positions were authorized to be posted in late 2017. Just prior to the IMPEP review, in January 2018, the postings closed. Management had made one selection and was in the process of making the second selection.

The 2.33 FTE dedicated to uranium recovery inspections consisted of two fully qualified inspectors, one inspector in training, the Homeland Security Section Manager, a liaison between licensing and inspection staff, a special assistant to the Critical Infrastructure Director, and the Critical Infrastructure Director. The inspector in training and the liaison between licensing and inspection programs were added to the program during the review period as part of the strategy to address one of the recommendations from the 2014 IMPEP review as discussed in Section 2.0 of this report.

During the review period, the Commission did not have a training program for uranium recovery licensing or inspection equivalent to the NRC’s IMC 1248. The training of new staff consisted of peer-to-peer instruction mixed with supervisory oversight and some NRC training courses. The team determined that the training and qualification program that was established during the review period was not compatible with the training

requirements listed in IMC 1248. The team concluded it was not compatible with IMC 1248 because it did not contain the essential objectives of IMC 1248 which includes formal training classes, document reviews, and on the job training. Based on interviews with staff and management, the team concluded that supervisors determined a staff member's qualifications on a case-by-case basis without using an established set of criteria that documented the staff member's progress toward full qualifications. An employee's qualifications to perform license reviews or inspections were based on their knowledge of licensing or inspection and their previous professional experience rather than the completion of an established set of qualification criteria.

During inspector accompaniments, one inspector demonstrated weaknesses. Based on the quality of the inspection reports reviewed (discussed below) and discussions with the inspector and management, the team determined that these weaknesses were not related to the lack of a compatible training and qualification program. In January 2018, the Commission began the development of a combined training program for both uranium recovery and low-level radioactive waste license reviewers and inspectors to address the essential objectives of IMC 1248. The team concluded that the completion of the formal written training and qualification program is necessary to ensure that training is consistently applied across the two divisions. The team recommends that Texas review and update the recently developed formal training and qualification program to identify the training needs of the uranium recovery program and ensure it meets the essential objectives of IMC 1248 and apply it to staff currently going through the qualification process.

Status of Uranium Recovery Inspection Program

The Commission performs inspections in accordance with the *Uranium Recovery (In-Situ and Conventional) and Underground Injection Control (Class III) Programs Standard Operating Procedures, Revision 3*. The team determined that inspection frequencies were the same as frequencies established by the NRC. The Commission performed 31 inspections during the review period. The Commission performed five inspections overdue at intervals that exceed the IMC 2641, "In-Situ Leach Facilities Inspection Program," and IMC 2801, "Uranium Mill 11e.(2) Byproduct Material Disposal Site and Facility Inspection Program" frequencies by more than 100 percent. Additionally, at time of the review, one inspection was overdue.

The team noted that the Commission's procedure states that inspection results should be issued within 60 days of the completion of an inspection. This criteria is less restrictive than the NRC's criteria of within 30 days of the completion of an inspection as stated in the NRC's IMC 0610, "Nuclear Material Safety and Safeguards Inspection Reports." In reviewing inspections performed during the review period, the team determined that when the Commission issued inspection results, the Commission met neither the NRC (30 day) nor the Commission (60 day) criteria. Additionally, closeout letters were issued for only 23 of 31 inspections. The inspection results distribution ranged from three months to one year past the completion of the inspection. All inspections were clear, except for one inspection that had a violation. The team recommends that Texas revise its uranium recovery program inspection procedures to specify that inspection results will be communicated to licensees within 30 days of the

completion of an inspection. Additionally, the team recommends that Texas ensure that future inspection results are sent to licensees within 30 days of the completion of an inspection.

Technical Quality of Inspections

The team assessed the quality of uranium recovery program inspections by evaluating inspector performance during accompaniments; inspection field notes and completed reports; inspection procedures; followup on previous inspection findings, including regulatory actions taken; and annual supervisory accompaniments.

On October 26, 2017, the team accompanied the same two inspectors as discussed in Section 4.3 to the South Texas Mining Venture – Hobson facility. The team requested that inspector 2 be the sole inspector for the accompaniment at this facility so that the team could evaluate the inspector on independent inspections. During the accompaniment, inspector 2 demonstrated knowledge gaps, focused on areas not covered by the license, and looked to inspector 1 for guidance during the inspection. During the inspection accompaniment, inspector 1 stepped in and requested information from the licensee about items missed by inspector 2.

On October 27, 2017, the team accompanied inspectors 1 and 2 to the Energy Fuels Resources – Alta Mesa facility. The team again requested that inspector 2 lead the inspection and that it not be a team inspection based on information that these types of inspections were typically performed individually and not as a team. The same concerns with inspector 2 observed at the Hobson facility were also seen at the Alta Mesa facility, but to a lesser degree. These concerns include the inability to demonstrate performance of a complete inspection without assistance, not having a complete working knowledge of the license that was being inspected, and not understanding the operation of the facility. Additionally, based on the quality of the inspection reports reviewed (discussed below) and discussions with the inspector and management, the team determined that the weaknesses demonstrated by inspector 2 were not related to the lack of a compatible training and qualification program as described in Section 4.4 b. Technical Staffing and Training.

The team evaluated 31 inspection files which included byproduct waste storage of 11e.(2) material as defined by the Atomic Energy Act of 1954, as amended, hydrogeological, radiological, security, and environmental hazards. The team determined that the inspections were thorough, complete, consistent, and had sufficient documentation to ensure that licensee performance with respect to health, safety, and security was acceptable. The results were well-founded, supported by regulations, and were appropriately documented. The team was able to verify that inspectors receive supervisory accompaniments on an annual basis.

Technical Quality of Licensing Actions

Texas licenses two types of uranium recovery facilities: conventional uranium mills and in situ uranium recovery facilities. For this sub-element, the team examined radioactive material license and the Underground Injection Controls (UIC) permit files for these

facilities, including license amendments, financial assurance instruments, and other associated licensing documentation.

For the conventional uranium mills, the team evaluated two licensing actions that were completed during the review period. The actions consisted of a minor amendment and a major amendment application to change ground water compliance values, reduce the license area, and modify the ground water monitoring plan. For in-situ uranium recovery facilities, the team evaluated 14 licensing actions that were completed during the review period. The actions consisted of license boundary expansions with new wellfields, a license boundary reduction, a decommissioning cost estimate update, an area permit application, a transfer of control, semi-annual report reviews, a partial site release review, and multiple ground water and health physics monitoring reviews.

All licensing and permitting actions at conventional uranium mills and in-situ recovery facilities were found to be thorough, complete, consistent, and of acceptable technical quality with health, safety, and security issues properly addressed. These included actions related to amendments, technical reviews, financial assurance, and radioactive effluent and ground water monitoring reviews. Notice of deficiency letters were clearly written. Applicable uranium recovery guidance documents such as standard review plans, regulatory guides, and checklists are used by staff to guide their reviews.

The team conducted interviews with staff to inquire about application submittals and the review and license or permit issuance process. Staff responsible for UIC permitting use the "Administrative and Technical Evaluation Checklist, Class III UIC Production Area Authorization Application" to ensure administrative and technical completeness. The staff uses the "Class I and Class III UIC Permit Application Process Schedule" to track timely execution of all actions. The team reviewed and discussed with staff notices of deficiency (NOD) letters, responses to NODs, issuance of draft permits, public notice and comment periods, notice of public hearing opportunities, and finalization of the permits. All actions have set time periods for execution. Staff responsible for UIC permitting provided a list containing 28 Standard Operating Procedures used in the UIC permitting process. Staff indicated these procedures have been in place for many years and are updated frequently.

The staff responsible for uranium recovery radioactive materials licenses use the "Uranium License Review Sheet" to review and track execution of all licensing actions. These actions include reviews for administrative and technical completeness, assignment of team members, process engineering reviews, hydrology reviews, structural review concerns, NOD letters, reviews of responses to the NODs, preparation of the draft license, public notice and comment periods, notice of public hearing opportunities, and finalization of the license. The review sheet is a comprehensive document which contains substantial technical comments by all license reviewers and dates of execution for all actions. Technical reviews are memorialized in interoffice memoranda in the file that provides the basis for NOD letters, or for approval findings.

The team found one instance where a review sheet and the supporting interoffice memorandum was missing in the file. The staff determined that the review sheet was with the former project manager that had transferred to another workgroup within the

Commission and the interoffice memorandum was with the former project reviewer. The staff reproduced the review sheet and the interoffice memorandum during the onsite review and added it to the file.

The team noted that the Commission had several procedures for uranium recovery licensing that were in draft at the time of the review. These procedures had been drafted to formalize the licensing process and for knowledge management purposes. The licensing staff finalized the procedures prior to the completion of the onsite review (which included 11 general, 7 technical, and 5 process procedures) and provided copies to the team. The lack of formal procedures appeared to create confusion amongst the staff as to what process should be followed. The team recommended that Texas provide training to its staff on the newly revised standard operating procedures to ensure consistency in uranium recovery licensing actions.

The team discussed with the Commission the status of one license which was revoked in 2003 for nonpayment of fees. The site is a former in-situ uranium recovery facility site abandoned in 1999 while undergoing decommissioning. The in-situ uranium recovery wellfields have been fully restored, but the remediation of surface contamination has not been completed. Although the site remains in litigation, the Commission has continued to make progress in remediating the site. In 2010, the Commission solicited bids to reclaim the site but no bids were received that were within the amount held in financial assurance. In 2016, the Commission used \$2.1 million from the Environmental Radiation and Perpetual Care Account to remove 1,851 cubic yards of contaminated material which had remained on the site. From 2014-2016, the Commission conducted sampling and surveying to further characterize contamination at the site and more finely delineate the areas of concern. Using the new data, the Commission has reduced remediation cost estimates and is currently working with the Commission's Remediation Division to secure a licensed contractor to continue remedial work at the site.

Technical Quality of Incident and Allegation Activities

The team evaluated both incidents and the single allegation involving the Texas uranium recovery program reported to the Commission during the review period. Texas has written procedures for the handling, review, analysis, response, and followup of incidents and allegations. The team determined that Texas' response to the incidents and the allegation were appropriate, well-coordinated, and timely. Texas made the proper notifications at the time of the event. Texas notified the concerned individual about the results of its investigation and protected the concerned individual's identity as allowed by law.

c. Evaluation

The team determined that, during the review period, Texas met the performance indicator objectives listed in Section 4.4.a., with the following exceptions:

- Qualification criteria for new uranium recovery technical staff are not established;
- Five uranium recovery facilities were not inspected at prescribed frequencies.

- Inspection results for 31 inspections were not communicated to licensees in a timely manner.
- Inspections of uranium recovery licensed activities do not always focus on health, safety, and security.

The team determined that the training and qualification program that was established during the review period was not compatible with IMC 1248 because it did not contain the essential objectives of IMC 1248.

Five licenses in the uranium recovery program were inspected at intervals that exceed the IMC frequency by more than 100 percent. At the time of the review, one inspection was overdue to be completed. The team also determined that inspection results for the uranium recovery program were not communicated by formal correspondence to the licensee within 30 days and additionally, closeout letters were sent out in only 23 of 31 inspections.

During accompaniments, one inspector was unable to perform a complete inspection without the assistance from another inspector. Additionally, the inspector showed weaknesses in proper inspection technique and did not appear to have a complete working knowledge of the licenses that were being inspected and the operation of the facilities.

The team determined that formal licensing procedures for uranium recovery licensing did not exist during the entire review period. The lack of formal procedures appeared to create confusion amongst the staff as to what was the exact process that should be followed. However, licensing procedures were finalized prior to the completion of the onsite review.

Based on the IMPEP evaluation criteria in MD 5.6, the team recommends that Texas' performance with respect to the indicator, Uranium Recovery Program, be found satisfactory, but needs improvement.

d. MRB Decision

The MRB agreed with the team's recommendation and found Texas' performance with respect to this indicator to be satisfactory, but needs improvement.

5.0 SUMMARY

As noted in Sections 3.0 and 4.0 above, Texas' performance was found to be satisfactory for seven of nine performance indicators reviewed and satisfactory, but needs improvement, for the indicators Technical Quality of Licensing Actions and Uranium Recovery Program. The MRB agreed with the five recommendations made by the team regarding Texas' program performance and agreed that three recommendations from the 2014 IMPEP review and three recommendations from the 2016 special review should be closed.

Accordingly, the team recommended, and the MRB agreed, that the Texas Agreement State Program is adequate to protect public health and safety and compatible with the NRC's program. Based on the results of the current IMPEP review, the team recommended, and the MRB agreed, that the next full IMPEP review should take place in approximately four years, with a periodic meeting in approximately two years.

Below are the recommendations, as mentioned in the report, for evaluation and implementation by Texas:

1. Texas should develop and implement a plan to ensure that inspectors performing Yttrium-90 inspections get additional training in this area including accompanying experienced inspectors. (Section 3.3)
2. Texas should develop and implement an action plan to reduce the licensing renewal backlog. (Section 3.4)
3. Texas should review and update the recently developed formal training and qualification program to identify the training needs of the low-level radioactive waste and uranium recovery programs and ensure it meets the essential objectives of IMC 1248 and apply it to staff currently going through the qualification process. (Sections 4.3 and 4.4)
4. Texas should revise its low-level radioactive waste and uranium recovery program inspection procedures to specify that inspection results will be communicated to licensees within 30 days of the completion of an inspection. Additionally, Texas should ensure that future inspection results are sent to licensees within 30 days of the completion of an inspection. (Sections 4.3 and 4.4)
5. Texas should provide training to its staff on the newly revised licensing standard operating procedures to ensure consistency in low-level radioactive waste and uranium recovery licensing actions. (Section 4.3 and 4.4)

LIST OF APPENDICES

Appendix A	IMPEP Review Team Members
Appendix B	Inspection Accompaniments

APPENDIX A

IMPEP REVIEW TEAM MEMBERS

Name	Areas of Responsibility
Monica Ford, Region I	Team Leader Compatibility Requirements
Binesh Tharakan, Region IV	Technical Staffing and Training Low-Level Radioactive Waste Disposal Program: Technical Staffing and Training, Technical Quality of Incidents and Allegations Uranium Recovery: Technical Staffing and Training, Technical Quality of Incidents and Allegations
Joe O'Hara, NMSS	Status of Materials Inspection Program
David Stradinger, State of North Dakota	Technical Quality of Inspections Inspector Accompaniments
Michelle Simmons, Region IV	Technical Quality of Licensing Actions
Tara Weidner, Region I	Technical Quality of Incident and Allegation Activities Inspector Accompaniments
James Pate, State of Louisiana	Sealed Source and Device Evaluation Program
Philip Goble, State of Utah	Low-Level Radioactive Waste Disposal Program: Status of the Low-Level Radioactive Waste Program, Technical Quality of Inspections, Inspection Accompaniments Uranium Recovery Program: Status of the Uranium Recovery Program, Technical Quality of Inspections, Inspection Accompaniments
Maurice Heath, NMSS	Low-Level Radioactive Waste: Technical Quality of Licensing Actions
Ron Linton, NMSS	Uranium Recovery: Technical Quality of Licensing Actions

APPENDIX B
INSPECTION ACCOMPANIMENTS

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

Texas Department of State Health Services

Accompaniment No.: 1	License No.: L04286
License Type: Well Logging (Sealed Sources)	Priority: 3
Inspection Date: 12/5/17	Inspector: FW

Accompaniment No.: 2	License No.: L06462
License Type: Industrial Radiography-Temporary Field Site	Priority: 1
Inspection Date: 12/6/17	Inspector: ES

Accompaniment No.: 3	License No.: L06714
License Type: Industrial Radiography-Fixed Facility	Priority: 1
Inspection Date: 12/7/17	Inspector: SF

Accompaniment No.: 4	License No.: L06370
License Type: Fixed Multi-Beam – Teletherapy (Gamma Knife)	Priority: 2
Inspection Date: 12/7/17	Inspector: RP

Accompaniment No.: 5	License No.: L06383
License Type: Radiopharmaceutical Manufacturing (Cyclotron)	Priority: 2
Inspection Date: 12/4/17	Inspector: FS

Accompaniment No.: 6	License No.: L06331
License Type: Medical Broadscope (Self-Contained Irradiator)	Priority: 3
Inspection Date: 12/6/17	Inspector: MG

Accompaniment No.: 7	License No.: L03772
License Type: Medical-Diagnostic and Therapy (HDR)	Priority: 2
Inspection Date: 12/6/17	Inspector: DDS

Texas Commission on Environmental Quality

Accompaniment No.: 8	License No.: R04100
License Type: Low-Level Radioactive Waste Disposal Facility	Priority: 1
Inspection Date: 10/23-24/17	Inspector: JG, MA, SS

Accompaniment No.: 9	License No.: R03626
License Type: Uranium Recovery	Priority: 1
Inspection Date: 10/26/17	Inspector: SS (MA in attendance)

Accompaniment No.: 10	License No.: R05360
License Type: Uranium Recovery	Priority: 1
Inspection Date: 10/26/17	Inspector: SS (MA in attendance)