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

November 1, 2017

Amy Roukie, BS/MBA, Administrator
Department of Health and Human Services
Division Public and Behavioral Health
4150 Technology Way, 3rd floor
Carson City, NV 89701

Dear Ms. Roukie:

On September 26, 2017, a Management Review Board (MRB), which consisted of U.S. Nuclear Regulatory Commission (NRC) senior managers and an Organization of Agreement States liaison to the MRB, met to consider the proposed final Integrated Materials Performance Evaluation Program (IMPEP) report for the Nevada Agreement State Program. The MRB found the Nevada program adequate to protect public health and safety and compatible with the NRC's program.

The enclosed final report contains a summary of the IMPEP team's findings (Section 5.0). Based on the results of the current IMPEP review, the next IMPEP review will take place in approximately 4 years and a periodic meeting will take place in approximately 2 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 by Marc L. Dapas for/

Frederick D. Brown
Deputy Executive Director for Materials, Waste,
Research, State, Tribal, Compliance, Administration,
and Human Capital Programs
Office of the Executive Director for Operations

Enclosure:
Nevada Final IMPEP Report

cc: Karen K. Beckley, M.P.A., M.S. Radiation
Control Program Manager

Jared Thompson, AR
OAS Liaison to the MRB

SUBJECT: 11/01/2017 LETTER TO A. ROUKIE RE : NEVADA FINAL IMPEP REPORT

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INTEGRATED MATERIALS PERFORMANCE EVALUATION PROGRAM

REVIEW OF THE NEVADA AGREEMENT STATE PROGRAM

JULY 10–14, 2017

FINAL REPORT

Enclosure

EXECUTIVE SUMMARY

This report presents the results of the Integrated Materials Performance Evaluation Program (IMPEP) review of the Nevada Agreement State Program. The review was conducted during the period of July 10–14, 2017, by a team composed of technical staff members from the U.S. Nuclear Regulatory Commission (NRC) and the State of Colorado.

Based on the results of this review, Nevada's performance was found satisfactory for all five common performance indicators and for two of the three non-common performance indicators. The non-common performance indicator, Sealed Source and Device Evaluation Program, was rated "N."

The team did not make any new recommendations, determined that one recommendation from the 2005, 2009, and 2013 IMPEP reviews, regarding the development and implementation of a licensing and inspection database, should remain open, and that one recommendation from the 2013 IMPEP review, regarding developing all required regulations within the required timeframe, should be closed. For previous recommendations, see Section 2.0.

Accordingly, the team recommended, and the MRB agreed, that the Nevada Agreement State Program be found adequate to protect public health and safety and compatible with the NRC's program. Additionally, the team recommended, and the MRB agreed, that the next IMPEP review take place in approximately 4 years and that a periodic meeting be held in 2 years.

1.0 INTRODUCTION

This report presents the results of the review of the Nevada Agreement State Program. The review was conducted during the period of July 10–14, 2017, by a team composed of technical staff members from the U.S. Nuclear Regulatory Commission (NRC) and the State of Colorado. Team members are identified in Appendix A. The review was conducted in accordance with the "Implementation of the Integrated Materials Performance Evaluation Program and Rescission of Final General Statement of Policy," published in the *Federal Register* on October 16, 1997, and NRC Management Directive 5.6 (MD 5.6), "Integrated Materials Performance Evaluation Program (IMPEP)," dated February 26, 2004. Preliminary results of the review, which covered the period of July 20, 2013, to July 14, 2017, were discussed with Nevada managers on the last day of the review.

In preparation for the review, a questionnaire addressing the common and applicable non-common performance indicators was sent to Nevada on February 8, 2017. The State provided its response to the questionnaire on June 23, 2017. A copy of the questionnaire response is available in the NRC's Agencywide Documents Access and Management System (ADAMS) using the Accession Number ML17178A106.

A draft of this report was issued to Nevada on August 14, 2017, for factual comment (ADAMS Accession Number ML17215A754). The State responded to the findings and conclusions of the review by letter dated August 24, 2017. A copy of the response is available in ADAMS (Accession Number ML1754A553).

The Nevada Agreement State Program is administered by the Radiation Control Program (the Program). The Program is part of the Bureau of Preparedness, Inspections, Assurance, and Statistics which is located within the Division of Public and Behavioral Health. Organization charts for the State are available in ADAMS using the Accession Number ML17178A105.

At the time of the review, the Program regulated 241 specific licenses authorizing possession and use of radioactive materials. The review focused on the radioactive materials program as it is carried out under the Section 274b. (of the Atomic Energy Act of 1954, as amended) Agreement between the NRC and the State of Nevada.

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 Program's performance.

2.0 PREVIOUS IMPEP REVIEW AND STATUS OF RECOMMENDATIONS

The previous IMPEP review concluded on July 19, 2013. The final report is available in ADAMS using the Accession Number ML13273A131. The results of the review and the status of the recommendation(s) 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: The 2005 team recommended that the Program develop, implement, and maintain a reliable and comprehensive licensing and inspection database that serves as an effective and efficient planning, tracking, and management tool. (Section 3.4, of the 2005 IMPEP Report.)

Status: The team determined that during the course of the 2017 review period the Program had created and implemented a database that could track licensing and inspection actions. However, Program management stated that the current database was not comprehensive and did not track everything that the Program hoped it would. The Program has received funds to allow for the creation of a new database which will be more robust and allow the Program to plan, track, and manage all aspects of its licensing and inspection program. Work on the new database began in June 2017 and the Program anticipates that the work will be completed by May 2018. The team concluded, and the Management Review Board (MRB) agreed, that this recommendation should remain open until the database is operational and enough time passes to allow for sufficient review to determine whether or not the new database allows for effective and efficient planning, tracking, and management of licensing and inspection activities. Program management also discussed using Web-based Licensing to enhance the efficiency of their efforts.

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

Compatibility Requirements: Satisfactory

Recommendation: The team recommended that the State develop all required regulations within the required timeframe. (Section 4.1, open since 2013 IMPEP Report.)

Status: The State's rulemaking process is a complicated one which has been vetted in previous IMPEP reviews and determined to be satisfactory. In looking at the timeliness of adoption of regulations, the team determined that the Program had developed and had been able to enforce against, all required regulations within the required timeframe. However, the State was not able to administratively codify final rules within the required timeframe in all cases. The team determined that the State met the intent of the recommendation by developing proposed regulations and being able to enforce against those proposed regulations within the required timeframe. Therefore, the team recommended, and the MRB agreed, that this recommendation is closed.

Sealed Source and Device Evaluation Program: Satisfactory
Recommendation: None

Low-Level Radioactive Waste Disposal Program: Satisfactory
Recommendation: None

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 thus could affect public health and safety.

Apparent trends in staffing must be explored. Review of staffing also requires a 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 Nevada's performance with respect to the following performance indicator objectives:

- A well-conceived and balanced staffing strategy has been implemented throughout the review period.
- The 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 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 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 Program, when fully staffed, is comprised of eight full time equivalents which includes one Program Manager, two program supervisors, and seven technical staff.

Technical staff perform both licensing and inspection activities. In addition to the technical staff mentioned above, the Program has two fully qualified staff, who are currently in the radiation producing machines program, that are available to perform radioactive materials licensing and inspection activities if needed. The Program staff are spread between offices located in Carson City and Las Vegas.

At the time of the review, there was one vacancy in the program. The Program was able to post the position and hire an individual who started the week following the IMPEP review. Over the review period, six staff left the program for various reasons and six new staff were hired. Of the staff who left the program, two left for opportunities outside of State government, two moved to different positions within State government, one retired, and one decided to take a full-time military position with the National Guard. The positions were vacant anywhere from a few weeks to 3 months.

Nevada has a training and qualification manual compatible with the NRC's IMC 1248. Staff have been provided with the training manual and blank qualification journal which they individually maintain.

c. Evaluation

When evaluating this indicator, the team considered the number of staff who left the Program over the review period and how those losses could potentially have a negative impact on program performance. The team found that the Program successfully managed these losses, quickly filled vacant positions, and trained new staff resulting in no significant performance issues impacting the Program. The team determined that during the review period the Nevada program met the performance indicator objectives listed in Section 3.1.a.

d. Results

Based on the IMPEP evaluation criteria in MD 5.6, the team recommended, and the MRB agreed, that Nevada's performance with respect to the indicator, Technical Staffing and Training, is 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 NRC IMC, Chapter 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 Nevada's performance with respect to the following performance indicator objectives:

- Initial inspections and inspections of Priority 1, 2, and 3 licensees are performed at the frequency prescribed in 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 Title 10 *Code of Federal Regulations* (10 CFR) 150.20."
- Deviations from inspection schedules are normally coordinated between technical staff and management.

- There is a plan to perform any overdue inspections and reschedule any missed or deferred inspections; or a basis has been established for not performing any overdue inspections or rescheduling any missed or deferred inspections.
- Inspection findings are communicated to licensees in a timely manner (30 calendar days, or 45 days for a team inspection, as specified in IMC 0610, "Nuclear Material Safety and Safeguards Inspection Reports").

b. Discussion

Nevada's inspection frequency is the same for similar license types in IMC 2800. The Program performed 209 Priority 1, 2, 3, and initial inspections during the review period. The Program did not conduct any Priority 1, 2, 3, and initial inspections overdue. All initial inspections of new licenses were performed within 12 months of license issuance. A sampling of 23 inspection reports indicated that none of the inspection findings were communicated to the licensees beyond 30 days after the inspection exit. Each year of the review period, the Program performed greater than 20 percent of candidate reciprocity inspections.

c. Evaluation

The team determined that during the review period, Nevada met the performance indicator objectives listed in Section 3.2.a.

d. Results

Based on the IMPEP evaluation criteria in MD 5.6, the team recommended, and the MRB agreed, that Nevada's performance with respect to the indicator, Status of the Materials Inspection Program, is 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 a program's inspection capability.

a. Scope

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

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

- 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, enforcement documentation, and interviewed inspectors for 23 materials inspections conducted during the review period. The casework reviewed included inspections conducted by seven of Nevada's current and former inspectors and covered medical, industrial, commercial, academic, research, and service licenses. The team observed that inspection findings were well-founded and inspection activities focused on health, safety, and security issues.

Team members accompanied three program inspectors on May 8 through 12, 2017 (The inspector accompaniments are identified in Appendix B). Inspectors were found to be well-prepared, thorough, and conducted performance-based inspections that were adequate to assess the impact of licensed activities on health, safety, and security. Supervisory accompaniments for all qualified inspectors were performed annually during the review period.

c. Evaluation

The team determined that during the review period, Nevada met the performance indicator objectives listed in Section 3.3.a, with one exception. During the inspection accompaniments of one of the Program's inspectors, the team observed that the inspector did not review certain aspects of a high dose rate (HDR) remote afterloader licensee's program. Specifically, while inspecting the HDR portion of the licensee's program, the team observed that the inspector reviewed written directives but did not review treatment plans and treatment records and did not interview licensee staff concerning the administration of HDR treatments. The team determined that this was because the inspector lacked sufficient knowledge to review HDR treatments. Despite the lack of review of treatment plans and treatment records, the team determined that the inspection was sufficient to evaluate public health and safety, and security of licensed materials. Additionally, during the onsite review, the team interviewed other staff qualified to perform this type of inspection and determined that this was not a Program-wide issue. Other Program staff who performed inspections of such licensees had the knowledge necessary to properly review operations.

The team discussed its findings with Program management. Program management committed to having the inspector receive additional training and to work with qualified staff to gain additional familiarity with HDR inspections.

d. Results

Based on the IMPEP evaluation criteria in MD 5.6, the team recommended, and the MRB agreed, that Nevada's performance with respect to the indicator, Technical Quality of Inspections, is 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, and security. An assessment of licensing procedures, actual implementation of these procedures, and documentation of communications and associated actions between the Nevada licensing staff and regulated community is a significant indicator of the overall quality of the 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 Nevada's performance with respect to the following performance indicator objectives:

- Licensing action reviews are thorough, complete, consistent, and of acceptable technical quality with health, safety, and security issues properly addressed.
- Essential elements of license applications have been submitted and elements are consistent with current regulatory guidance (e.g., financial assurance, increased controls, pre-licensing guidance).
- License reviewers, if applicable, have the proper signature authority for the cases they review independently.
- License conditions are stated clearly and can be inspected.
- Deficiency letters clearly state regulatory positions and are used at the 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 (10 CFR Part 37 equivalent).
- Documents containing sensitive security information are properly marked, handled, controlled and secured.

b. Discussion

During the review period, Nevada performed 956 radioactive materials licensing actions. The team evaluated 25 of these actions. The licensing actions selected for review included 4 new applications, 10 amendments, 5 renewals, and 6 terminations.

The team evaluated casework which included the following license types and actions: high dose rate remote afterloader, medical diagnostic and therapeutic uses, fixed gauges, industrial radiography, cyclotron production, research and development, self-shielded irradiator, radiopharmacy distribution, portable gauge, and medical mobile coach. The casework sample represented work from seven current and former license reviewers.

The team found that licensing actions were thorough, complete, consistent, and of acceptable technical quality with health, safety, and security issues properly addressed. The licensing cases reviewed demonstrated that proper guidance was followed, and deficiency letters and license conditions were well supported by information contained in licensing files. See Section 2.0 for a discussion on the open recommendation from the 2005 review.

c. Evaluation

The team determined that during the review period Nevada met the performance indicator objectives listed in Section 3.4.a.

d. Results

Based on the IMPEP evaluation criteria in MD 5.6, the team recommended, and the MRB agreed, that Nevada's performance with respect to the indicator, Technical Quality of Licensing Actions, is satisfactory.

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 Nevada's performance with respect to the following performance indicator objectives:

- Incident response, investigation, and allegation procedures are in place and followed.
- Response actions are appropriate, well-coordinated, and timely.
- Onsite 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 Nuclear Material Events Database (NMED).
- Allegations are investigated in a prompt, appropriate manner.
- Concerned individuals are notified of investigation conclusions.
- Concerned individuals' identities are protected, as allowed by law.

b. Discussion

During the review period, a total of 12 incidents were reported by the Program to the NMED database. The team examined each of the 12 event case files to evaluate the Program's response. The casework reviewed included four events involving lost or stolen radioactive material, one potential overexposure, one medical event, three damaged equipment events, and three events involving equipment failures.

The team found that inspectors properly evaluated each event, interviewed involved individuals, thoroughly documented their findings, and enforcement actions were taken where appropriate. When an incident is reported to the Program, a Radiation Control Supervisor (Supervisor) evaluates the event to determine the appropriate response which can range from responding immediately to reviewing the event during the next inspection. For most of the incidents, the Supervisor directed inspectors to respond immediately. The team also found that the Program responded to events in accordance with its established procedure.

The team also evaluated the Program's required reporting of events to the NRC's Headquarters Operations Officer (HOO). The team noted that in the first half of the review period the Program failed to report events to the HOO that required either immediate or 24-hour reporting in four instances, however the Program did place these events in NMED. Each of the four late reports were reported to the HOO while the team was onsite. Two additional events requiring reporting to the HOO, were reported to the HOO, but they were reported late. As a result of staff turnover and in recognizing that most of the remaining staff were new to reporting requirements for events, the Program Manager contacted the NRC and requested NMED training. That training was provided to the program on September 1, 2016. The team noted that since that training, one event report requiring immediate or 24 hour HOO reporting had occurred and was appropriately reported to the NRC. Additionally, interviews with staff demonstrated that they are aware of what needs to be reported in accordance with regulatory requirements.

Over the review period, the Program also directly received eight allegations, with one additional allegation referred to the Program from the NRC. The team evaluated all nine allegations and found that the Program took prompt and appropriate action in response to the concerns raised. Concerned individuals were notified of the findings in each case. All of the allegations reviewed were appropriately closed, individuals were notified of the actions taken, and allegers' identities were protected.

c. Evaluation

When evaluating this indicator, the team considered the Program's prompt response to and thorough evaluation of events and reviewed previous IMPEP reports to gain insight into the Program's historical reporting of events. The team noted that during the first half of the review period, four events requiring immediate or 24-hour reporting to the HOO were not made and two others were reported late, historically the Program has made timely reports as required. The teams evaluating the Program in 2009 and again in 2013 did not note any examples of failing to make timely reports as required.

The team also noted that the Program self-identified the need for additional training for staff, requested and received that training, and subsequently no late reports were identified by the team. Accordingly, the team determined that during the review period Nevada met the performance indicator objectives listed in Section 3.5.a.

d. Results

Based on the IMPEP evaluation criteria in MD 5.6, the team recommended, and the MRB agreed, that Nevada's performance with respect to the indicator, Technical Quality of Incident and Allegation Activities, is satisfactory.

4.1 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 (UR) Program. The NRC's Agreement with Nevada does not discontinue regulatory authority for a UR program; therefore, only the first three non-common performance indicators applied to this review.

4.2 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 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 Nevada's 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 3 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 6 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

Nevada became an Agreement State on July 1, 1972. The Nevada Agreement State Program's current effective statutory authority is contained in Chapter 459, of the Nevada Revised Statutes. The Division of Public and Behavioral Health is designated as the State's radiation control agency. No legislation affecting the radiation control program was passed during the review period. However, the team determined that legislation affecting the State's closed LLRW site was changed in 2010 and the change was never sent to the NRC for review. The Program submitted that change to the NRC

for review during the week of the onsite review. At the time of the MRB meeting, the legislative change was still under NRC review and a determination on its compatibility had not yet been made.

The team examined the State's process for adopting regulations. The Program informed the team that in 2011, an additional step was added to the regulation development process. After drafting regulations, in addition to sending a copy to the NRC for review, the Program now sends regulations to the Division Deputy Administrator who edits the regulations. Regulations are then sent to the Legislative Council Bureau (LCB) for review and comment. The LCB is a legal office within Nevada that first reviews and then later codifies regulations for all Nevada regulatory agencies. The LCB does not act on regulations starting 2 months before, extending through, and until 2 months after the Nevada Legislature is in session. The team noted that the Nevada Legislature is in session for 6 months every other year and the hold by the LCB can add a significant delay of months to years to promulgation of rules. The Program stated that although the codification process can be lengthy, the Program is in a unique position to be able to enforce against regulations that are waiting to be codified by the LCB. Once codified, the newly formatted regulations are sent to the Secretary of State's Office for filing. The team noted that the State's rules and regulations are not subject to "sunset" laws.

During the review period, Nevada submitted 13 regulation amendments, and 1 legally binding license condition to the NRC for compatibility reviews. None of the amendments were overdue for State adoption at the time of submission.

At the time of this review, the following six amendments were not adopted in final by the State but were being enforced against, and the intent of the regulation changes was being met:

- "Decommissioning Planning," 10 CFR Parts 20, 30, 40, and 70 amendment (76 FR 35512), that was due for Agreement State adoption by December 17, 2015.
- "Licenses, Certifications, and Approvals for Materials Licensees," 10 CFR Parts 30, 36, 39, 40, 70, and 150 amendment (76 FR 56951), that was due for Agreement State adoption by November 14, 2014.
- "Change of Compatibility of Parts 31.5 and 31.6," 10 CFR Part 31 amendment (77 FR 3640), that was due for Agreement State adoption by January 25, 2015.
- "Advance Notification to Native American Tribes of Transportation of Certain Types of Nuclear Waste," 10 CFR Part 71 amendment (77 FR 34194), that was due for Agreement State adoption by August 10, 2015.
- "Technical Corrections," 10 CFR Parts 30, 34, 40, and 71 amendment (77 FR 39899), that was due for Agreement State adoption by August 6, 2015.
- "Requirements for Distribution of Byproduct Material," Parts 30, 31, 32, 40, and 70 amendment (77 FR 43666), that was due for Agreement State adoption by October 23, 2015.

c. Evaluation

The team determined that during the review period, Nevada met all of the performance indicator objectives listed in Section 4.1.a. with the exception of "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." Six regulation amendments have not been adopted within the required 3-year time frame.

However, the Program explained to the team that although the regulations have not been codified as final regulations, the program is able to enforce against those regulations. The team determined that although the Program was not meeting the objective as stated, the Program was implementing regulations containing changes that were promulgated by the NRC and no issues existed. Additionally this process has been evaluated by previous MRBs and determined to be satisfactory.

d. Results

Based on the IMPEP evaluation criteria in MD 5.6, the team recommended, and the MRB agreed, that Nevada's performance with respect to the indicator, Compatibility Requirements, is satisfactory.

4.3 Sealed Source and Device 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. Three sub elements, technical staffing and training, technical quality of the product evaluation program, and evaluation of defects and incidents regarding SS&D's, will be 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 Nevada's 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 NUREG-1556, Volume 3.

Evaluation of Defects and Incidents

- SS&D incidents are reviewed to detect 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 NRC, Agreement States, and others, as appropriate, occur in a timely manner.

b. Discussion

Prior to this IMPEP review period, Nevada inactivated both SS&D registry sheets under its jurisdiction. No new SS&D registry requests were submitted during the review period. Additionally, as noted in the 2013 IMPEP report, Nevada has an agreement with the State of California, whereby California's qualified SS&D reviewers will conduct product safety evaluations for the State of Nevada, when SS&D requests are received. Based on this information, the team determined that there was no material to review for this indicator.

c. Evaluation

Special conditions exist that provide adequate justification for not conducting an evaluation and providing a rating for this indicator.

d. Results

Based on the IMPEP evaluation criteria in MD 5.6, the team recommended, and the MRB agreed, that Nevada be given a rating of "N" with respect to the indicator, Sealed Source and Device Evaluation Program.

4.4 Low Level Radioactive Waste Disposal Program

The objective is to determine if Nevada's LLRW 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 the LLRW 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 Nevada's performance with respect to the following performance indicator objectives:

Technical Staffing and Training

- Qualified and trained technical staff are available to license, regulate, control, inspect, and assess the operation and performance of the LLRW disposal facility.
- Qualification criteria for new LLRW 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 LLRW licensing and inspection programs.
- Management is committed to training and staff qualification.

- Individuals performing LLRW licensing and inspection activities are adequately qualified and trained to perform their duties.
- LLRW license reviewers and inspectors are trained and qualified in a reasonable period of time.

Status of Low-level Radioactive Waste Disposal Inspection Program

- The LLRW facility is inspected at prescribed frequencies.
- Statistical data on the status of the inspection program is maintained and can be retrieved.
- Deviations from inspection schedules are coordinated between LLRW 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 LLRW 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, conduct annual accompaniments of each LLRW inspector to assess performance and assure consistent application of inspection policies.
- For Agreement States, 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 LLRW 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 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.).
- LLRW 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

- LLRW incident response, investigation, and allegation procedures are in place and followed.
- Response actions are appropriate, well-coordinated, and timely.
- Onsite 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

The Beatty LLRW disposal facility ceased the acceptance of LLRW in 1992 after 30 years of operation. The former disposal area covered approximately 22 acres. The facility is located on land owned by the State adjacent to an operating hazardous waste management facility (HWMF). The LLRW disposal facility is separated from the remaining HWMF by a fence and access roads. During the closure period, the site operator, US Ecology, Inc., completed site specific requirements in accordance with the "Site Stabilization and Closure Plan" dated September 1992 to assure that the facility was closed in accordance with Nevada regulations, the radioactive material license, and the lease agreement between the State and the site operator. In 1997, the radioactive material license was transferred to the State of Nevada and the site entered the institutional control period. The Program is the licensee for the State.

Technical Staffing and Training

In order to effectively implement the license, Program staff are responsible for periodic radiation survey and surveillance of the closed facility. This activity is considered an ancillary duty for staff qualified in accordance with the Program's inspector qualification training program, as described in Section 3.1.

Status of the Low-Level Radioactive Waste Disposal Inspection Program

The Program conducts quarterly radiation surveys and surveillance inspections of the closed facility. This is more frequent than the 6-month interval required in the "Site Stabilization and Closure Plan." The Program completed all required inspections of the facility during the review period.

Technical Quality of Low-Level Radioactive Waste Inspections

On February 15, 2017, the team accompanied the Program Manager and a program supervisor, who is also the Radiation Safety Officer (RSO) for the Beatty license, to the Beatty LLRW disposal facility. The team observed an inspector conducting radiation surveys, as well as surveillance of the facility and the new temporary cover. The inspector was trained to be observant to erosion, fissures, subsidence, pooling of water, and other issues (e.g., leaching of materials to the surface of the cap). The team evaluated 13 inspection files which documented the radiation survey, the observations from the surveillance of the new temporary cover, and any actions required to remediate or correct issues identified. Four semi-annual environmental monitoring reports were also reviewed that documented the analysis of water samples from various wells. The team noted that all radionuclide concentrations were below the applicable groundwater quality standards.

The team found that as a result of the turnover in staff during the review period, which included the previous LLRW project lead, documentation identifying program management review of the actions taken in order to be in compliance with the license was not available at the time of the onsite review. The team discussed the missing documentation with program management during the review. Program management stated that supervisory reviews of work completed at the site had been completed to ensure compliance with the license. Program management committed to, at least annually, complete a supervisory review of work done to ensure compliance with the license, document the review, and maintain the documentation in a manner such that it can be reproduced. The Program indicated that it will complete a review for 2017 and each year going forward.

Technical Quality of Low-Level Radioactive Waste Licensing Actions

The Program completed five LLRW licensing actions during the review period. The team examined all of the licensing actions which included four amendments, and one renewal. The four amendments updated the authorized users, changed the RSO, and added the “Site Stabilization and Closure Plan, Revision 1,” dated September 1992, to the license.

Technical Quality of Incident and Allegation Activities

On October 18 and 19, 2015, an industrial fire occurred at the closed LLRW disposal facility in the area of Trench 14. Several barrels and other debris were expelled from the trench as a result of the fire. Prior to the fire, several inches of rain fell on the site over a short period and caused significant erosion. The cause of the fire was subsequently determined to be intrusion of rain water through the eroded trench cover and the water coming in contact with sodium buried in the trench during the early 1970s. Radiation surveys conducted by the Program, HWMF operator, and Nye County on October 19 did not indicate any radiation release from the facility as a result of the fire.

The Program took a number of actions after the fire and into early 2016 to have the HWMF operator repair the cover that sustained the most damage. Later in 2016, the HWMF operator used approximately 166,000 cubic yards of native soil from a newly constructed hazardous waste disposal cell about one-half mile from the LLRW disposal facility, to construct a temporary cover. The temporary cover added from a few feet to 15 feet of soil depth over the entire LLRW disposal facility. The temporary cover is sloped from the middle towards all sides to facilitate rain water runoff. The Program currently has a contract with an engineering firm to provide recommendations on

designs for a permanent engineered cover to prevent future water intrusion into the disposal trenches.

The team interviewed Program staff regarding their response to the event and reviewed all available documentation. The team determined that the Program's response to this incident was comprehensive and protective of public health and safety.

No allegations involving the LLRW program were identified during the review period. Additional information on the Program's allegation program can be found in Section 3.5.

c. Evaluation

The team determined that, during the review period, Nevada met the performance indicator objectives listed in Section 4.2.a.

d. Results

Based on the IMPEP evaluation criteria in MD 5.6, the team recommended, and the MRB agreed, that Nevada's performance with respect to the indicator, Low-Level Radioactive Waste Disposal Program, is satisfactory.

5.0 SUMMARY

As noted in Sections 3.0 and 4.0 above, Nevada's performance was found satisfactory for five common performance indicators and for two of the three non-common performance indicators reviewed. The non-common performance indicator SS&D Evaluation Program was rated "N." The team did not make any new recommendations and determined that one recommendation from the 2013 IMPEP review should be closed and one recommendation from the 2005, 2009, and 2013 IMPEP reviews should remain open.

Accordingly, the team recommended, and the MRB agreed, that the Nevada Agreement State Program be found 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 take place in approximately 4 years with a periodic meeting to be held in approximately 2 years.

The open recommendation, as mentioned in Section 2.0 of this report is described below, for continued evaluation and implementation by Nevada:

> The team recommended that the Program develop, implement, and maintain a reliable and comprehensive licensing and inspection database that serves as an effective and efficient planning, tracking, and management tool (see Section 3.4 in the 2005 IMPEP Report).

LIST OF APPENDICES

APPENDIX A

IMPEP REVIEW TEAM MEMBERS

Name	**Area of Responsibility**
Monica Ford, Region I	Team Leader Status of Materials Inspection Program Compatibility Requirements
Randy Erickson, Region IV	Technical Staffing and Training Technical Quality of Incident and Allegation Activities
Geoffrey Warren, Region III	Technical Quality of Inspections Inspector Accompaniments
Kathy Modes, NMSS	Low-level Radioactive Waste Disposal Program
Duncan White, NMSS	Low-level Radioactive Waste Disposal Program Inspector Accompaniment
Phillip Peterson, Colorado	Technical Quality of Licensing Actions Sealed Source and Device Evaluation Program

APPENDIX B

INSPECTION ACCOMPANIMENTS

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

Accompaniment No.: 1	License No.: 00-11-0409-02
License Type: Industrial Radiography	Priority: 1
Inspection Date: 05/08/2017, 05/10/2017	Inspector: MS

Accompaniment No.: 2	License No.: 16-12-0664-01
License Type: Medical Institution	Priority: 2
Inspection Date: 05/08/2017	Inspector: MS

Accompaniment No.: 3	License No.: 16-12-0742-01
License Type: Medical Institution (Initial)	Priority: 5
Inspection Date: 05/09/2017	Inspector: BA

Accompaniment No.: 4	License No.: 16-12-0694-01
License Type: Medical Clinic	Priority: 5
Inspection Date: 05/09/2017	Inspector: BA

Accompaniment No.: 5	License No.: 03-11-0468-01, -02
License Type: Cyclotron and Nuclear Pharmacy	Priority: 2
Inspection Date: 05/12/2017	Inspector: JF

Accompaniment No. 6	License No.: 13-11-0043-02
License Type: Waste Disposal	Priority: NA
Inspection Date: February 15, 2017	Inspector: AH