



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

September 1, 2026

Louis Brayboy, Chief
Radiation Protection Section
Division of Health Service Regulation
Department of Health and Human Services
5505 Creedmoor Road, Suite 100
Raleigh, NC 27612

SUBJECT: NORTH CAROLINA FINAL IMPEP REPORT

Dear Louis Brayboy:

On May 4 - 7, 2026, an Integrated Materials Performance Evaluation Program (IMPEP) team reviewed the performance of the North Carolina Agreement State Program (North Carolina) in accordance with applicable U.S. Nuclear Regulatory Commission (NRC) procedures. Based on the IMPEP team's recommendations that North Carolina be found satisfactory for all performance indicators reviewed, I, as the Chair of the Management Review Board (MRB), determined that in lieu of convening an MRB meeting, MRB members would review the IMPEP team's results. In consultation with the MRB, I found the North Carolina program adequate to protect public health and safety, and compatible with the NRC's regulatory program.

The enclosed final report summarizes the results of this IMPEP review. Based on the results, I determined that the next periodic meeting should be held in approximately 2.5 years, with the next IMPEP review taking place in approximately 5 years.

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

Sincerely,



Signed by Kathryn Brock Signing on
behalf of Andrea Kock on 09/01/26

Andrea L. Kock, Director
Office of Nuclear Materials Safety
and Safeguards

Enclosure:
North Carolina Final IMPEP Report

cc: James Albright, RAM Branch Manager
Randy Crowe, RAM Branch Licensing Manager
Travis Cartoski, Health Physicist Supervisor
Caleb Smith, SS&D Coordinator
Mark Payne, Director – Div. of Health Services Regulation
Emory Milliken, Deputy Director – Div. of Health Services Regulation



INTEGRATED MATERIALS PERFORMANCE EVALUATION PROGRAM
REVIEW OF THE NORTH CAROLINA AGREEMENT STATE PROGRAM

May 4 – 7, 2026

FINAL REPORT

EXECUTIVE SUMMARY

The results of the Integrated Materials Performance Evaluation Program (IMPEP) review of the North Carolina Agreement State Program (North Carolina) are discussed in this report. The review was conducted by the IMPEP team from May 4-7, 2026. Inspector accompaniments were conducted during the week of April 13, 2026.

The team found North Carolina's performance to be satisfactory for all seven performance indicators reviewed: Technical Staffing and Training; Status of Materials Inspection Program; Technical Quality of Inspections; Technical Quality of Licensing Actions; Technical Quality of Incident and Allegation Activities; Legislation, Regulations, and Other Program Elements; and Sealed Source and Device Evaluation Program. The team reviewed recommendations from the 2022 IMPEP review and proposed closing both recommendations. No new recommendations were made.

Following a review of the team's report and recommendation, the Management Review Board (MRB) Chair, in consultation with the MRB, found North Carolina's radiation control program adequate to protect public health and safety and compatible with the U.S. Nuclear Regulatory Commission's program. The MRB Chair determined that a periodic meeting be conducted in approximately 2.5 years, with the next IMPEP review taking place in approximately 5 years.

1.0 INTRODUCTION

The North Carolina Agreement State Program (North Carolina) Integrated Materials Performance Evaluation Program (IMPEP) review was conducted from May 4 - 7, 2026, by a team of technical staff members from the U.S. Nuclear Regulatory Commission (NRC) and the Commonwealth of Massachusetts. Team members are identified in Appendix A. Inspector accompaniments were conducted during the week of April 13, 2026, and are identified in Appendix B. The review was conducted in accordance with the "Agreement State Program Policy Statement," published in the *Federal Register* (FR) on October 18, 2017 ([82 FR 48535](#)), and NRC [Management Directive \(MD\) 5.6](#), "Integrated Materials Performance Evaluation Program (IMPEP)," dated July 24, 2019. Preliminary results of the review, which covered the period of May 7, 2022 – May 7, 2026, were discussed with North Carolina 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 North Carolina on April 1, 2026. North Carolina provided its response to the questionnaire on April 13, 2026. A copy of the questionnaire response is available in the NRC's Agencywide Documents Access and Management System (ADAMS) Accession No. ([ML26104A303](#)).

The team issued a draft IMPEP report to North Carolina on June 25, 2026, for factual comment ([ML26163A240](#)). In a letter dated July 24, 2026, Louis Brayboy, Chief of the Radiation Protection Section, submitted North Carolina's "no-comment" response([ML26208A145](#)).

North Carolina is administered by the Radiation Protection Section (Section), which is located within the Division of Health Service Regulation (Division) of North Carolina's Department of Health and Human Services (Department). Organizational charts for North Carolina are available in ([ML26104A301](#)).

At the time of the review, North Carolina regulated 486 specific licenses authorizing possession and use of radioactive materials. The review focused on the radiation control program as it is carried out under Section 274b (of the Atomic Energy Act of 1954, as amended) Agreement between the NRC and North Carolina.

The team evaluated the information gathered against the established criteria for each common and applicable non-common performance indicator and made a preliminary assessment of North Carolina's performance.

2.0 PREVIOUS IMPEP REVIEW AND STATUS OF RECOMMENDATIONS

The previous IMPEP review concluded on May 6, 2022. The final report is available in ([ML22230D060](#)). The results of the review and the status of the associated 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: North Carolina provide additional training to its staff on emerging medical technologies subject to its equivalent to Title 10 of the *Code of Federal Regulations* (10 CFR) 35.1000, as applicable to its regulatory program.

Status: The team recommended closing this recommendation. North Carolina provided device specific and annual training to staff to ensure staff were knowledgeable and appropriately trained. Additionally, a monthly staff meeting was implemented to share any new and emergent information that may have arisen since the previous meeting. The team observed that the staff were knowledgeable of the applicable requirements during inspector accompaniments.

Technical Quality of Licensing Actions: Satisfactory

Recommendation: None

Technical Quality of Incident and Allegation Activities: Satisfactory

Recommendation: None

Legislation, Regulations and Other Program Elements: Unsatisfactory

Recommendation: None

Status: The 2022 IMPEP review team determined that a new regulatory process in North Carolina created significant delays in addressing regulatory changes. Because of the requirements put in place in 2017 under NCGS 105B, North Carolina focused on adoption of all compatible parts of the 10 CFR by reference, which was expected to be completed by the end of 2025. The 2026 IMPEP review team determined that North Carolina had repealed existing regulations, adopted applicable federal regulations by reference and addressed comments generated during past regulatory reviews. At the end of the review period, North Carolina submitted amendments to its regulations incorporating the federal regulations for a compatibility review. The team recommended that this indicator be found satisfactory.

Sealed Source and Device (SS&D) Evaluation Program: Satisfactory, but Needs Improvement

Recommendation: North Carolina take action to ensure each SS&D evaluation is properly documented to ensure the content and format of information of each evaluation is consistent with the applicable guidance provided in [NUREG-1556, Volume 3](#).

Status: The team determined that North Carolina took appropriate steps to ensure each SS&D evaluation was properly documented and consistent with the applicable guidance provided in NUREG-1556, Volume 3. North Carolina identified and amended all SS&D registrations that previously had not contained content and format of information consistent with the applicable guidance. North Carolina implemented periodic meetings amongst all three SS&D reviewers to include discussing content and format of each registration prior to issuance. Each registration issued during the review period included content and format of information consistent with applicable guidance. The team proposed that this recommendation be closed.

Overall finding: Adequate to protect public health and safety and not compatible with the NRC's program. The team recommended that periodic meetings be held in 18 and 36 months and that a full IMPEP review take place in approximately 4 years. Based upon discussions during the

Management Review Board (MRB), the MRB Chair directed the NRC to conduct a periodic meeting in two years and a full IMPEP review in four years.

3.0 COMMON PERFORMANCE INDICATORS

Five common performance indicators are used to review the NRC and Agreement State radiation control 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 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 assessed. 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 direction in [MD 5.6](#) to evaluate North Carolina's performance. The team also used the guidance in State Agreements (SA) procedure [SA-103](#), "Reviewing the Common Performance Indicator: Technical Staffing and Training."

b. Discussion

This section summarizes the principal findings from the team's review, focusing on the core objectives and criteria outlined in [SA-103](#).

- The radiation control program, when fully staffed, consists of 3 supervisory, 9 technical and 2 administrative staff that equate to 14 full-time equivalents (FTE). At the time of the review, North Carolina was in the process of filling its only vacancy. Approximately five staff members left the program since the last review, and seven staff were hired including staff promoted to management positions. Positions were vacant from 216 to 1,043 days during the review period. Management committed to filling positions and worked closely with its hiring team to acquire qualified staff.
- North Carolina implemented a balanced staffing strategy by adhering to a training and qualification program compatible with the NRC's [IMC 1248](#). Four inspectors and license reviewers were fully qualified, while five individuals actively sought qualification across licensing and inspection modalities. Fully qualified staff embraced a team approach to qualification by mentoring newly hired staff to develop knowledgeable, well-trained, safety-conscious staff, promote shared experience and ensure consistent, continuous operations.
- North Carolina ensured that staff received the required training courses and documented efforts to obtain interim qualifications in each licensing or inspection modality in an electronic qualification journal. Staff actively sought formal qualifications in either inspection or licensing with full qualification granted with management approval once all interim qualifications associated with either inspection or licensing were completed. Staff were afforded opportunities for cross qualifications to further their development. The

team noted that interim qualification was well documented in electronic qualification journals and suggested that the date of full qualification be prominently recorded in the qualification summary tab consistent with records maintained by staff qualified prior to the review period.

- A strong commitment to maintaining up-to-date expertise was observed, as North Carolina required staff to complete at least 40 hours of retraining every two years. Staff were encouraged to attend annual professional society meetings when possible, and additional retraining opportunities were routinely discussed throughout the year. Knowledge gained from these activities was shared among staff to support effective knowledge management.

c. Evaluation

The team determined that, during the review period, North Carolina met the performance indicator objectives listed in Section 3.1.a. Based on the criteria in [MD 5.6](#), the team recommends that North Carolina's performance with respect to the indicator, Technical Staffing and Training, be found satisfactory.

d. MRB Chair's Determination

The MRB Chair agreed with the team's recommendation and found North Carolina's performance with respect to this indicator satisfactory.

3.2 Status of Materials Inspection Program

Inspections of licensed operations are essential to ensure that activities are being conducted in compliance with regulatory requirements and consistent with good safety and security practices. The frequency of inspections is specified in [IMC 2800](#), "Materials Inspection Program," and is dependent on the amount and type of radioactive 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 direction in [MD 5.6](#) to evaluate North Carolina's performance. The team also used the guidance in [SA-101](#), "Reviewing the Common Performance Indicator: Status of the Materials Inspection Program."

b. Discussion

This section summarizes the principal findings from the team's review, focusing on the core objectives and criteria outlined in [SA-101](#).

- North Carolina performed 283 inspections during the review period including 245 Priority 1, 2, and 3, and 38 initial inspections. North Carolina conducted six priority 1, 2, 3, and initial inspections overdue, accounting for just two percent of inspections. This is within the satisfactory rating criteria of less than 10 percent as specified by MD. 5.6. The team noted that two inspections were overdue due to a data entry error in Web-Based Licensing (WBL), three were attributed to licensee delays, and one resulted from a staff scheduling issue. North Carolina's inspection frequencies were either equivalent or more frequent for similar license types in the NRC's program.

A sampling of 19 inspection reports indicated that 2 of the inspection findings were communicated to licensees greater than 30 days after the inspection exit or 45 days for team inspections. One notification was sent nine days late and the other was sent during the IMPEP review week subsequent to discovering that the inspector did not send the report as expected prior to concluding employment with North Carolina. Using the criteria in SA-101, the team determined that the timeliness of communicating inspection findings to licensees was generally adequate, with only a small number of exceptions.

- North Carolina followed procedures equivalent with IMC 2800 and other supporting guidance to apply a performance-based, risk-informed approach to identify reciprocity candidates for inspection in lieu of previous metric thresholds. The team reviewed North Carolina's inspection of candidate licensees working under reciprocity and determined that North Carolina completed inspections for 29 of 93 candidates identified, which accounted for 31 percent of the candidate licensees working under reciprocity during the review period.

c. Evaluation

The team determined that, during the review period, North Carolina met the performance indicator objectives listed in Section 3.2.a. Based on the criteria in [MD 5.6](#), the team recommends North Carolina's performance with respect to the indicator, Status of Materials Inspection Program, be found satisfactory.

d. MRB Chair's Determination

The MRB Chair agreed with the team's recommendation and found North Carolina's performance with respect to this indicator satisfactory.

3.3 Technical Quality of Inspections

Inspections, both routine and reactive, provide reasonable 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 inspection program.

a. Scope

The team used the direction in [MD 5.6](#) to evaluate North Carolina's performance. The team also used the guidance in SA procedure: [SA-102](#), "Reviewing the Common Performance Indicator: Technical Quality of Inspections."

b. Discussion

This section summarizes the principal findings from the team's review, focusing on the core objectives and criteria outlined in [SA-102](#).

- The team evaluated 19 inspection reports and enforcement documentation, and interviewed inspectors involved in materials inspections during the review period. The casework is identified in Appendix C and covered the inspections of seven former and current staff members during the review period across medical, industrial, commercial, academic, research, and service licenses. Inspection findings were clearly communicated to licensees for inspections with and without violations. North Carolina fully implemented the use of WBL for all inspection documentation and tracking.

- A team member accompanied four inspectors from April 13-16, 2026, as identified in Appendix B. Inspector performance observed during the inspector accompaniments indicated that the inspectors were well prepared and knowledgeable of the requirements for each license type and able to identify potential health, safety, and security concerns.
- The team noted that North Carolina maintained sufficient calibrated instrumentation for inspectors to conduct independent and/or confirmatory measurements. Instrumentation was calibrated at appropriate intervals and was adequate for the types of licensed activities inspected. Supervisory accompaniments for all qualified inspectors were performed for each year of the review period.
- During the 2022 IMPEP review, the team recognized the emerging medical technology inspections of the Leksell Gamma Knife® Perfexion™ and the Leksell Gamma Knife® Icon™ did not focus on all aspects of licensed activities encompassing health and safety. The team recommended, and the MRB Chair agreed, that North Carolina provide additional training to its staff on emerging medical technologies subject to the regulatory requirements of 10 CFR 35.1000, as applicable to its regulatory program. Following the 2022 IMPEP review, North Carolina arranged basic training on the Leksell Gamma Knife® Icon™, which is the newest system, for inspection staff to provide familiarity with the operation, quality control, safety interlocks and regulatory aspects applicable to the system. North Carolina implemented specific annual refresher training on existing and newly licensed emerging technologies in the state to ensure that staff maintained current knowledge and to promote consistency across its inspection activities.

c. Evaluation

The team noted that North Carolina adequately addressed the open recommendation from the previous IMPEP review, as discussed in Section 2.0, and recommends that it be closed.

The team determined that, during the review period, North Carolina met the performance indicator objectives listed in Section 3.3.a. Based on the criteria in [MD 5.6](#), the team recommends that North Carolina's performance with respect to the indicator, Technical Quality of Inspections, be found satisfactory.

d. MRB Chair's Determination

The MRB Chair agreed with the team's recommendation and found North Carolina's performance with respect to this indicator 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, implementation of those procedures, and documentation of communications and associated actions between North Carolina's licensing staff and the regulated community is a significant indicator of the overall quality of the licensing program.

a. Scope

The team used the direction in [MD 5.6](#) to evaluate North Carolina's performance. The team also used the guidance in SA procedures: [SA-104](#), "Reviewing the Common Performance Indicator: Technical Quality of Licensing Actions."

b. Discussion

This section summarizes the principal findings from the team's review, focusing on the core objectives and criteria outlined in [SA-104](#).

- During the review period, North Carolina performed 2,072 radioactive materials licensing actions. The team evaluated 16 licensing actions including 3 new applications, 5 amendments, 6 renewals, and 2 terminations across medical diagnostic and therapeutic, broad scope, accelerator, commercial manufacturing and distribution, industrial radiography, research and development, academic, nuclear pharmacy, gauge, service provider and medical irradiator modalities. The casework sampling is identified in Appendix D and included financial assurance and represented work from seven current and former license reviewers. No bankruptcies or change of ownership notifications were processed during the review period. There was no backlog and licensing actions were processed within North Carolina's timelines.
- The team noted that licensing staff worked together to expedite the qualification process for license reviewers while still producing consistent, high-quality results. North Carolina's use of license templates, reviewer guide forms, supervisory and peer quality assurance review forms was outlined in North Carolina's "Radioactive Materials Branch Licensing Procedures" dated March 2018. The team reviewed this procedure and found it to be consistent with the NRC's procedures found in [NUREG-1556, Vol. 20](#). North Carolina adequately protected sensitive information and utilized license conditions that clearly articulated applicable licensee commitments and regulatory requirements for each licensing action completed during the review period.
- To reflect regulatory changes that occurred during the review period, North Carolina was actively updating its licensing templates, review guides, and license review process guidance to remove any obsolete references. This also included the removal of references to Increased Control Orders, which would be replaced with references to the current requirements in 10 CFR Part 37. Licensing staff interviews revealed that staff made updates during license reviews and assisted the licensing supervisor in efforts to accomplish the updates and ensure greater consistency.

c. Evaluation

The team determined that, during the review period, North Carolina met the performance indicator objectives listed in Section 3.4.a. Based on the criteria in [MD 5.6](#), the team recommends that North Carolina's performance with respect to the indicator, Technical Quality of Licensing Actions, be found satisfactory.

d. MRB Chair's Determination

The MRB Chair agreed with the team's recommendation and found North Carolina's performance with respect to this indicator 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, safety and security. An assessment of incident response and allegation investigation procedures, actual implementation of these procedures internal and external coordination, timely incident reporting, and investigative and follow-up actions, are a significant indicator of the overall quality of incident response and

allegation programs.

a. Scope

The team used the direction in [MD 5.6](#) to evaluate North Carolina's performance. The team also used the guidance in [SA-105](#), "Reviewing the Common Performance Indicator: Technical Quality of Incident and Allegation Activities."

b. Discussion

This section summarizes the principal findings from the team's review, focusing on the core objectives and criteria outlined in [SA-105](#) and other applicable Agreement State procedures and policies.

- During the review period, 16 incidents were reported to North Carolina. The team evaluated 14 radioactive materials incidents including six lost or stolen radioactive materials, two medical events, four damaged equipment, and two contamination events. North Carolina dispatched inspectors for on-site follow-up for two of the cases reviewed.
- When notified of an incident, a licensee staff member evaluated the incident and determined the appropriate level of response, which ranged from an immediate response to reviewing the incident during the next routine inspection. Those determinations were made based on both the circumstances and the health and safety significance of the incident. The team found that North Carolina's evaluation of incident notifications and its response to those incidents was thorough, well balanced, complete, and comprehensive.
- The team observed that 3 of the 14 incidents reviewed by the team were intended to be followed up on at the next routine inspection based on the low safety significance of the incidents, but the next inspection report did not indicate that any previous incidents were reviewed. However, North Carolina's initial review of each of these events documented the review of written reports that described the root cause and verification of corrective actions taken. Each of the inspection reports documented review of the program area where the event occurred with no concerns identified. The team was satisfied that North Carolina will be working on how to improve the follow-up and the inspection documentation in these cases.
- The team also evaluated North Carolina's reporting of incidents to the Headquarters Operations Officer (HOO). The team noted that in each case requiring HOO notification, North Carolina reported the incidents within the required time frame. The team also evaluated whether North Carolina had not reported any required incidents to the HOO but did not identify any missed reporting requirements.
- During the review period, North Carolina received 17 allegations. The team evaluated 10 allegations, including 6 allegations that the NRC referred to North Carolina during the review period. The team found that the allegations were reviewed promptly, alleged's identities were protected, and alleged's were notified of investigation conclusions.

c. Evaluation

Based on the IMPEP evaluation criteria in [MD 5.6](#), the team recommends that North Carolina's performance with respect to the indicator, Technical Quality of Incident and Allegation Activities, be found satisfactory.

d. MRB Chair's Determination

The MRB Chair agreed with the team's recommendation and found North Carolina's performance with respect to this indicator satisfactory.

4.0 NON-COMMON PERFORMANCE INDICATORS

Four non-common performance indicators are used to review Agreement State programs: (1) Legislation, Regulations, and Other Program Elements; (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 retains regulatory authority for LLRW Disposal, and UR Program(s); therefore, only the first two non-common performance indicators applied to this review.

4.1 Legislation, Regulations, and Other Program Elements

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 State's agreement with the NRC. The statutes must authorize the State to promulgate regulatory requirements necessary to provide reasonable assurance of adequate 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 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 Program Element Table indicating the Compatibility Categories for those program elements other than regulations can be found on the NRC website at the following address: <https://scp.nrc.gov/regtoolbox.html>.

a. Scope

The team used the direction in [MD 5.6](#) to evaluate North Carolina's performance. The team also used the guidance in [SA-107](#), "Reviewing the Non-Common Performance Indicator: Legislation, Regulations, and Other Program Elements."

b. Discussion

This section summarizes the principal findings from the team's review, focusing on the core objectives and criteria outlined in [SA-107](#).

- On August 1, 1964, North Carolina became the eighth state to become an Agreement State. North Carolina's current effective statutory authority was established by Chapter 104E of the North Carolina Radiation Protection Act while Section 104E-6 provided the Department with the authority to administer a statewide radiation protection program. North Carolina's administrative rulemaking process takes approximately 18 months to complete from drafting to finalizing a rule. All rules become effective the first day of the month following adoption. Rulemaking involves interaction between the Department, North Carolina Radiation Protection Commission (RPC) and the Office of Administrative Hearings. However, the RPC is designated as the rulemaking body responsible for adopting rules and standards relating to safety, licensing and other areas of applicable

guidance. All rules are published for public comment, with comments considered and incorporated as appropriate before finalization. No new legislation directly affecting the Section was enacted during the review period.

- Pursuant to the Administrative Procedures Act (General Statute 150B), North Carolina's rules sunset after 10 years and require periodic re adoption. The next sunset period occurs on February 28, 2027. The team noted that North Carolina initiated the re adoption process for rules set to expire on this date and monitored all rules to ensure timely re adoption. During the period from April 20, 2023, through September 25, 2025, North Carolina adopted new regulations to incorporate the federal requirements of 10 CFR Parts 19, 20, 30, 31, 32, 33, 34, 35, 36, 37, 39, 40, 61, 70, 71, and 150 by reference. North Carolina repealed its existing regulations to eliminate regulatory conflicts and initiated the amendment process to address any recent changes or comments generated during past compatibility reviews.
- During the review period, nine amendments were due for adoption with just two minor, low safety significance amendments adopted after the due date. The Team attributed the overdue amendments to North Carolina's greater effort to repeal its existing regulations and adopt new regulations that incorporate applicable parts of 10 CFR. North Carolina's efforts to submit proposed, final and amended regulatory amendments to the NRC for compatibility reviews resulted in no overdue amendments at the close of the review. The team noted that North Carolina submitted regulatory review packages addressing the two overdue amendments and unresolved comments identified during the 2022 IMPEP review. On April 24, 2026, North Carolina submitted a regulatory review package that included amendments to North Carolina's recently adopted regulations.
- The team reviewed other program elements designated by the NRC as necessary for the maintenance of an adequate and compatible program and verified that North Carolina utilized guidance and procedures that were compatible with the NRC's established program. It was further noted that North Carolina utilized WBL to complete licensing actions and consistently used standard license conditions. Subsequent to adopting the new regulations to incorporate appropriate portions of 10 CFR, North Carolina provided training to staff and developed guidance as well as a regulatory crosswalk to assist licensees during the transition. Further, it implemented a process to replace regulatory references in license renewals and amendments as they were generated. All program elements reviewed were found to be compatible with existing guidance.

c. Evaluation

The team determined that, during the review period, North Carolina met the performance indicator objectives listed in Section 4.1.a. Based on the criteria in [MD 5.6](#), the team recommends that North Carolina's performance with respect to the indicator, Legislation, Regulations, and Other Program Elements, be found satisfactory.

d. MRB Chair's Determination

The MRB Chair agreed with the team's recommendation and found North Carolina's performance with respect to this indicator 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 the SS&D reviews and establishes useful guidance for teams. In accordance with MD 5.6, 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 direction in [MD 5.6](#) to evaluate North Carolina's performance. The team also used the guidance in [SA-108](#), "Reviewing the Non-Common Performance Indicator: Sealed Source and Device Evaluation Program."

b. Discussion

This section summarizes the principal findings from the team's review, focusing on the core objectives and criteria outlined in [SA-108](#).

Technical Staffing and Training

- North Carolina has three staff qualified to perform SS&D reviews. Currently, there are no vacancies. During the review period no SS&D staff members left the program and no staff were hired. North Carolina does a training program equivalent to NRC training requirements listed in the NRC's IMC 1248, Appendix D.

Technical Quality of the Product Evaluation

- North Carolina has five SS&D licensees and 16 active SS&D registrations. The team evaluated 9 of 13 SS&D actions processed during the review period including 1 new registration, 5 amended registrations, 2 inactivation registrations and 1 corrected registration. No technical performance issues were found during the review.
- All three SS&D reviewers met with each other at least quarterly, and sometimes more frequently, to discuss each other's open SS&D assignments. North Carolina ensured that two reviewers signed each SS&D registration consistent with NUREG-1556, Volume 3. The remaining reviewer was provided with an opportunity to offer input on the SS&D registration prior to its issuance. North Carolina's collaborative approach resulted in SS&D registrations that were consistent, technically robust, and aligned with existing guidance in both content and format.

Evaluation of Defects and Incidents Regarding SS&Ds

- During the review period, two incidents were reported to North Carolina. The team evaluated both incidents involving North Carolina SS&D registered products during the review period. None of the incidents were related to manufacturing or design defects of the sources/devices manufactured or distributed by the North Carolina licensee. North Carolina determined the causes for both incidents were attributed to third party service

providers of portable gauges and performed an assessment of generic implications for both incidents. North Carolina notified the NRC and others, as appropriate.

- North Carolina investigated an incident involving a lost Am-241/Be sealed source from a Troxler model 3440 portable gauge and identified additional cases where sources in Troxler 3430 and 3440 gauges had become loose. The root cause was traced to third-party service providers who failed to follow proper maintenance practices associated with the application of thread-locking fluid to the source holder caps to prevent loosening over time and risk the sources becoming unsecured. In response, North Carolina issued an information notice on November 2, 2022, alerting portable gauge licensees, manufacturers, service providers, and the NRC. The gauge manufacturer subsequently distributed service notifications and instructions to third-party providers.
- The second incident involved the discovery of a plastic piece installed in a Troxler model 3430 Plus portable gauge bio shield sliding block mechanism and involved reporting from another Agreement State. North Carolina evaluated the incident for generic implications, discussed the issue with the manufacturer and the other Agreement State, and searched for similar incidents. North Carolina concluded that the incident was a one-off incident caused by a third-party service provider modification. North Carolina identified that the other Agreement State was handling the incident with its licensee.

c. Evaluation

The team noted that North Carolina has adequately addressed the open recommendation from the previous IMPEP review, as discussed in Section 2.0, and recommended that it be closed.

The team determined that, during the review period, North Carolina met the performance indicator objectives listed in Section 4.2.a. Based on the criteria in [MD 5.6](#), the team recommends that North Carolina's performance with respect to the indicator, SS&D Evaluation Program, be found satisfactory.

d. MRB Chair's Determination

The MRB Chair agreed with the team's recommendation, considered MRB member comments, and found North Carolina's performance with respect to this indicator satisfactory.

5.0 SUMMARY

The team found North Carolina's performance to be satisfactory for all seven performance indicators reviewed: Technical Staffing and Training; Status of Materials Inspection Program; Technical Quality of Inspections; Technical Quality of Licensing Actions; Technical Quality of Incident and Allegation Activities; Legislation, Regulations, and Other Program Elements; and Sealed Source and Device Evaluation Program. The team reviewed recommendations from the 2022 IMPEP review and proposed closing both recommendations. No new recommendations were made. Following a review of the team's report and recommendation, the MRB Chair, in consultation with the MRB, found North Carolina's radiation control program adequate to protect public health and safety and compatible with the U.S. Nuclear Regulatory Commission's program. The MRB Chair also determined that a periodic meeting be conducted in approximately 2.5 years, with the next IMPEP review taking place in approximately 5 years.

LIST OF APPENDICES

Appendix A	IMPEP Review Team Members
Appendix B	Inspector Accompaniments
Appendix C	Inspection Casework
Appendix D	Licensing Casework

APPENDIX A

IMPEP REVIEW TEAM MEMBERS

Name	Areas of Responsibility
Geoffrey Warren NRC, RIII, DRSS, MIB	Team Leader Technical Quality of Incident and Allegation Activities
Lisa Forney NRC, NMSS, MSST, SLPB	Team Leader in Training Technical Staffing and Training Legislation, Regulations, and Other Program Elements
Latischa Hanson NRC, RIV, DRSS, MLB	Technical Quality of Licensing Actions
Shawn Seeley NRC, RI, DRSS	Inspector Accompaniments Status of Materials Inspection Program Technical Quality of Inspections
Joshua Daehler Massachusetts DPH	Sealed Source and Device Evaluation Program

APPENDIX B

INSPECTOR ACCOMPANIMENTS

The following inspector accompaniments were performed prior to the IMPEP review:

Accompaniment No.: 1	License No.: 001-0701-1
License Type: Pool Irradiator	Priority: 2
Inspection Date: 04/13/2026	Inspector's initials: CS

Accompaniment No.: 2	License No.: 092-1604-1
License Type: Medical – WD required	Priority: 3
Inspection Date: 04/14/2026	Inspector's initials: SH

Accompaniment No.: 3	License No.: 092-0794-6
License Type: Nuclear Pharmacy	Priority: 2
Inspection Date: 04/15/2026	Inspector's initials: AC

Accompaniment No.: 4	License No.: 019-1117-3
License Type: Industrial Radiography	Priority: 1
Inspection Date: 04/16/2026	Inspector's initials: KB

APPENDIX C

INSPECTION CASEWORK

The following inspections were reviewed during the IMPEP:

No.: 1	License No.: 092-0922-1
License Type: Industrial Radiography	Priority: 1
Inspection Date: 7/20/2022	Inspector's initials: TC/AC
No.: 2	License No.: 041-0766-1
License Type: Industrial Radiography	Priority: 1
Inspection Date: 8/16/2023 – 8/23/2023	Inspector's initials: KB
No.: 3	License No.: 090-1510-2
License Type: Industrial Radiography	Priority: 1
Inspection Date: 9/19/2024	Inspector's initials: TM
No.: 4	License No.: 041-0766-1
License Type: Industrial Radiography	Priority: 1
Inspection Date: 3/8/2025	Inspector's initials: AC
No.: 5	License No.: 001-0701-1
License Type: Pool Irradiator	Priority: 2
Inspection Date: 4/13/2026	Inspector's initials: CS
No.: 6	License No.: 092-1604-1
License Type: Medical WD Required	Priority: 3
Inspection Date: 4/14/2026	Inspector's initials: SH
No.: 7	License No.: 092-0794-6
License Type: Nuclear Pharmacy	Priority: 2
Inspection Date: 4/15/2026	Inspector's initials: AC
No.: 8	License No.: 019-1117-3
License Type: Industrial Radiography	Priority: 1
Inspection Date: 4/16/2026	Inspector's initials: KB
No.: 9	License No.: 092-1710-1
License Type: Industrial Radiography	Priority: 1
Inspection Date: 2/11/2026	Inspector's initials: AC
No.: 10	License No.: 090-1058-1
License Type: Industrial Radiography	Priority: 1
Inspection Date: 12/8/2025	Inspector's initials: SH

No.: 11	License No.: 090-1058-1
License Type: Industrial Radiography	Priority: 1
Inspection Date: 2/24/2026	Inspector's initials: SH
No.: 12	License No.: 114-0328-R
License Type: Industrial Radiography	Priority: 1
Inspection Date: 10/17/2025	Inspector's initials: SH/CS
No.: 13	License No.: 129-0406-R
License Type: Service Provider	Priority: 2
Inspection Date: 11/3/2023	Inspector's initials: CS
No.: 14	License No.: 092-0160-7
License Type: Medical – HDR/Therapy	Priority: 2
Inspection Date: 10/6/2022	Inspector's initials: KB
No.: 15	License No.: 067-0025-1
License Type: Medical WD Required	Priority: 3
Inspection Date: 10/27/2022	Inspector's initials: TR
No.: 16	License No.: 036-0203-2
License Type: Medical HDR/Brachytherapy	Priority: 2
Inspection Date: 2/6/2024	Inspector's initials: TM
No.: 17	License No.: 092-0090-3
License Type: Academic Broad Scope	Priority: 3
Inspection Date: 8/10/2023	Inspector's initials: KB
No.: 18	License No.: 032-0131-1
License Type: Research & Development	Priority: 3
Inspection Date: 9/12/2023	Inspector's initials: KB
No.: 19	License No.: 032-1073-1
License Type: Manufacturing & Distribution	Priority: 3
Inspection Date: 12/20/2022	Inspector's initials: TM

APPENDIX D

LICENSING CASEWORK

The following licensing actions were reviewed during the IMPEP:

No.: 1	Registration No.: NC-0646-D-136-S
SS&D Type: Portable Moisture Density Gauges	Action: Inactivation
Action Date: 05/13/2024	Reviewer's initials: CE and CS
No.: 2	Registration No.: NC-1241-D-102-S
SS&D Type: Portable Moisture Density Gauges	Action: New
Action Date: 10/24/2025	Reviewer's initials: CS and KB
No.: 3	Registration No.: NC-1311-S-102-S
SS&D Type: Manual Brachytherapy	Action: Amendment
Action Date: 1/8/2024	Reviewer's initials: CS and KB
No.: 4	Registration No.: NC-0585-D-103-G
SS&D Type: Self-Luminous Light Source	Action: Amendment
Action Date: 5/20/2025	Reviewer's initials: CS and KB
No.: 5	Registration No.: NC-0646-D-833-S
SS&D Type: Portable Moisture Density Gauges	Action: Inactivation
Action Date: 11/13/2024	Reviewer's initials: CE and KB
No.: 6	Registration No.: NC-0646-D-130-S
SS&D Type: Portable Moisture Density Gauges	Action: Correction
Action Date: 4/15/2026	Reviewer's initials: CS and CE
No.: 7	Registration No.: NC-1241-D-101-S
SS&D Type: Portable Moisture Density Gauges	Action: Amendment
Action Date: 10/24/2025	Reviewer's initials: CS and CE
No.: 8	Registration No.: NC-0585-D-103-G
SS&D Type: Self-Luminous Light Source	Action: Amendment
Action Date: 8/29/2023	Reviewer's initials: KB and CS
No.: 9	Registration No.: NC-0646-D-130-S
SS&D Type: Portable Moisture Density Gauges	Action: Amendment
Action Date: 5/15/2025	Reviewer's initials: CS and CE
No.: 10	License No.: 060-1559-1
License Type: Industrial Radiography	Action: Initial
Action Date: 05/13/2022	Reviewer's initials: MB

No.: 11	License No.: 032-0247-1
License Type: Academic Broadscope	Action: FA
Action Date: 01/13/2025	Reviewer's initials: CE
No.: 12	License No.: 032-0247-4
License Type: Medical Broadscope	Action: Amendment
Action Date: 01/14/2025	Reviewer's initials: CE
No.: 13	License No.: 032-0247-4
License Type: Medical Broadscope	Action: Amendment, FA
Action Date: 11/06/2023	Reviewer's initials: CE
No.: 14	License No.: 013-0028-2
License Type: Emerging Medical Technologies	Action: Amendment
Action Date: 06/16/2025	Reviewer's initials: RM
No.: 15	License No.: 034-0878-10
License Type: Nuclear Medicine	Action: Renewal
Action Date: 05/22/2025	Reviewer's initials: MB
No.: 16	License No.: 032-0247-4
License Type: Industrial Laboratory	Action: Termination
Action Date: 08/30/2023	Reviewer's initials: BP
No.: 17	License No.: 090-1058-1
License Type: Industrial Radiography	Action: Renewal
Action Date: 11/10/2022	Reviewer's initials: RC
No.: 18	License No.: 060-0379-5
License Type: Industrial Laboratory	Action: Renewal
Action Date: 11/20/2024	Reviewer's initials: CS
No.:19	License No.: 060-0379-5
License Type: Industrial Accelerator	Action: New
Action Date: 05/17/2024	Reviewer's initials: CS
No.: 20	License No.: 090-1058-1
License Type: Manufacturing and Distribution	Action: Renewal
Action Date: 08/02/2022	Reviewer's initials: RM
No.: 21	License No.: 090-1058-1
License Type: Industrial Radiography	Action: Renewal
Action Date: 11/20/2022	Reviewer's initials: RC
No.: 22	License No.: 065-1296-1
License Type: Veterinary	Action: Renewal
Action Date: 04/29/2024	Reviewer's initials: BP

No.: 23	License No.: 065-1296-1
License Type: Veterinary	Action: Termination
Action Date: 06/16/2025	Reviewer's initials: RC

No.: 24	License No.: 041-1713-1
License Type: Portable Gauge	Action: New
Action Date: 08/19/2025	Reviewer's initials: HB

No.: 25	License No.: 118-171-1
License Type: Other Portable Gauge	Action: Renew
Action Date: 01/08/2026	Reviewer's initials: HB