

September 7, 2012

Catherine B. Templeton, Director  
Department of Health and Environmental Control  
2600 Bull Street  
Columbia, South Carolina 29201

Dear Ms. Templeton:

On August 16, 2012, the Management Review Board (MRB) met to consider the proposed final Integrated Materials Performance Evaluation Program (IMPEP) report on the South Carolina Agreement State Program. The MRB found the South Carolina program is adequate to protect public health and safety and is compatible with the Nuclear Regulatory Commission's program.

Section 5.0, page 16, of the enclosed final report contains a summary of the IMPEP review team's findings. The review team made no recommendations in regard to program performance by the South Carolina Agreement State Program during this review. Based on the results of the current IMPEP review, the next full review of the South Carolina Agreement State Program will take place in approximately 5 years from the date of the current review, with a periodic meeting tentatively scheduled for January 2015. The South Carolina Agreement State Program received an extension of one year for the next IMPEP review based on two consecutive IMPEP reviews with satisfactory findings for all the performance indicators reviewed.

I appreciate the courtesy and cooperation extended to the IMPEP review team. 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/*

Michael F. Weber  
Deputy Executive Director for Materials, Waste,  
Research, State, Tribal and Compliance Programs  
Office of the Executive Director for Operations

Enclosure:  
South Carolina Final IMPEP Report

cc w/ encl: Alice Rogers, Texas  
Organization of Agreement States  
Liaison to the MRB

Catherine B. Templeton, Director  
Department of Health and Environmental Control  
2600 Bull Street  
Columbia, South Carolina 29201

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

May 21-25, 2012

**FINAL REPORT**

Enclosure

## **EXECUTIVE SUMMARY**

This report presents the results of the Integrated Materials Performance Evaluation Program (IMPEP) review of the South Carolina Agreement State Program. The review was conducted during the period of May 21-25, 2012, by a review team composed of technical staff members from the U.S. Nuclear Regulatory Commission (NRC), the State of Washington, and the Commonwealth of Pennsylvania.

Based on the results of this review, South Carolina's performance was found to be satisfactory for all eight performance indicators reviewed. The findings remain unchanged from the previous review. The review team did not make any recommendations regarding program performance by the State. Accordingly, the review team recommended, and the Management Review Board (MRB) agreed, that the South Carolina Agreement State Program is adequate to protect public health and safety and is compatible with NRC's program. The review team also recommended, and the MRB agreed, that the next IMPEP review take place in approximately five years.

## 1.0 INTRODUCTION

This report presents the results of the review of the South Carolina Agreement State Program. The review was conducted during the period of May 21-25, 2012, by a review team composed of technical staff members from the U.S. Nuclear Regulatory Commission (NRC), the State of Washington, and the Commonwealth of Pennsylvania. 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, "Integrated Materials Performance Evaluation Program (IMPEP)," dated February 26, 2004. Preliminary results of the review, which covered the period from July 21, 2007 to May 25, 2012, were discussed with South Carolina managers on the last day of the review.

A draft of this report was issued to South Carolina for factual comment on June 18, 2012. The State responded by letter dated July 17, 2012. A copy of the State's response is included as an Attachment to this report, along with the review team's resolution of the comments submitted by South Carolina. The Management Review Board (MRB) met on August 16, 2012, to consider the proposed final report. The MRB found the South Carolina Agreement State Program adequate to protect public health and safety and compatible with the NRC's program.

The radioactive materials portion of the South Carolina Agreement State Program is administered by the Bureau of Radiological Health (Bureau), which is located within the Department of Health and Environmental Control (Department). The low level radioactive waste portion of the South Carolina Agreement State Program is administered by the Division of Waste Management (Division), a part of the Bureau of Land and Waste Management also located within the Department. Organization charts are included as Appendix B.

At the time of the review, the Bureau regulated approximately 400 specific licenses authorizing possession and use of radioactive materials. The Division regulated 14 licensees in addition to the Barnwell low level radioactive waste site. 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 South Carolina.

In preparation for the review, a questionnaire addressing the common and applicable non-common performance indicators was sent to both the Bureau and Division on February 29, 2012. The Bureau provided its response to the questionnaire on April 30, 2012. The response can be found in the NRC's Agencywide Documents Access and Management System (ADAMS) using the Accession Number ML12122A078. The attachments to the response can be found in ADAMS using Accession Number ML12220A287. The Division provided its response to the questionnaire on May 4, 2012. The response can be found in ADAMS using Accession Number ML121280003.

The review team's general approach for conduct of this review consisted of the following: (1) examination of each agency's response to the questionnaire, (2) review of applicable South Carolina statutes and regulations, (3) analysis of quantitative information from each agency's database, (4) technical review of selected regulatory actions, (5) field accompaniments of six inspectors, and (6) interviews with staff and managers. The review team evaluated the

information gathered against the established criteria for each common and the applicable non-common performance indicators and made a preliminary assessment of the South Carolina Agreement State Program's performance.

There were no recommendations made to the State during the previous review. Section 2.0 of this report identifies two recommendations initially identified for NRC's action by the 2003 review team, noted again by the 2007 review team, and again evaluated by the current review team. The status of the results of the current review of the common performance indicators are presented in Section 3.0. Section 4.0 discusses results of the applicable non-common performance indicators, and Section 5.0 summarizes the review team's findings.

## 2.0 STATUS OF ITEMS IDENTIFIED IN PREVIOUS REVIEWS

During the 2003 review, no recommendations were made to the State; however, two recommendations were made to the NRC by the review team. The two recommendations remained open through the 2007 review and were again evaluated by the current review team. The recommendations for the NRC were as follows:

1. "The review team recommends that the NRC adopt and disseminate final guidance on field inspections for industrial radiography operations in the interest of establishing an identifiable national materials program standard. (Section 3.3 of the 2003 report)"
2. "The review team recommends that the NRC clarify which supervisory levels require an inspection accompaniment, the frequency of those accompaniments and what level of documentation is appropriate. (Section 3.3 of the 2003 report)"

Status: The NRC's Office of Federal and State Materials and Environmental Management Programs (FSME) has addressed these recommendations separately from this report and they have been removed from IMPEP tracking.

## 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 as follows: (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

Issues central to the evaluation of this indicator include staffing levels and staff turnover, as well as the technical qualifications and training histories of the staff. To evaluate these issues, the review team examined the questionnaire response from the Bureau relative to this indicator, interviewed managers and staff, reviewed job descriptions and training records, and considered workload backlogs. To evaluate the Division, the review team focused on the qualifications of the technical staff and the expertise necessary to regulate a Low Level Radioactive Waste (LLRW) disposal facility, the development and implementation of a staff training program, and the evaluation of staffing trends that could have an adverse impact on performance.

The Bureau is staffed by the Bureau Chief, a Radioactive Materials Division Director, a Section Manager, and four technical staff members. All Bureau staff members, including the Radioactive Materials Director and Section Manager, are responsible for materials licensing, inspection, compliance, and emergency response activities.

The review team noted that because of reduced staffing levels, Bureau management was involved to varying degrees in the day to day operations of the Bureau. With their direct involvement, the materials program was operating with approximately 4.3 full-time equivalents (FTE). Two additional full-time technical staff positions were vacant at the time of the review. One position has been vacant since December 2010, and the other has been vacant since April 2011. The Bureau received approval to fill one of the open positions and had posted it while the review team was on site.

Within the Division, six staff members implement the LLRW program including the Division Director and five staff members assigned to the Infectious and Radioactive Waste Management Section (Section). The Section consists of a Section Manager, three Health Physicists, and an Environmental Engineer. Since the last review, the Division has lost one Health Physicist position which was permanently eliminated and as a result, the Division is now considered fully staffed. The review team determined that staffing levels were adequate for the Agreement State program.

The review team interviewed Division staff and noted that the decreased staffing level has not had a significant impact on their licensing or inspection programs or their ability to conduct their work in a timely manner. The review team determined that there was adequate technical expertise within the Division and that additional expertise was obtained from other organizations within the Department when warranted. The review team also noted the seniority of staff both within the Bureau and the Division and discussed the importance of succession planning with management.

The Bureau has a documented training plan for technical staff that is consistent with the requirements in the NRC/Organization of Agreement States Training Working Group Report and the NRC's Inspection Manual Chapter (IMC) 1246, "Formal Qualification Programs in the Nuclear Material Safety and Safeguards Program Area." Staff members are assigned increasingly complex duties as they progress through the qualification process. The review team concluded that the Bureau's training program is adequate to carry out its regulatory duties and noted that South Carolina management supports the Bureau training program.

The review team examined the Division's staff training documentation and conducted interviews with selected staff to assess qualification and training needs. The Division has a generic training plan that specifies required training for each technical position. Individual training qualification forms are maintained for each person. The review team concluded that the Division's training program is adequate to carry out their regulatory duties.

The review team also discussed the role of the Technical Advisory Radiation Control Council (Council) with the Bureau Chief. The Council holds statutory authority to review all proposed regulations prior to adoption. The Council also serves as an advisory committee to both the Bureau and the Division. The Council meets as needed rather than on a specific schedule.



Since the last IMPEP review in 2007, the Council has met only once. No evidence of conflict of interest issues was identified. Council members are subject to the State Ethics Act.

Based on the IMPEP evaluation criteria, the review team recommended, and the MRB agreed, that South Carolina's performance with respect to the indicator, Technical Staffing and Training, be found satisfactory.

### 3.2 Status of Materials Inspection Program

The review team focused on five factors while reviewing this indicator: inspection frequency, overdue inspections, initial inspections of new licenses, timely dispatch of inspection findings to licensees, and performance of reciprocity inspections. The review team's evaluation was based on the Bureau's questionnaire response relative to this indicator, data gathered from the Bureau's database, examination of completed inspection casework, and interviews with management and staff.

The review team verified that the Bureau's inspection frequencies for all types of radioactive material licenses are at least as frequent as license types listed in IMC 2800, "Materials Inspection Program."

The Bureau conducted approximately 240 higher priority (Priority 1, 2, and 3) inspections over the review period. None were conducted overdue. Initial inspections should be conducted within 12 months of license issuance. The review team found that the Bureau performed 69 initial inspections over the review period with none performed overdue. Overall, the review team calculated that the Bureau performed no inspections overdue during the review period. The Division conducted 39 inspections for 14 waste licensees. None were performed overdue.

The review team evaluated the Bureau's timeliness in providing inspection findings to licensees. The majority of the Bureau's routine inspections were documented with the issuance of a BRH-Form 591, "Field Compliance Form," and left with the licensee at the completion of the on-site inspection. These are issued for inspections with no findings or minor violations. Other inspection findings are routinely sent to licensees on a Form BRH-592, "Notice of Non-Compliance" within 30 days of completing an inspection. This form is used for more significant violations and is issued from the Bureau office. A sampling of 20 inspection reports found that none of the inspection findings were communicated to the licensees beyond the Bureau's goal of 30 days following the inspection.

The review team determined that the Division's inspection findings were also communicated in a timely manner. Inspectors verbally relay inspection findings and recommendations to the licensee during the close-out meeting. The review team found that while not all findings were communicated to the licensee within 30 days, the team found that the majority do get communicated in a timely manner. The review team evaluated 17 inspection files and found only two occasions where findings were not communicated to the licensee within 30 days.

The review team found that over the review period, the Bureau issued 56 reciprocity permits that were candidates for inspection based upon the criteria found in IMC 1220, "Processing of NRC Form 241 and Inspection of Agreement State Licensees Operating Under 10 CFR 150.20". The review team determined that the Bureau exceeded the NRC's criteria of inspecting 20

percent of candidate licensees operating under reciprocity in each of the years covered by the review period.

Based on the IMPEP evaluation criteria, the review team recommended, and the MRB agreed, that South Carolina's performance with respect to the indicator, Status of Materials Inspection Program, be found satisfactory.

### 3.3 Technical Quality of Inspections

The review team evaluated the inspection reports, enforcement documentation, inspection field notes, and interviewed inspectors for 20 radioactive materials inspections conducted by the Bureau over the review period. The casework reviewed included inspections conducted by six former and current Bureau inspectors and covered inspections of various license types, including: academic broad scope, medical broad scope, medical institutions-therapy including high dose rate remote after-loader and permanent implant brachytherapy, industrial radiography, panoramic and self-shielded irradiators, gamma knife, nuclear pharmacy, mobile nuclear medicine and Increased Security Controls for Large Quantities of Radioactive Materials (Increased Controls). The review team also examined 27 inspection reports of waste related licensees conducted by the Division over the review period. Appendix C lists the inspection casework files reviewed, with case specific comments, as well as the results of the inspector accompaniments.

Based on the evaluation of the casework, the review team noted that inspections covered all aspects of the licensee's radiation safety programs. The review team found that inspection reports were thorough, complete, consistent, and of high quality, with sufficient documentation to ensure that a licensee's performance with respect to health, safety and security was acceptable. The documentation supported violations, recommendations made to licensees, unresolved safety issues, and discussions held with licensees during exit interviews.

The Bureau uses inspection procedures that are consistent with the inspection guidance outlined in IMC 2800. The majority of inspections are documented on BRH-Form 591, "Field Compliance Forms," then left with the licensee at the conclusion of the inspection. Other inspection findings are routinely dispatched to licensees on a Form BRH-592, "Notice of Non-Compliance" within 30 days of completing an inspection. The review team determined that the Bureau's inspection findings were prompt and appropriate, and regulatory actions were taken when necessary. Inspection findings were found to be clearly stated and documented in the reports.

The Division performs inspections in accordance with its Radioactive Materials Licensing and Compliance Administrative Procedures Manual. Inspection reports are appropriately documented and reviewed by the Section Manager prior to sending close-out letters to the licensee or pursuing enforcement actions. The review team found the Division's inspection findings to be well-founded and appropriately documented in their reports.

The Division has a policy to accompany all staff performing radioactive materials inspections on an annual basis. All inspector accompaniments were performed annually over the review period. The accompaniment reports contained sufficient details to document the areas covered during the accompaniments.

The review team noted that the Department has an adequate supply of survey instruments to support both the Bureau's and Division's inspection programs. Appropriate, calibrated survey instrumentation, such as Geiger-Mueller (GM) meters, scintillation detectors, ion chambers, micro-R meters, multi-channel analyzers and neutron detectors, were available. Instruments are calibrated at least annually, or as needed, by a South Carolina calibration lab with National Institute of Standards and Technology traceable sources. The Bureau tracks each instrument, its current location, and next calibration date.

The review team accompanied two Bureau inspectors on March 5-6, 2012, and two Division inspectors on April 9, 2012. The Bureau inspectors were accompanied during health, safety and security inspections of an industrial radiography facility and a large medical institution. The Division inspectors were accompanied during an inspection of a waste related licensee. Inspector accompaniments are identified in Appendix C. During each of the accompaniments, the inspectors demonstrated appropriate inspection techniques, knowledge of the regulations, and conducted performance based inspections. The inspectors were trained, well-prepared for the inspection, and thorough in their audits of the licensees' radiation safety programs. The inspectors conducted interviews with appropriate personnel, observed licensed operations, conducted confirmatory measurements, and utilized good health physics practices. The inspections were adequate to assess radiological health, safety and security at each of the licensed facilities.

Based on the IMPEP evaluation criteria, the review team recommended, and the MRB agreed, that South Carolina's performance with respect to the indicator, Technical Quality of Inspections, be found satisfactory.

### 3.4 Technical Quality of Licensing Actions

The review team examined completed licensing casework and interviewed license reviewers for 15 specific licenses issued by the Bureau and four by the Division. Licensing actions were reviewed for completeness, consistency, proper radioisotopes and quantities, qualifications of authorized users, adequate facilities and equipment, adherence to good health physics practices, financial assurance, operating and emergency procedures, appropriateness of license conditions, increased controls, and overall technical quality. The casework was also reviewed for timeliness, use of appropriate deficiency letters and cover letters, reference to appropriate regulations, product certifications, supporting documentation, consideration of enforcement history, pre-licensing visits, supervisory/peer review, and proper signatures. The casework was checked for retention of necessary documents and supporting data.

Licensing casework was selected to provide a representative sample of licensing actions completed during the review period. The Bureau's licensing actions selected for evaluation included four new licenses, five renewals, four amendments, and two terminations. The sampling included the following license types: medical (broad-scope, gamma knife, high dose-rate remote afterloader, written directive required, written directive not required, and private practice), irradiator, industrial radiography, portable gauge, fixed gauge, academic (broad-scope and limited), service provider (survey meter calibration), and nuclear pharmacy. The Division's licensing casework involved four actions including two renewals, one amendment, and a license termination. Each of the Division's licensing actions only involved waste related facilities. A listing of all licensing casework evaluated may be found in Appendix D.

The review team found that licensing actions were thorough, complete, consistent, and of high quality, with health, safety, and security issues properly addressed. License tie-down conditions were stated clearly, backed by information contained in the file, and auditable. Licenses and correspondence were generated using standardized conditions and formats. License reviewers use the Bureau's licensing guides and NRC NUREG-1556 series guidance documents, policies, checklists, and standard license conditions specific to the type of licensing actions to ensure consistency in licenses. The review team found that the terminated licensing actions reviewed were well-documented, showing appropriate radioactive material transfer and survey records.

Senior managers performed a review on each licensing action before the license or amendment was issued. The review team noted that license actions were timely. Deficiency letters clearly stated regulatory positions and were used at the appropriate time and identified substantive deficiencies in the licensees' documents. Health and safety issues are properly addressed and tie-down conditions are complete and enforceable. The licensee's compliance history was also taken into account when reviewing renewal applications.

The review team noted that the Bureau performed site visits for all new licensees and all new licenses are hand-delivered to the licensee. During the review period, the Bureau extended the standard license expiration date from 8 to 10 years from date of issue to be consistent with NRC policy. The review team did not note any timely license renewals pending.

The review team evaluated both the Bureau's and Division's financial assurance and decommissioning activities. The review team identified no performance issues with the handling of financial assurance or decommissioning by either the Bureau or the Division.

The Bureau performs pre-licensing checks of all new applicants. The Bureau's pre-licensing review methods incorporate the essential elements of NRC's revised pre-licensing guidance to verify that the applicant will use requested radioactive materials as intended. All new licensees receive a pre-licensing site visit which includes an evaluation of the applicant's radiation safety and security programs prior to receipt of the initial license.

The review team examined the Bureau's licensing practices regarding the Increased Controls and Fingerprinting Orders. The review team noted that the State uses legally binding license conditions that meet the criteria for implementing the Increased Controls Orders, including fingerprinting, as appropriate. The review team analyzed the Bureau's methodology for identifying those licenses and found the rationale was thorough and accurate. The review team confirmed that license reviewers evaluated new license applications and license amendments using the same criteria. The Bureau requires full implementation of the Increased Controls prior to issuance of a new license or license amendment that meets the established criteria.

The review team examined the Bureau's implementation of its procedure for the control of sensitive information. This procedure addresses the identification, marking, control, handling, preparation, transportation, transmission, and destruction of documents that contain sensitive information related to the Increased Controls. Files that contained sensitive information were further secured in locked file cabinets.

Based on the IMPEP evaluation criteria, the review team recommended, and the MRB agreed, that South Carolina's performance with respect to the indicator, Technical Quality of Licensing Actions, be found satisfactory.

### 3.5 Technical Quality of Incident and Allegation Activities

In evaluating the effectiveness of the Bureau's actions in responding to incidents and allegations, the review team examined the Bureau's response to the questionnaire relative to this indicator, evaluated selected incidents reported for South Carolina in the Nuclear Material Events Database (NMED) against those contained in the Bureau's files, and evaluated the casework for 10 radioactive materials incidents. A listing of the incident casework examined may be found in Appendix E. The review team also evaluated the Bureau's response to five allegations involving radioactive materials, including three allegations referred to the State by the NRC during the review period.

The review team examined the Bureau's incident and allegation processes, including written procedures for handling allegations and incident response, file documentation, notification of incidents to the NRC Headquarters Operations Center, and the use of NMED software. When notification of an incident or an allegation is received, Program managers and staff discuss the event and determine level of initial response based on the health and safety risk associated with the event.

The review team identified 38 radioactive material incidents in NMED for South Carolina during the review period, of which 22 required reporting. A total of 16 non-reportable incidents in NMED for South Carolina were reviewed for reportability and found to be correctly categorized as non-reportable by the Bureau. The review team selected 10 radioactive material incidents for evaluation. These incidents included the following types of events: lost/stolen radioactive material, potential overexposure, medical event, damaged equipment, and contamination events. The Bureau's responses to the incidents were found to be complete and comprehensive. Initial responses were prompt and well-coordinated, and the level of effort was commensurate with the potential health and safety significance of the event. Inspectors were dispatched for onsite investigations when appropriate. Enforcement and/or other regulatory actions were taken as appropriate. If the incident met the reportability thresholds, as established in the FSME Procedure SA-300 "Reporting Material Events," the State notified the NRC Headquarters Operations Center and entered the information into NMED, in a prompt manner.

In evaluating the effectiveness of the Bureau's response to allegations, the review team evaluated the completed casework for five allegations, including three that NRC referred to the State during the review period. The review team concluded that the Bureau consistently took prompt and appropriate actions in response to concerns raised. The review team noted that the Bureau documented the investigations of concerns and retained all necessary documentation to appropriately close the allegations. The Bureau notified the concerned individuals of the conclusion of their investigations. The review team determined that the Bureau adequately protected the identity of concerned individuals.

During the review period, the Division reported no incidents or allegations for the 14 materials licenses under its jurisdiction (incidents and allegations specific to the LLRW program are

discussed in Section 4.3.5). Based on interviews with Division staff and management and reviews of Division administrative policy and training plans, the review team noted that handling of allegations appears to be treated consistently.

Based on the IMPEP evaluation criteria, the review team recommended, and the MRB agreed, that South Carolina's performance with respect to the indicator, Technical Quality of Incident and Allegation Activities, be found satisfactory.

#### 4.0 NON-COMMON PERFORMANCE INDICATORS

Four non-common performance indicators are used to review Agreement State programs: (1) Compatibility Requirements, (2) Sealed Source and Device Evaluation Program, (3) Low-Level Radioactive Waste Disposal Program, and (4) Uranium Recovery Program. The NRC's Agreement with South Carolina does not relinquish regulatory authority for a uranium recovery program; therefore, only the first three non-common performance indicators applied to this review.

##### 4.1 Compatibility Requirements

###### 4.1.1 Legislation

South Carolina became an Agreement State on September 15, 1969. The current effective statutory authority is contained in the 1969 Code of Laws of South Carolina, the Atomic Energy and Radiation Control Act, the Radioactive Waste and Transportation Act, and Environmental Fees. The Department is designated as the State's radiation control program agency and implements the Agreement State program. South Carolina legislation is not subject to sunset laws.

###### 4.1.2 Program Elements Required for Compatibility

The Department's Radioactive Materials Regulations 61-63, Title A, apply to all materials that emit ionizing radiation. These regulations were promulgated pursuant to Section 13-7-40 et. seq. of the 1976 South Carolina Code (as amended) and the Atomic Energy and Radiation Control Act. South Carolina requires a license for possession and use of all radioactive material, including naturally occurring materials, such as radium, and accelerator produced radionuclides. South Carolina also requires registration of all equipment designed to produce x-ray, other ionizing radiation and tanning beds.

The review team examined South Carolina's rulemaking process and found that rulemaking takes approximately 6 to 9 months from the development stage to the publication of the final rule in the State Register. Rules become effective 14 days after the final filing process is completed. The public, the NRC, other agencies, potentially impacted licensees and registrants are offered an opportunity to comment during the process. Comments are considered and incorporated, as appropriate, before regulations are finalized, approved, and published in the State Register. South Carolina can adopt regulations needed for compatibility with approval from the Department Board.

The State is authorized to adopt other agency regulations by reference, which they have done in many areas of their regulations. The State also has the authority to issue legally binding requirements in the form of license conditions until compatible regulations become effective.

The review team evaluated the State's responses to the questionnaire relative to this indicator, reviewed the status of regulations required to be adopted by the State under the Commission's adequacy and compatibility policy, and verified the adoption of regulations with data obtained from the State Regulation Status (SRS) sheet maintained by FSME.

Current NRC policy requires that Agreement States adopt certain equivalent regulations or legally-binding requirements no later than 3 years after they become effective. At the time of the review, there were no overdue regulations.

The following regulation changes and adoptions will be need to be addressed in the future. The State related that the regulations would be addressed in upcoming rulemaking or by adopting alternate legally binding requirements:

- "Decommissioning Planning," 10 CFR Parts 20, 30, 40, and 70 amendments (76 FR 35512), 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 amendments (76 FR 56951), due for Agreement State adoption by November 14, 2014.
- "Change of Compatibility," 10 CFR 31.5 and 31.6 amendments (77 FR 3640), 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), due for Agreement State adoption by August 10, 2015.
- "Technical Corrections," 10 CFR Parts 30, 34, 40, and 71 amendments (77 FR 39899), due for Agreement State adoption by August 6, 2015.
- "Requirements for Distribution of Byproduct Material," 10 CFR Parts 30, 31, 32, 40, and 70 amendments (77 FR 43666), due for Agreement State adoption by October 23, 2015.

Based on the IMPEP evaluation criteria, the review team recommended, and the MRB agreed, that South Carolina's performance with respect to the indicator, Compatibility Requirements, be found satisfactory.

#### 4.2 Sealed Source and Device Evaluation Program

In reviewing this indicator, the review team used three subelements to evaluate the Bureau's performance regarding the Sealed Source and Device (SS&D) Evaluation Program. These subelements include the following: (1) Technical Staffing and Training, (2) Technical Quality of the Product Evaluation Program, and (3) Evaluation of Defects and Incidents Regarding SS&Ds.

In assessing the Bureau's SS&D evaluation activities, the review team examined information provided in response to the IMPEP questionnaire, performed searches of the national SS&D Registry in addition to NMED searches for manufacturers and distributors identified on SS&D registrations issued by South Carolina. The review team conducted a review of the one SS&D evaluation completed by the Bureau during the review period. The team also evaluated SS&D staff training records, certain reported incidents involving products authorized in South Carolina SS&D registrations, the use of guidance documents and procedures, and interviewed the staff currently conducting SS&D evaluations.

#### 4.2.1. Technical Staffing and Training

The Bureau has two qualified SS&D reviewers, each with full signature authority. Each of the Bureau's reviewers has over 20 years of experience, a Bachelor's degree, and each has attended NRC's SS&D workshop. At the time of the review, the Bureau did not have any pending SS&D evaluations.

The Bureau currently has one staff member working towards full SS&D qualification. The Bureau has documented qualification criteria for SS&D Reviewers which is also a part of the Bureau's training manual. The Bureau indicated that other staff members will undergo training to become SS&D reviewers in the future.

The review team determined that the Bureau's retention of two qualified SS&D reviewers was adequate based on current and future workload projections.

#### 4.2.2 Technical Quality of the Product Evaluation Program

During the review period, the Bureau processed one SS&D action in the form of an amendment. The casework review included an evaluation of all supporting documentation, the license, and inspections associated with the distributor of the device. A listing of the SS&D registration evaluated by the review team may be found in Appendix F.

The review team confirmed that the Bureau follows the recommended guidance from the NRC SS&D Workshop, NUREG-1556 Series Guidance, applicable and pertinent American National Standards Institute (ANSI) standards and Military Standards, ISO-9001 and South Carolina regulations, statutes, policies and procedures. The review team verified these documents were available and used appropriately in performing SS&D reviews.

The registration file contained all correspondence, engineering drawings, radiation profiles, and details of the applicant's quality assurance and quality control programs. The registration clearly summarized the product evaluation to provide license reviewers with adequate information to license the possession and use of the product. The review team found that the evaluation was of high quality with health and safety issues properly addressed. The Bureau is legally authorized to enforce the requirements of SS&D registrations through regulations issued by the Department.



#### 4.2.3 Evaluation of Defects and Incidents Regarding SS&Ds

Based upon the Bureau's response to the questionnaire, interviews with managers, and the review team's searches of NMED, the review team found no reports of defects during the review period related to SS&D registrations issued by the Bureau. A search of the NMED database revealed there were four incidents involving a gauge manufacturer's devices. All of these incidents involved the gauges being lost by their owners and found at scrap yards or by members of the public.

Based on the IMPEP evaluation criteria, the review team recommended, and the MRB agreed, that South Carolina's performance with respect to the indicator, Sealed Source and Device Evaluation Program, be found satisfactory.

#### 4.3 Low-level Radioactive Waste Disposal Program

In reviewing this indicator, the review team used five subelements to evaluate South Carolina's performance regarding the LLRW disposal program. These subelements include the following: (1) Technical Staffing and Training, (2) Status of Low-level Radioactive Waste Disposal Inspection, (3) Technical Quality of Inspections, (4) Technical Quality of Licensing Actions, and (5) Technical Quality of Incident and Allegation Activities. To evaluate the above sub-elements, the team reviewed background materials on the site, performed inspector accompaniments, reviewed the South Carolina response to the questionnaire, interviewed managers and staff, and examined records, as appropriate.

The LLRW disposal program is administered by the Department under regulatory authority derived from the South Carolina Atomic Energy and Radiation Control Act, Section 13-7-40, 1976, S.C. Code of Laws (as amended). Specifically, the LLRW disposal program is administered by the Division in the Bureau of Land and Waste Management. At the time of the review, the Division regulated one operating LLRW disposal facility, Chem-Nuclear Systems, LLC's, disposal facility located approximately five miles northwest of Barnwell, South Carolina, which began operations in 1971. EnergySolutions, LLC acquired Chem-Nuclear Systems, LLC, in 2006, but did not affect a name change for the Barnwell LLRW disposal facility license.

The Barnwell LLRW disposal facility is regulated by the Division under a license which was last approved for renewal in 2004. The license authorizes the receipt, storage, and disposal of Class A, B, and C LLRW. The 2004 renewal amendment was challenged by environmental stakeholders. In 2005, the South Carolina Administrative Law Court ruled in favor of the Division's approval of the renewal. Stakeholders appealed the ruling and the South Carolina Supreme Court ruled that the case should be transferred to the South Carolina Court of Appeals. The Court of Appeals affirmed the Administrative Law Court's ruling, but remanded the case back to the Administrative Law Court for a ruling on whether the licensee is in compliance with Sections 7.11, 7.23.6, and 7.10.5 through 7.10.10 of South Carolina Regulation 61-63. At the time of this review the case was before the Administrative Law Court pending a decision.

The Division continues to monitor disposal operations at the Barnwell LLRW disposal facility. In 2008, the Barnwell LLRW disposal facility closed to generators outside the Atlantic Compact. As a result, the amount of LLRW received and disposed at the Barnwell facility has decreased

since the last review. The Barnwell LLRW disposal facility received approximately 37,534 cubic feet in 2007; 22,856 cubic feet in 2008; 11,315 cubic feet in 2009; 34,916 cubic feet in 2010; 11,510 cubic feet in 2011, and 3,166 cubic feet as of May 2012.

The review team noted that groundwater tritium contamination continues at the Barnwell LLRW disposal facility. However, the Division estimates that the hypothetical dose from the observed contamination continues to remain below 25 millirem per year, which is the allowable limit per South Carolina Regulation 61-63. The Division has also developed action levels based on the observed tritium concentration at the compliance point, located south of the disposal facility along Mary's Branch Creek, which trigger contingency plans. The Division indicated that the final action level, which would require construction of a pump and groundwater remediation system, correlates to an annual dose of 14 millirem.

#### 4.3.1 Technical Staffing and Training

The evaluation of this sub-element focused on qualifications of the technical staff and the expertise necessary to regulate a LLRW disposal facility, the development and implementation of a training program for the staff; and staffing trends that could have an adverse impact on performance.

Within the Division, six staff members implement the State of South Carolina's LLRW Disposal Program responsibilities. The Division Director and five staff members are assigned to the Infectious and Radioactive Waste Management Section. The Infectious and Radioactive Waste Management Section consists of a Section Manager, three Health Physicists, and an Environmental Engineer. One of the three Health Physicists is assigned to the Barnwell LLRW disposal facility as the resident inspector. Since the last review, the Division lost one Health Physicist position; this position was removed, therefore, the Division is currently fully staffed.

Interviews with Division staff indicated that staffing levels have not resulted in a delay in licensing or inspecting work. However, staff indicated that interactions with the Federal government (e.g., participation in Federal rulemaking) are occasionally curtailed in order to satisfy responsibilities under the Agreement. The review team determined that there was adequate technical expertise within the program and that additional expertise would be obtained from other organizations within the Department when warranted. The review team confirmed that current staffing levels did not have a significant impact on the program's ability to conduct its responsibilities under the agreement. The review team also noted the seniority of the staff within the Division and discussed the importance of succession planning with Division management.

The review team examined staff training documentation and conducted interviews with selected staff to assess qualification and training needs. The Division has a generic training plan that specifies required training for each technical position. Individual training qualification forms are maintained for each person.

#### 4.3.2 Status of Low-level Radioactive Waste Disposal Inspection Program

The review team focused on three factors while reviewing this indicator. These include inspection frequency, overdue inspections or any deviations from the schedule, and timely dispatch of inspection findings to the licensee. The review team's evaluation was based on the Division's response to the questionnaire, an examination of inspection casework, and interviews with management and staff.

The Division performs inspections in accordance with the Radioactive Materials Licensing and Compliance Administrative Procedures Manual. The review team examined 10 inspection files and conducted interviews with staff to determine that the Barnwell LLRW disposal facility licensee is inspected at least annually as prescribed in IMC 2800. Any deviations from the prescribed inspection schedule are coordinated between staff and management, and inspection findings are communicated to the licensee in a timely manner.

The Division performed 10 inspections of the Barnwell facility over the review period. The Barnwell LLRW disposal facility license is inspected semi-annually by a team of Division inspectors. Division staff also performs weekly site visits and the Division's resident inspector conducts routine vehicle and shipment inspections in addition to observing disposal operations and collecting split groundwater samples. The review team determined that the Division performed complete inspections of the Barnwell LLRW disposal facility license during each of the semiannual inspections. There were no deviations from the prescribed inspection schedule during this review period.

The review team determined that the Division's inspection findings were communicated in a timely manner. Inspectors verbally relay inspection findings and recommendations to the licensee during the close-out meeting. While not all written communications to the licensee occurred within 30 calendar days, the review team found that the majority of communications did occur within 30 working days of the inspection.

#### 4.3.3 Technical Quality of Inspections

The review team assessed the quality of LLRW Disposal Program inspections by evaluating inspector performance during accompaniments, inspection field notes and completed reports, inspection procedures, follow-up on previous inspection findings, as well as regulatory actions taken, and annual supervisory accompaniments.

The review team accompanied four Division inspectors the week of April 9, 2012. All four inspectors were accompanied during a team inspection of the Barnwell LLRW disposal facility, and one of the inspectors was accompanied during the weekly site visit at the Barnwell LLRW disposal facility. The inspectors were experienced, prepared, and knowledgeable of the facility, the inspection requirements, and the regulations. The inspections were adequate to assess the safety and radiological hazards at the LLRW disposal facility.

The review team determined from an evaluation of 10 inspection files that previous inspection findings were addressed adequately and in a timely manner during subsequent inspections. Inspection reports were complete with the findings well-founded, appropriately documented and

reviewed by the Section Manager prior to sending close-out letters to the licensee or pursuing enforcement actions. Inspectors receive supervisory accompaniments annually.

#### 4.3.4 Technical Quality of Licensing Actions

The Division renewed the Barnwell LLRW disposal facility license in 2004, and as of this review continues to await the pending decision of the Administrative Law Court as described in Section 4.3. During this review period, the Division approved four amendments to the Barnwell LLRW disposal facility license. The review team reviewed all four license amendments completed during this review period. A listing of the licensing casework reviewed can be found in Appendix D.

The review team found the casework to be thorough, complete, consistent, and of acceptable technical quality. The license conditions are clear and auditable. Health and safety issues were properly addressed. Tie-down conditions are stated clearly, backed by information contained in the file, and enforceable. Public hearings are held when needed and the Division engages in public outreach, particularly regarding the groundwater contamination. As a result, the licensing process appeared to be thorough and consistent.

The review team also reviewed a sample of licensing actions related to the Phase I Closure Performance Objective Plan. A component of the Phase I Closure Performance Objective Plan is the disposal facility's Environmental Radiological Performance Verification (ERPV). The ERPV involves averaging observed radiological concentrations in groundwater and estimating the migration of observed radionuclides to the compliance point located along Mary's Branch Creek. The review team noted that the ERPV did not appear to account for the radiological source term remaining in disposal trenches, and discussed the importance of a performance assessment, including a full source term, to assess compliance with the performance objectives during its review of the Phase I Closure Performance Objective Plan.

Finally, the review team evaluated the State's process for obtaining adequate financial assurance for the Barnwell LLRW disposal facility. The review team determined that the State has obtained financial assurance for the site and that the State of South Carolina's Budget and Control Board had commissioned an independent assessment of the adequacy of the financial assurance.

#### 4.3.5 Technical Quality of Incident and Allegation Activities

During the review period, the Division reported no incidents and only one allegation involving LLRW Disposal Program activities. Interviews with Division staff and management, and reviews of Division administrative policy and training plans, the review team noted that handling of allegations appears to be treated consistently across the LLRW Disposal Program. In regard to the allegation, the review team determined that the LLRW staff took prompt and appropriate action in response to the concerns raised in the allegation. The review team noted that all documentation related to the investigation of the allegation was complete and appropriately maintained in a separate file.

Based on IMPEP evaluation criteria, the review team recommended, and the MRB agreed, that South Carolina's performance with respect to the indicator, LLRW Disposal Program, be found satisfactory.

## 5.0 SUMMARY

As noted in Sections 3.0 and 4.0 above, South Carolina's performance was found to be satisfactory for all performance indicators reviewed. The review team did not make any recommendations regarding program performance by the State and determined that the recommendations for the NRC initially identified during the 2003 and 2007 reviews should be removed. Accordingly, the review team recommended, and the MRB agreed, that the South Carolina 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 review team recommended, and the MRB agreed, that the next full IMPEP review take place in approximately five years.

## LIST OF APPENDICES

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Appendix B	South Carolina Organization Charts
Appendix C	Inspection Casework Reviews
Appendix D	License Casework Reviews
Appendix E	Incident Casework Reviews
Appendix F	Sealed Source and Device Casework Reviews

## APPENDIX A

### IMPEP REVIEW TEAM MEMBERS

<b>Name</b>	<b>Area of Responsibility</b>
Randy Erickson, Region IV	Team Leader Technical Quality of Inspections Inspector Accompaniments
Donna Janda, Region I	Technical Staffing and Training Technical Quality of Incident and Allegation Activities
Jackie Cook, Region IV	Technical Quality of Licensing Actions
Dwight Shearer, Pennsylvania	Status of the Materials Inspection Program Technical Quality of Incident and Allegation Activities
Kristen Schwab, Washington	Low-Level Radioactive Waste Disposal Program Inspector Accompaniments
Christopher Grossman, FSME	Low-Level Radioactive Waste Disposal Program Inspector Accompaniments
Stephen Poy, FSME	Sealed Source and Device Evaluation Program

APPENDIX B

SOUTH CAROLINA ORGANIZATION CHARTS

ADAMS ACCESSION NO.: ML12220A287



## APPENDIX C

### INSPECTION CASEWORK REVIEWS

NOTE: CASEWORK LISTED WITHOUT COMMENT IS INCLUDED FOR COMPLETENESS.

#### SOUTH CAROLINA BUREAU OF RADIOLOGICAL HEALTH

File No.: 1	Licensee: Carolina Regional Cancer Center	License No.: 515
	Inspection Type: Routine/Unannounced	Priority: 2
	Inspection Date: 6/10/10	Inspector: AR
File No.: 2	Licensee: Synthetopes, Inc.	License No.: 882
	Inspection Type: Routine/Unannounced	Priority: 2
	Inspection Date: 9/30/11	Inspector: AR
File No.: 3	Licensee: Spartanburg Regional Medical Center	License No.: 086
	Inspection Type: Routine/Unannounced	Priority: 2
	Inspection Date: 6/14/11	Inspector: LC
File No.: 4	Licensee: Cardinal Health	License No.: 448
	Inspection Type: Routine/Unannounced	Priority: 2
	Inspection Date: 11/6/09	Inspector: MW
File No.: 5	Licensee: Direct Diagnostic Services, LLC	License No.: 855
	Inspection Type: Routine/Unannounced	Priority: 3
	Inspection Date: 11/14/08	Inspector: AR
File No.: 6	Licensee: AnMed Women's and Children's Hospital	License No.: 566
	Inspection Type: Routine/Unannounced	Priority: 2
	Inspection Date: 1/11/12	Inspector: MW
File No.: 7	Licensee: WELD-SPECT Technologies and Testing, LLC	License No.: 731
	Inspection Type: Special/Announced	Priority: 1
	Inspection Date: 5/18/11	Inspector: LC
File No.: 8	Licensee: Mistras Group, Inc.	License No.: 730
	Inspection Type: Special/Announced	Priority: 1
	Inspection Date: 4/12/11	Inspector: KW

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File No.: 9

Licensee: CareAlliance Health Services  
Inspection Type: Special/Unannounced  
Inspection Date: 9/30/09

License No.: 646  
Priority: 2  
Inspector: AR

File No.: 10

Licensee: REVISS Services, Inc.  
Inspection Type: Reciprocity/Special/Unannounced  
Inspection Date: 4/20/12

License No.: IL-02058-01  
Priority: 1  
Inspectors: JP, MW

File No.: 11

Licensee: Acuren Inspection, Inc.  
Inspection Type: Reciprocity/Unannounced  
Inspection Date: 2/28/12

License No.: GA-1115-1  
Priority: 1  
Inspector: AR

File No.: 12

Licensee: Wesdyne International  
Inspection Type: Initial/Special/Unannounced  
Inspection Date: 8/25/10

License No.: 900  
Priority: 1  
Inspector: AR

File No.: 13

Licensee: Roper Saint Francis Mount Pleasant Hospital  
Inspection Type: Initial, Unannounced  
Inspection Date: 4/12/11

License No.: 903  
Priority: 5  
Inspector: LC

File No.: 14

Licensee: Sullivan & Associates, Inc.  
Inspection Type: Special/Announced  
Inspection Date: 3/6/12

License No.: 383  
Priority: 1  
Inspector: MW

File No.: 15

Licensee: B.F. Shaw, Inc.  
Inspection Type: Special/Unannounced  
Inspection Date: 5/21/10

License No.: 074  
Priority: 2  
Inspector: AR

File No.: 16

Licensee: University of South Carolina  
Inspection Type: Initial/Special/Announced  
Inspection Date: 3/4/09

License No.: 405  
Priority: 3  
Inspector: MW

File No.: 17

Licensee: BD Vacutainer Systems  
Inspection Type: Routine/Unannounced  
Inspection Date: 10/8/08

License No.: 315  
Priority: 2  
Inspector: MW

File No.: 18  
Licensee: Bausch & Lomb  
Inspection Type: Routine/Unannounced  
Inspection Date: 8/15/07

License No.: 431  
Priority: 2  
Inspector: JP

File No.: 19  
Licensee: Lexington Medical Center  
Inspection Type: Special/Announced  
Inspection Date: 3/5/12

License No.: 146  
Priority: 2  
Inspector: AR

File No.: 20  
Licensee: Applied Technical Services, Inc.  
Inspection Type: Special/Announced  
Inspection Date: 4/4/12

License No.: 410  
Priority: 1  
Inspector: LC

SOUTH CAROLINA DIVISION OF WASTE MANAGEMENT

File No.: 21  
Licensee: Chem-Nuclear Systems, LLC  
Inspection Type: Routine/Unannounced  
Inspection Date: 11/29/07

License No.: 287-03  
Priority: 3  
Inspectors: MY, SJ

File No.: 22  
Licensee: Chem-Nuclear Systems, LLC  
Inspection Type: Routine/Unannounced  
Inspection Date: 12/8/09

License No.: 287-03  
Priority: 3  
Inspectors: MY, KS

File No.: 23  
Licensee: Chem-Nuclear Systems, LLC  
Inspection Type: Routine/Unannounced  
Inspection Date: 11/29/07

License No.: 287-03  
Priority: 3  
Inspector: MP

File No.: 24  
Licensee: Chem-Nuclear Systems, LLC  
Inspection Type: Routine/Unannounced  
Inspection Date: 11/19/09

License No.: 287-01  
Priority: 3  
Inspector: MP

File No.: 25  
Licensee: Chem-Nuclear Systems, LLC  
Inspection Type: Routine/Unannounced  
Inspection Date: 4/9/12

License No.: 287-01  
Priority: 3  
Inspectors: MY, MP

File No.: 26  
Licensee: Clemson University  
Inspection Type: Routine/Unannounced  
Inspection Date: 4/16/08

License No.: 482-00  
Priority: 2  
Inspector: MG

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File No.: 27

Licensee: Clemson University  
Inspection Type: Routine/Unannounced  
Inspection Date: 9/16/08

License No.: 482-00  
Priority: 3  
Inspector: MG

File No.: 28

Licensee: Clemson University  
Inspection Type: Routine/Unannounced  
Inspection Date: 11/20/09

License No.: 482-00  
Priority: 3  
Inspector: MG

File No.: 29

Licensee: Clemson University  
Inspection Type: Routine/Unannounced  
Inspection Date: 11/1/10

License No.: 482-00  
Priority: 3  
Inspectors: MP, MY

File No.: 30

Licensee: Clemson University  
Inspection Type: Routine/Unannounced  
Inspection Date: 10/12/11

License No.: 482-00  
Priority: 3  
Inspectors: MP, MY

File No.: 31

Licensee: Energy Solutions, LLC  
Inspection Type: Routine/Unannounced  
Inspection Date: 5/5/08

License No.: 287-04  
Priority: 2  
Inspectors: MP, JS

File No.: 32

Licensee: Energy Solutions, LLC  
Inspection Type: Routine/Unannounced  
Inspection Date: 5/20/09

License No.: 287-04  
Priority: 2  
Inspectors: MP, JS

File No.: 33

Licensee: Energy Solutions, LLC  
Inspection Type: Routine/Unannounced  
Inspection Date: 5/18/10

License No.: 287-04  
Priority: 2  
Inspectors: MP, JS

File No.: 34

Licensee: Energy Solutions, LLC  
Inspection Type: Routine/Unannounced  
Inspection Date: 5/26/11

License No.: 287-04  
Priority: 2  
Inspectors: MP, JS

Comment: Inspection performed 05/26/11; inspection report completed and findings communicated to the licensee on 07/28/11.

File No.: 35

Licensee: Energy Solutions, LLC  
Inspection Type: Routine/Unannounced  
Inspection Date: 11/19/08

License No.: 287-02  
Priority: 2  
Inspectors: MY, MP, KS

Comment: Inspection performed 11/19/08; inspection report completed and findings communicated to the licensee on 01/09/09.

File No.: 36

Licensee: Energy Solutions, LLC  
Inspection Type: Routine/Unannounced  
Inspection Date: 11/19/09

License No.: 287-02  
Priority: 2  
Inspectors: MY, MP

File No.: 37

Licensee: Energy Solutions, LLC  
Inspection Type: Routine/Unannounced  
Inspection Date: 12/12/10

License No.: 287-02  
Priority: 2  
Inspectors: MY, MP, KS, JS

File No.: 38

Licensee: Energy Solutions, LLC  
Inspection Type: Routine/Unannounced  
Inspection Date: 12/6/11

License No.: 287-02  
Priority: 2  
Inspectors: MY, MP, KS

File No.: 39

Licensee: Chem-Nuclear Systems, LLC  
Inspection Type: Routine/Unannounced  
Inspection Date: 7/30-8/2/07

License No.: 097  
Priority: 1  
Inspectors: MG, MP, JS, KS, MY

Comment: Inspection performed 07/30-08/02/07; inspection report completed and findings communicated to the licensee on 11/07/07.

File No.: 40

Licensee: Chem-Nuclear Systems, LLC  
Inspection Type: Routine/Unannounced  
Inspection Date: 3/3-6/08

License No.: 097  
Priority: 1  
Inspectors: MG, MP, JS, KS, MY

File No.: 41

Licensee: Chem-Nuclear Systems, LLC  
Inspection Type: Routine/Unannounced  
Inspection Date: 7/7-10/08

License No.: 097  
Priority: 1  
Inspectors: MG, MP, JS, KS, MY

File No.: 42

Licensee: Chem-Nuclear Systems, LLC  
Inspection Type: Routine/Unannounced  
Inspection Date: 1/26-28/09

License No.: 097  
Priority: 1  
Inspectors: MG, MP, JS, MY

File No.: 43

Licensee: Chem-Nuclear Systems, LLC  
Inspection Type: Routine/Unannounced  
Inspection Date: 7/20-22/09

License No.: 097  
Priority: 1  
Inspectors: MG, MP, JS, KS, MY

File No.: 44

Licensee: Chem-Nuclear Systems, LLC  
Inspection Type: Routine/Unannounced  
Inspection Date: 2/17-19/10

License No.: 097  
Priority: 1  
Inspectors: MG, MP, JS, KS, MY

File No.: 45

Licensee: Chem-Nuclear Systems, LLC  
Inspection Type: Routine/Unannounced  
Inspection Date: 8/16-18/10

License No.: 097  
Priority: 1  
Inspectors: MG, MP, JS, KS, MY

File No.: 46

Licensee: Chem-Nuclear Systems, LLC  
Inspection Type: Routine/Unannounced  
Inspection Date: 2/16-17/11

License No.: 097  
Priority: 1  
Inspectors: MP, JS, KS, MY

File No.: 47

Licensee: Chem-Nuclear Systems, LLC  
Inspection Type: Routine/Unannounced  
Inspection Date: 4/10-12/12

License No.: 097  
Priority: 1  
Inspectors: MP, JS, KS, MY

### INSPECTOR ACCOMPANIMENTS

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

#### SOUTH CAROLINA BUREAU OF RADIOLOGICAL HEALTH

Accompaniment No.: 1

Licensee: Lexington Medical Center  
Inspection Type: Special/Announced  
Inspection Date: 3/5/12

License No.: 146  
Priority: 2  
Inspector: AR

Accompaniment No.: 2

Licensee: Sullivan & Associates, Inc.  
Inspection Type: Special/Announced  
Inspection Date: 3/6/12

License No.: 383  
Priority: 1  
Inspector: MW

Accompaniment No.: 3

Licensee: Chem-Nuclear Systems, LLC  
Inspection Type: Routine/Announced  
Inspection Date: 4/9/12

License No.: 287-01  
Priority: 1  
Inspectors: MP, MY

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Accompaniment No.: 4  
Licensee: Chem-Nuclear Systems, LLC  
Inspection Type: Routine/Announced  
Inspection Date: 4/10-12/12

License No.: 097  
Priority: 1  
Inspectors: MP, JS, KS, MY

APPENDIX D

LICENSE CASEWORK REVIEWS

NOTE: CASEWORK LISTED WITHOUT COMMENT IS INCLUDED FOR COMPLETENESS.

SOUTH CAROLINA BUREAU OF RADIOLOGICAL HEALTH

File No.: 1  
Licensee: Trident Medical Center, LLC  
Type of Action: Amendment  
Date Issued: 5/27/11  
License No.: 210  
Amendment No.: 61  
License Reviewer: MW

File No.: 2  
Licensee: Specialty Vermiculite Corporation  
Type of Action: Amendment  
Date Issued: 1/20/12  
License No.: 300  
Amendment No.: 20  
License Reviewer: MW

File No.: 3  
Licensee: College of Charleston  
Type of Action: Renewal  
Date Issued: 4/7/11  
License No.: 220  
Amendment No.: 18  
License Reviewer: MW

File No.: 4  
Licensee: Spartanburg Regional Medical Center  
Type of Action: Amendment  
Date Issued: 7/26/10  
License No.: 086  
Amendment No.: 68  
License Reviewer: AR

File No.: 5  
Licensee: Newco, Inc.  
Type of Action: Renewal  
Date Issued: 2/26/10  
License No.: 318  
Amendment No.: 14  
License Reviewer: LC

File No.: 6  
Licensee: STERIS, Isomedix Services  
Type of Action: Renewal  
Date Issued: 3/12/12  
License No.: 267  
Amendment No.: 19  
License Reviewer: JP

File No.: 7  
Licensee: University of South Carolina  
Type of Action: Renewal  
Date Issued: 10/17/11  
License No.: 405  
Amendment No.: 26  
License Reviewer: LC

File No.: 8  
Licensee: Synthetopes, Inc.  
Type of Action: New  
Date Issued: 9/3/08  
License No.: 882  
Amendment No.: N/A  
License Reviewer: MW



File No.: 9  
Licensee: Williamsburg Regional Hospital  
Type of Action: New  
Date Issued: 4/18/11

License No.: 914  
Amendment No.: N/A  
License Reviewer: MW

File No.: 10  
Licensee: Piedmont Health Group, LLC  
Type of Action: New  
Date Issued: 10/11/07

License No.: 857  
Amendment No.: N/A  
License Reviewer: LC

File No.: 11  
Licensee: HDR Construction Control Corporation  
Type of Action: Renewal  
Date Issued: 5/26/09

License No.: 708  
Amendment No.: 9  
License Reviewer: LC

File No.: 12  
Licensee: Medical University of South Carolina  
Type of Action: Amendment  
Date Issued: 9/29/09

License No.: 081  
Amendment No.: 78  
License Reviewer: MB

File No.: 13  
Licensee: The Institute of Electrophysiology  
Type of Action: Termination  
Date Issued: 2/25/10

License No.: 836  
Amendment No.: 03  
License Reviewer: LC

File No.: 14  
Licensee: Wesdyne International  
Type of Action: New  
Date Issued: 8/27/09

License No.: 900  
Amendment No.: N/A  
License Reviewer: AR

File No.: 15  
Licensee: Acuren Inspection, Inc.  
Type of Action: Termination  
Date Issued: 11/21/08

License No.: 595  
Amendment No.: 21  
License Reviewer: LC

SOUTH CAROLINA DIVISION OF WASTE MANAGEMENT

File No.: 16  
Licensee: Chem-Nuclear Systems, LLC  
Type of Action: Amendment  
Date Issued: 9/22/11

License No.: 287-01  
Amendment No.: 24  
License Reviewer: MP

File No.: 17  
Licensee: Energy Solutions, LLC  
Type of Action: Renewal  
Date Issued: 1/30/09

License No.: 287-02  
Amendment No.: 34  
License Reviewer: MY

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File No.: 18  
Licensee: Energy Solutions, LLC  
Type of Action: Termination  
Date Issued: 12/15/09

License No.: 287-05  
Amendment No.: 11  
License Reviewer: MP

File No.: 19  
Licensee: TransNuclear, Inc.  
Type of Action: Renewal  
Date Issued: 9/30/10

License No.: 0377-00  
Amendment No.: 22  
License Reviewer: MY

## APPENDIX E

### INCIDENT CASEWORK REVIEWS

NOTE: CASEWORK LISTED WITHOUT COMMENT IS INCLUDED FOR COMPLETENESS.

File No.: 1

Licensee: Mitsubishi Polyester Film

Date of Incident: 10/09/08

Investigation Date: 10/09/08

License No.: 36

NMED No.: 080654

Type of Incident: Equipment Failure

Type of Investigation: Site

File No.: 2

Licensee: Shertech Nuclear Pharmacy

Date of Incident: 10/08/08

Investigation Date: 01/14/09

License No.: 478

NMED No.: 080868

Type of Incident: Contamination Event

Type of Investigation: Next Routine Inspection

File No.: 3

Licensee: Waccamaw Hospital

Date of Incident: 02/06/09

Investigation Date: 02/06/09

License No.: 754

NMED No.: 090371

Type of Incident: Lost/Stolen/Abandoned RAM

Type of Investigation: Phone

File No.: 4

Licensee: Greenville Hospital System

Date of Incident: 09/15/09

Investigation Date: 09/17/09

License No.: 257

NMED No.: 090732

Type of Incident: Medical Event

Type of Investigation: Site

File No.: 5

Licensee: McLeod Regional Medical Center

Date of Incident: 12/09/09

Investigation Date: 12/13–20/09

License No.: 139

NMED No.: 090878

Type of Incident: Contamination Event

Type of Investigation: Site

File No.: 6

Licensee: Asten Johnson Inc.

Date of Incident: 03/28/11

Investigation Date: 03/29/11

License No.: 534

NMED No.: 110150

Type of Incident: Lost/Stolen/Abandoned RAM

Type of Investigation: Phone

File No.: 7

Licensee: Colleton Medical Center

Date of Incident: 05/15/11

Investigation Date: 07/12/11

License No.: 226

NMED No.: 110352

Type of Incident: Possible overexposure

Type of Investigation: Phone

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File No.: 8

Licensee: BP Cooper River Plant

Date of Incident: 01/24/12

Investigation Date: 01/25/12

License No.: 252

NMED No.: 120281

Type of Incident: Equipment Failure

Type of Investigation: Phone/Next Routine Inspection

File No.: 9

Licensee: McLeod Regional Medical Center

Date of Incident: 05/01/12

Investigation Date: TBD

License No.: 139

NMED No.: 120295

Type of Incident: Contamination Event

Type of Investigation: Phone/Next Routine Inspection

File No.: 10

Licensee: Applied Technical Services

Date of Incident: 04/18/12

Investigation Date: TBD

License No.: 410

NMED No.: 120301

Type of Incident: Possible Overexposure

Type of Investigation: Phone/Next Routine Inspection

APPENDIX F

SEALED SOURCE AND DEVICE CASEWORK REVIEWS

NOTE: CASEWORK LISTED WITHOUT COMMENT IS INCLUDED FOR COMPLETENESS.

File No. 1:

Registry No.: SC-1276-D-101-G

Applicant's Name: Mahlo America, Inc.

Date Issued: 12/4/08

SS&D Use Code: (E) Beta Gauges

Type of Action: Amendment

SS&D Reviewers: JP, AR

ATTACHMENT(S)

July 17, 2012 Letter from Catherine Templeton  
South Carolina Response to the Draft Report  
ADAMS Accession No.: ML12207A296

NRC Comment Resolution Document  
ADAMS Accession No.: ML12213A591