DATED: OCTOBER 26, 1999 **SIGNED BY: CARL J. PAPERIELLO**

Douglas E. Bryant, Commissioner
Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201

Dear Mr. Bryant:

On October 6, 1999, 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 adequate to assure public health and safety and compatible with NRC's program.

Section 5.0, page 19, of the enclosed final report presents the IMPEP team's recommendations. We received your August 31, 1999 letter which described your actions taken in response to the recommendations in the draft report. We request no additional information.

Based on the results of the current IMPEP review, the next full review will be in approximately 4 years.

I appreciate the courtesy and cooperation extended to the IMPEP team during the review and your support of the Radiation Control Program. I look forward to our agencies continuing to work cooperatively in the future.

Sincerely, ***/RA/***

Carl J. Paperiello
Deputy Executive Director
for Materials, Research and State Programs

Enclosure:
As stated

cc: Virgil R. Autry, Director
Division of Radioactive Waste Management
Bureau of Land and Waste Management
Department of Health & Environmental Control

T. Pearce O'Kelley, Chief
Radiological Health Branch
Department of Health & Environmental Control

Roland Fletcher, Organization of
Agreement States Liaison to MRB

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bcc: Chairman Dicus
Commissioner Diaz
Commissioner McGaffigan
Commissioner Merrifield

Distribution: See next page.

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INTEGRATED MATERIALS PERFORMANCE EVALUATION PROGRAM

REVIEW OF SOUTH CAROLINA AGREEMENT STATE PROGRAM

July 12-16, 1999

FINAL REPORT

U.S. Nuclear Regulatory Commission

1.0 INTRODUCTION

This report presents the results of the review of the South Carolina radiation control program. The review was conducted during the period July 12-16, 1999, by a review team comprised of technical staff members from the Nuclear Regulatory Commission (NRC) and the Agreement State of California. 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 a Final General Statement of Policy," published in the Federal Register on October 16, 1997, and the November 25, 1998, NRC Management Directive 5.6, "Integrated Materials Performance Evaluation Program (IMPEP)." Preliminary results of the review, which covered the period March 25, 1995 to July 16, 1999 were discussed with South Carolina management on July 16, 1999.

A draft of this report was issued to South Carolina for factual comment on August 11, 1999. The State responded in a letter dated August 31, 1999. The Management Review Board (MRB) met on October 6, 1999, to consider the proposed final report. The MRB found the South Carolina radiation control program was adequate to protect public health and safety and compatible with NRC's program.

The South Carolina Agreement State program is located in the Department of Health and Environmental Control (DHEC). Within DHEC, the Division of Radioactive Waste Management (DRWM) is responsible for the oversight of the Barnwell radioactive waste disposal site and approximately 14 other licenses for waste-related operations. The Radiological Health Branch (RHB) located in the Division of Health Regulations administers the radioactive materials program. Organization charts for DHEC, DRWM and RHB are included as Appendix B. The South Carolina program regulates approximately 322 specific licenses authorizing agreement materials, and the Barnwell site. The review focused on the 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 non-common performance indicators was sent to the State on May 5, 1999. RHB and DRWM provided responses to the questionnaire on June 11 and 25, 1999, respectively. Copies of the questionnaire responses are included as Appendix G to the proposed final report.

The review team's general approach for conduct of this review consisted of: (1) examination of South Carolina's responses to the questionnaire; (2) review of applicable South Carolina statutes and regulations; (3) analysis of quantitative information from the State's licensing and inspection data base; (4) technical evaluation of selected licensing and inspection actions; (5) field accompaniments of six South Carolina inspectors; and (6) interviews with staff and management to answer questions or clarify issues. The team evaluated the information that it gathered against the IMPEP performance criteria for each common and applicable non-common performance indicator and made a preliminary assessment of the radiation control program's performance.

Section 2 below discusses the State's actions in response to recommendations made following the previous program review. Results of the current review for the IMPEP common performance indicators are presented in Section 3. Section 4 discusses results of the applicable non-common performance indicators, and Section 5 summarizes the review team's findings, recommendations, and a good practice identified during the review. Recommendations made by

the review team are comments that relate directly to program performance by the State. A response is requested from the State to all recommendations in the final report.

2.0 STATUS OF ITEMS IDENTIFIED IN PREVIOUS REVIEWS

During the previous program review, which concluded on March 24, 1995, one recommendation was made and the results transmitted to Douglas E. Bryant, Commissioner, on June 14, 1995. The review team's evaluation of the current status of the recommendation is as follows:

> We recommend that the Bureau of Radiological Health medical inspection report form be revised to document the status of the licensee's ALARA program, and the industrial radiography inspection report form be revised to incorporate the changes made in the 1994 edition of RHA Part V regulations, including the alarming rate meter.
>
> Current Status: The State revised the medical and industrial radiography inspection report forms to incorporate the recommended changes. The team confirmed that these areas are appropriately reviewed during inspections. This recommendation is closed.

3.0 COMMON PERFORMANCE INDICATORS

IMPEP identifies five common performance indicators to be used in reviewing both NRC Regional and Agreement State programs. These indicators are: (1) Status of Materials Inspection Program; (2) Technical Quality of Inspections; (3) Technical Staffing and Training; (4) Technical Quality of Licensing Actions; and (5) Response to Incidents and Allegations.

3.1 Status of Materials Inspection Program

The team focused on four factors in evaluating this indicator: inspection frequency, overdue inspections, initial inspection of new licenses, and timely dispatch of inspection findings to licensees. The review team's evaluation is based on the South Carolina questionnaire responses relative to this indicator, data gathered independently from the State's licensing and inspection data tracking system, the examination of completed licensing and inspection casework, and interviews with managers and staff.

The review team's evaluation of the State's inspection priorities revealed that inspection frequencies for each type of license were the same or more frequent than similar license types listed in the NRC Inspection Manual Chapter (IMC) 2800. Medical institutions, medical private practices, general license distribution, portable gauges and fixed gauges are inspected more frequently than indicated by IMC 2800. The review team also noted that the State established written procedures to extend or reduce the next inspection interval based upon licensee performance. The procedures were evaluated by the team and found to be adequate.

The RHB staff uses a computer database program to track inspection due dates. The database utilizes a DHEC mainframe computer system. Approximately semiannually, the RHB Industrial and Medical Program Managers receive printouts identifying materials inspections which are coming due in the next six months. The printout identifies the last inspection date, the inspection due date and the 25% overdue date (consistent with IMC 2800). The managers then assign inspections to staff members.

The review team analyzed the printout data and identified a programming error in the way that the 25% inspection overdue calculation is performed. The error results in incorrect overdue dates, sometimes too early and other times too late. The Industrial and Medical Program Managers were aware of problems with data and did not rely on the tracking system. The RHB Chief stated that conversion of the tracking system to a PC-based system was currently in process.

In their response to the questionnaire, the RHB and DRWM indicated that there were no inspections overdue by more than 25% of the NRC frequency. During the week of the review, the team verified that no inspections were overdue by this frequency.

With respect to initial inspections of new licensees, a list of licenses issued since the last review was requested and the licensees' respective inspection files were evaluated to determine their initial inspection date. South Carolina has a policy of hand-delivering initial licenses which gives the program an opportunity to discuss with the new licensee the ramifications of the license. The team noted this as a good practice, as described in Section 3.4. Initial inspections were, until January 1999, performed within one year of the license delivery. In January, the policy was changed to perform initial inspections within 6 months of license delivery or material receipt, in accordance with IMC 2800 requirements. The review team confirmed that initial inspections are performed as specified in the policy.

The review team also evaluated the status of reciprocity inspections. During the current review period, 108 requests for reciprocity were filed with the program. The State inspected 5 of the 6 teletherapy and irradiator source changes performed under reciprocity. Regarding Priority 1 reciprocity licenses, the program inspected 15% in 1995-96, 21% in 1996-97, 33% in 1997-98 and 54% in 1998-99. The improvement over the past four years has the program currently performing Priority 1 reciprocity inspections at the 50% frequency outlined in NRC's IMC 1220. No Priority 2 or 3 licenses requested reciprocity during the review period. Approximately 10% of Priority 4-7 reciprocity licenses were inspected, meeting the IMC 1220 criteria.

Most of the program's routine inspections, approximately 80%, result in the issuance of a Form 591 field compliance form. Other inspection findings are dispatched to licensees within 30 days of completing an inspection.

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

3.2 Technical Quality of Inspections

The team evaluated the inspection reports, enforcement documentation, and interviewed inspectors for 22 radioactive material inspections conducted during the review period. The casework included medical institutions, industrial radiography, nuclear pharmacy, pool irradiator, academic broad scope, medical broad scope, waste processing, HDR and reciprocity. Appendix C lists the inspection casework evaluated for completeness and adequacy with case-specific comments.

Currently there are 8 radioactive material inspectors at DRWM and 6 at RHB. All inspectors are trained to perform radioactive materials inspections, and respond to radioactive materials incidents and incidents at nuclear power facilities.

South Carolina's inspection procedures are consistent with NRC procedures. Both RHB and DRWM try to conduct inspections unannounced, but sometimes inspections are announced a few days before the inspection. The review team noted that 12 of the 22 inspection files evaluated were unannounced.

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

RHB inspectors write either narrative or checklist-type inspection reports. All DRWM inspection reports are written in a narrative fashion. Inspection reports contain licensee data, persons contacted, type of inspection, inspector's and supervisor's signature, documentation to support violations, recommendations made to the licensee, unresolved or licensing issues, independent measurements, and exit interview discussions and comments.

For RHB, the inspection report is examined and signed by the RHB Section Director. DRWM reports are initialed by the Division Director. Boilerplate language is used to generate compliance letters and violations to ensure consistency. Responses are evaluated and replied to in a timely manner. The inspection files were generally found to be complete and in good order. The review team noted that in two cases, there were recommendations that might have been listed as violations. The need for inspectors to fully explain decision making with regard to violations and recommendations in inspection reports was discussed with the individual inspectors.

The inspections in DRWM are unique in that the licensees are specifically decontamination and decommissioning licenses and the reports are weighted more toward performance and taking confirmatory wipe samples. The inspectors do not have an inspection guide or checklist to use during inspections. As a result, certain areas were not reviewed during all inspections. The DRWM Section Managers agreed that such guidance would be useful to inspectors, and indicated that they would make up a standardized inspection guide.

RHB and DRWM have an adequate supply of survey instruments to support the current inspection program. Appropriate, calibrated survey instrumentation such as GM meters, scintillation detectors, ion chambers, and micro-R meters were observed to be available. Most instruments are calibrated by the DHEC calibration facility, which is a Certified Regional Calibration facility. The DHEC Environmental Laboratory and a contract laboratory provide support to the program through radiological analyses of environmental samples and samples taken by inspectors during inspections, and environmental dosimetry around nuclear facilities. Instrument repair and calibration is also available from the instrument manufacturers as needed. A mobile laboratory is also available for responding to incidents. The program has the capability for analyzing all types of environmental media, and evaluation of all types of radiation.

Six State inspectors were accompanied during inspections by a review team member during the period of June 7-11,1999. Inspector accompaniments were conducted during unannounced inspections as follows: a nuclear pharmacy; a fixed industrial radiography facility; a valve decontamination and testing facility; a uranium processor, and a pool irradiator facility. The

uranium processing facility was a team inspection with three members of DRWM and the other inspections were performed by RHB inspectors. These accompaniments are also identified in Appendix C.

During the accompaniments, the South Carolina inspectors demonstrated appropriate inspection techniques and knowledge of the regulations. The inspectors were well trained, prepared, and thorough in their audits of the licensees' radiation safety programs. Overall, the technical performance of the inspectors was good, and their inspections were adequate to assess radiological health and safety at the licensed facilities.

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

3.3 Technical Staffing and Training

Issues central to the evaluation of this indicator include the radioactive materials program staffing level and staff turnover, as well as the technical qualifications and training of the staff. To evaluate these issues, the review team examined the State's questionnaire responses relative to this indicator and interviewed the program management and staff.

RHB is staffed with the RHB Chief, a Section Director, an Industrial Program Manager, a Medical Program Manager and three health physics staff. Both of the Program Managers and the technical staff members perform duties in licensing, inspection, and event response. In response to the questionnaire, the State reported that the RHB Chief spends about 50 percent of his effort supervising the radioactive materials program, while the other managers devote all of their time to the program.

Two staff members left the program during the review period and one staff member was hired in 1998. The RHB radioactive materials program is currently fully staffed.

The DRWM organization consists of a Division Director, two Section Managers and six technical staff. The staff includes two engineers, three health physicists and a Barnwell site inspector. DRWM is responsible for the Barnwell site and 14 decontamination and decommissioning type licenses. The DRWM program is currently fully staffed.

The review team concluded that the staffing level is adequate for both the RHB and DRWM programs.

The qualifications of the staff were determined from the questionnaire, training records, and interviews of personnel. The State has a training program in place for the staff which is comparable with the "NRC/OAS Working Group Recommendations for Agreement State Training Programs." The staff are well qualified from an education and experience standpoint. All have Bachelor's degrees in the sciences, or equivalent training and experience. Two new staff, one each in DRWM and RHB, are scheduled to attend appropriate core courses. Other license reviewers/inspectors have attended most of the training courses prescribed by IMC 1246 and are very familiar with South Carolina regulations, policies, and procedures. However, the team noted that no one in the Medical Program has attended the core course, Teletherapy and Brachytherapy (H-313). The team believes all technical staff performing brachytherapy licensing or inspections would benefit from the course or equivalent training. The RHB Section Director added that the Medical Program Manager has previously requested attendance in the course, on

a space-available basis, but due to a limited number of slots available, was not selected for attendance. The RHB Section Director has taken the Teletherapy and Brachytherapy course and provides assistance to staff, when needed.

Also, it was noted that neither of the two members of the Industrial Program have completed the NRC-sponsored Irradiator Technology course (H-315) or equivalent training. The State licenses three pool irradiators. Although the irradiator course is a supplementary or specialized course, the team believes that training in this area is needed and that staff performing licensing actions or inspection activities on pool irradiators should have the irradiator course or equivalent training.

The team's evaluation of inspection and licensing actions involving medical brachytherapy and irradiator programs did not identify deficiencies related to lack of training in these areas. The State's license reviewers/inspectors produced quality inspection and licensing products. The team believes that increased training in these areas, however, will enhance the program. The review team recommends that the State provide training to technical personnel, either by formal course work or equivalent, in the areas of medical brachytherapy and irradiator technology. Since the onsite IMPEP review, the Medical Program Manager has been confirmed for the next Teletherapy and Brachytherapy course scheduled for March 2000. The Industrial Program Manager has been confirmed for the next Irradiator Technology course scheduled for October 1999.

The RHB Chief is supportive of staff training and demonstrated a commitment to staff training during the review. He indicated that the training needs were caused primarily by a lack of training funds. The DHEC Commissioner committed to finding a solution to the training issue during the IMPEP review exit meeting.

The review team discussed the role of the Technical Advisory Radiation Control Council (TARCC) with the RHB Chief. The TARCC serves as an advisory committee to the radiation control program and meets twice a year. The team evaluated meeting minutes from 1997 to 1999. No evidence of any conflict of interest issues were identified. TARCC members are subject to the State Ethics Act.

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

3.4 Technical Quality of Licensing Actions

The review team examined completed licensing casework and interviewed the staff for 18 specific licenses. Licensing actions were evaluated for completeness, consistency, proper isotopes and quantities used, qualifications of authorized users, adequate facilities and equipment, and operating and emergency procedures sufficient to establish the basis for licensing actions. Licenses were evaluated for overall technical quality including accuracy, appropriateness of the license, its conditions, and tie-down conditions. The casework was evaluated for timeliness, adherence to good health physics practices, reference to appropriate regulations, documentation of safety evaluation reports, product certifications or other supporting documents, consideration of enforcement history on renewals, pre-licensing visits, peer or supervisory review as indicated, and proper signature authority. The files were checked for retention of necessary documents and supporting data.

The licensing casework was selected to provide a representative sample of licensing actions that had been completed in the review period. The licensing casework included work by eight reviewers, including two former reviewers. The cross-section sampling included the following types: academic and medical broad scope; gamma knife; industrial radiography; medical institutions; nuclear pharmacy; teletherapy; research and development; pool irradiator; source material; and manufacturing/distribution. Types of licensing actions selected for evaluation included four new licenses, four amendments to existing licenses, seven license renewals, and three terminations. The review team noted that staff is currently assessing the decommissioning efforts and performing confirmatory surveys of the Allied-General Nuclear Services facility with regard to agreement material in South Carolina. A list of licenses evaluated for license reviews may be found in Appendix D.

The team found that the licensing actions were very thorough, complete, consistent, of high quality and properly addressed health and safety issues. The licensee's compliance history is taken into account when reviewing renewal applications as determined from documentation in the license files and discussions with the license reviewers. The casework evaluation indicated that the DRWM and RHB staffs follow their licensing guides during the review process to ensure that licensees submit the information necessary to support their request. The licensing guides are similar to NRC guides. The team found the checklists/worksheets for each type of program to be comprehensive and incorporated excellent notes to reviewers to assist in the review of applications.

The review team noted that some licenses authorizing use of high dose rate (HDR) brachytherapy devices did not include the specific HDR license conditions that are utilized as standard practice by the NRC and other Agreement States. The team did not identify any safety issues associated with the existing HDR licenses. All licensing conditions had been adequately addressed in the supporting documentation. Following discussions on these license conditions, the RHB informed the team that it had developed license conditions in 1999 for HDR units and these conditions would be incorporated on future HDR licenses and renewals.

One of the licensing actions examined by the team required the license to submit financial assurance. The originals of the financial documents are maintained in a secure cabinet. Generic letters were issued to specific classes of licensees requesting them to review their needs for financial assurance.

The team found that terminated licensing actions were well documented, including the appropriate material transfer records and survey records. An evaluation of the licensing actions over the period revealed that most terminations were for licensees possessing sealed sources. These files showed that documentation of proper disposal or transfer was provided.

Licenses are renewed on a five-year frequency. Licenses that are under timely renewal are amended as necessary to assure that public health and safety issues are addressed during the period that the license is undergoing the renewal process. Deficiencies are addressed by letters and documented telephone conferences which used appropriate regulatory language. Each licensing action is reviewed by one individual and then discussed with management prior to issuance. All licenses are signed by the DRWM Director or RHB Chief or their designee.

After issuance, new licenses are hand delivered to licensees. The license reviewer uses the opportunity to discuss the requirements of the license and regulations with the licensee. If adequate training or equipment is not available, the reviewer may choose not to present the

license. The South Carolina program feels that this initial face-to-face meeting with the licensee is a very valuable tool in eventual compliance with license conditions. The hand delivery of all new licenses was noted as a good practice during the review.

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

3.5 Response to Incidents and Allegations

To evaluate the effectiveness of the State's actions in responding to incidents, the review team examined the State's response to the questionnaire regarding this indicator, evaluated selected incidents reported for South Carolina in the "Nuclear Material Events Database" (NMED) against those contained in the South Carolina files, and evaluated the casework and supporting documentation for eight radioactive material incidents. A list of incident casework examined along with case-specific comments is contained in Appendix E. The team also evaluated the State's response to five radioactive materials allegations which were referred to the State by NRC during the review period.

The review team discussed the State's incident and allegation processes, file documentation, the State's equivalent to the Freedom of Information Act, NMED, and notification of incidents to the NRC Operations Center with the program managers and selected staff. In addition, the State's understanding and use of the NMED system was verified by a team member during a demonstration of a search for data, and through the generation of specific reports requested during the review.

When notification of an incident is received, the managers and staff discuss the health and safety risk associated with the incident, the information needed, the need for an on-site investigation, and coordination with other agencies. The actions taken in response to the event are documented in a report, filed, and the data entered into the NMED system. Enforcement actions or other regulatory actions were taken as appropriate. The team confirmed that the State has the most recent NRC guidance for reporting incidents. The managers were all aware of the guidance and were knowledgeable about the use of the NMED database system.

RHB had 12 reportable radioactive materials incidents during the review period and 8 were selected for casework review. The incidents included 2 stolen portable gauges, 3 misadministrations, an occupational overexposure, an irradiator source rack jam, and a lost gauge. The review team found that the State's responses to incidents were complete and comprehensive. Initial responses were prompt and well-coordinated. The level of effort was commensurate with the health and safety significance. Inspectors were dispatched for on-site investigations when appropriate and the State took suitable enforcement action including coordination with DRWM and follow up, as appropriate.

DRWM responded that their office did not have any "reportable" incidents under NRC criteria, but had numerous cases of responding to alarms at hazardous waste sites and landfills because of medical and NORM material. The DRWM incident log was reviewed to verify this information. There were no performance issues identified during the incident casework reviews and the review of incident logs.

During the review period, there were no materials allegations received by the State directly; however, two materials allegations were referred to RHB and three were referred to DRWM by the NRC. All five allegations were examined in detail by the review team. The review of the casework and the State's files indicates that the State took prompt and appropriate action in response to the concerns raised. All of the allegations reviewed were appropriately closed and the team noted that allegations were treated and documented internally in the same manner as incidents. There were no performance issues identified from the review of the casework documentation.

RHB and DRWM have allegation procedures which were assessed in accordance with IMPEP criteria, the draft Office of State Programs (OSP) Procedure SA-105, "Response to Incidents and Allegations," and the NRC Management Directive 8.8, "Management of Allegations," revised February 4, 1999. The team confirmed that these NRC documents were available in both programs and/or provided copies to the respective programs during the review.

RHB utilizes the OSP Procedure SA-300, "Reporting Material Events," for reporting of incidents to NRC and all of the incidents were reported in a timely fashion and in accordance with the procedure. However, the RHB procedure "Incidents and Allegations" does not reference the NRC procedure to be followed. With regard to management of allegations, the procedure does not adequately address the following: (1) the protection of the alleger's identity; (2) allegations received during inspections; and (3) documentation for closing out the concern(s) with the alleger. As noted above, the team found that RHB was very responsive in their follow up of the allegations that had been referred to them, that the response was of good quality, thorough, timely, the alleger's identity was protected, and the allegations were properly closed out. The team discussed these aspects of the program and determined that the issue was only a matter of updating the RHB procedure. Since the review, the procedure was appropriately updated.

DRWM's allegation procedure "Confidential Sources and Allegation Management" was evaluated and the team determined that the procedure addresses the protection of the alleger's identity, the handling of allegations, freedom of information request, referral of allegations to other agencies, investigations, and notifications to the alleger concerning final disposition. The team noted that the procedure was completed and provided for review on the last day of the review.

Based on the IMPEP evaluation criteria, the review team recommends that South Carolina's performance with respect to the indicator, Response to Incidents and Allegations, be found satisfactory.

4.0 NON-COMMON PERFORMANCE INDICATORS

IMPEP identifies four non-common performance indicators to be used in evaluating Agreement State programs: (1) Legislation and Program Elements Required for Compatibility; (2) Sealed Source and Device Evaluation Program; (3) Low-Level Radioactive Waste Disposal Program; and (4) Uranium Recovery Program. South Carolina's Agreement does not cover a uranium recovery program, so only the first three non-common performance indicators were applicable to this review.

4.1 Legislation and Program Elements Required for Compatibility

4.1.1 Legislation

South Carolina became an Agreement State in 1969. Along with their response to the questionnaire, the State provided the review team with the opportunity to review copies of legislation that affect the radiation control program. The currently effective statutory authority is contained in 1976 Code of Laws of South Carolina, Section 13-7-10 through 100, the Atomic Energy and Radiation Control Act; Section 13-7-110 through 200, Radioactive Waste and Transportation Act; and Section 48-2-10, Environmental Fees. DHEC is designated as the State's radiation control agency and implements the radiation control program.

4.1.2 Program Elements Required for Compatibility

The South Carolina DHEC Radioactive Material Regulations, Section 61-63, Title A, applies to all ionizing radiation. These regulations were promulgated pursuant to Section 13-7-40 et. seq. of the S.C. Code (as amended) of 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-rays or other ionizing radiation, and tanning beds.

The review team examined the State’s administrative rulemaking process and found that the process takes about 6 months from the development stage to the final filing with the Secretary of State, after which the rules become effective in 14 days. The regulation adoption process is provided in DHEC Administrative Policy No. 111, revised September 14, 1995, in cooperation with the Legislative Council of the South Carolina General Assembly. The public, the NRC, other agencies, and all potentially impacted licensees and registrants are offered an opportunity to comment during the process. Comments are considered and incorporated as appropriate before the regulations are finalized, approved, and filed with the Secretary of State. The State can adopt other agency regulations by reference which has been done with respect to transportation regulations adopted by the U. S. Department of Transportation, which was verified in this regard by an Attorney General’s opinion, dated February 12, 1999. The State also has the authority to issue legally binding requirements (e.g., license conditions) in lieu of regulations until compatible regulations become effective. South Carolina can adopt regulations needed for compatibility with approval from their TARCC, whereas, other regulations not required for compatibility, such as fees, must receive legislative approval.

The team evaluated the State’s response to the questionnaire, reviewed the status of regulations required to be adopted by the State during the review period, and verified the adoption of regulations with data obtained from the OSP Regulation Assessment Tracking System. The

review team noted that since the March 1995 review, the State incorporated one regulation change by reference and updated the DHEC regulations for Radioactive Materials on June 28, 1996, and again on September 10, 1998, to be compatible with NRC regulations as follows:

- "Licensing and Radiation Safety Requirements for Irradiators," 10 CFR Part 36 amendment (58 FR 7715) that became effective on July 1, 1993 and adopted by the State on June 28, 1996.

- "Decommissioning Recordkeeping and License Termination: Documentation Additions," 10 CFR Parts 30 and 40 amendments (58 FR 39628) that became effective on October 25, 1993 and adopted by the State on June 28, 1996.

- "Timeliness in Decommissioning of Materials Facilities," 10 CFR Parts 30, 40, and 70 amendments (59 FR 36026) that became effective on August 15, 1994 and adopted by the State on June 28, 1996.

- "Preparation, Transfer for Commercial Distribution, and Use of Byproduct Material for Medical Use," 10 CFR Parts 30, 32, and 35 amendments (59 FR 61767 and 65243) that became effective on January 1, 1995 and adopted by the State on September 10, 1998.

- "Frequency of Medical Examinations for Use of Respiratory Protection Equipment," 10 CFR Part 20 amendment (60 FR 7900) that became effective on March 13, 1995 and adopted by the State on September 10, 1998.

- "Low-Level Waste Shipment Manifest Information and Reporting," 10 CFR Parts 20 and 61 amendments (60 FR 15649 and 25983) that became effective March 1, 1998. The Agreement States were to promulgate their regulations no later than March 1, 1998, so that NRC and the State would require this national system to be effective at the same time. The State adopted the requirement on June 28, 1996.

- "Performance Requirements for Radiography Equipment," 10 CFR Part 34 amendment (60 FR 28323) that became effective on June 30, 1995 and adopted by the State on September 10, 1998.

- "Radiation Protection Requirements: Amended Definitions and Criteria," 10 CFR Parts 19 and 20 amendments (60 FR 36038) that became effective on August 14, 1995 and adopted by the State on September 10, 1998.

- "Clarification of Decommissioning Funding Requirements," 10 CFR Parts 30, 40, and 70 amendments (60 FR 38235) that became effective on November 24, 1995 and adopted by the State on June 28, 1996.

- "Medical Administration of Radiation and Radioactive Materials," 10 CFR Parts 20 and 35 amendments (60 FR 48623) that became effective on October 20, 1995 and adopted by the State on September 10, 1998.

- "10 CFR Part 71: Compatibility with the International Atomic Energy Agency," 10 CFR Part 71 amendments (60 FR 50248) that became effective on April 1, 1996 and incorporated by reference by the State on April 1, 1996.

- "Termination or Transfer of Licensed Activities: Recordkeeping Requirements," 10 CFR Parts 20, 30, 40, 61, and 70 amendments (61 FR 24669) that became effective on June 17, 1996 and adopted by the State on September 10, 1998.

As noted above, several of the regulation amendments were not adopted within 3 years of their effective date, and 9 of the amendments (from the State's 1996 and 1998 regulation revisions) were not provided to OSP for review and comment as requested by OSP procedures.

Following the review, a team member conducted a review of the DHEC 1996 and 1998 regulation revisions for compatibility in accordance with the OSP procedure SA-201. In a letter dated August 25, 1999, NRC found these final regulations compatible with the current compatibility policy. The team also followed up on the OSP comments to the State dated December 15, 1997 concerning the adoption of 10 CFR Part 20 equivalent regulations, and determined that the State's 1998 revision had appropriately addressed the OSP comments. The review team recommends that the State provide draft regulations to OSP for compatibility review, in accordance with OSP procedure SA-200.

On April 29, 1999, the DRWM provided proposed regulations to OSP for review and comment as follows:

- "Resolution of Dual Regulation of Airborne Effluents of Radioactive Materials; Clean Air Act," 10 CFR Part 20 amendment (61 FR 65120) that became effective January 9, 1997.

- "Radiological Criteria for License Termination," 10 CFR Parts 20, 30, 40, and 70 amendments (62 FR 39057) that became effective August 20, 1997.

These regulation revisions were entered into the OSP tracking system, reviewed and comments provided to DRWM by letter dated June 21, 1999. Discussions with the DRWM Director indicated that the NRC comments were being addressed, and that the revisions were projected to become effective prior to the end of this calendar year. During the MRB, South Carolina informed NRC that these regulations had been promulgated.

The team identified the following regulation changes and adoptions that will be needed in the future, and the State related that the regulations would be addressed in upcoming rulemakings or by adopting alternate legally binding requirements:

- "Recognition of Agreement State Licenses in Areas Under Exclusive Federal Jurisdiction Within an Agreement State," 10 CFR Part 150 amendment (62 FR 1662) that became effective February 27, 1997.

- "Criteria for the Release of Individuals Administered Radioactive Material," 10 CFR Parts 20 and 35 amendments (62 FR 4120) that became effective May 29, 1997.

- "Licenses for Industrial Radiography and Radiation Safety - Requirements for Industrial Radiography Operations," 10 CFR Parts 30, 34, 71, and 150 amendments (62 FR 28947) that became effective June 27, 1997.

- "Exempt Distribution of a Radioactive Drug Containing One Microcurie of Carbon-14 Urea," 10 CFR Part 30 amendment (62 FR 63634) that became effective January 2, 1998.

- "Deliberate Misconduct by Unlicensed Persons," 10 CFR Parts 30, 40, 61, 70, and 150 amendments (63 FR 1890 and 13773) that became effective February 12, 1998.

- "Licenses for Industrial Radiography and Radiation Safety Requirements for Industrial Radiographic Operations," 10 CFR Part 34 amendment (63 FR 37059) that became effective July 9, 1998.

- "Minor Corrections, Clarifying Changes, and a Minor Policy Change," 10 CFR Parts 20, 32 and 39 amendments (63 FR 39477 and 63 FR 45393) that became effective October 26, 1998.

- "Transfer for Disposal and Manifests; Minor Technical Conforming Amendment," 10 CFR Part 20 (63 FR 50127) that became effective November 20, 1998.

It is noted that Management Directive 5.9, Handbook, Part V, (1)(C)(III) provides that the above regulations should be adopted by the State as expeditiously as possible, but not later than 3 years after the September 3, 1997 effective date of the Commission Policy Statement on Adequacy and Compatibility, i.e., September 3, 2000.

Based on the IMPEP evaluation criteria, the review team recommends that South Carolina's performance with respect to the indicator, Legislation and Program Elements Required for Compatibility, be found satisfactory.

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

In assessing the State's Sealed Source & Device (SS&D) evaluation program, the review team examined information provided by the State in response to the IMPEP questionnaire on this indicator. A review of selected new and amended SS&D evaluations and supporting documents covering the review period was conducted. The team observed the RHB's use of guidance documents and procedures, and interviewed the staff, the RHB Section Director and the Industrial Program Manager involved in SS&D evaluations.

The RHB instituted a policy that the RHB Section Director perform a concurrence review and sign all registration certificates prior to issuance, in addition to the review conducted by the technical staff. These concurrence reviews are technical in nature, to ensure the technical soundness, readability, and understandability of the registration certificates.

4.2.1 Technical Quality of the Product Evaluation Program

During the review period, two SS&D certificates and one amendment were issued by the State. One certificate was for distribution to specific licensees, and the other two SS&D actions were for custom use. All were evaluated and are identified, with case-specific comments, in Appendix F.

Analysis of the files and interviews with the staff confirmed that South Carolina follows the recommended guidance from the NRC SS&D training workshops. The registration files contained all correspondence, photographs, engineering drawings (except one device), radiation

profiles, and results of tests conducted by the applicant. In addition, the SS&D review checklist received at the NRC SS&D workshop was used to assure all relevant materials had been submitted and reviewed. The checklist was contained in the registration file. The State indicated that the guidance in NUREG-1556, Volume 3, issued September 1997, will be utilized for future reviews. All pertinent ANSI Standards, Regulatory Guides, and workshop references were confirmed to be available and are used when performing SS&D reviews. The RHB Section Director related that the non-Atomic Energy Act material reviews are performed in the same procedural manner using the same references as used for Atomic Energy Act sources and devices.

As noted above, one device file was missing the original engineering drawings. After discussions with the staff, the team considered the information in the file and determined that this issue was a matter of documentation rather than a performance issue. The State related that another search of the files would be conducted and/or the device manufacturer would be contacted for another copy. The review team recommends that the State obtain copies of the engineering drawings for the SC-0679-D-101-S registered device, and review the drawings for accuracy with the original application, and maintain them in their files.

4.2.2 Technical Staffing and Training

The RHB Section Director and the Industrial Program Manager conduct the SS&D reviews and are in the process of training one other person in the review of sealed sources and devices. Both managers have attended the SS&D workshops sponsored by NRC and both have had several years experience reviewing license applications and SS&D applications. A concurrence review is performed by the RHB Section Director; however, the team found that the SS&D reviewers work together closely when conducting a review and discuss issues and concerns that have been identified in an application. The RHB Section Director is committed to maintaining a high degree of quality in their SS&D reviews and related that additional training and/or another workshop is needed to update staff skills and knowledge. The RHB Section Director also related that additional engineering support is available from other offices within DHEC, if needed. The team discussed potential training in the form of actual reviews that could be obtained through working with other SS&D reviewers at the NRC or other Agreement States.

4.2.3 Evaluation of Defects and Incidents Regarding SS&Ds

No incidents or defects related to SS&Ds were reported with these devices during the review period. The team also verified that there were no reported incidents by having a SS&D reviewer conduct an on-line search by device and manufacturer utilizing the NMED system.

Based on the IMPEP evaluation criteria, the review team recommends 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 (LLRW) Disposal Program

Chem-Nuclear Systems, LLC (CNS) is licensed by the State of South Carolina to handle, process, store, and dispose of LLRW. DRWM administers the CNS disposal license for the Barnwell, South Carolina site. DRWM regulatory authority is derived from the South Carolina Atomic Energy and Radiation Control Act, Section 13-7-40, 1976, S.C. Code of Laws (as amended). The license establishes regulatory conditions and procedures that CNS must comply

with regarding waste acceptance criteria, site construction, maintenance, environmental monitoring, stabilization and closure. CNS began its operation of shallow land disposal of LLRW at Barnwell in 1971. The license has been amended frequently and renewed seven times, last in 1995. The current license expires in July 2000. The Barnwell facility received approximately 200,000 cubic feet of waste in 1998; however, the estimated average annual LLRW disposal rate, for upcoming years, is 300,000 cubic feet. The estimated remaining waste disposal capacity at the site is approximately 3.2 million cubic feet.

The LLRW disposal program review was initiated, by the review team, through an early evaluation of relevant background materials and examination of the State's response to the questionnaire. A one-day field site visit to the Barnwell LLRW disposal facility was conducted on July 13, 1999, by two team members, to meet with DRWM's site inspector and to examine facility operation and overall site conditions.

In conducting this IMPEP review, five sub-indicators were employed to evaluate South Carolina's performance regarding its low-level radioactive waste disposal program. These sub-indicators include: (1) Status of Low-Level Radioactive Waste Disposal Inspection; (2) Technical Quality of Inspections; (3) Technical Staffing and Training; (4) Technical Quality of Licensing Actions; and (5) Response to Incidents and Allegations.

The results of the LLRW disposal program review will be discussed under each of the above five non-common performance sub-indicators. Team conclusions are based on assessment of each of these sub-indicators as well as on field observations and discussions with DRWM staff.

4.3.1 Status of Low-Level Radioactive Waste Disposal Inspection

The review team examined the status of the LLRW inspection program regarding the frequency of State inspections of the disposal facility licensee. The review team found that inspections are conducted daily, by the on-site DRWM site inspector; weekly, by DRWM environmental engineers or health physicists; and annually by both specialized professionals as well as managers. The review team confirmed the frequency of inspection through review of the site inspector logbook, and weekly and annual inspection reports. The frequency of inspections exceeded the annual inspection requirement specified in NRC's IMC 2800.

The review team analyzed the State capability for maintaining and retrieving data on the status of the inspection program. DRWM maintained records of weekly and annual inspection reports. DRWM also developed an electronic inspection database which provides a summary outline of inspection status. The review team examined several samples of weekly and annual inspection reports and found that these reports are complete. Licensee's responses and closure of inspection issues were well documented. Weekly inspection reports are approved by the DRWM Section Managers and annual reports are reviewed and approved by the DRWM Director.

The review team also examined documentation regarding the LLRW facility licensing, operation, and planned closure/post-closure. DRWM maintained complete licensing records regarding license amendment and renewal. The site inspector kept records of waste shipments, type, originator, volume, and activity. Records of working staff exposure as well as quarterly data on environmental data were maintained. Copies of verification data submitted to CNS for class types (specifically for Class C waste) were kept along with copies of the waste disposal requests submitted by the waste originators (or waste brokers). DRWM also kept good records of informal

plans for site closure. These plans covered future waste volume to be received, maximum capacity of the site for disposal, and financial assurance funds for site closure.

4.3.2 Technical Quality of Inspections

The annual and weekly inspection reports, as well as the site inspector logbook were examined by the review team. The DRWM inspections were thorough, technically accurate, complete, consistent, and of high quality with sufficient documentation to ensure that the licensee's performance with respect to health and safety were acceptable. Staff technical analysis and rationale appeared sound without any technical flaws or errors. Five annual inspection reports completed on July 1995, October 1996, July 1997, July 1998, and January 1999, were thoroughly examined for completeness. These reports were found complete regarding documentation of inspection findings and disposal conditions, including photographs taken during site operations. Inspectors appropriately performed independent measurements and analyses.

DRWM inspectors communicated inspection findings to the licensee in a timely fashion, documented licensee responses to inspection findings, and closed outstanding inspection issues. The DRWM inspectors, Section Managers and Director participated in preparation, review and approval of the annual inspection reports.

4.3.3 Technical Staffing and Training

The review team evaluated the DRWM staffing plan. DRWM has currently 11 full-time staff, including the Division Director, two Section Managers, two environmental engineers, three health physicists, the site inspector, and two administrative assistants. All staff has bachelors degrees or higher, or equivalent training and experience. One of the administrative assistant positions was recently filled after being vacant for less than two months. The team concluded that the current staffing level is adequate for the program. DRWM turnover is very low with vacant positions readily filled.

The review team also evaluated DRWM staff academic qualification, knowledge and experience, and training, to ensure that staff, including the site inspector, are technically qualified and adequately trained. Staff training is adequate and comparable to NRC's IMC 1246. Two team members conducted a one-day site visit to Barnwell on July 13, 1999, accompanied by a DRWM Section Manager. The team members discussed, with the site inspector, his inspection procedure to identify and characterize waste packages to ensure compliance with license conditions and State regulations. Further, the team conducted informal meetings with each of the staff members to discuss inspection procedures, inspection reports, and their technical backgrounds.

Staff demonstrated appropriate knowledge of relevant State, NRC, Environmental Protection Agency, and Department of Transportation regulations. Records are maintained of training and participation in technical workshops and professional meetings.

DRWM contracted a licensed radiological laboratory to examine and perform necessary radiological analyses for environmental samples and samples collected during inspections. The contract laboratory is also used to ensure adequate quality assurance in radiological inspection measurements and environmental monitoring data.

4.3.4 Technical Quality of Licensing Actions

The review team evaluated licensing actions for the LLRW disposal facility. The team examined DRWM's approaches and procedures to control the type of waste products disposed at the facility. Typically, DRWM reviews, in advance, before waste shipments are made, the "Radioactive Waste Prior Notification and Manifest Forms." This review is done to ensure that waste characteristics and classifications are adequately analyzed and documented. Further, DRWM requires an advance verification of Class C waste. Waste originators go through a comprehensive analysis to demonstrate that radioactive waste is not greater than Class C. DRWM has procedures and license conditions to ensure that the licensee shall not accept radioactive waste for storage or disposal unless the shipper has completed the required information for the waste shipment on the NRC's LLRW Manifest Forms 540 "Shipping Papers," 541 "Container and Waste Description," and 542 "Manifest Index and Regional Compact Tabulation," as applicable, or approved equivalent forms.

The State also monitors the limits of maximum radioactivity, mass, and volume of each waste shipment and the total annual waste inventory at the facility. DRWM also examines waste types to ensure that unusual hazardous materials, or potential hazardous material, such as gaseous, chemical, free standing liquids, or pyrophoric, are excluded from waste shipments.

The review team determined that DRWM strictly enforces license conditions regarding waste type, waste class, activity, and volume, including granting variances under certain circumstances. Examples of these variances include: (a) allowance for disposal of lead shielding materials with the waste package; (b) allowance for exceeding the activity limits for disposal of some sealed sources by considering volume of encapsulation; and (c) allowance for disposal of large size equipment (e.g., steam generators) without construction of a concrete vault in the disposal trench. The team evaluated many of the variances granted and found DRWM's actions are very thorough, complete, consistent, of high quality and properly address health and safety issues.

The review team examined the State's program to characterize the Barnwell site during operation. DRWM reviews characterization of disposal trenches and depth of the water table. Staff documented trench construction to ensure structural stability and took action regarding any deviations from the approved designs. Characterization of site performance is also carried out through enforcement of environmental surveillance license conditions. DRWM reviews air sampling and monitoring well data. Concerning the overall site characterization and performance for closure and post-closure, DRWM is currently using environmental monitoring data. The team found DRWM's characterization program very thorough, complete, consistent and of high quality.

The review team noted that site data showed off-site tritium releases; however, DRWM's estimate of doses from such releases are less than allowable limits under the State regulations. In addition, the team noted that detectable off-site releases of carbon-14 (C-14) were documented in CNS and DRWM's monitoring data. DRWM doses estimates for C-14 releases are less than 1 millirem per year. DRWM requested CNS to take prompt actions to reduce H-3 and C-14 releases. The licensee promptly responded by conducting mitigation to reduce these releases. For example, the licensee placed high integrity plastic liners over the old trenches, substantially reducing water infiltration. The team discussed with DRWM their efforts to continue using environmental monitoring data to assess any future potential for releases and to help planning for site closure and decommissioning.

The team evaluated DRWM procedures and requirements for financial qualification and assurances. A fund of approximately $12-13 million has been allocated so far for decommissioning and closure. DRWM informed the team that CNS has expended about $7 million to install liners and enhanced caps over the closed trenches.

The review team assessed DRWM decommissioning procedures regarding disposal capacity, site closure, and environmental surveillance. The team evaluated DRWM licensing guides, policies, memoranda, and adopted regulations. The program was found to have adequate internal licensing guides and general licensing procedures. DRWM also adopted NRC's regulations and common LLRW guidance documents.

The team examined the safety reports applicable to site operations, license amendments, and licensing decisions. In most cases, licensing actions did not warrant preparation of safety reports other than those submitted by waste generators or CNS. In some complex cases, engineering reports and safety analyses were provided for specific waste shipments such as steam generators. DRWM conducted adequate critical reviews of engineering and safety reports regarding non-routine waste disposal. Safety reports regarding doses to the public from releases of H-3 and C-14 were also reviewed and found adequate.

The DRWM provides opportunities for public hearings regarding licensing actions. No significant actions were taken during the review period to warrant a public hearing. It should be noted that the Governor of South Carolina announced on June 10, 1999 the creation of a Nuclear Waste Task Force to examine the final disposition of South Carolina's low-level nuclear waste facilities. The task force includes four members of the State House of Representatives, four State Senators, and five at-large members appointed by the Governor.

The review team examined documentation of interactions with the licensee to ensure proper and clear communication of license conditions and regulatory requirements. Staff found complete and timely documentation of interactions with the licensee and clear regulatory requirements. No significant disagreements were noted with the licensee regarding implementation of the regulations and license conditions.

The team reviewed licensing actions pertaining to aspects of health physics, hydrology, and structural engineering. Reviews of public and radiation worker exposure were thorough and documented. Actions taken by DRWM to require mitigative measures to address releases were very thorough, prompt, complete, consistent, of high quality and properly address health and safety issues. Actions regarding engineering assessment for transport and disposal of steam generators were of high technical quality and well implemented.

DRWM maintained good records of environmental monitoring data. An electronic database has been established for monitoring of H-3 in wells. DRWM also plans to establish a similar database for environmental monitoring of C-14. DRWM collects split samples to examine licensee data and contracted General Engineering Laboratories, an EPA-licensed laboratory, to conduct radiological analyses and to examine CNS environmental data. Overall, the team found that the DRWM licensing actions were very thorough, complete, consistent, of high quality and properly addressed health and safety issues.

4.3.5 Response to Incidents and Allegations

The review team did not identify any incidents or allegations of safety concerns regarding the Barnwell LLRW disposal facility. DRWM has procedures available to handle incidents and allegations. Except as noted in Section 3.5 of this report, the procedures appropriately describe incident and allegation response, including internal and external coordination.

Based on the IMPEP evaluation criteria, the review team recommends that South Carolina's performance with respect to the indicator, Low-Level Radioactive Waste Disposal Program, be found satisfactory.

5.0 SUMMARY

As noted in Sections 3 and 4 above, the review team found South Carolina's performance to be satisfactory for all eight performance indicators. Accordingly, the review team recommended and the MRB concurred in finding the South Carolina Agreement State program to be adequate to protect public health and safety and compatible with NRC's program.

Below is a summary list of recommendations, as mentioned in earlier sections of the report, for evaluation and implementation, as appropriate, by the State. Also, the "good practice" noted in the report is identified.

RECOMMENDATIONS:

1. The review team recommends that the State provide training to technical personnel, either by formal course work or equivalent, in the areas of medical brachytherapy and irradiator technology. (Section 3.3)

2. The review team recommends that the State provide draft regulations to OSP for compatibility review, in accordance with OSP procedure SA-200. (Section 4.1.2)

3. The review team recommends that the State obtain copies of the engineering drawings for the SC-0679-D-101-S registered device, and review the drawings for accuracy with the original application, and maintain them in their files. (Section 4.2.1)

GOOD PRACTICE:

The hand delivery of all new licenses was noted as a good practice during the review. (Section 3.4)

LIST OF APPENDICES

APPENDIX A

IMPEP REVIEW TEAM MEMBERS

Name	Area of Responsibility
James Lynch, Region III	Team Leader Status of Materials Inspection Program Technical Staffing and Training
Richard Woodruff, Region II	Response to Incidents and Allegations Legislation and Program Elements Required for Compatibility Sealed Source and Device Evaluation Program
Robert Funderburg, California	Technical Quality of Inspections
Deborah Piskura, Region III	Technical Quality of Licensing Actions
Boby Abu-Eid, NMSS	Low-Level Radioactive Waste Disposal Program

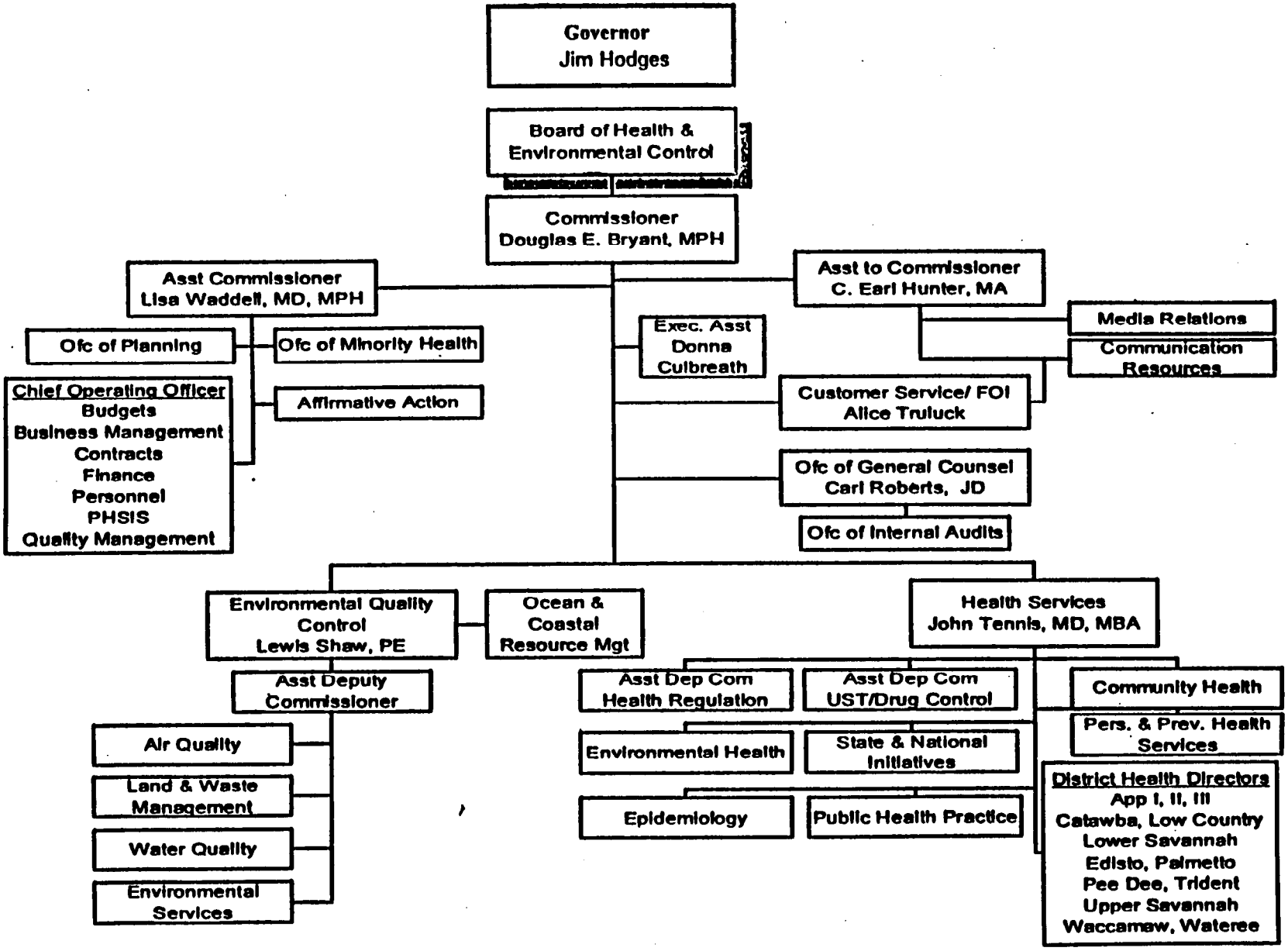
APPENDIX B

SOUTH CAROLINA

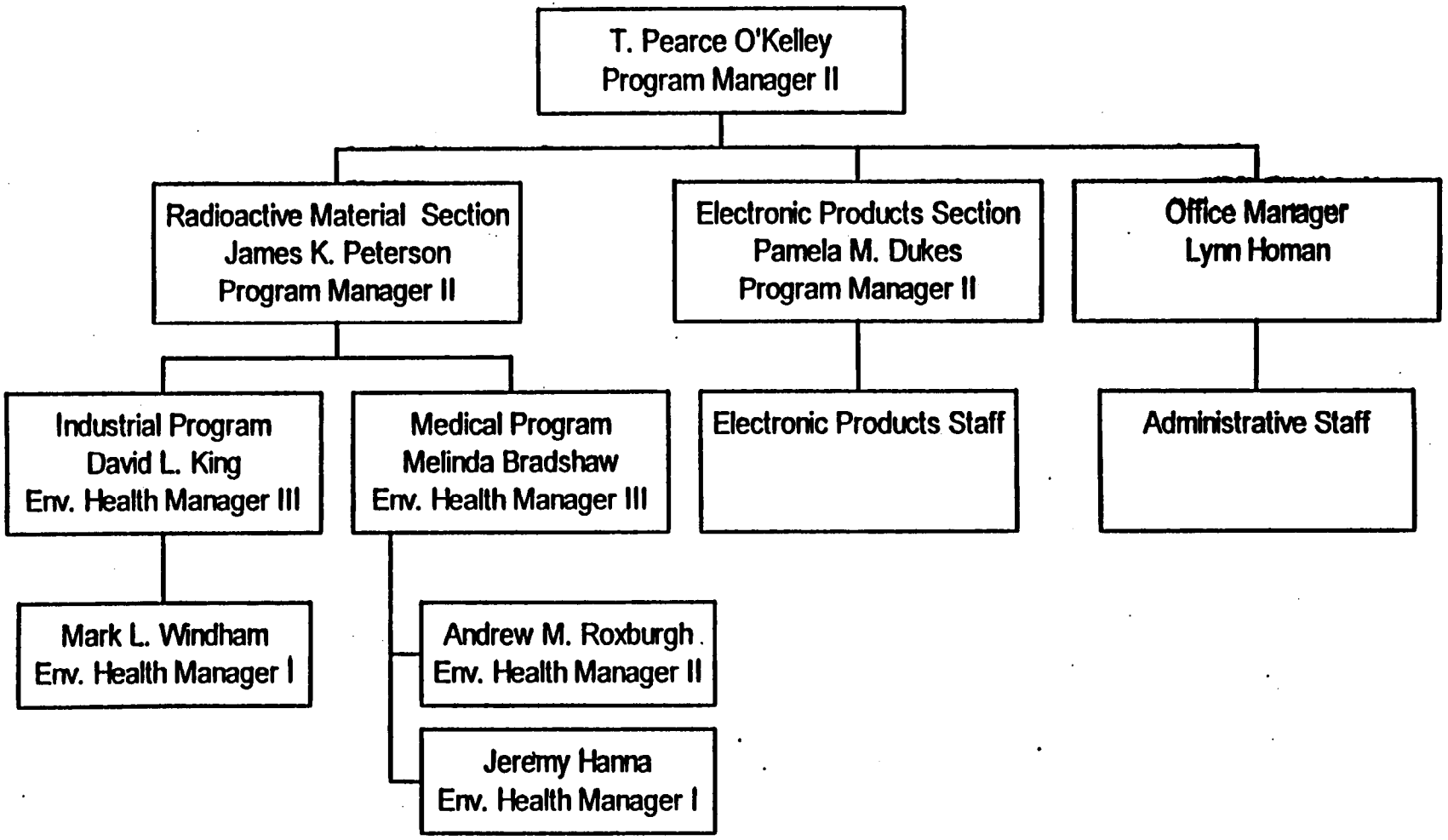
DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL
and
DIVISION OF RADIOACTIVE WASTE MANAGEMENT
and
RADIOLOGICAL HEALTH BRANCH

ORGANIZATION CHARTS

South Carolina Department of Health and Environmental Control



Radiological Health Branch

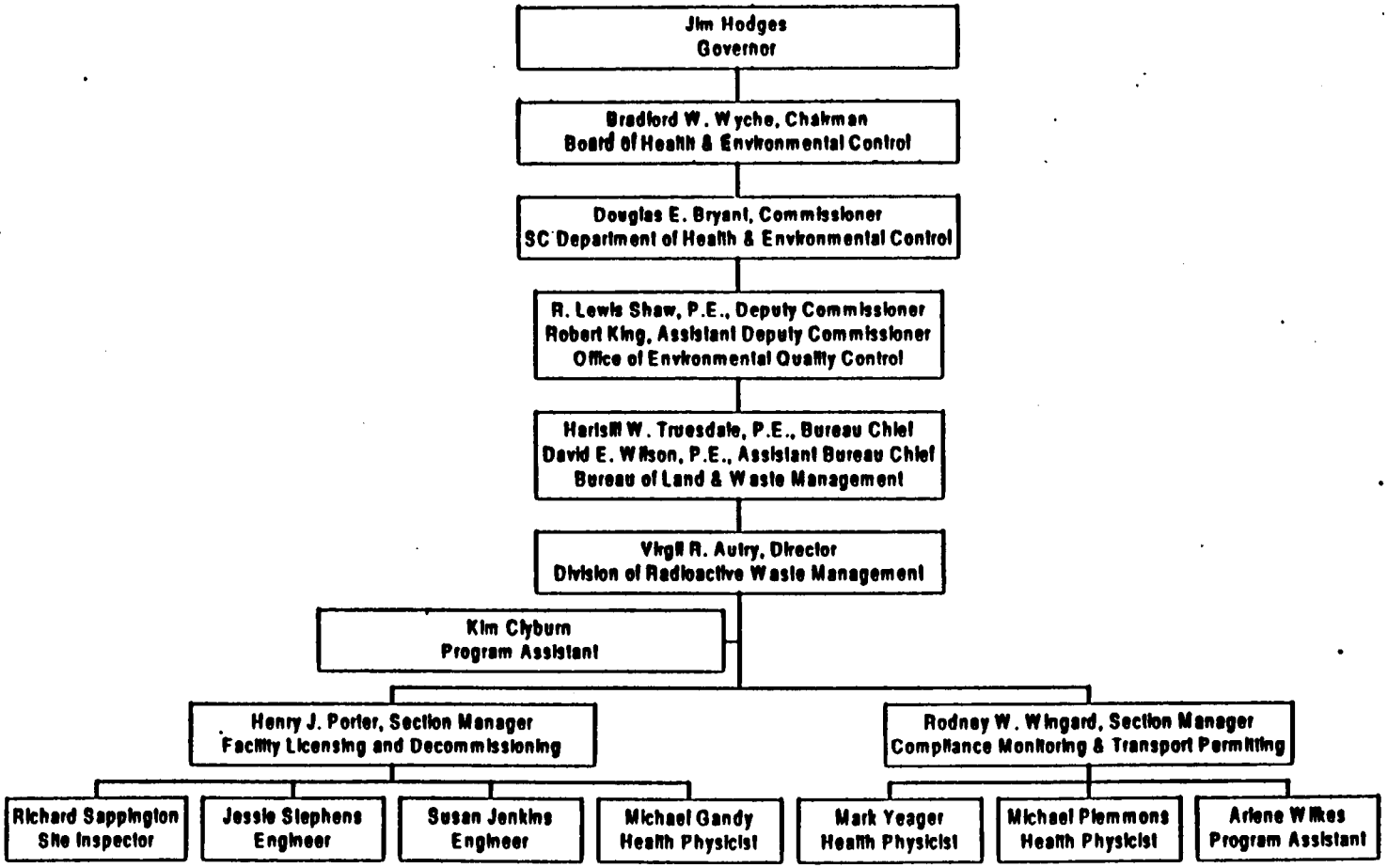


SC Department of Health & Environmental Control

Bureau of Land & Waste Management

Division of Radioactive Waste Management

Organizational Chart



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