



Radioactive Waste Management Program Overview

Prepared for the Governor's Nuclear Advisory Council Meeting
April 13, 2017

South Carolina Department of Health and Environmental Control
Healthy People. Healthy Communities.

Authority to Regulate Radioactive Material

- **South Carolina is a U.S. Nuclear Regulatory Commission Agreement State authorized by the federal Atomic Energy Act – since 1969**
- **South Carolina Atomic Energy and Radiation Control Act**
 - R. 61-63 Radioactive Materials- Title A
 - R. 61-83 Transportation of Radioactive Waste Into or Within SC
- **State and Federal Low-Level Radioactive Waste Policy Act of 1980**
- **Cooperative Agreement with US Department of Transportation – since 1972**

NRC IMPEP* Review

- Program audited by NRC every 4-5 years
- Performance Indicators
 - Technical Staffing and Training
 - Technical Quality of Inspections
 - Technical Quality of Licensing Actions
 - Regulatory Compatibility
 - LLRW Disposal Program
- Consistently found to be adequate and compatible since becoming Agreement State
- No formal recommendations

Staffing and Training

- Staffing

- Manager
- 4.5 FTE's
- 4 Environmental Health Managers
- 1 Engineer

Combined experience
in DHEC's Radwaste
Program:
105 years

- Training

- Health Physics Course (ORNL/NRC) 5 weeks
- Licensing Practices and Procedures (NRC) 1 week
- Inspection Procedures (NRC) 1 week
- Transportation of Radioactive Materials (DOT) 1 week

Additional experience
in Health Physics:
51 years

Major Program Objectives

- Regulate facilities that:
 - Dispose of LLRW - Barnwell
 - Process LLRW
 - Perform research associated with LLRW processing
 - Generate NORM or TENORM* waste (or possess NORM or TENORM)
- Regulate the Transportation of Low-level Radioactive Waste into and within the State
- Provide technical assistance to other areas of DHEC, industries, and other government agencies
- Perform Engineering Reviews of Waste Processes and Containment Systems
- Participate in Regional and National Organizations

License and Inspect Facilities

- Currently administer 18 licenses
 - 1 Disposal Facility (4 in nation)
 - 8 Other - including 5 Energy Solutions
 - 9 NORM licenses
 - NORM licenses do not fall under the NRC Agreement State Program
- Inspection frequency determined by license type
- Weekly inspections at Barnwell LLRW Disposal Facility (additional)



Licensed Facility Inspections

| Facility/License | 2013 | 2014 | 2015 | 2016 |
|----------------------------------|------|------|------|------|
| Materials Licenses | 7 | 9 | 7 | 8 |
| NORM licenses | 4 | 1 | 4 | 3 |
| Barnwell Disposal Facility (BDF) | 2 | 2 | 2 | 2 |
| BDF Weekly Site Inspections | 49 | 52 | 52 | 52 |
| TOTAL INSPECTIONS | 62 | 64 | 65 | 65 |

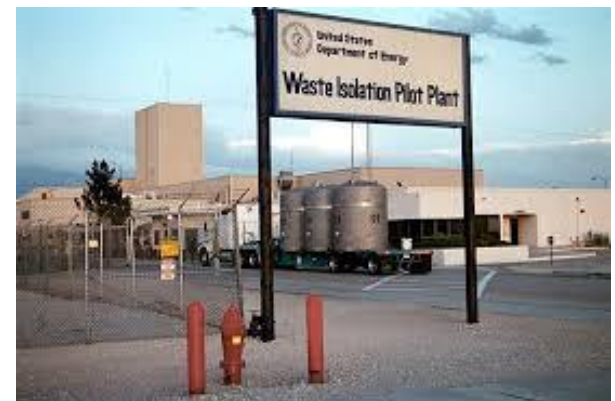
Regulate the Transportation of LLRW into and within the State

- Issue Radioactive Waste Transport Permits
- Inspect shipments of LLRW arriving at Barnwell Disposal Facility – onsite inspector



Other Shipment Inspections (Grant Funded)

- Foreign Spent Nuclear Fuel shipments
 - Atoms for Peace Program
- Transuranic waste shipments to Waste Isolation Pilot Plant (WIPP) in New Mexico
- Other DOE shipment campaigns





Shipment Inspections

| Type | 2013 | 2014 | 2015 | 2016 |
|-----------------------------------|------|------|------|------|
| Barnwell Disposal Facility (BDF) | 57 | 53 | 52 | 52 |
| SRS to WIPP | 153 | 21 | - | - |
| DOE SNF Campaign Shipments to SRS | - | - | 6 | 1 |
| TOTAL INSPECTIONS | 210 | 74 | 58 | 53 |

Inspection of Waste Shipment at Barnwell Disposal Facility



Inspection Coordinated with State Transport Police



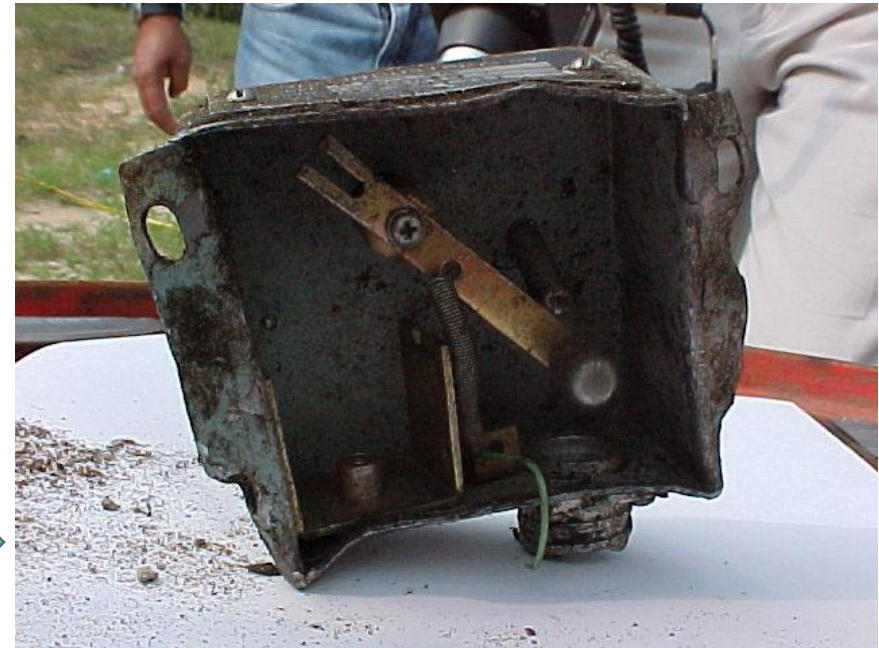
Provide Technical Assistance

- Locate and secure lost radioactive material
- Consult with representatives from scrap yards, smelters, landfills, and general population – inadvertent receipt of radioactive material
 - Provide list of vendors for packaging and proper disposal
 - Issue DOT exemptions for packaging, labeling requirements, etc.
- Provide radiological training upon request
 - State Transport Police
 - County Emergency Response Personnel
- Assist DHEC's Nuclear Emergency Response Section by participating in Fixed Nuclear Facility exercises



Shipment of waste
isolated after
detection of
radioactive material

Remains of nuclear
gauge discovered by
Program staff



Container Reviews

- Waste processing system design
- Waste forms
- Requirements for heavy and unusual equipment disposal
- Disposal containers
 - High Integrity Containers (HICs)
 - Concrete Vaults

Steam Generator Disposal



High Integrity Container Drop Testing



Regional and National Involvement

- Conference of Radiation Control Program Directors (CRCPD)
 - Suggested State Regulations Council
 - Subpart M: Licensing Requirements for Land Disposal of Radioactive Wastes
 - Environmental Nuclear Council
 - E-5 Committee on Radioactive Waste Management
- Organization of Agreement States (OAS) – 37 States
 - NRC's Part 61 Working Group
- Low-Level Radioactive Waste Forum, Inc.
 - Disused Sources Working Group
 - Part 61 Working Group



Regional and National Involvement

- Southern States Energy Board
 - Radioactive Materials Transportation Committee
 - Transuranic Waste Transportation Working Group
- National Transportation Stakeholder's Forum
 - National Transportation Plan Working Group



Presentations and Briefings

- Atlantic Compact Commission
- Governor's Nuclear Advisory Council
- SC Technical Advisory Radiation Control Council (TARCC)
- Radwaste Summit
- Waste Management Symposia
- National Academy of Sciences LLRW Workshop



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