

Low-Level Radioactive Waste Management in North Carolina

SUBMITTED TO THE
North Carolina General Assembly

BY THE
North Carolina Radiation Protection Commission

December 2010

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Executive Summary

Due to the closure of Barnwell to out of compact generators including North Carolina on June 30, 2008, it became necessary for a small number of North Carolina Low Level Radioactive Waste (LLRW) generators to develop long term on-site storage contingency plans for dealing with their Class B & C LLRW after June 30, 2008. This also applied to licensees needing to dispose of sealed sources.

NC facilities have thus far been successful in safely storing their Class B & C LLRW and sealed sources. In our recent on-going heightened security climate, NC facilities have also addressed security measures regarding storage of these materials.

Current Status of LLRW Disposal Facilities

North Carolina LLRW generators currently have options for the management of their Class A LLRW. Processing facilities in the United States are currently accepting Class A LLRW and using a variety of management techniques for processing. North Carolina LLRW generators currently have access to the Clive, Utah facility for disposal of their Class A LLRW.

The facility in Clive, Utah is licensed to accept Class A waste and uranium mill tailings for disposal. This Clive site can also accept some mixed waste within limits determined by specific activity and isotope. The Clive site does not accept Class B or Class C wastes, nor do they currently accept sealed sources for disposal.

A Texas facility, near the New Mexico border is being enhanced for future LLRW importation. Waste Control Specialists LLC (WCS), a hazardous and radioactive waste processing and disposal company that operates a state permitted treatment, storage and disposal facility near Andrews, Texas that takes hazardous and “mixed” waste for burial in a hazardous waste landfill, as well as radioactive materials is also attempting to bring in low-level radioactive waste into its storage license. The Texas Commission on Environmental Quality has issued conditional licenses to WCS to dispose of both Byproduct Material and Federal and Texas Compact Low Level Radioactive Waste, transforming the facility into the largest radioactive waste disposal facility in the country. Since most of the existing

U.S. nuclear waste disposal sites have closed, are leaking, or no longer accepting out-of-state waste, the nuclear power industry is strongly in favor of these proposed licenses.

The Low Level Radioactive Waste Disposal Compact Commission voted in favor for allowing 36 other states to dispose of their LLW at the Waste Control Specialists (WCS) site in Texas. The Commission voted 5-2 for approval and WCS CEO Bill Lindquist told reporters he is expecting some legal challenges to the commission's decision, but the company is moving ahead with construction of the landfill.

The first phase of construction should be completed by this November. The second phase of the site development will be used to store federal waste and should be completed in early 2012. While the facility will now be able to accept waste from three dozen states, the commission guaranteed Vermont (which paid \$25 million to have two members on the commission) 20 percent capacity in the landfill. This will allow enough space for the decommissioning of Vermont Yankee when its license expires.

Current Status of LLRW Management and Activities Undertaken by the NC-DENR, RPS

An administrative license amendment was added to each current license that requires submission of an annual LLRW management report by March 1st of each calendar year. These annual reports are combined into a final report for LLRW Management in North Carolina each calendar year to monitor any changes that have occurred and to assess the overall climate of generation, storage, management and disposal of all classes of LLRW in North Carolina. A summary of survey results is attached (Appendix A). The NC Radioactive Materials Branch plays an active role assisting all NC LLRW generators with storage and management options, security issues and helping with the fostering of reduction of waste.

Currently, the RPS has over 800 specific and 1400 generally licensed radioactive material licensees, which encompass a wide variety of different types of licenses. The total number of active North Carolina licensees generating LLRW is now 59, in addition to those NC Licensees; there are 17 North Carolina facilities that are licensed by the Nuclear Regulatory Commission (NRC). Each

radioactive material licensee may at some point have the need to dispose of their radioactive material as LLRW or transfer the material to a new licensed owner.

It is necessary for North Carolina generators of Class B and C wastes to implement long term on-site storage contingency plans for dealing with that portion of their LLRW. Licensees needing to dispose of sealed sources have a two year storage period to find the most beneficial transfer, sell or disposal route within regulatory means.

Appendix A

North Carolina Low-Level Radioactive Waste Management Report Calendar Year 2010

On June 30, 2008, the Barnwell, SC disposal facility closed its doors to North Carolina low-level radioactive waste (LLRW) generators. This closure prompted on-site storage for Class B & C LLRW and the vast majority of unwanted radioactive material in the form of sealed sources. These specific wastes pose the greatest hazard due to higher radioactivity content and their long term storage result in a significant economic impact. In recognizing the importance of this closure, the Radiation Protection Section mandated that all North Carolina LLRW generators complete and submit an annual LLRW survey in order to evaluate this ever-changing landscape.

This 2010 report is based on survey responses from 67 North Carolina LLRW generators. Four of the LLRW generators in North Carolina disposed of Class B or C waste from 2006 to date. It is difficult to draw conclusions, due to differing facility activities driving waste generation and disposal from year to year. The only definitive and intuitive conclusion based on the numbers is that Class B and C waste along with unwanted sealed sources can increase in accumulation in NC due to few disposal options.

The tables below offer a North Carolina LLRW three year disposal history.

Calendar Year 2007 *Barnwell an Option*

Calendar Year 2008 *Barnwell Not an Option (After June 30)*

Calendar Year 2009 *Barnwell Not an Option*

<u>Total Disposal A,B,C waste</u> 103,045 ft ³ with 48,331 Curies <u>Class B and C Disposal</u> 523 ft ³ with 48,074 Curies <u>Class B and C in Storage</u> 465 ft ³ with 283 Curies	<u>Total Disposal A,B,C waste</u> 78,958 ft ³ with 45,833 Curies <u>Class B & C Disposal</u> 664 ft ³ with 45,740 Curies <u>Class B & C in Storage</u> 232 ft ³ with 1.8 Curies	<u>Total Disposal A,B,C waste</u> 92872 ft ³ with 428 Curies <u>Class B & C Disposal</u> 4 ft ³ with 3 micro Curies <u>Class B & C in Storage</u> 281 ft ³ with 20 Curies
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FACTS:

- ✓ On June 30, 2008, all options for NC LLRW generators to dispose of Class B and C LLRW and most sealed sources resulted in storage and transfer using private company resources.
- ✓ NC generators of Class B & C LLRW have created on-site long term storage options for these wastes.
- ✓ NC facilities engaged in long-term storage of Class B & C LLRW addressed heightened security.
- ✓ The potential re-emergence of nuclear power in NC can generate an increased volume of LLRW including Class B & C LLRW.
- ✓ To date, all NC LLRW generators have made several individual LLRW shipments. Routine shipments, coupled with proper oversight of short term storage have worked as a proven effective method of LLRW management.
- ✓ The Texas Low Level Radioactive Waste site may in the very near future allow for imported waste from outside the associated compact. We will watch for the results of this endeavor to update the commission and send any recommendations to the General Assembly.

Appendix B

1999 Session S.L. 1999-357

GENERAL ASSEMBLY OF NORTH CAROLINA
SESSION 1999

SESSION LAW 1999-357
SENATE BILL 247

AN ACT TO WITHDRAW NORTH CAROLINA FROM THE SOUTHEAST INTERSTATE LOW-LEVEL RADIOACTIVE WASTE MANAGEMENT COMPACT, TO LIMIT THE AUTHORITY OF THE LOW-LEVEL RADIOACTIVE WASTE MANAGEMENT AUTHORITY AND TO DIRECT THE RADIATION PROTECTION COMMISSION TO STUDY AND FORMULATE A PLAN FOR LOW-LEVEL RADIOACTIVE WASTE MANAGEMENT.

The General Assembly of North Carolina enacts:

Section 1. In accordance with the provisions of G.S. 104F-1, Article VII, Section (g) of the General Statutes, North Carolina hereby withdraws from membership as a party state in the Southeast Interstate Low-Level Radioactive Waste Management Compact.

Section 2. Chapter 104F of the General Statutes is repealed.

Section 3. Notwithstanding any provision of Chapter 104G of the General Statutes to the contrary, the sole function of the North Carolina Low-Level Radioactive Waste Management Authority shall be to take all necessary actions to complete the process of closure and restoration of the proposed Wake County low-level radioactive waste site, and to finalize all other responsibilities and business of the Authority relating to closure and restoration on or before June 30, 2000.

Section 4. Chapter 104G of the General Statutes is repealed effective July 1, 2000.

Section 5. The North Carolina Radiation Protection Commission is directed to review and study the current and projected availability and adequacy of facilities for the management of low-level radioactive waste produced by North Carolina generators, and to formulate a recommended plan for complying with North Carolina's responsibilities under the Low-Level Radioactive Waste Policy Act of 1980, Pub. L. No. 96-573, 94 Stat. 3347, and the Low-Level Radioactive Waste Policy Amendments Act of 1985, Pub. L. 99-240, 99 Stat. 1842, 42 U.S.C. 202 lb, et seq. The Commission shall report its findings and recommendations to the General Assembly on or before May 15, 2000. No license application for a low-level radioactive waste facility shall be issued or considered by the Department of Environment and Natural Resources prior to action by the General Assembly establishing a plan for future management of low-level radioactive waste.

Section 6. Sections 1, 2, 3, 5, and 6 of this act are effective when they become law. Section 4 of this act becomes effective July 1, 2000.

In the General Assembly read three times and ratified this the 20th day of July, 1999.

s/ Marc Basnight
President Pro Tempore of the Senate

s/ James B. Black
Speaker of the House of Representatives

s/ James B. Hunt, Jr.
Governor

Approved 10:15 a.m. this 26th day of July, 1999

Appendix C

North Carolina Radiation Protection Commission

Commission Members

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Board of Transportation
North Carolina Medical Society
Environmental Management Commission
Podiatrist
Department of Labor
Radiation Protection Section
Faculty, Institution of Higher Learning
Utilities Commission
Radiologic Technologist
Nuclear Electric Utility
Environmental Protection
Division of Emergency Management
Commission for Health Services
Dentist, North Carolina Dental Society
Atomic Energy, Other Than Power Generation
Industrial Commission
Medical Care Commission
Department of Insurance
Hospital Administrator

Counsel to the Commission

Jennie Wilhelm Hauser

Special Deputy Attorney General

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David J. DeMaster, Ph.D.	Representing Faculty, Institution of Higher Learning
Larry E. Haynes, CHP	Representing Nuclear Electric Utility
Wendy B. Tingle, RSO	Research Triangle Institute
Randy D. Crowe	Staff to Advisory Committee, Radioactive Waste Coordinator