

MINUTES
PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
LOW-LEVEL WASTE ADVISORY COMMITTEE (LLWAC) MEETING

October 7, 2016

Attendance

LLWAC Members and Alternates

Edward Black, PA State Association of Township Commissioners
Kevin Bohner, University of Pittsburgh
Holly Fishel, PA State Association of Township Supervisors
Richard Fox, PA House of Representatives
Harry Garman, PA Society of Professional Engineers
Ernest Hanna, PA Chamber of Business and Industry
Katherine Hetherington Cunfer, Citizens Advisory Council
Steven King, Pennsylvania State University, Hershey Medical Center
Brian Lorah, Pennsylvania State University, Hershey Medical Center
Jonathan Lutz, PA House of Representatives
Joanne Manganello, PA Senate
William Ponticello, PA Council of Professional Geologists
Mark Ross, Exelon Corporation (Vice-Chairperson)
Jeff Schmidt, PA Chapter of Sierra Club
Katherine Shelly, PA Farm Bureau (Chairperson)
Cathleen Woomert, PA Medical Society

Department of Environmental Protection (DEP) Staff

David Allard, Bureau of Radiation Protection (BRP)
James Barnhart, BRP
Rich Janati, BRP
Cheryl Miller, BRP
Andrew Taverna, BRP
Keith Salador, Bureau of Regulatory Counsel

Members of the Public

Craig Benson, PA Farm Bureau
Susan Carty, League of Women Voters of PA

Committee Business

Election of Officers

The LLWAC members voted unanimously to re-elect Katherine Shelly as Chairperson and Mark Ross as the Vice-Chairperson for an additional year.

Approval of the Meeting Minutes

The LLWAC members voted unanimously to approve the minutes of the October 2, 2015, annual meeting.

Next Annual Meeting

The committee decided to hold its next meeting on October 10, 2017, with an alternate date of September 28, 2017.

Status of Commercial LLRW Disposal Facilities

Mr. Janati provided an overview of the low-level radioactive waste (LLRW) disposal facility siting process in Pennsylvania, federal and state laws pertaining to LLRW management and disposal, and the formation of LLRW regional compacts. He also provided an update on the status of commercial LLRW disposal facilities and recent developments involving these facilities.

There are currently four (4) commercial LLRW disposal facilities in the United States. These facilities are Barnwell in South Carolina; the *EnergySolutions* facility in Clive, Utah; Richland in Washington; and the Waste Control Specialists (WCS) facility in Texas.

1. The Barnwell facility accepts all classes of LLRW from the three members of the Atlantic Compact (Connecticut, New Jersey and South Carolina). As of July 1, 2008, this facility no longer accepts LLRW from outside the Atlantic Compact. The current projected closure date for this facility is 2038.
2. The *EnergySolutions* Clive facility accepts Class A waste from all states except those in the Northwest and Rocky Mountain Compacts. The facility also provides for disposal of bulk waste and large components such as steam generators from the nuclear power plants. This facility is not a regional facility and is regulated by the state of Utah. The state is currently conducting a regulatory review for disposal of large quantities of depleted uranium and Class A radioactive sealed sources at this facility. The current projected closure date for this facility is 2050.
3. The Richland facility is a regional facility and accepts all classes of LLRW, but only from the member states of the Northwest and Rocky Mountain Compacts. This facility also accepts Naturally Occurring and Accelerator-Produced Radioactive Materials (NARM) from the Appalachian Compact and other states and compacts. The current closure date for this facility is 2056.
4. The WCS facility is a regional facility for the Texas Compact (Texas and Vermont) and accepts all classes of LLRW from both commercial and federal facilities. In April 2012, the Texas Commission on Environmental Quality (TCEQ) authorized WCS to accept waste and begin disposal activities. Additionally, the Texas Compact Commission has established rules for the importation and exportation of LLRW into and out of the Texas region. The annual limit on radioactivity for out-of-compact waste is 275,000 curies (Ci), but there is no annual limit on volume for out-of-compact waste. The TCEQ recently granted an increase in the total capacity

of the commercial facility from 2.3 million cubic feet (ft³) to 9 million ft³. Additionally, disposal of large quantities of depleted uranium and Greater-Than-Class C (GTCC) waste is being considered by WCS. The current projected closure date for this facility is 2045.

Mr. Fox asked if the department would pursue a volunteer process if it decides to restart the LLRW disposal facility siting process in PA. Mr. Janati said any such decision would be made at the time of a restart. However, it would be very difficult to build and operate a LLRW disposal facility in a community that is not in favor of hosting the facility. Mr. Janati also pointed out that the Department of Energy (DOE) is currently pursuing a consent-based approach to the siting process for the consolidated storage and disposal facilities for spent nuclear fuel and high-level radioactive waste.

Recent Developments

Mr. Janati provided an overview of several significant regional and national developments as follows:

- In April 2016, the Nuclear Regulatory Commission (NRC) issued the final environmental impact statement (EIS) for Bell Bend Nuclear Power Plant Combined License (COL) application. The NRC and the Army Corps of Engineers concluded that environmental impacts would not prevent issuing a COL for the reactor at the Bell Bend site near Berwick, PA. Talen Energy (formerly PPL Bell Bend, LLC) submitted the COL application in October 2008 to build and operate a U.S. Evolutionary Power Reactor (EPR) at the site. In February 2015, AREVA, the designer of the EPR, requested that NRC staff suspend their safety review of the U.S. EPR design certification application. As a result, Talen Energy requested to withdraw the Bell Bend COL application from further review by the NRC.

Mr. Schmidt said it is important for the committee to understand that electricity generation in PA is competitive and the PA Public Utility Commission cannot impose rates on customers. He said it is fair to say that in states that have electric competition, nuclear power is not able to compete. This is why some of the nuclear utilities are looking to extend the life of their existing reactors rather than try to build new ones.

- In February 2016, DOE issued a final EIS for the disposal of GTCC waste and GTCC-like waste. Presently, there is no disposal capability for GTCC waste in the U.S., which has radionuclide concentrations exceeding the limits for Class C waste as established by the NRC. The DOE evaluated five alternatives for the disposal of GTCC and GTCC-like waste. The preferred alternative for the disposal is the DOE's Waste Isolation Pilot Plant (WIPP) facility in Carlsbad, New Mexico, and/or land disposal at generic commercial facilities. Prior to making a final decision on a disposal alternative, which will be documented in a Record of Decision, the DOE will submit a report to Congress on disposal alternatives for GTCC waste and will await action by Congress.
- In February 2016, the NRC issued a construction permit to SHINE Medical Technologies for a facility to be built in Janesville, Wisconsin, for production of molybdenum-99 through fission of low-enriched uranium. SHINE applied for a permit in 2013, and the NRC completed its technical review in October 2016 under 10 CFR Part 50. Facility construction

is expected to begin in early 2017, and SHINE expects to begin commercial sales from the facility in early 2019.

- In April 2016, the NRC released SECY-16-0046, Results of Byproduct Material Financial Scoping Study, to provide the Commission with the results of the staff's byproduct material financial scoping study and recommendations for further actions. The NRC reviewed current regulations and guidance, internal and external reports, and received feedback from the stakeholders. Based on their analysis, the NRC staff recommended that the financial assurance requirements of 10 CFR Part 30.35 should be expanded to include byproduct material Category 1 and 2 radioactive sealed sources that are tracked in the National Source Tracking System. The NRC staff plan to develop a rulemaking plan SECY paper to propose initiating rulemaking, including discussions of various options.

Update on the NRC Proposed Rule to Amend 10 CFR Part 61 Regulations

Mr. Janati said 10 CFR Part 61, Licensing Requirements for Land Disposal of Radioactive Waste, was originally implemented in 1983 and, since then, the NRC Agreement States have been responsible for the regulation of the commercial LLRW disposal facilities. He said the proposed changes to Part 61 would impact LLRW disposal facilities that are currently regulated by the NRC Agreement States.

Mr. Janati noted that in the Staff Memorandum (SRM-SECY-13-0075) published in February 2014, the Commission approved publication of the proposed rule and the draft guidance for public comment subject to several changes. These changes involve a period of performance, intruder assessment, Agreement State compatibility, defense-in-depth and outreach.

The proposed rule and the draft guidance on conducting technical analyses was published in the *Federal Register* in March 2015. As a result, the NRC received many comments from various stakeholders, including the industry and the public on the proposed rule. Among the most significant comments was that the NRC's three-tiered approach to the LLRW disposal facility performance assessment (a compliance period, followed by a protective assurance period, followed by a performance period) is too complicated. Several other significant comments included the recommendation that many of the primary rule changes be assigned a Compatibility Category C, that the rule should not apply to the sites that have no plans to accept LLRW, that the reclassification of depleted uranium should be done before the final rule is issued, and that the NRC should develop a backfit analysis on the proposed rule.

Based on the comments received on the proposed rule, the NRC staff made several changes to the proposed final rule. The staff eliminated the three-tiered approach of the proposed rule, and requires only a compliance period and a performance period. The compliance period would be either 1,000 years or 10,000 years, depending on the quantities of long-lived radionuclides contained in the waste. The performance period analysis would be required only if the licensee uses the longer 10,000-year performance period. The NRC also changed the compatibility category from Category B to Category C to allow greater flexibility for implementation by the Agreement States. The NRC also removed the requirement for defense-in-depth (DID) quantitative analysis. The requirement has been revised to indicate that disposal facility DID protections need only to be identified and their capabilities described, making it clear that a complex quantitative analysis is not

required. The final proposed rule also eliminates many of the detailed requirements for the technical analysis that are addressed in the NRC guidance document (NUREG-2175).

Mr. Janati said the new rule would become effective one year after it is published in the *Federal Register*. He said the NRC Agreement States that currently regulate commercial disposal facilities would be required to adopt the new Part 61 within three years from the effective date of the final rule. He also said if there are no plans for the development of a LLRW disposal facility, the non-sited NRC Agreement States such as Pennsylvania would not be required to meet the NRC criteria for a compatible LLRW disposal program.

Information on LLRW Generation for the Appalachian Compact

Jim Barnhart provided background information on the DOE's Manifest Information Management System (MIMS). The MIMS contains information on LLRW disposal at the current commercial LLRW disposal facilities.

During calendar year 2015, the Appalachian Compact generated about 109,490 ft³ of LLRW. Pennsylvania disposed of about 91,223 ft³, most of which was generated by the utility and industrial sectors. Maryland disposed of about 18,203 ft³ of waste, most of which was generated by government and utilities. Delaware and West Virginia generated about 45 ft³ and 19 ft³, respectively. Almost all Class A waste generated within the compact was shipped to the EnergySolutions disposal facility in Clive, Utah. Mr. Barnhart also provided information on the radioactivity (curie) of waste generated in the compact. The Appalachian Compact generated about 4,175 Ci of LLRW. Pennsylvania disposed of about 4,147 Ci of waste, and Maryland generated about 28 Ci of waste. Delaware and West Virginia generated about 0.01 Ci and .023 Ci, respectively.

Mr. Barnhart provided a brief discussion of waste generation trends in the compact for the period of 1996 through 2015. He said as of July 2008, the Barnwell disposal facility in South Carolina no longer accepts waste from outside the Atlantic Compact. This resulted in the storage of Class B and C wastes, mainly by the nuclear utilities in the Appalachian Compact. The total activity reported in MIMS from 2009 through 2013 represents only Class A waste that was shipped to the Clive facility in Utah. In 2014 and 2015, the reported activity also includes Class B waste that was disposed of at the WCS facility in Texas.

Mr. Barnhart presented a chart showing that in 2015, 97.2% of the compact's LLRW by volume was disposed of at the Clive facility and only 2.8% by volume was disposed of at the WCS facility. In comparison, 53.2% of the compact's LLRW by activity was disposed of at the WCS facility and 46.8% by activity was disposed of at the Clive facility.

Mr. King commented that the generation of LLRW by medical and academic institutions has decreased significantly because the tools that are being used for research are increasingly non-radioactive. He said radioactive materials, specifically tritium (H-3) and carbon (C-14), are very expensive to purchase and dispose of. Therefore, it is more economical to use non-radioactive materials.

Presentation by Exelon

Mr. Ross discussed transportation of LLRW from Exelon nuclear power sites. He said Exelon owns a fleet of transport casks, including four Type A casks and one Type B cask. Exelon's Type A casks include two Super 200 (S200) casks, which are of a Model 14-215 size cask and are heavily shielded, and two Model 14-210 H casks that are being used for routine shipments of waste for disposal. The Model RT-100 Type B cask is being used for shipments of Class B waste containing higher radiation dose. He stated that EnergySolutions/Hitman provides transportation services, maintenance and scheduling for the Exelon cask fleet. EnergySolutions also provides transportation services for a wide range of trailer, cask and sea-van options.

Mr. Ross stated that the most commonly used casks by Exelon are the industry standard 200 series casks, which include Models 14-215, 14-210 and 14-212 Type A casks. He said Exelon moved forward with an improved design (S200 cask) that yields higher shielding and greater protection against radiation exposure during transport. He also said the stations are in need of a next generation DOT Specification 7A Type A transportation cask that will accommodate S200 series disposal containers and provide a higher density shielding than currently available by 200 series Type A casks.

Mr. Ross pointed out that Exelon has not experienced any accidents involving shipments of radioactive waste. He said Exelon continues to manage its fleet of nuclear power plants with the public safety in mind.

Public Comment

None

Adjournment

The meeting was adjourned at approximately 12:06 p.m.