

LOW-LEVEL WASTE ADVISORY COMMITTEE

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

October 4, 2019

Attendance

LLWAC Members and Alternates

Katherine Shelly, PA Farm Bureau (Chairperson)
Edward Black, PA State Association of Township Commissioners
Timothy Collins, PA Senate
Yuanqing Guo, Pennsylvania State University
Ernest Hanna, Pennsylvania Chamber of Business and Industry
Leda Lacomba, PA House of Representatives
Jo Ellen Litz, County Commissioners Association of PA
Brian Lorah, Pennsylvania State University, Hershey Medical Center
Siobhan O'Dwyer, Exelon Corporation
William Ponticello, Pennsylvania Council of Professional Geologists
Carol Rubley, PA Chapter League of Women Voters
Keith Salador, DEP Citizens Advisory Council
Jeff Schmidt, Sierra Club – Pennsylvania Chapter
Jesse Sloane, Pennsylvania Society of Professional Engineers
Nick Troutman, PA Senate

Department of Environmental Protection (DEP) Staff

David Allard, Bureau of Radiation Protection (BRP)
Stephanie Banning (BRP)
Kate Cole (Policy Office)
Kris Hoffman (BRP)
Rich Janati (BRP)
Robert Schena, Bureau of Regulatory Counsel
Nikolina Smith, Bureau of Regulatory Counsel
Andrew Taverna (BRP)

Others Present

Craig Benson, PA Farm Bureau
Allison Chen, Bucknell University

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Committee Business

Election of Officers

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

Approval of the Meeting Minutes

The LLWAC members voted unanimously to approve the minutes of the September 28, 2018, annual meeting.

Next Annual Meeting

The committee decided to hold its next meeting on October 2, 2020 with an alternate date of October 9, 2020.

Status of Commercial LLRW Disposal Facilities

Mr. Janati provided an update on the status of commercial low-level radioactive waste (LLRW) disposal facilities and recent national developments involving management and disposal of LLRW.

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.
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 Utah Department of Environmental Quality is currently conducting a regulatory review for disposal of large quantities of depleted uranium (DU) and Class A radioactive sealed sources at this facility. Mr. Janati discussed Utah House Bill 220, which modifies provisions relating to the disposal of radioactive waste as follows: provides that certain waste classifications are determined at the time of acceptance; allows the Division of Waste Management and Radiation Control to authorize alternate requirements for waste classification and characteristics that would allow an entity to accept certain waste at a specific site, such as allowing waste greater than Class A if the radiation dose does not exceed Class A limits based on disposal method; requires an approved performance

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assessment for more than one metric ton of concentrated DU; requires the DOE to accept perpetual management of the federal cell for disposal of concentrated depleted uranium and take title to the land for the federal cell, title to the waste in the federal cell, and financial stewardship for the federal land and waste in the federal cell; and imposes tax on certain waste.

3. The Richland facility is a regional facility and accepts all classes of LLRW but only from the Northwest and Rocky Mountain Compacts.
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 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.

Recent Developments

Mr. Janati provided an overview of several recent national developments as follows:

Interpretation of Definition of High-Level Radioactive Waste - The U.S. Department of Energy (DOE) issued a Federal Register notice seeking public comment on the Department's interpretation of the definition of "high-level radioactive waste" (HLW). DOE manages large inventories of legacy waste resulting from spent nuclear fuel reprocessing activities. The reprocessing generated large volumes of radioactive waste that remain in storage at several DOE sites in South Carolina, Idaho, and Washington. DOE's interpretation is that reprocessing waste streams are defined by their radiological characteristics regardless of how they were generated. The new definition of HLW would allow DOE to dispose of some of the waste from reprocessing activities, mainly LLRW that does not exceed Class C limits as defined by 10 CFR Part 61 in NRC or State licensed commercial facilities.

Nuclear Regulatory Commission (NRC) Issues a Federal Register Notice re: Very Low-Level Waste (VLLW) Scoping Study - NRC issued a Federal Register Notice announcing the agency's plan to conduct a scoping study and identify possible options to improve and strengthen the NRC's regulatory framework for the disposal of large volumes of VLLW associated with the decommissioning activities and waste that might be generated by a radiological dispersal device. As part of this process, NRC sought stakeholder input and received a significant number of comments. NRC is currently evaluating the comments.

Status of 10 CFR Part 61 Rulemaking - NRC is in the process of revising 10 CFR Part 61, "Licensing Requirements for Land Disposal of Radioactive Waste". NRC staff had sought the Commission's approval to publish a final rule in the Federal Register, but the Commission

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directed staff to make significant revisions to the draft final rule. NRC staff is currently working on incorporating the Commission's direction and expects to release the revised draft final rule for public comment in 2019.

Greater Than Class C (GTCC) Waste - The NRC issued a Federal Register Notice to seek input from various stakeholders in identifying issues associated with the development of a regulatory basis for GTCC waste. Currently, there is no disposal facility in the United States for GTCC waste. GTCC is LLRW, but its concentration exceeds the concentration limits in the 10 CFR Part 61 waste classification table and therefore, it is not acceptable for disposal at the existing commercial LLRW disposal facilities. By statute, NRC is the regulatory agency and DOE is responsible for management and disposal of GTCC waste. In July 2019, the NRC issued a Federal Register Notice to announce the availability of the draft regulatory basis document for GTCC waste. The draft regulatory basis evaluates whether certain GTCC waste could be safely disposed in a near-surface disposal facility. It also evaluates whether regulatory changes would need to be considered to allow such action, and whether the NRC or NRC agreement states should regulate such disposal. In summary, the regulatory basis document concludes that approximately 80 percent of the GTCC waste streams are potentially suitable for near surface disposal, subject to additional controls to protect an inadvertent intruder. It also concludes that almost 95 percent of GTCC waste could be safely regulated by agreement states.

Ms. Shelly inquired about Naturally Occurring Radioactive Materials (NORM). Mr. Janati said Pennsylvania's definition of LLRW, which is compatible with the federal definition, does not include NORM. Mr. Allard pointed out that NORM and Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM) are regulated through DEP's solid waste regulations. He said the revised solid waste monitoring action plan technical guidance document will be posted on the DEP's website in the near future for comments.

Mr. Schmidt asked whether dilution of LLRW is allowed in order to meet lower regulatory requirements. Mr. Janati replied that blending of LLRW is allowed, but dilution of waste with clean materials is not allowed. He said waste with Class B or C concentrations could be blended down to Class A. He also said blending facilitates access to disposal facilities, because all four existing commercial LLRW disposal facilities accept Class A waste. Mr. Allard stated that blended waste would still have to be disposed of at a licensed LLRW disposal facility and must meet the regulatory requirements.

Information on LLRW Disposal for the Appalachian Compact

Mr. Janati 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. Mr. Janati said DEP has significantly reduced the regulated community's administrative LLRW reporting requirements by obtaining the appropriate disposal information directly from the MIMS database.

Mr. Taverna discussed the waste disposal information for calendar year 2018. The Appalachian Compact disposed of about 344,184 ft³ of LLRW. Pennsylvania disposed of about 338,668 ft³, most of which was generated by the government (due to the decommissioning of the Safety

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Light site in PA by the EPA), the industrial and the utility sectors. Maryland disposed of about 5,499 ft³ of waste, most of which was generated by the utility sector. West Virginia disposed of about 17.0 ft³. Delaware did not generate waste requiring disposal in calendar year 2018. Almost all Class A waste from the Compact was shipped to the EnergySolutions Clive facility. Mr. Taverna also provided information on the radioactivity (curie) of waste generated in the Compact. The Compact generated about 42,155 Ci of LLRW. Pennsylvania generated about 42,029 Ci of waste; Maryland generated about 125 Ci of waste; and West Virginia generated about 0.01 Ci respectively.

Mr. Taverna provided a brief discussion of waste disposal trends in the Compact for the period of 1998 through 2018. The Barnwell disposal facility in South Carolina stopped accepting waste from outside the Atlantic Compact in 2008, resulting in the storage of Class B and C wastes during 2009 through 2013. The total radioactivity reported during this period represents only Class A waste that was shipped to the Clive facility in Utah. Beginning in 2014 and through 2018, the reported radioactivity also includes Class B waste that was shipped to the WCS facility in Texas.

Mr. Taverna presented a pie chart showing that in 2018, about 99.83% of the Compact's LLRW by volume was disposed of at the Clive facility in Utah, and only 0.17% by volume was disposed of at the WCS facility in Texas. In comparison, about 5% of the Compact's LLRW by radioactivity was disposed of at the Clive facility, and about 95% by radioactivity was disposed of at the WCS facility.

Mr. Janati pointed out that the EnergySolution's facility in Clive, Utah, plays an important role in management and disposal of LLRW in the Appalachian compact. He also said that due to blending of Class A waste with Class B waste, the volume of Class B waste that would have been disposed at the WCS facility in Texas has diminished significantly.

Nuclear Plant Decommissioning

Mr. Janati provided an overview of nuclear plant decommissioning. He discussed methods and phases of decommissioning, decommissioning funds, decommissioning business models, decommissioning public involvement, current decommissioning issues of stakeholders, the status of nuclear power plant decommissioning in the U.S. and independent spent fuel storage installations (ISFSI). He also provided an estimate of LLRW associated with Three Mile Island Generating Station Unit 1 (TMI-1) decommissioning as follows:

- High Activity Waste:
 - Class B and C: 1,770 ft³
 - Class A: 28,152 ft³
- Low Activity Waste (Class A): 3,373 ft³
- Very Low Activity Waste (Class A): 316,251 ft³

Mr. Janati stated that on September 20, 2019, Exelon retired its TMI-1 permanently. He said the current plan is to decommission TMI-1 in three stages: Decommissioning Transition, SAFSTOR and Site Restoration. Mr. Janati said within the next three years, Exelon will complete

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movement of fuel from the spent fuel pool to an Independent Spent Fuel Storage Installation (ISFSI) on-site. The ISFSI or dry storage cask is designed for interim storage of spent nuclear fuel, and it is licensed separately from the nuclear power plant. The decommissioning activities must be completed within 60 years of permanent cessation of operations. Mr. Janati said the NRC maintains regulatory authority throughout the TMI-1 decommissioning transition process. He also stated that PA DEP will continue its independent oversight review and environmental monitoring program at the TMI site during the transition to SAFSTOR.

Mr. Allard said DEP's radiological environmental monitoring will probably increase during the transition period. Ms. O'Dwyer stated that the NRC website contains a fact sheet for spent fuel storage that contains useful information about licensing and technical requirements for an ISFSI, including evaluation of seismic and flooding. Ms. Litz expressed concerns about long-term storage of spent nuclear fuel on-site and the future costs associated with removal and transport of spent fuel to another site [for storage or disposal]. Mr. Janati said there are two private companies that have submitted separate applications to the NRC for an interim storage facility for spent nuclear fuel in New Mexico and Texas. He said he is optimistic that the private industry will solve this problem in the short-term. He also said DOE has been tasked with developing a permanent repository for spent nuclear fuel and will continue this effort in parallel with the private industry's effort to license an interim storage.

Public Comment

None.

Adjournment

The meeting was adjourned at approximately 12:43 p.m.