

## **LOW-LEVEL WASTE ADVISORY COMMITTEE**

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

**October 2, 2020**

#### **Attendance**

##### LLWAC Members and Alternates

Timothy Collins, PA Senate  
Holly Fishel, Pennsylvania State Association of Township Supervisors  
Harry Garman, Pennsylvania Society of Professional Engineers  
Yuanqing Guo, Pennsylvania State University  
Ernest Hanna, Pennsylvania Chamber of Business and Industry  
Glendon King, PA House of Representatives  
Jo Ellen Litz, County Commissioners Association of PA  
Brian Lorah, Pennsylvania State University, Hershey Medical Center  
Mark Pawlowski, Exelon Corporation  
William Ponticello, Pennsylvania Council of Professional Geologists  
Keith Salador, DEP Citizens Advisory Council  
Michael Sheetz, University of Pittsburgh Graduate School of Public Health  
Jesse Sloane, Pennsylvania Society of Professional Engineers  
Nick Troutman, PA Senate  
James Wheeler, Pennsylvania State Association of Township Supervisors

##### Department of Environmental Protection (DEP) Staff

David Allard, Bureau of Radiation Protection (BRP)  
Stephanie Banning (BRP)  
Kate Cole (Policy Office)  
Wade DeHaas (BRP)  
Kristina Hoffman (BRP)  
Rich Janati (BRP)  
Stefanie Muzic (BRP)  
Valerie Shaffer (WARR)  
Andrew Taverna (BRP)

##### Others Present

David Hess, Member of the Public  
Maureen Mulligan, Member of the Public  
Justina Wasicek, Esq., Member of the Public

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### **Committee Business**

#### Election of Officers

The LLWAC members voted unanimously to elect William Ponticello as Chairperson and James Wheeler as Vice-Chairperson.

#### Approval of the Meeting Minutes

The LLWAC members voted unanimously to approve the minutes of the October 4, 2019 annual meeting.

#### Next Annual Meeting

The committee decided to hold its next meeting on October 1, 2021 with an alternate date of September 24, 2021.

### **Status of Commercial LLRW Disposal Facilities**

Mr. Janati provided an update on the status of commercial LLRW disposal facilities and recent national developments involving management and disposal of low-level radioactive waste (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 and Class A radioactive sealed sources at this facility.
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 in to and out of the Texas region. The annual

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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 (ft<sup>3</sup>) to 9 million ft<sup>3</sup>. Additionally, disposal of large quantities of depleted uranium and Greater-Than-Class C (GTCC) waste is being considered by WCS.

Mr. Janati stated that the WCS facility is having financial issues. This is due to underestimating the amount of waste that would be disposed of at this facility. Measures are being taken to remedy this such as lowering fees and surcharges. In July 2020, TCEQ approved a fee reduction for disposal of LLRW at the WCS facility. It is expected that the reduction in fees will increase the amount of waste that would be disposed of at this facility. Mr. Janati also stated that the Texas Compact Commission is preparing a contingency plan for the disposal and management of LLRW in the event that the compact facility should be closed.

Mr. Janati said earlier this summer the Nuclear Regulatory Commission (NRC) issued an environmental impact statement (EIS) for the proposed consolidated interim storage facility for spent nuclear fuel (SNF) at the existing WCS disposal site in Andrews County. This is a joint venture of Orano USA and WCS. This facility would be able to accept 5,000 metric tons of commercial SNF and GTCC waste. Currently, there is no disposal facilities for SNF from the nuclear power plants and GTCC waste. The goal is to expand the capacity of this facility from 5,000 metric tons to 40,000 metric tons.

Holtech, another company, submitted an application for a SNF and GTCC waste interim storage facility in New Mexico. The NRC has issued a draft EIS for that facility. Within the next year or so, we'll find out whether these facilities will be able to receive a license.

### **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 2019. The Appalachian Compact disposed of about 319,367 ft<sup>3</sup> of LLRW. Pennsylvania disposed of about 302,148 ft<sup>3</sup>, most of which was generated by the government (due to the decommissioning of the Safety Light site in PA by the EPA), the industrial and the utility sectors. Maryland disposed of about 17,193 ft<sup>3</sup> of waste, most of which was generated by the utility sector. Delaware disposed of about 26 ft<sup>3</sup> and there is no shipment of LLRW to a disposal facility from West Virginia. Almost all Class A waste generated within 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 910 Ci of LLRW. Pennsylvania generated about 837 Ci of waste, Maryland generated about 73 Ci of waste, and Delaware generated about 0.00263 Ci.

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Mr. Taverna provided a brief discussion of waste disposal trends in the Compact for the period of 1999 through 2019. 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, mainly by the nuclear utilities, 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 2019, the reported radioactivity also included Class B waste that was shipped to the WCS facility in Texas. Mr. Janati said the Appalachian Compact has made only one or two shipments of irradiated reactor components to the WCS facility. Due to blending of certain Class A waste with Class B waste, the volume of Class B waste that would have been disposed at the WCS facility has diminished significantly. There has been a reduction in Class C waste in storage since control blades are now being replaced less frequently and due to improved packaging efficiency.

Mr. Taverna presented a pie chart showing that in 2019, about 99.87% of the Compact's LLRW by volume was disposed at the Clive facility in Utah, and only 0.13% by volume was disposed at the WCS facility in Texas. In comparison, about 77% of the Compact's LLRW by radioactivity was disposed at the Clive facility, and about 23% by radioactivity was disposed at the WCS facility.

### **Update on TMI Unit-1 Transition to SAFSTOR and Status of TMI Unit-2 License Transfer Application**

Mr. Janati stated that in September 2019, Exelon permanently retired Three Mile Island (TMI) Unit 1. The NRC was notified of permanent cessation of operations. During Phase 1, they began to remove SNF from the reactor and place it into the spent fuel pool. In October 2019, the spent fuel removal was completed. It takes the spent fuel three to five years to cool off in the spent fuel pool. Because there is currently no spent fuel disposal facility in the U.S., the spent fuel is being stored in the spent fuel pool. It will then be placed in a dry cask storage facility on-site. They also began to dismantle and de-energize certain systems, and processed liquids and water.

Phase 2 will last until the zirconium fire window ends. It takes about 14 or 15 months to reach the end of the zirconium fire window, while the spent fuel is being stored within the pool. The analysis shows that at the end of the zirconium fire window, spent fuel cannot heat up to ignition temperature in less than 10 hours. Therefore, there is sufficient time for the operators to take mitigating actions and there will not be a need for offsite emergency response.

After January 2021, they will begin removing fuel from the SNF into the dry cask storage facility that is being constructed on-site. What the facility will need is periodic monitoring and security. The location of the dry storage cask facility is considered a protected area, which requires active security and radiological monitoring. It will take about a year to complete this process. They are constructing a dry storage cask facility. Once it is completed, they will start removing fuel and placing it into dry cask storage. The projected dates the unit will remain in SAFSTOR condition are December 2022 through October of 2074. During this period, some of the radioactive materials will decay and therefore, the radiation levels to the workers will be lower during decommissioning.

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Phase 3 begins sometime after 2074. This will be site restoration and license termination and will last about three to five years. A final survey will then be completed, and the site will be released for unrestricted use.

It is estimated that the decommissioning of TMI-1 will generate about 350,000 to 400,000 ft<sup>3</sup> of low-level radioactive waste.

Mr. Allard stated that on November 12, 2019, GPU Nuclear, Inc., Metropolitan Edison Company, Jersey Central Power & Light Company, and Pennsylvania Electric Company (collectively referred to as “FirstEnergy Companies”) and TMI-2 Solutions submitted an application to the NRC for consent of license transfer. The proposal is for GPU Nuclear to transfer the license to the newly formed TMI-2 Solutions. Currently, this is in front of the Commission. The NRC formally proposed this back in March, and it is posted on the Federal Register.

TMI-2 Solutions will be responsible for developing NRC-compliant storage and/or disposal plans for any remaining Core Debris Material until title of the material is transferred to the U.S. Department of Energy for disposal. TMI-2 Solutions will assume responsibility for all licensed activities at the TMI-2 site, including responsibility under the license to complete radiological decommissioning pursuant to NRC regulations.

There is a significant amount of funding associated with TMI Unit 2. There is about \$800,000 in decommissioning funds. There are also parent and insurance guarantees. We are very concerned with the financial responsibility moving from GPU Nuclear, Inc. to TMI-2 Solutions. We were able to review confidential fiscal information. We had a forensic accounting firm review various program areas. On paper it looks like there is enough money to decommission the unit.

TMI-2 Solutions intends to substantially complete decommissioning of TMI-2 and release the site by 2037, except for a potential area set aside for waste storage facilities. There is currently no permanent disposal facility for the fuel debris that is in the TMI-2 coolant system. This plant is unlike any other plant in the commercial U.S sector, given the accident. There will be large component for removal, cleaning, and demolition of buildings. Another concern is that TMI-2 is in the middle of an island and there is potential for flooding during decommissioning. We have active engagement with the NRC Headquarters. The oversight of the cleanup will be done through the NRC Region 1 in King of Prussia. We have assigned a nuclear safety specialist to both TMI-1 and TMI-2 plants and will monitor the construction of the dry cask storage facility. We plan to step up our environmental surveillance related to TMI-2 and will be testing samples. We will add some monitors on the island for any detection of radioactivity releases.

DEP and GPU Nuclear/TMI-2 Solutions entered into an Agreement in early August 2020 regarding the application for the license transfer. The NRC has not taken action to approve the transfer of license as of August 27, 2020. DEP had filed a formal action with the NRC to extend our ability to file for a hearing back in March. Due to teleworking, we felt we couldn't do this appropriately and requested the NRC to hold off on deciding on our request. Negotiations continued with TMI-2 Solutions and GPU Nuclear.

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We have assurances from the licensees that they will create a local citizen's advisory panel. The panel should consist of local political individuals, technical personnel, and local citizens. The utility will be managing this panel. There will also be daily meetings and looking at long-term schedules, we will be receiving updates on the fiscal aspects of the cleanup.

Ms. Wasicek stressed concern over storing radioactive waste on an island in the middle of a river which is a drinking supply for thousands of people. She also questioned what the NRC's response will be. Mr. Allard stated he does not have concerns about the SNF. The casks are designed for storage and transport. There will be no leakage from the casks. What does concern us is the low-level waste and the buildings. They will have to clean them out along with the components and any decontamination of the inner structure. There is still radioactive materials in Unit 2. Mr. Janati stated that the NRC has made a commitment to continue to require that the licensee implement a groundwater monitoring program. They will be adding several wells to monitor the decommissioning activities. Because of these wells, radioactivity or radioactive materials can be detected before anything would leave the site. Samples will be taken periodically. Mr. Allard also stated he fully expects the NRC to participate in citizen's advisory committee meetings and we will expect the NRC to perform their job as regulatory authority. In response to a question from Mr. Ponticello, Mr. Janati stated that some activities require approval from the NRC, and some do not. But in general, they are being inspected and their activities are being closely monitored.

### **Public Comment**

A member of the public offered written comments regarding the TMI-2 transfer. For the record, we are in fact as concerned as others are with the license transfer and are going to be monitoring this closely.

### **Adjournment**

The meeting was adjourned at approximately 11:51 a.m.