

WM2017 Conference Panel Report

PANEL SESSION 111: Consolidated Interim Storage of Used Nuclear Fuel – A Draft DOE Siting Process and How Private Fuel Storage Can Contribute

Co-Chairs: **Chris Phillips**, *Atkins Energy Americas Nuclear*
Steve Unwin, *Pacific Northwest National Laboratory*

Panel Reporter: **Nancy Buschman**, *US DOE*

Panelists:

1. **Andrew Griffith**, *Deputy Assistant Secretary for Spent Fuel & Waste Disposition, US DOE*
2. **Michael Ford**, *Vice President, Licensing & Corporate Compliance, Waste Control Specialists LLC*
3. **Joy Russell**, *Vice President, Corporate Business Development, Holtec International*
4. **Erica Bickford**, *Transportation Program Manager, USDOE*
5. **Jan Boelen**, *Managing Director, COVRA N.V. (Netherlands)*
6. **Tim Tinsley**, *Business Leader, Spent Fuel Management Technology, National Nuclear Laboratory (United Kingdom)*

Approximately 50 people attended this panel session which focused on the plans, requirements, and status of efforts to establish one or more private consolidated interim dry stores for used nuclear fuel (UNF) in the US, with an international perspective added. Panelists shared perspectives on their current programs, including the status of two proposed private consolidated store facilities and an international perspective on how to build local community support. Many questioners from the audience complimented the panelists on the content and the different perspectives offered.

Summary of Presentations

Andrew Griffith stated that his presentation would focus on the current status of the Department's programs since plans are currently being developed and many options are available. Currently 75,000 MTHM of commercial spent nuclear fuel are stored in the US, including about 6,000 MTHM at shutdown reactor sites. Establishing interim storage could help de-inventory and close down the shutdown sites expeditiously. Other benefits that could be realized include standing up the transportation system sooner, addressing concerns earlier through public outreach, and reducing future liability on the judgment fund. Recognizing that all paths lead to geologic disposal, Griffith observed that private initiatives could potentially support the goals of an Integrated Waste Management System.

Michael Ford shared an overview of the consolidated interim storage facility (CISF) proposed to be located at the WCS site in Andrews County, TX. He described the existing 14,000 acre facility that operates low-level waste and RCRA waste disposal cells and discussed the status of plans to site a CISF. The planning calls for the 40,000 MTHM facility to be built in eight phases; Phase 1 operations could begin in 2021, with a focus on de-inventorying shutdown reactor sites.

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Ford noted that this planning is premised on multiple government actions, such as the government taking title to the spent nuclear fuel, transporting the fuel from the reactor site to the CISF, and establishing a contract with WCS to fund long term storage.

He observed that high level cost analyses identified substantial benefits such as reducing taxpayers' liability and offering benefits to the community. In January 2017, the Nuclear Regulatory Commission accepted the WCS license application for docketing.

Joy Russell noted that dry storage is a proven concept and that Holtec International anticipates loading its 1000th canister this summer. Holtec recently opened its third US manufacturing facility in Camden, NJ. **Russell** described the status of Holtec's plans to license and build a consolidated interim storage facility (CISF) with Eddy-Lea Energy Alliance, LLC (ELEA) in southeastern New Mexico. ELEA is an alliance formed in 2006 between the cities of Carlsbad and Hobbs, NM, and the counties of Eddy and Lea. The HI-STORE CISF would accept any US licensed canister in below grade storage without requiring repackaging of the commercial spent nuclear fuel. The below-grade storage technology offers operational, security, and safety advantages. Holtec is pursuing a two-part licensing approach, beginning with amending the existing HI-STORM UMAX certificate. A site specific initial license application for 500 canisters is expected to be submitted by the end of March 2017. The site layout could accommodate 10,000 canisters within 500 acres. Operations could begin in 2022.

Erica Bickford observed that although there is uncertainty about the path forward for storage and/or disposal of spent nuclear fuel and high level waste, these options all require a robust transportation system. Transportation of spent fuel offers both technical and social challenges, as well as requiring long lead times to develop and implement. Gaining public acceptance and confidence, working with Tribal and State governments to conduct adequate training that assures public safety, and communicating features of the transportation system are challenging tasks. In addition, there is a host of logistical challenges and ongoing operational planning activities such as route planning, shipment schedules, infrastructure upgrades, and hardware development. Lessons learned from the US Navy and other domestic radioactive shipments are being incorporated.

Jan Boelen added an international perspective with his discussion of the Dutch radioactive waste management program. The Netherlands is home to a variety of nuclear operations, including two nuclear power plants, (one currently operating), uranium enrichment, research facilities and medical isotope production. Since 1984, the Netherlands has focused on collecting and storing its radioactive waste for 100 years and then plans to emplace the waste in a geologic repository. Nuclear waste generators pay COVRA a fee to take ownership of the waste, store it, and implement future transportation and disposal. Given the constraints of high population density, high water table, and lack of remote location, the COVRA storage facilities are located in an industrial park and are highly visible to the public. The storage system is highly robust and includes passive cooling systems for heat generating waste. COVRA's policy is to invite people to view the operation; 2500 visitors tour the facility each year.

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Tim Tinsley wrapped up the panelists' presentations with a general overview of nuclear fuel management activities in the United Kingdom (UK). He discussed reactors, spent nuclear management, and waste treatment (vitrification). The UK has built and operated many reactor types with different fuels. All of the Magnox fuel and most of the gas reactor fuel in the UK will be processed prior to the processing plants closing in 2020. **Tinsley** foresees challenges arising from long term interim storage, such as retrieval of fuel from long term wet storage, long term performance of canisters, and keeping appropriate records and skills to move spent fuel after 100 years of storage. He cited the need for research and development on aging management of spent fuel ponds, drying behavior of defective spent fuel, and degradation mechanisms for cask storage.

Questions and Answers

After noting that this was the "best panel" an audience member noted that establishing a 180 C program under the NWPA would require time and funding to establish a program and asked how it would work. **Andrew Griffith** noted that work has begun with State and Tribal entities and emphasized the importance of establishing relationships. Transportation routes are typically identified five years in advance of shipments. Funds would be appropriated by Congress.

Andrew Griffith was asked if there had been any message from the Administration or newly confirmed Secretary of Energy on management of nuclear waste. He responded that plans are under development and he cannot speculate on a path forward. He observed that the Secretary has said he does not intend to "kick the can down the road."

A third audience member also praised the panel and noted that he particularly liked COVRA's comprehensive approach to radioactive waste management. He asked the panel about potential hidden costs or impacts of interim storage, such as re-packaging if the canisters cannot be disposed. **Michael Ford** agreed that there are many questions to be investigated and re-packaging in 40-60 years could be a hidden cost.

Another attendee noted that the WCS representative had identified federal funding as a condition of their license application and asked if Holtec had the same requirement for federal funding. **Joy Russell** acknowledged they did.

The fifth commenter noted that anti-nuclear activists often bring up transporting fuel twice if the consolidated storage concept is used and asked about benefits vs perceived risk. **Andrew Griffith** agreed that the question of perceived risk needs to be addressed. Demonstrating a mature technology and proven track record can help to inform the public and communicate understanding of relative risks. **Michael Ford** observed that during their three public meetings transportation was a key issue. Risks need to be considered and proven processes need to be effectively communicated.

Co-Chair **Chris Phillips** asked if the UK's 50 year track record of spent fuel transport without incident offered any lessons learned to help in the US. **Tim Tinsley** answered that there are lessons learned that could be shared. He also observed that doing nothing is not necessarily the lowest risk. The UK has moved lots of spent fuel in the past and has conducted public demonstrations of cask integrity.

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Jan Boelen remarked that the policy in the Netherlands is to be very open – such as publicizing the safe shipment of the 10,000th cask. **Michael Ford** observed that there is no shortage of data proving transportation safety – how to communicate to the public is the more difficult challenge. **Andrew Griffith** suggested it might be valuable to gather historical data on domestic and international transportation and create a searchable database. **Erica Bickford** added that the image of a train hitting a cask with no adverse consequence resonates much better with the public than results of modeling simulations; short informational videos may be useful communication tools.

The next commenter from the audience acknowledged great advice from the UK and Netherlands. Noting that plans call for a single consist of railcars to be available in 2022, he then asked about timing for scale-up and when appropriations would be needed. **Andrew Griffith** stated that the 2022 date is based on current plans for testing and modeling. He said taking some risk to begin manufacturing sooner is under consideration, similar to the approach used by Naval Reactors to begin fabrication of railcars in advance of formal approval and then modify as needed. The acquisition strategy is a key element as well as funding.

Co-Chair **Chris Phillips** observed that if private storage will be available in 2021-22 timeframe, shouldn't this planning be communicated to the government so that all is ready? **Andrew Griffith** noted that there are several bills being discussed in Congress that support consolidated interim storage. **Michael Ford** acknowledged there is risk associated with the need for Congress to appropriate funds.

The final questioner asked if there should be a Request for Information on transportation. **Andrew Griffith** remarked – good question, stay tuned!