Texas Compact's LLW Facility Opens in November

The Texas Low-Level Radioactive Waste Compact Disposal Facility held its grand opening on November 10. The facility is owned by the state of Texas, operated by Waste Control Specialists (WCS), and hosted by Andrews County, Texas.

A month earlier, WCS announced that it had entered into an agreement with Utilities Service Alliance Inc. (USA) to dispose of Class A, B, and C LLW, subject to regulatory approvals. USA is a non-profit cooperative of 15 utilities that operate 17 nuclear power stations (and a total of 27 reactors) across the United States. Members of the alliance include: Callaway, Columbia Generating Station, Comanche Peak, Cook, Cooper, Diablo Canyon, Fermi-2, Ft. Calhoun, Hope Creek, Monticello, Palo Verde, Prairie Island, Salem, San Onofre, South Texas, Susquehanna, and Wolf Creek. Five USA member plants have already committed to ship LLW to the Texas facility, WCS said at the time of the announcement.

Prior to out-of-compact waste being accepted at the facility, each utility must apply for an import petition from the Texas Low-Level Radioactive Waste Disposal Compact Commission. WCS must also modify its license to receive the waste, and the contract must be approved by the Texas Commission on Environmental Quality.

Dignitaries prepare to cut the ribbon formally opening the Texas Compact Disposal Facility, operated by Waste Control Specialists, at the November 10 grand opening.

Concrete-lined Texas Compact Disposal Facility ready for business.

Fukushima Daiichi Achieves Cold Shutdown; Decommissioning Plan Released

In mid-December, the Japanese prime minister, Yoshihiko Noda, announced that the Fukushima Daiichi nuclear power plant had officially achieved cold shutdown. Reactors are generally considered to be in cold shutdown when core temperatures inside the reactor are lower than 100 °C. This condition had reportedly been met by the damaged Fukushima reactors in October, but in this case, releases of radioactivity also had to be brought under control, and that did not happen until December.

Now the plant's owner, Tokyo Electric Power Co. (Tepco), can focus on the next step: plant decommissioning. To that end, Tepco has released the decommissioning plan for the four damaged units at the site. The plan divides the decommissioning into three phases, and the entire process will take up to 40 years, Tepco estimates. The phases are described as follows:

Phase 1. Primary Goal: Remove Fuel from the Spent Fuel Pools.

- Commence the removal of fuels from the spent fuel pools (Unit 4 in 2 years).
- Reduce the radiation impact due to additional emissions from the whole site and radioactive waste generated after the accident (secondary waste materials via water processing and debris, etc.). Thus maintain an effective radiation dose of less than 1 mSv/yr at the site boundaries caused by the aforementioned.
- Maintain stable reactor cooling and accumulated water processing and improve their credibility.
- Commence R&D and decontamination toward the removal of fuel debris.
- Commence R&D of radioactive waste processing and disposal.

Phase 2. Primary Goal: Remove Molten Fuel from the Damaged Reactor Cores.

- Complete the fuel removal from the spent fuel pools at all units.

- Complete preparations for the removal of fuel debris, such as decontaminating the insides of the buildings, restoring the PCVs, and filling the PCVs with water. Then commence the removal of fuel debris (Target: within 10 years).
- Continue stable reactor cooling.
- Complete the processing of accumulated water.
- Continue R&D on radioactive waste processing and disposal, and commence R&D on the reactor facilities decommissioning.

Phase 3. Primary Goal: Demolition of Reactor Facilities.

- Complete the fuel debris removal (in 20–25 years).
- Complete the decommissioning (in 30–40 years).
- Implement radioactive waste processing and disposal.

Hanford's Waste Treatment Plant Safety Assessment Team Says Improvements Needed

The Independent Safety and Quality Culture Assessment team that spent four months assessing the nuclear safety and quality culture at the U.S. Department of Energy's Hanford Waste Treatment and Immobilization Plant released its findings and suggestions for improvement on December 1. Basically, the team found that there is no widespread evidence of a "chilled atmosphere adverse to safety," nor any widespread evidence that the DOE and contractor management suppress technical dissent. In general, the team said, there is no reluctance by DOE, URS, or Bechtel National personnel to raise safety and technical issues that could impact the overall safety of the project, although there were "isolated expressions to the contrary."

However, the team also found that within the project there was a lack of effective and timely disposition of technical and safety issues, which was and is a "major contributor to real and perceived problems with the project's execution, and strongly affects its safety culture." In addition, safety construct implementation does not support the project schedule, and communications with employees, stakeholders, and the public are not fully supportive of the safety culture.

The team was engaged to fulfill a commitment made by Energy Secretary Steven Chu in response to a letter written by the Defense Nuclear Facilities Safety Board in June. The team was composed of six industry experts with

decades of experience working in nuclear safety and quality, including work with the U.S. Nuclear Regulatory Commission, the DOE, and the Institute of Nuclear Power Operations. Former NRC Chairman Nils Diaz served as team chairman. The full report of the team's assessment and findings can be found at www.ISQCAT.com.

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- At the end of December, the community of Villar de Cañas, in central Cuenca province, was selected to host Spain's spent fuel storage facility. The small town was one of 14 localities that had declared interest in hosting the facility. The project is expected to generate between 300 and 500 jobs during the five-year construction phase. The €700 million ($910 million) facility will be managed by Enresa and is expected to operate for some 60 years.
- The United Kingdom's government's preferred new policy for managing the country's civilian stockpile of plutonium is to convert the material into mixed-oxide (MOX) fuel for burning in civilian nuclear reactors, the U.K. Department of Energy and Climate Change announced in December. The U.K. currently has a civilian stockpile of around 112 tonnes of separated plutonium, including about 28 tonnes belonging to foreign utilities. The three options the country has been considering included reuse as MOX fuel, direct disposal as waste, or continued long-term storage. Previous policy has been long-term storage.
- Germany is expected to begin looking for a site for a nuclear waste repository in mid-2012, as soon as a law on site selection is passed by the federal government. Environment Minister Norbert Roettgen said he wants broad political and social consensus on selecting the site. While the 10-year moratorium on research into using the Gorleben salt mine as a waste repository was lifted nearly two years ago, the facility remains controversial,
- The cost to decommission the United Kingdom's Sellafield Mixed Oxide (MOX) fuel plant will be around £100 million ($160 million). The U.K. Nuclear Decommissioning Authority decided in August to close the plant after Japan, in the wake of the Fukushima accident, canceled its MOX fuel orders.
- Disposal of waste from new U.K. nuclear power plants will cost operators a maximum of £0.71 (around $1.14) per

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megawatt-hour of power produced, under a new framework announced by Energy and Climate Change Minister Chris Huhne in December. The framework is designed to facilitate new nuclear power plants built by private companies, but not to subsidize the technology by making taxpayers pay for waste disposal. Thus, as in the United States, operators will pay a percentage of electricity generation revenues into a waste fund to cover the facility design, construction, and operational costs. If the facility is built to current cost estimates, the charge to operators may be as little as £0.20 ($0.32) per MWh, but if cost estimates rise, the charge to operators will be capped at the £0.71.

- The cost of decommissioning Switzerland's five nuclear power plants is estimated at more than SFr20 billion (about $22 billion), 10 percent more than the cost estimate prepared five years ago. This estimate includes the cost of waste disposal. The country has announced that it will be phasing out nuclear power by 2034.
- Construction of underground concrete vaults to hold low-level waste from the decommissioning of experimental fast reactors at the United Kingdom's Dounreay site started in late November. Up to six subsurface vaults are to be built adjacent to the Dounreay site, at a cost of some £100 (around $160 million) to receive some 240 000 tonnes of LLW from the demolition work. Waste disposal is expected to begin in 2014.
- The French radioactive waste management agency, Andra, has signed a contract with a joint venture between two engineering companies to project manage the conceptual and front-end phases of the country's deep geological repository for intermediate- and high-level radioactive waste, called Cigeo. Gaiya, a joint venture between Technip and Ingerop, will conduct the conceptual study this year. The study will lead to a public consultation that will take place in 2013.
- Canada's federal government has announced an investment of Cn$1.28 billion (approximately U.S.$1.26 billion) to address the cleanup of historic low-level radioactive waste resulting from more than five decades of radium and uranium refining operations at Port Hope, Ont. Some 1.7 cubic meters of LLW is located at several sites within the neighboring communities of Port Home and Clarington, resulting from radium and uranium processing carried out between 1933 and 1988 by former Crown corporation Eldorado Nuclear Limited and its private sector predecessors.