

Radioactive Waste Centralized Storage Facilities

Safety Regulations

Fuel Cycle and Materials Administration, Atomic Energy Council
November 28, 2018

1. Nuclear Waste Halfway Houses

The imperative issue of radioactive waste disposal confronts all countries using nuclear power now striving to implement final disposal plans. However, as final disposal facilities are NIMBY facilities, they remain subject to high uncertainty. Many countries face delays when implementing disposal plans, and thus promote a Centralized Interim Storage (CIS) in response. Taiwan Power Company (TPC) cannot smoothly implement its disposal plans, so it adopts international practices in plans to implement a Centralized Interim Storage project to provide interim storage for nuclear waste.

2. Advancing on the Learning Curve

Use of a Centralized Interim Storage (CIS) facility is not a recent management concept, as many nuclear energy countries have long integrated them as part of their systemic nuclear waste management. Each country, depending on their conditions, deploys different CIS facilities to store different types of nuclear energy production related waste.

The Netherlands government is of the opinion that long-term centralized storage strategies are helpful for the safe management of radioactive waste and are more acceptable to the public. In 1984 it adopted a radioactive waste policy, which stipulated that all radioactive waste will not be processed for 100 years and will be safely stored in centralized storage facilities. In 2000, it began using the COVRA centralized storage facilities. Switzerland stored radioactive waste produced by power plants temporarily at the plants themselves, and as it was difficult to find sites for disposal facilities, it started using ZZL centralized storage facilities in 2001, to receive radioactive waste formerly stored in the nuclear power plants. Belgium, Canada and other countries have also installed centralized storage facilities, according to their respective needs.

In 2010 the Obama administration in the US terminated the Yucca Mountain spent fuel

disposal project, which had been in use for more than 20 years, and at the same time established a Blue Ribbon Committee (BRC), to review US spent nuclear fuel management policy. The committee suggested eight proposals, including using centralized storage facilities as alternatives. In response, the U.S. Energy Department came up with a plan in January 2013, to start using centralized interim facilities in 2025, before starting the use of final disposal facilities in 2048.

3. Taiwan Power Company Starts Implementing its Centralized Storage Plan

In accordance with TPC's "Low-Level Radioactive Waste Final Disposal Plan", if a candidate site for final disposal facilities for low-level radioactive waste was not be determined by March 2016, TPC should commence the "Centralized Storage Plan for Low-Level Radioactive Waste" at the end of 2016; moreover, in accordance with TPC's "Spent Nuclear Fuel Final Disposal Plan", if a candidate site for spent fuel disposal facility cannot be determined by 2028, TPC should commence the "Centralized Storage Plan for Spent Nuclear Fuel" in 2029.

TPC failed to decide a candidate site for final disposal facilities for low-level radioactive waste by March 2016 and so it came up with a plan for centralized storage of low-level radioactive waste; its initial plan was to build a centralized facility with enough capacity to store low-level radioactive waste and spent fuel produced during operation and decommissioning of Nuclear Plants Number 1, 2, 3 and waste held at the Lanyu Storage Facilities. It will require about 26 hectares of land, and the Ministry of Economic Affairs (MOEA) will organize a siting committee to perform siting according to the following three principles: "Fair and Just Organization", "Public Participation" and "Objective Criteria". The Atomic Energy Council (AEC), after reviewing its plan, demanded TPC shall according to the promise of the "Low-Level Radioactive Waste Final Disposal Plan", complete and operate of the centralized storage facility within 8 years, starting from March 2017.

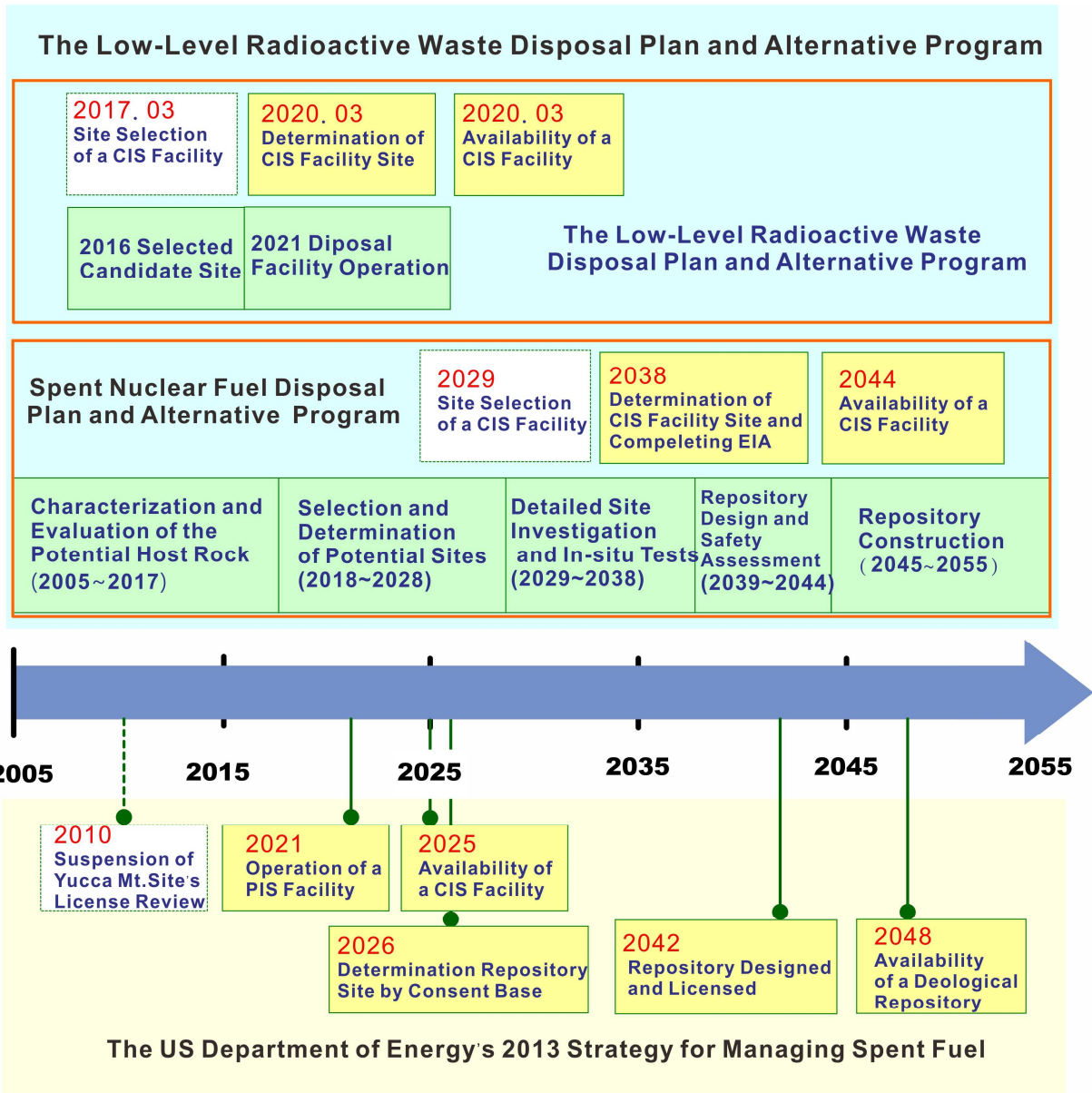


Fig. TPC's Planned Schedule for Centralized Storage of Low-Level Radioactive Waste

4. The Atomic Energy Commission Will Proactively Regulate

The centralized storage facility is the same as a storage facility, therefore the regulatory requirements are not different from the current safety criteria for storage facilities. In accordance with Article 17 of the "Nuclear Materials and Radioactive Waste Management Act", an application for construction of storage facilities for radioactive waste shall be submitted to the relevant authorities, who will review it and if found to meet safety regulations, a construction license will be issued. The AEC promulgated "Regulations for the Review and Approval of Applications for Construction Licenses for

Treatment and Storage of Radioactive Waste Final Disposal Facilities” and “Regulations on Treatment and Storage of Radioactive Waste and Safety Management of the Facilities” which can effectively regulate storage facility safety.

In June 2016 the AEC promulgated “Site Specifications for Radioactive Waste Centralized Storage Facilities”, which can be used for objective criteria in siting centralized storage facilities. The Specifications cover active faults, landslides, volcanoes, hydrology, soil liquefaction, tidal waves, human activities and natural influences, which are the factors that should be considered when siting so as to select a site consistent with geological safety, scientific environment evaluation and other fundamental conditions.

5. Conclusion

For safety management of nuclear waste, the AEC requested TPC to actively implement nuclear waste disposal plans and centralized storage alternatives, and duly perform relevant safety reviews and comply with regulations, to thoroughly solve the nuclear waste issues. In accord with its ideal of serving all the citizenry, the AEC will continue to listen to the voices of the people and to work with the people to jointly supervise TPC in its tasks of decommissioning and treatment of nuclear waste.