

WM2015 Conference Panel Report

PANEL SESSION 022: **Global Emerging Issues and Strategies: Why Immediate Dismantling is Being Preferred over Deferred Dismantling**

Session Co-Chairs: **Jas Devgun, *Sargent & Lundy***
Al Freitag, *Consultant*

Panel Report: **Michelle Claggett, *Project Enhancement Corporation***

Panelists:

- **Jeff Hays, *Vice President of Decommissioning, AREVA***
- **Claudio Pescatore, *Principal Administrator, OECD-NEA Decommissioning (France)***
- **Bruce Hinkley, *Vice President of Decommissioning, HOLTEC***
- **Tom LaGuardia, *Managing Member, LaGuardia & Associates***
- **Laurence Piketty, *Director of Nuclear Clean-up and Decommissioning; CEA France***

This panel focused on the worldwide D&D issues at Nuclear Power Plants (NPPs). The nuclear renaissance in Europe and North America has stalled and older NPPs are finding it harder to remain cost competitive. In the US especially, the energy economics has tilted substantially towards natural gas for electricity production. As a result, several NPPs have recently shutdown much earlier than initially planned. Projections show a steeper upswing in the D&D of NPPs worldwide. A less noticed trend has been that the NPPs can no longer apply the "wait and see" strategy and use "deferred dismantling" as an option. Many factors including state intervention, D&D fund status, economic factors and public interest are driving the application of the "immediate dismantlement" option. Another less noticed trend has been that experienced personnel have been retiring in large numbers and the "Decommissioning Cavalry" is shrinking quite rapidly.

Summary of Presentations:

It takes about 10 years for DECON, which consists of equipment and structures removed or decontaminated to a level that permits radiological release (generally without restrictions). If DECON is not immediately pursued, the plant can be placed in SAFSTOR for up to 60 years. SAFSTOR is when a plant is placed in a safe, stable condition and maintained in that state for long periods of time until subsequently it is decontaminated to levels that permit radiological release of the site (including 50 years of storage followed by 10 years for decommissioning). The panel discussed the advantages and disadvantages to immediate dismantlement. Many factors contribute to whether an NPP is immediately dismantled or if dismantling is deferred. These factors include regulatory requirements, multi-unit sites, state intervention, public intervention, the state of the decommissioning fund, maturity of technologies, retaining the knowledge of the plant state, and land reuse. Immediate dismantling is less expensive, reduces oversight costs, and makes sense when there is stakeholder buy-in. Radiological characterization is easier now rather than in a few decades and it would avoid future regulatory uncertainty. Today's highly qualified nuclear workforce and their experience means there is less risk of loss of knowledge or corruption of records than when decommissioning is delayed for decades. Additionally, availability of funds is assured and there is not concern that funds will be spent elsewhere. The status of and confidence in the decommissioning fund, plus local and state politics and public pressure have a major influence on whether a nuclear power plant is immediately dismantled or enters into SAFSTOR. Reasons for Deferral: Too many facilities and not enough funds to dismantle all,

WM2015 Conference Panel Report

so prioritize based on safe considerations/reduce global hazard. Deferral may be needed to wait for disposal routes for LLW/MLLW or for technical solutions for treatment of certain wastes, such as graphite. Deferral takes advantage of natural radioactive decay and may reduce decommissioning costs. If there are insufficient current funds, deferral allows time and potential for the fund to grow.

In the next 20 yrs, more than 200 NPPs are expected to be closed, primed for or begin decommissioning worldwide, which is more than 50% of the number currently in operation. Of these closures, 75% are due to units that have lived out their lifetime, fulfilled their purpose, or are no longer economically justifiable to run. In Europe alone, 150 reactors are on track to be decommissioned in the next 20 years, comprising 69% of projected nuclear power related closures by 2030. In the United States, 38 reactors will be shut down by 2035 due to the end of their operating licenses. However, premature plant closings are an issue. Energy market conditions have driven several premature plant closings in the USA, including 5 in 2013. Political implications and site specific situations have also influenced decisions to shut down plants.

Once initiated, it is not easy to change from SAFSTOR to near-term DECON. During the panel discussion the recommendation was made to consider a phased approach to DECON. Our industry is responsible to cost effectively and safely decommission our shut down fleet (utilities and vendors) Factors to Consider: Availability of Qualified Resources (internal to licensee and decommissioning contractor). Is there internal experience available for immediate dismantling? There is a limited pool of decommissioning experienced resources with recent/current decommissioning experience. Key personnel retention is important. Critical skills evaluation is needed, key milestones to be identified, specific activity completion and target dates identified, a target incentives program creation to keep retain essential employees on site. What is the availability of Decommissioning Funds? The influence of stakeholders is important. Just because immediate dismantling or deferral is acceptable based on regulations does not mean it is publically acceptable. The importance of state and local involvement is reiterated through the panel. The availability of waste disposal sites will also impact this decision, including the option to use Interim Centralized Storage Facilities or a Federal Waste Repository.

DECON has been shown to be cost-effective when key knowledge staff/labor resources are available, critical equipment is functional, and the regulations are known and essentially stable,. DECON removes the risk and long-term liability, allows for the potential of early re-use of site and gives the public perception of risk eliminated. (OECD/NEA, IAEA, US DOE workshop in Rome, Italy 2004). If LLRW or ILW or HLW repository not available, store waste on site in best available containers under a protective cover until repository is available. However, there are stakeholder concerns with DECON. A few notable concerns include increased heavy equipment traffic on local roads, the potential for a dismantling accident and offsite release, allowable site-release criteria, end-state condition (residual structural debris), the social-economic impact (loss of jobs, drop in real estate values, reduction of municipal tax income. Transition to decommissioning planning requires organizational realignment, a culture change from operations to decommissioning, licensing and regulatory compliance, contractual/prop taxes/industry fees, financing activities, procedure, program and process burden reduction, system reclassification, fuel storage, decommissioning preps, site characterization, facilities planning/modification, personnel/contractor training, asset recovery, and strong government and community relations. Deferred Dismantling is an interesting alternative in cases where some important prerequisites for responsibility dismantling are not yet met. SAFSTOR may be needed if there is

WM2015 Conference Panel Report

insufficient funding, other on-site units still operating, occupational exposure concerns, lack of waste disposal repositories, and to pursue opportunity for technological improvements.