

WM2015 Conference Panel Report

PANEL SESSION 013: **Featured Country – France**

Session Co-Chairs: **Pierre-Marie Abadie, CEO ANDRA**
 Gerard Kottmann, The French Nuclear Industry (AIFEN)

Panel Reporter: **Jean-Michel Bosgiraud, ANDRA**

Panelists:

- **Dominique Dapei**, *Deputy Head of the Nuclear Fuel Division, EDF*
- **Christophe Béhar**, *Director of Nuclear Energy, CEA*
- **Dominique Mockly**, *Senior Executive Vice-President of Back End Business Group, AREVA*
- **Pierre-Marie Abadie**, *CEO, ANDRA*
- **Arnaud Gay**, *Vice-Chairman of the Dismantling Working Group, Strategic Nuclear Committee (CSFN - France)*
- **Gérard Kottmann**, *The French Nuclear Industry (AIFEN)*

An intercompany panel was convened at WM2015 to discuss in Session 13 and Session 14 the various industrial aspects of Decommissioning and Dismantling (D&D) of Nuclear Facilities in France and the related Waste Management (WM) Issues. In Session 13, the technical and financial stakes (related to D&D and WM) were first presented by the principle waste generators concerned, while the array of D&D services offered by the French industry was later detailed. In Session 14 a focus was made on the industrial development of Cigéo (the French Deep Geological Repository) for IL-LLW and HL-LLW storage.

Summary of Presentations:

- *EDF's presentation by **Dominique Dapei***: Operating 58 Nuclear Reactors (NR) in France, 15 in the UK and having a few under construction or planned, EDF positions itself as a Nuclear World Leader amongst utilities. As such, its technical concerns and liabilities are significant regarding D&D issues and WM policy (nine nuclear plants are already undergoing D&D operations in France). The corporate D&D policy is to start dismantling operations immediately after the reactor shut-down, under the supervision of the Nuclear Safety Authority. EDF has developed an expertise and consolidated a line of suppliers in order to minimize the amount of waste generated. Besides, EDF is legally and financially bound until complete clean-up and release of the sites. The dedicated assets only allocated to long-term waste management and decommissioning activities funding are under strict public control.
- *CEA's presentation by **Christophe Béhar***: CEA is the main scientific support of D&D in France, be it for itself (as a major nuclear player with some 55 years of legacy) or for third parties (such as EDF and AREVA). CEA's cleanup priorities are focused on its facilities enclosed in city centers and on the site of Marcoule in the Rhone valley. Just as EDF, the objectives are minimization, optimization of categorization, and on line evacuation of waste generated by D&D. Just as DOE in the USA, CEA has for historical reasons a huge amount of waste and a very vast array of waste categories (from civil or defense origin), in all forms (solids, liquids, gases), for which specific solutions must be developed. (R&D is carried out and shared via international cooperation programs, since it has a special role to help decrease costs, schedules and amounts of waste and to improve the occupational safety) and then implemented. On a yearly basis, these activities mobilize 815 CEA

employees and about 2500 employees from supply chain at a cost of 580 M€/year. The budgeted financial liability is some 10 Billion € over 15-20 years.

- *AREVA's presentation by **Dominique Mockly***: Most of the waste generated by Spent Fuel reprocessing at La Hague belong to EDF (or other utilities) and CEA. The challenge in reprocessing is in obtaining “zero waste” produced by the technology. At the time, the “Universal canister Strategy” has led to a division by 5 (over years) of the volume of technological waste produced. Besides the uranium mining and processing legacy, the major D&D and WM challenges will be the future progressive decommissioning of the La Hague plant, starting with UP2-400 (the budget is some €4Bn over 25 years). AREVA is also (via its subsidiaries) a D&D contractor, contributing internationally to the cleaning efforts.
- *ANDRA's presentation by **Pierre-Marie Abadie***: ANDRA, the French Waste Management Organisation (WMO), is acting as a Public Body, under the aegis of the Ministry of Climate and Environment. ANDRA is independent from the radioactive waste generators. ANDRA is in charge of managing all categories of radioactive waste. Funding is mainly provided by the waste generators. ANDRA's industrial activities include operations of LIL-SLW (Low and Intermediate Level - Short-Lived Waste) and VLL-SLW (Very Low Level – Short-Lived Waste) (no clearance levels in France) disposal facilities offering a total capacity 1.5 Million m³ but also managing the radioactive waste produced by the non-electro-nuclear industry (hospital, research laboratories, legacy radioactive material owned by individuals) and the remediation of polluted “orphan” sites. ANDRA's main challenges for the future are the design studies of a future disposal of LL-LLW (Long-Lived Low Level Waste) and of course of Cigéo, a repository for HL-LLW (High-Level Long Lived Waste) and IL-LLW (Intermediate Level Long-Lived Waste) to be operated for more 120 years (cf. Cigéo presentation in Session 14). For all these missions ANDRA collaborates with the waste generators, the specialized sub-contractors, the scientific community, the public stakeholders and the regulators. Territorial engagement and information of the Public at large are keys elements to build confidence and gain support for the new projects to come.
- *CSFN's presentation by **Arnaud Gay***: CSFN is an offset of CNI (National Council for the Industry), created to enlighten public authorities on the situation of the nuclear industry in France, express opinions and formulate proposals and recommendations to the French Government to improve the competitiveness of the industry and develop employment and associated skills. It has a 4 axis action plan: Structuration of the industry, Employment Activity, Development of the Industry, Innovation. In the particular field of D&D, five (5) specific domains have been surveyed: regulation, employment and competencies, waste characterization and conditioning, sub-contracting policy, initial and final states of decommissioned facilities, international activities. The nuclear industry operators and contractors are eager to build worldwide win-win collaborations on high added-value topics in the field of D&D and WM.
- *AIFEN's presentation by **Gérard Kottmann***: AIFEN is a non-profit society created to promote France's nuclear know-how worldwide (e.g. coordinating French pavilions on selected international exhibitions such as WM2015, organizing a global international event focusing on nuclear business in Paris). France offers a unique portfolio of competences in D&D and WM: behind the leaders like ANDRA, AREVA, CEA, EDF, there is an extensive network of small and medium size specialists in all fields of competences. Many contractors are already working internationally and are ready and willing to do more.

Synopsis of Panel Discussions:

Due to the length of Session 13, it was decided that panelists and members of the audience would make comments on the presentations delivered by the speakers and raise questions related to D&D and WM policies at the end of Session 14 (convening the same panelists).

Confer to session 14 Conference Panel Report for more details.

Conclusions:

The French Nuclear Industry is amongst the world leaders in the field of D&D and WM. The nuclear operators and its vast array of suppliers and contractors are eager to extend their activity worldwide. The Session attendees are invited to pay a visit at the French pavilion in the Exhibition hall.