

WM2015 Conference Panel Report

PANEL SESSION 003: **Featured Country – France**

Session Co-Chairs: **François-Michel Gonnot**, *ANDRA*
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Panelists:

- **Virginie Schwarz**, *Director for Energy at the Ministry of Ecology, Sustainable Development and Energy in France;*
- **Jean-Luc Lachaume**, *Deputy General Director of ASN, The French Nuclear Safety Authority*
- **Jean-Yves Le Deaut**, *Chairman of the Office of Parliamentarian Scientific and Technologic Choices*
- **Francois-Michel Gonnot**, *Chairman of Andra*
- **Gerard Cote**, *Professor at the Paris School of Chemistry, I2EN*
- **Valerie Faudon**, *Delegate of the French Nuclear Society (France)*
- **Axel Cruau**, *Consul of France, Los Angeles*

This session reviewed the institutional arrangements and principles that are at the basis of France's radioactive waste management program and how they came about. It also allowed an overview of ancillary institutions and activities that support France nuclear industry and radioactive waste management both in the country itself and worldwide.

France relies on nuclear for up to 75% of its electricity. The country has been committed to nuclear for many decades and has a full panoply of nuclear installations from research facilities, to PWRs, to enrichment plants, to submarine reactors, to fast breeder reactors, etc. A few of these installations are under decommissioning and France is building both a strong decommissioning and radioactive waste management program.

Most (by volume) of the country's operational waste is being routinely disposed in dedicated facilities. France is now looking for a disposal site at intermediate depth for its long-lived LLW, and is quite advanced in planning for the development of its disposal facility for long-lived medium-level and high-level wastes. The latter constitutes both a technical and societal project and is named Cigéo. The seven speakers in this session demonstrated how mature the French waste management programme is; each speaker highlighting the role of his/her institution in the overall system.

The development of the modern French waste management program is deeply rooted in Law. Two laws are most relevant for high-level waste management: the 1991 law and the 2006 law. The 1991 law created ANDRA as an independent, dedicated public organisation in charge of managing all radioactive waste in France, with a single, clear objective; to protect the environment and future generations. This was a response to criticism that the nuclear industry might be pursuing different, less honourable objectives. Further, the 1991 law established three research avenues with equivalent funding on disposal, with Andra as the lead, and on long-term storage and on P&T, both led by the CEA, which is the organization that runs the French national laboratories. Fifteen years later, evaluation of the ANDRA and CEA research results culminated with the national Parliament: 1) accepting deep disposal,

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provided it incorporates reversibility provisions, as the final solution for managing long-lived intermediate level waste and high-level waste, and 2) promulgating the 2006 law charting the path forward. The 2006 law (a) addresses the aspects of providing benefits to the host regions, (b) strengthens transparency aspects by also creating a special national committee on transparency; (c) strengthens the independence of the regulatory body; and (d) institutes the National Plan for dealing with all radioactive waste present and future in France.

The session highlighted three (3) important pillars of the French waste management system. Namely:

- The engagement of Parliament (Assemblée Nationale). The French Parliament, notably through its Office of Parliamentary Technological and Scientific Choices (OPECST), represented in this session by Mr. Le Deaut, has taken up the issue of radioactive waste management since the end of the 80's and has been active in providing reviews and proposing solutions, including the laws of 1991 and 2006. This engagement has been paramount to maintaining momentum and ensuring continuity over the past 25 years.
- A waste management organisation, ANDRA, represented in this session by Mr. Gonnot, with the clear mission of protecting the environment and independent of the producers. ANDRA reports to several ministries, but the co-ordinating function is carried-out by the Ministry of Ecology, Sustainable Development and Energy represented in this this session by Mrs Schwarz. ANDRA missions also include providing periodically a national inventory of radioactive materials and waste; solutions for waste types for which there are no final management solutions yet; cost assessments of disposal, including of spent fuel if this were declared as waste; operate and monitor LLW and VLLW sites; recovery of radiological sources not under regulation; remediation of contaminated sites; informing the public; disseminating its know-how in France and abroad.
- An internally consistent and, over the years, increasingly more transparent approach to regulating radioactive waste management, with sound core principles and objectives was needed. The national safety authority (ASN), represented in this session by Mr. Lachaume, carries out the technical regulatory function. The ASN has at its disposal the IRSN, the independent National Institute for Radiological and Nuclear Safety. The ASN also manages the National Plan through a pluralistic work structure that involves NGOs alongside institutional actors. The Plan allows:
 - periodic assessment of policies
 - evaluation of needs
 - definition of objectives to be met in the future, including for instance, securing long-term financing of Decommissioning and Radioactive Waste Management, or that memory aspects are not neglected, etc.

Alongside the above pillars, the session also allowed an overview of ancillary institutions and activities that support the French nuclear industry and radioactive waste management both in the country itself and worldwide. These are (a) the French International Institute for Nuclear Energy (I2EN), represented in this session by Mr. Cote; (b) the French Nuclear Society (SFEN), represented in this session by Mrs Faudon; and (c) the French consular services, represented in this session by Mr. Cruau.

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The responsibility of I2EN is to assess the nuclear education and training efforts in France and to co-ordinate national and international efforts. The I2EN relies on 15 industrial partners and 17 associated members from academic institutions. Waste management education needs to be anticipated by all stakeholders and these needs extend over hundreds of years. The I2EN helps offer Bachelor, Master and PhD degrees in dismantling and waste management.

Nuclear is the 3rd largest industry in France, and the SFEN, founded 1973, can count on 4000 engineers, scientists, and educators amongst its members. SFEN advocates fulfilling citizens information needs and provides a network within networks. It organizes more than 200 events each year. This year the biggest ones all have “low-carbon future” in their titles. SFEN publishes the magazine “Revue Generale Nucléaire” (General Nuclear Review) and is soon going to launch a new, open-access peer-reviewed academic journal. SFEN is also active on social media and it participated in the national debate that took place in France on the Cigéo project.

Also supporting the French nuclear system is its consular network abroad. Mr. Axel explained that the French Embassy in Washington, D.C. provides an open door to France in general and to nuclear France, in particular. The Embassy has a nuclear advisor. Additional entries to nuclear France are the 10 French consulates in the USA. “*Do not hesitate to contact us: France means business*”, he concluded.