WM2015 Conference Panel Report

PANEL SESSION 128: **NEA Working Party on Decommissioning and Dismantling (WPDD) – Key Activities and Findings**

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Panelists:

- **Claudio Pescatore**, *Principle Administrator, Radioactive Waste Management and Decommissioning, OECD /Nuclear Energy Agency (NEA) (France);*
- **Boby Eid**, *Senior Advisor, Division of Decommissioning, Uranium Recovery and Waste Management Programs, US NRC;*
- **Arne Larsson**, *Senior Advisor Radioactive Waste and Decommissioning Technology, Studsvik (Sweden);*
- **Andrew Orrell**, *Section Head, Waste and Environmental Safety, IAEA (Austria); and*
- **Bernard Poncet**, *Radioactive Waste Management Senior Expert, EDF (France).*

This panel session focused on WPDD activities and progress. It covered significant results of working groups related to characterization for decommissioning and future plans, results of R&D Task Group (TG) for Decommissioning, cost estimates for decommissioning, and the ongoing activities of TG on Nuclear sites remediation as well as planned future activities.

Summary of Presentations:

Claudio Pescatore's presentation outlined Decommissioning and Dismantling at NEA describing WPDD under the umbrella of NEA "Radioactive Waste Management Committee" and the current WPDD four Task Groups (TGs) namely: Decommissioning Cost Estimate Group (DCEG), Task Group on Radiological Characterization and Decommissioning (TG-RCD), Task Group on Nuclear Site Restoration (TG-NSR), and the newly formed Task Group on "Preparation for Decommissioning during Operation and After Final Shutdown," (TG-PFD). He also summarized the activities of the "Co-Operative Program for the Exchange of Scientific and Technical Information on Nuclear Installation Projects (CPD) and its coordination and interface with WPDD. Subsequently, he addressed the main topics raised during the latest WPDD annual meeting including: decommissioning strategies, reuse of nuclear sites after decommissioning, graphite reactor waste management and disposal, and disposal of hazardous materials and low activity waste. He also outlined planned topics within RWMC program which include: waste management logistics for decommissioning, knowledge and record managements, and decommissioning under harsh conditions. He presented titles of a few future professional meetings and conferences such as: the IAEA-NEA conference on "Advancing the Global Implementation of Decommissioning" to be held in Madrid, Spain on May 23-27, 2016; and the International Meeting to be held on February 16-18, 2016, in Lyon, France on "Preparation of Nuclear Facilities for Decommission." At the end of his presentation, Dr. Pescatore presented a few examples of recent WPDD publications to elucidate key activities and finding of WPDD TGs.

Boby Eid's presentation was delivered in two parts; Part I focused on "US Participation in NEA/WPDD Activities" particularly US Key Contributions to WPDD & Task Groups including:
Decommissioning Criteria and Implementation Process for Power Reactors; Risk/Dose Analysis for Decommissioning; US approaches to Characterization & Survey, Disposal of Large Components, Decommissioning & Waste Management/Minimization, R&D for Decommissioning, Decommissioning Lessons Learned & New Designs, US Approaches to Remediation/Clean-up & End-State, and US Decommissioning Status & Updates (Country Reports).
Dr. Eid also mentioned an important event of US (DOE & NRC) hosting WPDD 11th Annual Meeting in Washington DC; as well as US participation in WPDD Core Group and TGs. He emphasized the important role of US representatives in transfer and exchange of knowledge about decommissioning particularly when the US gained significant experience and lessons learned after decommissioning several power reactors and complex facilities. At the end of the Part I presentation, he summarized his recommendations, challenges, and future look areas.

Part II of Dr. Eid's presentation covered a detailed summary of each TG's activities and results and addressed anticipated plans for TG-PFD. He also encouraged more US participation from industry, the professional community, and as well as State agencies.

Arne Larsson's presentation addressed "Strategies for Radiological Characterization in Decommissioning of Nuclear Facilities" focusing on key findings of the Task Group for Radiological Characterization in Decommissioning (TGRCD). He emphasized that Characterization is considered as one of the most important activities in decommissioning of nuclear facilities and that is the main reason NEA/WPDD decided in late 2010 to form a TG on: *Strategies for Radiological Characterization in Decommissioning of Nuclear Facilities."* He described TGRCD activities in two phases: Phase I, *which was* completed in 2013 by the publication of the final report. In 2014 a new mandate (Phase II) was given to the task group on the topic "*Strategies for Optimization of the Nuclear Facility Characterization in a Waste and Materials End-State Perspective."* He described the importance of characterization throughout the life cycle of nuclear facilities and steps of characterization process including initiation, planning, implementation, data assessment, and judgment and reporting. He also described RCD important activities such as the RCD Workshop 2012 in Studsvik, Sweden which was attended by 120 delegates from 23 countries addressing characterization issues of multi-environmental media, as well as related methods and techniques. He summarized Phase I report focusing on main results and conclusions.

Mr. Larsson subsequently addressed Phase II RCD TG project which is being implemented, and is anticipated to be completed by end of 2016. Phase II involves optimization of decommissioning strategies and identification of y strategic approaches, good practice, issues and risks as related to disposal of radioactive waste and clearance of materials. For example, issues to be addressed include: what information should be collected (type, quality, and quantity); considerations of variability and uncertainties; justification of information need; how the information could be gathered and managed; when the information could/should be gathered; and how radiological characterization is linked to waste management and end-state perspective**.**

Andrew Orrell focused on IAEA Articles III and VIII regarding activities for development **of** safety standards and exchange of information. He indicated that the IAEA issued over 60 publications on decommissioning since the 1980's. He gave examples of recent standard development such as GSR Part 6 safety requirements on Decommissioning of Facilities, DS452 on decommissioning of NPPS, Research Reactors, and Nuclear Fuel Cycle Facilities and ongoing development of DS403 on decommissioning of medical, industrial, and research facilities**.** Subsequently, he gave examples of safety report series, technical report series, technical document series, and conference proceedings pertaining to decommissioning. For example, he outlined Technical Report #389 on Characterization for Decommissioning.

Mr. Orrell's presentation also focused on information regarding several IAEA projects on Safety Assessment and Risk management for decommissioning such as DeSa (safety Assessment for decommissioning) and FaSa (Use of Safety Assessment in Planning and Implementing Decommissioning) projects; DRiMa (risks affecting decommissioning management) project; and R2D2P (Research Reactor Decommissioning Demonstration) project. He also summarized decommissioning activities as related to IAEA Nuclear safety Action Plan particularly the "International Expert Meeting on Decommissioning and Remediation after a Nuclear Accident" which was held at IAEA on January 28, 2013.

Mr. Orrell also summarized IAEA coordination and cooperation with International organization such as Nuclear Energy Agency of OECD, World Nuclear Association, European Commission, and Western European Nuclear Regulatory Association. In conclusion, he indicated there will be an increase in decommissioning activities worldwide, and therefore the importance of safety of workers, the public, and the environment cannot be under estimated in carrying out decommissioning activities.

Bernard Poncet's presentation covered an important topical area on "R&D Initiatives for Decontamination and Demolition." In this regard he presented results outline of an extensive report developed by the TG on "R&D for Decommissioning," which was published in the summer of 2014. The major topics discussed in this report included: Characterization and surveys prior to dismantling; technologies for segmentation and dismantling; decontamination and remediation; materials and waste management; and site characterization and environmental monitoring. The R&D report provided discussions of capabilities and architecture to support and enable D&D innovation initiatives. For example, wireless communications and data sharing technologies were aspects addressed in the report; scanning and pattern recognition technologies another example presented. Dr. Poncet then discussed GEOSTATISTICAL EURSSEM approach and innovative technologies particularly increase in sensitivity of alpha camera through advances in Cameras and laser induced fluorescence R&D techniques. Subsequently, he described R&D project on increase of speed and efficiency of reactor internal segmentation and performing a small scale test using underwater mock-up and further development of large scale working design. Another R&D project involves Tank Heel decontamination to improve mechanical and chemical methods to deploy equipment, remove heels and decontaminate tank residues and lock down tank interior for demolition. This project provides modular system for tank heels removal, and decontamination for decommissioning and demolition. Finally, Dr. Poncet addressed R&D in the area of complex fate and transport codes to assess contaminant transports and associated risk.

Questions and Answer & Conclusions

Several questions and comments were raised regarding WPDD activities and IAEA cooperation. It was indicated by the Panelists that IAEA and NEA cooperate in multiple areas and IAEA participates as an observer for all WPDD annual meetings. The panelists and the audience recommended further coordination and cooperation to enhance decommissioning activities and reduce redundancies. Several attendees requested access to WPDD reports particularly those on decommissioning cost estimates and raised questions on approaches for decommissioning cost estimates particularly for power reactors. A few participants showed interest in TG on preparation for decommissioning and in TG on Characterization. Panelist provided website links to several reports completed and available to the public.

In summary, Session 128 was well organized, comprehensive, and covered several aspects and issues related to international decommissioning activities as well as communications and harmonization among international organizations. Numerous lessons learned, decommissioning approaches, waste management issues and remedies were discussed. The presenters showed good illustrations of actual actions and activities to demonstrate coordinated task groups activities and actual results and finding as well as R&D decommissioning needs and international cooperation.