

WM2012 Conference Panel Report

PANEL SESSION 13 – Fukushima Clean Up: Insight into Operations

Co-Chairs: Lisa Edwards, *EPRI (USA)*
David Oren, *CH2M HILL (USA)*

Panel Reporter: Gary Benda, *Bartlett Services, Inc. (USA)*

Panelists:

1. Takeshi Tsukunda, *Senior Research Scientist, CRIEPI (Japan)*
2. John Raymont, *President, Kurion (USA)*
3. Jim Braun, *President, AVANTech (USA)*
4. Graham Fairhall, *Chief Science and Technology Officer, National Nuclear Laboratory (UK)*
5. Bill Franz, *Project Manager, B&W International Technical Services, Inc (USA)*
6. Yasuo Onishi, *Chief Scientist, Pacific Northwest National Laboratory (USA)*
7. Kurt Kehler, *Senior Vice President of Decommissioning, CHPRC (USA)*

On average, approximately 70-85 attendees were present in this session. This was the last session of a three part series on Fukushima and also integrated in with the WM2012 Plenary. Following introductions by the Co-Chairs and due to limited session time, each panelist presented a short presentation. The seven panelists then followed by addressing questions from the audience and panel dialogues.

Takeshi Tsukunda presented an overview of the initial Hitachi-GE/AREVA/Kurion liquid waste treatment system. His presentation was titled “R&D Back-up Activities for the Kurion Media System of the Contaminated Water Treatment in Fukushima Daiichi Nuclear Power Station.” It had to be installed in two months. He also provided in-depth technical presentations on the Cesium ion exchange capabilities and the volume of water processed.

John Raymont continued the discussion on the Kurion liquid waste treatment system and their unique ion selection media. His presentation was titled “Matching Capabilities to Needs, Creating a Timely Solution for an Emergency Water Cleanup”. He described the challenges of processing the highly contaminated salt water, mixed with oily material and other debris. He explained the similarities of water processing and the contrasts with the US – Three Mile Island nuclear power plant incident in 1979. He also explained some of the challenges including changing design and processing specifications and the short delivery schedule. Today, the water activity is approximately 10% of what it was at system start-up June 17, 2011 with the Kurion system having removed approximately 70% of the initial inventory of 14 million curies of cesium activity.

Jim Braun continued the liquid waste treatment system discussion, but described the alternative system designed and installed by Toshiba/Shaw/B&W/AVANTech team. His presentation was titled “SARRY Implementation at the Fukushima-Daiichi Nuclear Facility”. SARRY is an acronym for **S**implified **A**ctive water **R**etrieval and **R**ecover**Y** system. Jim mentioned the past development of their unique ion selective resin developed with the US DOE as a Cooperative Research and Development Agreement

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(CRADA). He also covered some of their challenges and the performance of their system. Future challenges of dealing with the stored water and the interim storage of the highly radioactive ion exchange vessels was also presented.

Graham Fairhall provided a presentation on an “Overview of Challenges Completed in UK Relevant to Fukushima”. He described the UK legacy fuel in ponds/vaults, the decommissioning of the Windscale Pile (the nuclear graphite facility that had the fire) and provided an outline of United Kingdom/Japan interactions on decommissioning of Fukushima including a joint workshop.

Bill Franz presented an overview of “Fukushima Daiichi Recovery - How Can the US Help?” He elaborated on the US TMI experience and the Japanese assistance of over \$18 Million during that recovery event. He discussed the Road Map to Recovery and the spent fuel /core removal program. He also invited others with “Technologies Ready to Go” to assist in the program. He also elaborated on what challenges he foresees in the upcoming years.

Yasuo Onishi transitioned the session to a new related topic on the “Environmental Remediation of Areas Contaminated by Fukushima Nuclear Accident”. He presented on the radionuclide distribution in the areas surrounding Fukushima, the Cesium behavior and distribution in soil, and their main remediation projects. He also presented some of the completed remediation projects and the challenges incurred. He also discussed the remediation demonstration currently underway and some of the remaining remediation issues.

Kurt Kehler presented information on “Fukushima Environmental Remediation” and the path forward. He compared some of the environmental projects CH2M HILL encountered and completed similar to Fukushima. He also identified that it is a logistics problem...not just a technology challenge and the clean-up program should begin with the “End in Mind”.

Excellent audience Q&A interaction followed the presentations...Questions included additional information on liquid waste processing, concern of the marine impact, return of evacuees, the significant waste storage and disposal costs and the need for technology for quick and accurate field characterization during remediation.

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