PANEL SESSION 33: Progress in Implementing US Support to Japan (Part 3 of 4)

Co-Chairs: **Jeff Griffin**, *Savannah River National Laboratory*
Wayne Johnson, *Pacific Northwest National Laboratory*

Panel Reporter: Andrew Fellinger, *Savannah River National Laboratory*

Panelists:

1. **Jeff Griffin**, *Savannah River National Laboratory*
2. **Wayne Johnson**, *Pacific Northwest National Laboratory*
3. **Jeannette Hyatt**, *Savannah River National Laboratory*
4. **Paul Bredt**, *Pacific Northwest National Laboratory*
5. **Andrew Fellinger**, *Savannah River National Laboratory*

About 25 people attended this panel session, which focused on the progress of U.S. National Laboratory support to Japan since the earthquake and tsunami that crippled the Fukushima Daiichi Nuclear Power Station in March 2011. The session opened with five panelists presenting updates to actions underway, including laboratory work with Tokyo Electric Power Company (TEPCO), the Embassy Science Fellow (ESF) program, and Japan Atomic Energy Agency (JAEA). A question and answer session followed.

Summary of Presentations

Jeff Griffin presented an overview of the various components of U.S. National Laboratory engagement with Japan since the devastation of the Fukushima Daiichi Nuclear Power Station by the March 11, 2011 earthquake and tsunami. He outlined work with the Tokyo Electric Power Company, Embassy Science Fellow program and Japan Atomic Energy Agency. He described U.S. Department of Energy National Laboratories' decades of expertise and capabilities in remediation, including 1) decontamination & decommissioning of nuclear facilities and structures, 2) spent and damaged fuel characterization, handling, and packaging, 3) assessment of the condition of the reactor fuel and internals, 4) liquid and solid radioactive waste processing, 5) soil, groundwater and vegetative remediation and environmental management, 6) radiological detection, measurements and monitoring, 7) remote operations in challenging radiation environments, and, 8) community development strategies to diversify the site beyond nuclear power and restoration missions.

Andrew Fellinger described the sequence of meetings and exchanges between U. S. National Laboratories and Tokyo Electric Power Company that started with a TEPCO management team visit to Savannah River National Laboratory and Pacific Northwest National Laboratory in February-March 2012. That visit led to a signed Work-for-Others contract on September 6, 2012. The formal contract with TEPCO was to examine the feasibility of using U.S. National Laboratory expertise in specific areas of interest. Collaboration in these seven areas was described: 1) groundwater management, 2) grouting-related techniques, 3) sample analysis laboratory, 4) waste treatment, 5) fuel debris management, 6) water treatment, and, 7) community revitalization. The contract deliverable would be a Feasibility Study, which was being prepared for a March 6 delivery.

Jeannette Hyatt and Paul Bredt described the events leading to the placement of three Embassy Science Fellows at the U.S. Embassy in Tokyo, one each from the Savannah River National Laboratory and the Pacific Northwest National Laboratory and one from the Environmental Protection Agency. The short-duration (February-March 2013) tours with the Embassy were arranged through the existing Department of State ESF program and stemmed from government-to-government interactions with the Government of Japan Ministry of Environment. The mission of the three U. S. decontamination experts was to assess the decontamination needs in the Exclusion Zone surrounding the Fukushima Daiichi NPS and offer expert advice as to expedient decontamination methods and technologies. The ESF recommendations had to recognize the need to deploy solutions expeditiously and to demonstrate effectiveness to the citizens. Japan's general guidance and existing framework for communication and public involvement, cleanup decision-making processes, and decontamination practices were described. ESF "reach-back," or the expectation that the ESFs would serve as conduits for the collective knowledge of the U. S. institutions to which they belonged, also was described

Wayne Johnson described National Laboratory engagement with the Japan Atomic Energy Agency. Immediately after the Fukushima Daiichi NPS accident, JAEA contributed to assessment of the situation and restoration from the accident. Under the direction of the Ministry of Education, Culture, Sports, Science and Technology (MEXT) and the Cabinet Office, JAEA presently is conducting radiation monitoring of the environment, radiation dosimetry for the local people, decontamination of school and kindergarten yards, and demonstration projects for verification of decontamination at designated areas of certain municipalities. Current U. S. National Laboratory work directly with JAEA primarily consists of contracted support from Dr. Onishi of PNNL to environmental assessment and waste management plans in the impacted areas surrounding the site. A visit by JAEA to SRNL, PNNL, and Oak Ridge National Laboratory in January 2013 to investigate opportunities to collaborate with U. S. National Laboratories on the earthquake and tsunami recovery as well as other possible endeavors also were discussed.

Questions and Answers

In response to a question as to what methods or techniques were most useful in communicating with the Japanese public, **Wayne Johnson** acknowledged that communications at all levels was very important but that personnel were still working towards comprehensive communication. **Jeff Griffin** explained that Japanese citizens were faced with deeply emotional issues in the aftermath of the multiple tragedies and that satisfying the public's desire to know would be a long journey; all stakeholders would have to remain open to viewing the issue from opposing perspectives.

The panel was asked what Japan expects from outside expertise, to which **Jeff Griffin** replied that independent confirmation of technology and methods selection seemed to be most useful to Japanese technical personnel**. Jeannette Hyatt** described U.S. expertise being applied to the Japanese need to reach technology deployment in the shortest amount of time possible. The Japanese desire that we quickly transfer any useable technical knowledge was described by **Paul Bredt**. **Wayne Johnson** noted that U. S. National Laboratories offered systematic steps to

determining the most expeditious processes and technologies to achieve desired end-states that were based on decades of experience.

In response to a question about communicating to the Japanese what has not worked here (our failures), **Wayne Johnson** said that through our teams assembled to work with TEPCO as well as through the Embassy Science Fellows, the U. S. National Laboratories had been able to communicate our lessons. **Jeannette Hyatt** added that knowledge management is a global challenge.

The final question of the session was how the U. S. National Laboratories could assist the Japanese in mitigating cesium migration in marine/subsurface environments. **Jeff Griffin** replied that it was included in the scope of the Feasibility Study being prepared for TEPCO.