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**ORNL
FOREIGN TRIP REPORT
TA 356057**

DATE: January 29, 2014

SUBJECT: Report of Foreign Travel to Tokai, Japan – Michael E. Dunn, Reactor and Nuclear Systems Division

TO: Jerry N. McKamy, Director, Office of Environment, Safety, and Health, National Nuclear Security Administration / NA-00-10/GTN, 1000 Independence Ave., SW, Washington, DC 20585-1290

FROM: Michael E. Dunn

PURPOSE: The primary purpose of the travel is to participate in the Organization for Economic Cooperation and Development (OECD) Working Party on International Nuclear Data Evaluation Cooperation (WPEC) Subgroup 38 Meeting. WPEC SG38 is working to develop a new international format to facilitate the exchange of nuclear data throughout the world.

SITES VISITED: Japan Atomic Energy Agency (JAEA)

ABSTRACT: WPEC Subgroup 38 (SG38) is working to develop a new, modern international database format to replace the existing Evaluated Nuclear Data File (ENDF/B) format. The Nuclear Criticality Safety Program (NCSP) Nuclear Data and Analytical Methods program elements utilize the ENDF/B data format to transmit new nuclear data evaluations and process ENDF/B evaluations to produce radiation transport libraries, respectively. As a result, the ENDF/B format is key to the NCSP work tasks involving use of the ENDF/B nuclear data formats. Michael Dunn participated in the WPEC SG38 meeting December 9-11, 2013 at JAEA in Tokai, Japan. Dunn is the Chair of the international ENDF/B Formats Committee, and Dunn leads the ORNL and NCSP nuclear data work efforts. During the meeting Dunn led the discussion on the QA requirements for the new ENDF/B format. Meeting participants included staff from the Japanese, European, and US nuclear data projects. Dunn's participation in the WPEC SG38 meeting provided the opportunity for Dunn to represent the NCSP nuclear data interests while helping to develop the new ENDF/B format.

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REPORT OF FOREIGN TRAVEL

**Michael E. Dunn
Tokai, Japan
December 7–12, 2013**

PURPOSE OF TRAVEL

The primary purpose of the travel is to participate in the Organization for Economic Cooperation and Development (OECD) Working Party on International Nuclear Data Evaluation Cooperation (WPEC) Subgroup 38 Meeting. WPEC SG38 is working to develop a new international format to facilitate the exchange of nuclear data throughout the world.

Report

WPEC Subgroup 38 (SG38) is working to develop a new, modern international database format to replace the existing Evaluated Nuclear Data File (ENDF/B) format. The Nuclear Criticality Safety Program (NCSP) Nuclear Data and Analytical Methods program elements utilize the ENDF/B data format to transmit new nuclear data evaluations and process ENDF/B evaluations to produce radiation transport libraries, respectively. As a result, the ENDF/B format is key to the NCSP work tasks involving the use of the ENDF/B nuclear data formats.

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On the first day of the meeting, the WPEC SG38 Chair reviewed the subgroup work progress to date and established the work plan going forward. Additional discussions were devoted to defining the "low-level" data container requirements along with the new nuclear data structure and implementation plan for the new nuclear data structure. During the first day of the meeting, end-users from the Japanese nuclear community provided presentations on specific applications (including criticality safety), and the presenters emphasized their respective application needs for the new data format.

On the second day of the meeting, the working group discussed the needs and requirements for a particle database followed by the infrastructure for the new format. Subsequent discussions focused on the Application Programming Interface (API) requirements for the new data structure. Following the API discussion, Dunn led the discussion on the QA requirements for the new data structure, and the working group spent time discussing details of the unit and regression tests that will need to be implemented. The working group meeting concluded with a discussion about the documentation needs and governance of the new format going forward.

During the last day of the meeting, JAEA provided a technical tour of the Japan Proton Accelerator Research Complex (J-PARC) facility. J-PARC is a spallation neutron source that has the capability to perform neutron science measurements including neutron capture and fission cross-section measurements.

The tour provided an opportunity to review the J-PARC neutron cross-section measurement station and learn about the nuclear data measurement capabilities that could be of interest to the NCSP in the future.

Overall, Dunn's participation in the meeting provided the opportunity to ensure the NCSP Nuclear Data and Analytical Methods interests are represented in the new international nuclear data format. In addition, Dunn is working to develop the QA requirements for the new nuclear data format that will improve the confidence and reliability with future nuclear data evaluations that are needed to support nuclear criticality safety applications.

Itinerary

12/7/2013 - 12/08/2013	Travel from Knoxville, TN, USA to Tokai, Japan
12/9/2013 – 12/11/2013	WPEC SG38 Meeting
12/12/13	Travel from Tokai, Japan to Knoxville, TN, USA

DISTRIBUTION

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