

Discussion Summary of Working Group III Nuclear Science, Technology, and Safeguards

TECRO-AIT Meeting of the Joint Standing Committee on Civil Nuclear Cooperation
December 8-9, 2015

Number of items discussed	23
Closed items	1
New items	0
Moved items	1
Number of working items after the meeting	21

1. Closed items:

AE-NR-D65, "Epidemiology Study on Effects of Prolonged Low-dose Radiation Exposure on Residents living in ⁶⁰Co-contaminated Rebar Buildings in Taiwan."

2. New items:
none

3. Moved items:

AE-DE-F39, "Nuclear Forensics Initiative." was moved to Working Group IV.

4. Highlights:

- ☐ AE-NR-D65, "Epidemiology Study on Effects of Prolonged Low-dose Radiation Exposure on Residents living in ⁶⁰Co-contaminated Rebar Buildings in Taiwan." The report, Chinese version, of the epidemiological study has just been finalized. The item is closed.
- ☐ AE-IN-NR-D66, "Administrative Regulation of the Naturally Occurring Radioactive Material (NORM)." Both sides continue to engage about how the NORM is regulated in the U.S. and Taiwan.
- ☐ AE-DE-F39, "Nuclear Forensics Initiative." AEC invites NNSA to provide training on Nuclear Forensics in 2016. NNSA will attempt to identify resources to provide AEC tools for nuclear forensics self-assessment and a process to identify gaps in forensics response. The item is moved to Working Group IV.
- ☐ IN-OR-I7, "Production and Evaluation of Isotopes and New Radiopharmaceuticals." In order to develop the manufacturing technique of the new radioisotope Zr-89 at INER, Mr. Jenzon Chen, an associate researcher of INER, completed a 14-day practice at MD Anderson Cancer center at Dr. Carlos González Lepera's laboratory. Keep contact with Dr. Capala and invite him to join AIT-TECRO JSCNC in 2016.
- ☐ IN-DE-I19, "Cooperative Programs on the Development of Nuclear Imaging Instrumentation." Prof. Benjamin M. W. Tsui (Johns Hopkins Medical Institutions) visited INER from July 27 to July 29, 2015 and discussed with INER colleagues on issues related to x-ray imaging physics, phantom simulation and 3D reconstruction techniques. INER wishes to collaborate with AIT regarding radiation imaging techniques in industry applications.
- ☐ TU-DE-Y1, "Generation IV Nuclear Reactors." Research project titled "Research and International Technical Cooperation for Advanced Nuclear Power Safety Technology" for 2015- 2017 began in July, 2015. Neutronics, thermal hydraulics, and materials science in advanced reactor applications are of major interests. The project will keep ongoing.
- ☐ TU-DE-Y4, "Formation of New Partnership INL/NTHU/INER/NBL for Education and Training in Nuclear Science and Technology." NTHU has renewed the agreement and purchased codes, FRAPCON and FRAPTRAN from PNNL (Pacific Northwest National Lab.) Four papers related to FRAPTRAN/TRACE are accepted in Top Fuel 2015, held in Sept. 13 – 17, 2015, Zurich, Switzerland. NTHU proposes sending students to the Burnup Credit Calculations training course held by Dr. Don Mueller at Oak Ridge National Laboratory in March, 2016.

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- AE-NR-Z9, “Response and Management of Radioactive Material Events.”
AEC have completed two activities, issued on “Demonstration of Searching for and Identifying Abnormal Radioactive Material among Scrap Metal” and “Technical Workshop for Radiation Detection Personnel” respectively. The two events were held not only specific for the responding personnel in steel mills, but also open for scrap metal recycling industries to attend, aiming to improve their alertness and self-management capacities on radiation safety. AEC would like to arrange site visits on medical and non-medical facilities, i.e. cancer centers, steel mills, industrial radiography companies, etc., in USA for learning their management experiences on radiation safety. NRC will provide the suggested facilities.
- TU-AN-CC1, “Neutron Research at Research Reactors.”
On June 20, 2015, two distinguished neutron scattering scientists: Professors Sow-Hsin Chen (MIT) and Sunil Sinha(UCSD) were invited to visit College of Nuclear Science, National Tsing Hua University. Dr. Raymond Osborn(ANL) visit NSRRC on Sep.10, to give a talk about neutron diffuse scattering. Up to now, Taiwanese scientists did neutron diffraction/scattering experiments at NIST and ORNL. AEC will continue to pursue / submit proposals for beam time at research reactors and SNS.
- AE-DE-EE2, “International Training Course on Physical Protection.”
AEC sent Ko Yuan(戈元) and Luo Fu-guo (羅富國) to attend the ITC-25, April 20 to May 9, 2015, in Albuquerque. With the kind assistance of State Department, TECRO is invited to attend ITC-26 training course in SNL. AIT-TECRO will consult on the need for an additional invitation letter.
- AE-DE-EE5, “Radioactive source security cooperation.”
NNSA held a Regulatory Development Workshop on Radioactive Source Security in Taiwan on May 12-13 and 16 AEC staff members participated. Through the instructions and group discussion, all of the attendees gained knowledge on regulatory development and practice for the security of radioactive sources. The NNSA/PNNL instructor was Fredrick Morris. AEC would appreciate it if NNSA conducts the follow-up training on Physical Protection of Radioactive Sources.
- AE-DE-EE7, "Training in Implementation of New PP Standards and Guidance."
AIT arranged for instructors from NNSA to conduct a workshop on Contingency Planning on September 7-11, 2015, in Taiwan. AEC would appreciate further cooperation items in 2016, such as one to two training courses on the following topics "Insiders Protection", "Cyber Security", "Crisis Management", "Vital Area Identification".
- AE-AIT-FF1, “State Systems of Accounting and Control (SSAC).”
With the kind assistance of State Department, Kuo-Yuan Chang (INER) and Shu-Hui Yu (TPC) attended 2015 SSAC training course in ORNL April 27 to May 8, 2015. TECRO is invited to attend the 2017 SSAC training course in ORNL. AIT-TECRO will consult on the need for an additional invitation letter.
- AE-AIT-FF3, "Exchange of Information on Implementation of IAEA Safeguards and Additional Protocol."
Information on implementing safeguards will continue to be exchanged at future meetings. The next exchange will be at JSCCNC 2016.

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- AE-AIT-FF4, "Inventory of U.S. obligated nuclear material in Taiwan."
AIT & TECRO had discussions about the inventories as well as the Administrative Arrangement (AA) on December 15-17, 2014 in Taipei. After a few rounds of negotiation, AIT sent the revised text of AA to TECRO in October, 2015. AEC sent it to MOFA for final clearance and authorization. The AA is expected to be signed by end of 2015. TECRO will submit annual inventory report of all materials in 2016. It is part of the annual reporting requirement.

Approved:



William D. Rhodes, DOE/NNSA
AIT Representative

Date: Dec. 9, 2015



Chien-Liang Shih, INER
TECRO Representative

Date: Dec. 9, 2015