PATRAM CONFERENCE SUMMARY
October 21-26, 2007

PURPOSE

The recent PATRAM Conference was attended by several NSIR staff. The staff's main purpose for attending the conference was a training tool to enhance their abilities as NRC regulators. This conference provided both NSIR management and staff a unique opportunity to meet with their counterparts and informally discuss on a one-to-one basis the current operational, regulatory, security issues, and complex challenges affecting transportation of radioactive material. This was also a good opportunity to informally discuss the challenges facing transshipment of radioactive material through the United States.

NSIR ATTENDEES

Mark Shaffer, Mickey Freeland, Adelaide Giantelli and Susan Bagley

BACKGROUND

The U.S. Department of Energy (DOE), the U.S. Department of Transportation (DOT) and the U.S. Nuclear Regulatory Commission (NRC) sponsored the 15th International Symposium on Packaging and Transportation of Radioactive Materials (PATRAM 2007), Oct. 21-26, 2007, held at the Marriott Doral Golf Resort and Spa in Miami, Fla., USA. PATRAM is an international symposium held every 2½ to 3 years to exchange information on all aspects of packaging and transportation of radioactive materials. This year is the first time that the PATRAM conference placed a significant focus on the security aspects of transportation of spent fuel and radioactive material. Of the more than 200 papers that were submitted for this conference, 30 papers on risk and security were selected to be presented. The issues covered by these papers are both timely and significant. This conference from a transportation security perspective brought together individuals from the foreign competent authorities (e.g., representatives were present from the IAEA, Canadian, British, French, German, Brazilian, Italian, Japanese, and Korean competent authorities), the internationally regulated community (e.g. British Nuclear Group, AREVA, Urenco, Cameco, etc.), the domestic regulated community (e.g. Westinghouse, Energy Solutions, General Electric, etc.) and their representative organizations (e.g., World Nuclear Transport Institute, U.S. Transport Council, Nuclear Energy Institute, etc.) The representatives from industry organizations ranged from senior management (e.g. Presidents, CEOs, Vice-Presidents) to staff level, engineers, scientists, and transportation logistics managers. Over 700 individuals involved in the transport of radioactive materials participated in this conference.

SEMINARS

The staff attended several presentations throughout the week. The presentations covered a broad range of topics, including:

- Packaging and components technology/engineering/testing,
- National and international regulations and standards,
- Transport systems and operational experience,
- Social and institutional challenges,
- Emergency preparedness and response,
- Security and physical protection,
- Interim storage of spent fuel and high-level waste,

- Risk assessment,
- Return shipments of research reactor fuel,
- Transporting large objects,
- History of testing and analysis,
- Transport of UF6 cylinders and uranium concentrates,
- Transportation of radioactive materials from decontamination, decommissioning and environmental cleanup, and
- International standards development.

The conference typically consisted of daily morning plenary speakers, four concurrent morning sessions each with 8 papers, post-lunch panel discussions on emerging issues, and four concurrent afternoon sessions each with 8 papers. The one exception was Wednesday afternoon where approximately 40 papers were presented in a poster session. NRC staff separated and attended as many papers as possible. Upon request, the conference attendees can provide the Pre-registration list (including contact information), a copy of "Who's Who in Transportation: Nuclear Commerce", and the Conference Program which includes abstracts of every paper given at the conference. Electronic copies (CD-ROM) of the conference proceedings (including the final registration list and contact information) will be provided to the conference attendees in approximately two months. The following highlights a small portion of the presentations attended:

- Emerging Issues in Radioactive Material Transport, L. Green, World Nuclear Transport Institute, UK

- Recent Assessments in the U.S. of Type B Packages to Impacts, D. Ammerman, et al, Sandia National Laboratories, USA

- Packaging Development for MOX Transport from France to Japan, V. Lilian, et al, TN International AREVA, France

- Dirty Bomb Scenario Consequences Delineate Transport Security Arrangements, R. Luna, et al, Sandia National Laboratories, USA

- Transportation Safety Risk for Source Recovery vs. Consequences of Leaving Radioactive Sources in Place, J. Griffin, et al, Los Alamos National Laboratory, USA

- Assessing the Response of Type B Packages to Maritime Accident Environments, D. Ammerman, et al, Sandia National Laboratories, USA

- International Working Group for Sabotage Concerns of Transport and Storage Casks, collaborative paper by USA, French, and German representatives to this working group.

- Consequences of Nuclear Material Transport Sabotage: A General Approach for the Case Study of Sabotage Per Use of an Armor Piercing Weapon, O. Loiseau, et al, Institut de Radioprotecion et de Surete Nucleaire, France

- Spent Fuel Sabotage Testing: Depleted Uranium Oxide Aerosol Results, collaborative paper by USA, French, and German representatives to the international working group supporting this testing effort

- IAEA Activities Related to Burnup Credit, W. Danker, IAEA, Austria

- Implementation of a Burnup Credit Approach for Transport and Storage Cask, F. Riou, TN International AREVA, France

- Benchmarking Transportation Logistics Practices for Effective System Planning, A. Thrower, et al, US DOE, USA

- Industry Experience with Thermal Protectors on 48-inch UF6 Cylinders, B. Dekker, World Nuclear Transport Institute, UK

- Transport of DUF6 Cylinders, G. Taylor, Visionary Solutions, USA

- Air Transport of Spent Nuclear Power Reactor Fuel Assemblies, M. Haire, Oak Ridge National Laboratories, USA

- Development and Operational Experience of Global Positioning Systems for UF6 Packages, P. O'Keefe, Urenco, UK

- Transportation Aspects Associated with the Department of Energy's Global Nuclear Energy Partnership (GNEP) Program, collaborative paper prepared by representatives from Sandia National Laboratories, Idaho National Laboratory, and Lawrence Livermore National Laboratory

- Terrorism and Nuclear Cargoes. R. Smith, University of Waikato, New Zealand

- Analysis of Serious Hazardous Materials Truck Crashes in the U.S., A. Greenberg, et al, Battelle, USA

- Understanding the Value of Stakeholder Collaboration from the Onset through All Phases of the Spent Fuel Transportation Project, J. Hom, et al, US DOE, USA

- The Transportation Perception Gap: Challenges and Opportunities, D. Blee, U.S. Transport Council, USA

- Aircraft Accident Rates, R. Garg, Canadian Nuclear Safety Commission, Canada

- French Databases for Packagings Complying with an Approved Package Designs and for Approval Certificates of Package Design, B. Ouaghrem, Institut de Radioprotecion et de Surete Nucleaire, France

- Denial and Delay of Shipments: Patience, Prudence, Creativity, M. Hartenstein, TN International AREVA, France

- Sustaining Shipments, L. Green, World Nuclear Transport Institute, UK

- Issues Impeding Global Recovers and Transportation of Disused Plutonium Sources: Limited Transport Options and Denial of Shipments, J. Griffith, Los Alamos National Laboratory, USA