January 4, 2007

MEMORANDUM TO: ACNW Members

FROM: Michael R. Snodderly, Chief ***/RA/***
Technical Support Branch, ACRS/ACNW

SUBJECT: TRIP REPORT ON NRC STAFF MEETING AT IDAHO NATIONAL LABORATORY, OCTOBER 23-25, 2006

Attached is Dr. Flack's trip report concerning his meeting at Idaho National Laboratory on October 23-25, 2006.

Attachments: As stated

cc w/att:
F. Gillespie
ACNW Staff
S. Jones
B. Sosa
M. Fuller
M. O'Shaughnessy

January 4, 2007

MEMORANDUM TO: Michael R. Snodderly, Chief, Technical Support Branch, ACRS/ACNW

FROM: John H. Flack, Senior Technical Advisor, ACRS/ACNW ***/RA/***

SUBJECT: IDAHO NATIONAL LABORATORY (INL) TRIP REPORT, OCTOBER 23-25, 2006

On October 23-26, 2006, ACNW consultant Dr. Lawrence Tavlarides and I attended a 2-day meeting between NRC staff and U.S. Department of Energy (DOE) at the Idaho National Laboratory (INL). The meeting was being held to initiate NRC staff on various fuel cycle operations, and for DOE to obtain input from NRC on their conceptual licensing approach for the Global Nuclear Energy Partnership (GNEP) facilities. Dave Pepson from DOE and Joe Giitter from NRC lead the meetings. A complete list of attendees and the agenda for the meeting is provided in Attachment 1. Dr. Tavlarides report and comments on the DOE/INL presentations is provided in Attachment 2, and my report on NRC presentations is provided in Attachment 3. Viewgraphs presented at the meeting are being distributed on a CD. In addition to the presentations, we toured the INL's Hot Fuel Examination Facility.

DOE/INL presentations during the meeting addressed the following topics:

- Advanced Fuel Cycle Facility (AFCF), pre-conceptual design considerations, technology risk, project status and near term milestones,
- AFCF - actinide fuel fabrication and associated challenges,
- AFCF - effluent stream management, including off-gas species control, commercial TRU, GTCC, HLW, and LLW disposition,
- AFCF safeguards design, material accountancy, and safeguards design,
- Aqueous separations processes for LWR fuel, including PUREX, UREX+, and COEX,
- Consolidated Fuel Treatment Center (CFTC), a commercial facility that will separate and fabricate fuel (note: this facility will need to be licensed by the NRC)
- Pyrochemical separation processes, including pyroprocessing of EBR-II spent fuel
- Security design vulnerability assessments

The presentations were informative but often lacked details as noted in Dr. Tavlarides' attached report (Attachment 2). The standard that DOE plans to use to design the off-gas retention systems, and the forms of the waste streams are still under development. (DOE may propose their own standard). It was noted that DOE will no longer pursue a demonstration facility, but will go straight to a commercial operation with the CFTC. The CFTC will both separate and fabricate fuel for a fast reactor from constituents of spent light-water fuel. A request for proposal is targeted for FY 2007. From those that respond to the RFP, DOE planns to find out what technology industry will be able to support. The AFCF will be used to support the development of the engineering design, and the design is expected to be 90% complete by May 2007.

NRC presentations included:

- Overview of potential regulatory approaches for GNEP, including concepts for NRC regulation of commercial GNEP facilities, regulatory infrastructure issues, differences between regulating GNEP facilities and other fuel cycle facilities, and options for regulating commercial GNEP facilities.

- Integrated Safety Analysis, and NRC's regulatory and licensing approach (10 CFR Part 70), and associated challenges,

- Application of regulatory requirements involving management measures and quality assurance to GNEP facilities,

- Material control & accounting (MC&A) program, regulations and guidance, and emerging GNEP issues

- Overview of NRC security activities, including NRC's regulatory approach to design basis threats, performance and compliance -based regulations and protection standards.

To date, the Commission has not budgeted GNEP work. All staff funding has come from NMSS overhead. A reimbursable agreement with DOE had been discussed, if implemented, could provide some level of funding to help NRC prepare its infrastructure in preparation for a license application. Additional observations and comments are provided in the attachments.

Attachments:
1. Agenda for the October 24-25 meeting at INL.
2. L.Tavlarides report on DOE/INL Presentations
3. J.Flack report on NRC Staff Presentations

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| OFFICE | ACNW | | ACRS/ACNW | |
|---|---|---|---|---|
| NAME | JFlack | | MSnodderly | |
| **DATE** | 01/29/06 | | 01/29/06 | |

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