

CENTER FOR NUCLEAR WASTE REGULATORY ANALYSES

TRIP REPORT

SUBJECT: Health Physics Society 51st Annual Meeting
Project No. 20.6002.01.372 and 20.6002.01.011
AI No. 20.6002.01.372.602

DATE/PLACE: June 25–29, 2006
Providence, Rhode Island

AUTHOR(S): James Durham and Ali Simpkins
Center for Nuclear Waste Regulatory Analyses (CNWRA)

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PERSONS PRESENT: J. Durham, A. Simpkins, and over 1,000 other attendees from around the world.

BACKGROUND AND PURPOSE OF TRIP:

The Health Physics Society Annual Meeting is a premier forum that allows health physicists from around the world to interact and present their technical work. The format of this year's meeting included a plenary session followed by individual sessions to present work in different areas of health physics. As many as five sessions were held concurrently throughout the conference. An exhibit of posters was also available for viewing. Session topics included Environmental Dosimetry, External Dosimetry, Internal Dosimetry, Instrumentation, Homeland Security, Emergency Response, Medical Health Physics, Operational Health Physics, Risk Analysis, Decommissioning, and several special sessions for unique health physics applications. In addition to the technical sessions, many meetings were held to conduct society business throughout the week.

Specific purposes for attending the meeting were to

- Teach a 2-hour class entitled Skin Dosimetry and Varskin 3 (J. Durham)
- Present a paper entitled A Backscatter Correction Model for Three-Dimensional Beta Sources by J. Durham, K. Krobl (Colorado State University), H. Karagiannis [U.S. Nuclear Regulatory Commission (NRC)], and S. Sherbini (NRC)
- Perform official duties as a Health Physics Society Board of Directors member (A. Simpkins)
- Serve as chair of the External Dosimetry session (J. Durham)
- Attend technical sessions on various topics related to health physics (A. Simpkins and J. Durham)

SUMMARY OF PERTINENT POINTS AND ACTIVITIES:

The following are summaries of selected technical presentations attended. Reporting here is limited to papers relevant to the potential high-level waste repository at Yucca Mountain, Nevada, since the proceedings of the meeting are available at <http://hps.org/documents/51program.pdf>.

The plenary session featured a presentation by M. Federline (NRC) entitled Integrating Security With the Safety Environment. After acknowledging the importance of the Health Physics Society in developing standards and safety guidelines, Federline discussed the change in security since 9/11 with an increased awareness of the threat of malevolent uses of nuclear materials. The change resulted in a graded approach to materials security based on their potential for misuse. She also discussed the role the audience could play in the solution to secure nuclear materials, the importance of keeping physical security simple and training staff, and the importance of good communication.

The plenary session also included a presentation by Admiral F.L. Bowman (Nuclear Energy Institute) entitled The Nuclear Renaissance and the Role of the Radiation Safety Professional. Bowman discussed the fact that nuclear power is reliable, affordable, and clean and that we must build 30 new nuclear power plants to meet power needs over the next 20 years. He also stated that spent nuclear fuel management was the "elephant in the room" and that the nuclear fuel issue must be addressed before new plants will be accepted. Bowman referred to Yucca Mountain as the perfect site but said that we need to recognize the need for multiple paths to get to geologic repository disposal that involves flexibility for technological advances. He stated that we simply do not know the final wasteform, and suggested health physicists become ambassadors for benefits and facts about nuclear energy.

D. Wu (Bechtel SAIC Company, LLC) presented a paper entitled Evaluation of Radionuclide Accumulation in Soil Due to Long-Term Irrigation. Wu looked at changes in concentration in soil as a function of time with varying types of changes in irrigation rates using the U.S. Department of Energy Total System Performance Assessment (TSPA) model. Results showed spikes in soil concentrations that could be attributed to sporadic waste package failures rather than changing irrigation rates. Wu concluded that equilibrium in soil concentration will be reached if there is a slow change in irrigation rate. He also stated that the current TSPA model is conservative, but did not give a basis for this statement.

J. Dehmel (NRC) presented a paper entitled Selected Update of the U.S. NRC Divisions 1,4, and 8 Regulatory Guides. Dehmel discussed the fact that many of these regulatory guides were written 20 or more years ago and that the updates needed to be prioritized. He said the basis for the guides would be updated to reflect current methods. Once the regulatory guides are updated, the corresponding atmosphere and aqueous release models (LADTAP II and GASPAR II) and NUREG documents would require updating as well. The current schedule includes submitting a proposal to the Commission by this fall.

The presentation by J. Durham entitled A Backscatter Correction Model for Three-Dimensional Beta Sources described the backscatter correction model that is used in Varskin 3, a computer code that calculates skin dose from skin contamination. The Varskin 3 code was completed under a contract with the NRC Office of Nuclear Regulatory Research. The correction was needed to account for the absence of backscatter material for three-dimensional sources that

are thinner than the range of the beta particles. The model was based on data calculated while the author was employed at Colorado State University.

The class taught by J. Durham entitled Skin Dosimetry and Varskin 3 was offered as part of the Health Physics Society Professional Enrichment Program, which was designed to allow certified health physicists to attain continuing education credits while attending the meeting. The class included a discussion of the effects of irradiation on the skin, the technical basis for calculating dose to the skin, and a demonstration of Varskin 3. Attendees were provided with an Instructional Use Only version of Varskin 3. The class had an enrollment of 61, the largest of the 39 classes offered in the Professional Enrichment Program, and J. Durham was asked to teach the class two times at the next annual meeting.

During the meeting, A. Simpkins began her 3-year term serving on the Health Physics Society Board of Directors. Membership to the board is an elected position. The board serves as the governing body of the society and helps the society achieve its strategic plan goals by supporting committees, chapters, and sections through liaison assignments. A. Simpkins serves as a liaison to the following committees: (i) Public Information, (ii) Government and Society Relations, (iii) Scientific and Public Issues, and (iv) Homeland Security. She also serves as a liaison to the Decommissioning Section and several other chapters. As a result of these liaison responsibilities, she attended meetings for each of these committees, sections, and chapters as well as the two Board of Directors meetings that were held during the annual meeting.

IMPRESSIONS AND CONCLUSIONS:

The conference allowed the authors to maintain knowledge of the latest issues in health physics and to serve the society in a key leadership role. Attendance also provided an opportunity to maintain a network of professional contacts. Finally, relevant technical information was presented to colleagues through the J. Durham oral presentations.

PROBLEMS ENCOUNTERED:

None.

PENDING ACTIONS:

None.

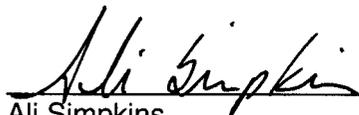
RECOMMENDATIONS:

Attendance at the two Health Physics Society meetings listed below is recommended.

2007 Midyear Topical Meeting
Decontamination, Decommissioning, and Environmental Cleanup
January 21–24, 2007
Knoxville, Tennessee

52nd Annual Meeting of the Health Physics Society
July 8–12, 2007
Portland, Oregon

SIGNATURES:



Ali Simpkins
Senior Research Engineer

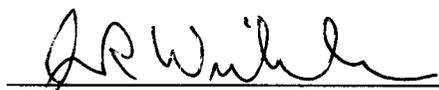
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James Durham
Senior Research Engineer

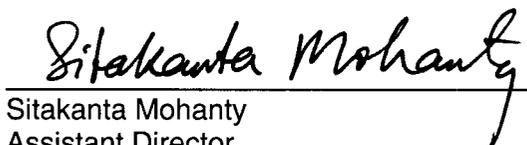
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James Winterle
Manager
Performance Assessment

7/26/06
Date



Sitakanta Mohanty
Assistant Director
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7/25/2006
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