UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, DC 20555 - 0001

December 16, 2009

MEMORANDUM TO: ACRS Members

FROM: Christopher L. Brown, Senior Staff Engineer ***/RA/***
Reactor Safety Branch A, ACRS

SUBJECT: CERTIFICATION OF THE MINUTES OF THE ACRS MATERIALS, METALLURGY, AND REACTOR FUELS SUBCOMMITTEE MEETING, JULY 7, 2009 - ROCKVILLE, MARYLAND

The minutes of the subject meeting were certified on December 13, 2009, as the official record of the proceedings of that meeting. A copy of the certified minutes is attached.

Attachment: As stated

cc w/o Attachment: E. Hackett
C. Santos

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December 16, 2009

MEMORANDUM TO: Christopher L. Brown, Senior Staff Engineer
Reactor Safety Branch A, ACRS

FROM: Sam Armijo, Chairman
Materials, Metallurgy, and Reactor Fuels Subcommittee

SUBJECT: CERTIFICATION OF THE MINUTES OF THE ACRS MATERIALS, METALLURGY, AND REACTOR FUELS SUBCOMMITTEE MEETING, JULY 7, 2009 - ROCKVILLE, MARYLAND

I hereby certify, to the best of my knowledge and belief, that the minutes of the subject meeting on July 7, 2009, are an accurate record of the proceedings for that meeting.

/RA/ 12/13/2009
Sam Armijo, Chairman, Date
Materials, Metallurgy, and Reactor Fuels
Subcommittee

Certified by: Sam Armijo Issued: 12/16/09
Certified: 12/12/2009

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
MINUTES OF ACRS MATERIALS, METALLURGY, AND REACTOR FUELS SUBCOMMITTEE MEETING
JULY 7, 2009
ROCKVILLE, MARYLAND

The ACRS Materials, Metallurgy, and Reactor Fuels Subcommittee held a meeting on July 7, 2009, in the commissioner's meeting room, Rockville Pike, Rockville, MD. The Subcommittee received a briefing from staff on research activities related to materials and metallurgy. The briefing will assist in the development of the bi-annual research report (NUREG-1635) prepared by the ACRS. Christopher Brown was the designated Federal Official for this meeting. The Subcommittee received no written statements or requests for time to make oral statements from the public. The Subcommittee Chairman convened the meeting on July 7, 2009 at 1:30 p.m. and adjourned at 4.57 p.m.

ATTENDEES:

ACRS Members
J. Armijo, Chairman
W. Shack
D. Powers
J. Sieber

ACRS Staff
C. L. Brown, Designated Federal Official

NRC Staff
Stu Richards
Aladar Csontos
Timothy Lupold
Eric Focht
Wallace Norris
Jay Collins
Carol Moyer
Charles Harris

Other members of the public attended this meeting. A complete list of attendees is available upon request. The presentation slides and handouts used during the meeting are attached to the official copy of the transcript and can be found on the NRC website.

Opening Remarks and Objectives:

Dr. Sam Armijo, Chairman of the ACRS Materials, Metallurgy, and Reactor Fuels Subcommittee, convened the meeting at 1:30 p.m. The purpose of this briefing is to hear about a series of projects in materials science and metallurgy that will be used to support the development of the ACRS's biannual research report to the Commission. The Subcommittee will gather information, analyze relevant issues and facts, and formulate proposed positions and

actions, as appropriate, for the NUREG. The Committee did not receive written statements or requests for time to make oral statements from members of the public.

Materials and metallurgy is considered to be the most active area of research within the NRC. This is appropriate in light of the efforts required by the agency to address continuing emergence of unexpected materials degradation in aging LWRs and to monitor the effectiveness of aging management programs. As power plants age, known degradation mechanisms will continue to affect components important to safety, and new degradation mechanisms may develop. The agency continues to develop technical capabilities to minimize the risk of such surprises and to assess the effectiveness of the industry initiatives to deal with materials degradation. The ACRS evaluates these programs on a bi-annual basis.

Materials research is conducted by two branches at the NRC. Aladar Csontos, Branch Chief for Component Integrity Branch, RES discussed the research being in conducted in the area of probabilistic fracture mechanics, component integrity analyses , NDE, PWSCC mitigation, weld residual stress modeling/measurements and High Density Polyethylene (HDPE) piping. Timothy Lupold, Branch Chief for Corrosion and Metallurgy Branch, RES discussed research being conducted in the area of pro-active management of material degradation, corrosion, and environmentally assisted cracking. Other materials science and engineering work being conducted by RES was also touched on, such as, material degradation concerns in dry cask storage systems. It was mentioned that research needs of NRC offices are generally carried by way of a User Need Request or staff requirements memorandum from the Commission.

Dr. Csontos discussed the purpose, objectives, and collaborative activities for each research area under his branch. Additionally, he discussed the vision, technical basis, deliverables, and coordination for each research area. For example, he discussed the research being conducted pertaining to the reliability of NDE for plants in-service inspection. The deliverables for this work include a NUREG/CR and technical letter report on the effectiveness of ISI techniques for detecting service degradation, such as, PWSCC in Alloy 600 welds and IGSCC in austenitic welds. RES is coordinating some of this work with PNNL and EPRI.

Mr. Lupold indicated that the objective of the Pro-active Management of Material Degradation is to provide technical support to NRC staff in developing information regarding materials degradation mechanisms, inspection or monitoring, and behavior of materials. He said that the goal was to proactively address potential future degradation in operating plants to avoid failures and to maintain integrity and safety. The work will become part of the activities of an international cooperative research group whose function will be to conduct research that is needed and share the results for implementation of programs to proactively manage materials degradation. The information developed will provide NRC a foundation to implement appropriate regulatory actions to keep materials degradation from adversely impacting safety and to evaluate licensee's programs for the proactive management of materials degradation. He also discussed the vision, technical basis, deliverables, and coordination for the work being done for SCC of Alloy 690, properties of CRDM welds, and environmentally assisted cracking. Additionally, he highlighted RES role in the completion of work in the steam generator action plan. Both Dr. Csontos and Mr. Lupold discussed international collaboration on some of the work touched on above.

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Note: Additional details of this meeting can be obtained from a transcript of this meeting available for downloading or viewing on the Internet at http://www.nrc.gov/reading-rm/doc-collections/acrs/tr/subcommittee/2008/ or purchase from Neal R. Gross and Co., Inc., (Court Reporters and Transcribers) 1323 Rhode Island Avenue, NW, Washington, DC 20005 (202) 234-4433.