

January 25, 2011

Dr. Said Abdel-Khalik, Chairman
Advisory Committee on Reactor Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: ACRS ASSESSMENT OF THE QUALITY OF SELECTED NRC RESEARCH
PROJECTS – FY 2010

Dear Dr. Abdel-Khalik:

I would like to thank the Advisory Committee on Reactor Safeguards (ACRS) for its time and consideration in review of the two research projects for the annual Research Project Quality Review. In your review of NUREG/CR-6997, "Modeling a Digital Feedwater Control System Using Traditional Probabilistic Risk Assessment Methods," your comments will be very valuable to us as we move forward with this research. Of particular importance are the Committee's comments regarding (1) the assumption in the project that the order and timing of specific failures need to be accounted for in the model (thereby necessitating the use of the automated failure modes and effects analysis simulation tool and the associated Markov modeling techniques) and (2) the benefit of modeling the central processing units in detail. We look forward to future interactions with the Committee on these and other important issues relating to this challenging research topic.

In regards to your review of NUREG/CR-6947, "Human Factors Considerations with Respect to Emerging Technology in Nuclear Power Plants," although the Committee found that this report did not comport well with the established ACRS quality review criteria, the Office of Nuclear Regulatory Research (RES) believes that this project has accomplished its stated goal. Specifically, the project has identified important advanced technology human factors engineering (HFE) issues such as automation, computer-based procedures, effects of degraded instrumentation and control, HFE methods and tools, human performance modeling, complexity, and concepts of operation of small modular reactors. In fact, since its publication, the information contained in NUREG/CR-6947 has been used to formulate advanced technology research plans in the human factors area both nationally and internationally.

The Committee observed that, as a summary report, NUREG/CR-6947 could be substantially improved by clarifying priorities, interdependencies, and intended continued activities. We agree that, as a stand-alone report, NUREG/CR-6947 could be improved. However, this report was intended to be used with the companion reports referenced therein, because the collection of all these reports document the multiyear research project in the subject area. As acknowledged in the ACRS review, "a companion Brookhaven National Laboratory (BNL) technical letter report provides details on the study methodology, issue analysis, and results," and the staff assumed that the ACRS would review the BNL report as part of the project documentation, because it provides substantive information relevant to the quality criteria used by the ACRS in its review. Moreover, because RES works closely with the user offices in defining our research program, it was not the objective of NUREG/CR-6947 to specify research activities on the emerging technology but to provide sufficient information to initiate the planning

for future research. Nevertheless, we appreciate your comments and observations that will assist us as we continue to strive for high-quality research products.

The experience gained from the review of NUREG/CR-6947 has raised two issues with regard to the process for ACRS selection and review of RES projects. First, we acknowledge and appreciate the effort the Committee puts into performing the quality reviews, and we recognize that review of multiple reports associated with a single project may be time-prohibitive. However, it was not clear to the staff when submitting projects for review that only a single document from a research project would be reviewed. Going forward, the staff will limit the candidate projects offered for ACRS quality review to those that involve a single, stand-alone report. Secondly, many of the research projects undertaken by RES are "technical support work" (e.g., computer code maintenance and data collection) requested by the licensing/technical offices. Although the current ACRS quality review criteria work well for basic research, they may not be the best criteria for certain RES technical support projects or those that summarize the state-of-the-art, develop policy options, or provide reference documentation. To broaden the scope of projects that can benefit from an ACRS quality review, we would be pleased to work with the ACRS to identify alternate quality review criteria that can be used for RES products other than those from basic research. Alternately, our staffs need to work together to ensure that only those RES products that would readily comport with the existing set of quality review criteria are included as candidate projects for the ACRS annual quality review.

In closing, I would like to reemphasize our appreciation for the time and effort the Committee puts into performing quality reviews of RES products, and we look forward to interacting with the ACRS on future quality reviews. If you have any questions or concerns with this letter, please contact Sean Peters at 301-251-7582.

Sincerely,

/RA J. Uhle for/

Brian W. Sheron, Director
Office of Nuclear Regulatory Research

for future research. Nevertheless, we appreciate your comments and observations that will assist us as we continue to strive for high-quality research products.

The experience gained from the review of NUREG/CR-6947 has raised two issues with regard to the process for ACRS selection and review of RES projects. First, we acknowledge and appreciate the effort the Committee puts into performing the quality reviews, and we recognize that review of multiple reports associated with a single project may be time-prohibitive. However, it was not clear to the staff when submitting projects for review that only a single document from a research project would be reviewed. Going forward, the staff will limit the candidate projects offered for ACRS quality review to those that involve a single, stand-alone report. Secondly, many of the research projects undertaken by RES are “technical support work” (e.g., computer code maintenance and data collection) requested by the licensing/technical offices. Although the current ACRS quality review criteria work well for basic research, they may not be the best criteria for certain RES technical support projects or those that summarize the state-of-the-art, develop policy options, or provide reference documentation. To broaden the scope of projects that can benefit from an ACRS quality review, we would be pleased to work with the ACRS to identify alternate quality review criteria that can be used for RES products other than those from basic research. Alternately, our staffs need to work together to ensure that only those RES products that would readily comport with the existing set of quality review criteria are included as candidate projects for the ACRS annual quality review.

In closing, I would like to reemphasize our appreciation for the time and effort the Committee puts into performing quality reviews of RES products, and we look forward to interacting with the ACRS on future quality reviews. If you have any questions or concerns with this letter, please contact Sean Peters at 301-251-7582.

Sincerely,

/RA J. Uhle for/

Brian W. Sheron, Director
Office of Nuclear Regulatory Research

DISTRIBUTION:

BChamp-Lopes, SECY	ABates, SECY	SMcKelvin, SECY	LMike, SECY
RidsSECYMailCenter	RidsNMSSOD	RidsNSIROD	RidsFSMEOD
RidsEDOMailCenter	RidsRESOD	RidsOIGMailCenter	RidsOCAAMailCenter
RidsOCAMailCenter	RidsOGCMailCenter	RidsNRROD	RidsNROOD
RidsRGN1MailCenter	RidsOPAMail	RidsRGN2MailCenter	RidsRGN3MailCenter
RidsRGN4MailCenter	ACRS Staff	ACRS Members	DRA r/f

ADAMS Accession No.: ML103560826

OFFICE	RES/DRA/HFRB	SUNSI Review	Tech Editor	RES/DRA/PRAB	RES/DRA	RES
NAME	S. Peters	S. Peters	J. Zabel (via email)	K. Coyne (A. Kuritzky for)	C. Lui	B. Sheron (J. Uhle for)
DATE	12/23/10	12/23/10	12/23/10	12/23/10	01/18/11	1/25/11

OFFICIAL RECORD COPY