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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
WASHINGTON, D.C. 20555-0001

April 26, 2004

Mr. Ashok C. Thadani  
Director  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

SUBJECT: ACRS ASSESSMENT OF THE QUALITY OF RESEARCH PROGRAMS

Dear Mr. Thadani:

The Advisory Committee on Reactor Safeguards (ACRS) has agreed to assist RES in assessing the effectiveness (quality) of the NRC research programs. During the March 4-6, 2004 ACRS meeting, the Committee approved the strategy for the review of quality of the RES Programs. Enclosed is a letter from ACRS providing a proposed strategy for conducting the reviews (Enclosure 1).

During the April 15-17, 2004 ACRS meeting, the Committee selected specific projects from the list of eight candidate projects provided by your office. A panel of three ACRS members has been formed for each of the projects selected for review. The panel will meet with the project staff only after all relevant documents have been assembled and the panel has had the opportunity to examine these documents. Each panel will conduct its detailed review of a project, prepare a report and defend its assessment of the project before the full Committee. The panel report will be made available to your office as soon as possible. Also, enclosed is the list of selected projects, the corresponding panel members, and schedules for the reviews (Enclosure 2). Please note that for the remainder of FY 2004, the Committee will review only two projects, as a trial of the review strategy and will refine the process, as appropriate, in FY 2005.

In order to complete these reviews within the specified schedule, we would like to have the relevant documents for each selected project in a timely manner. The amount of needed documentation will depend on the maturity of the project, but should include at least a project plan.

Sincerely,

A handwritten signature in black ink, appearing to read "John T. Larkins".

John T. Larkins  
Executive Director  
ACRS/ACNW

Enclosures: As stated

cc: C. Paperiello, DEDMRS  
M. Virgilio, NMSS  
M. Mayfield, RES

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John T. Larkins  
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OFFICE	ACRS/ACNW	C	ACRS/ACNW	C	ACRS/ACNW	C			
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DATE	04/23/04		04/23/04		04/26/04				

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Mr. Ashok C. Thadani  
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SUBJECT: PROPOSED APPROACH TO ASSESS THE QUALITY OF NRC RESEARCH PROJECTS

Dear Mr. Thadani:

We are pleased to assist the Office of Nuclear Regulatory Research (RES) management by providing assessments of the quality of selected research projects. Quality assessment of individual research projects as requested by RES will constitute a new undertaking for us; one that is quite different in scope and depth in comparison to our biennial review of the NRC research activities. Because this activity is new to us, a proposed strategy is provided below for conducting the reviews. This strategy is to be tried during FY 2004 and refined in FY 2005. Elements of the strategy are:

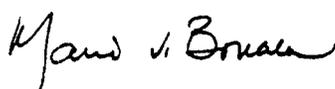
- The RES management will provide a list of eight candidate projects in the beginning of each fiscal year. Projects on this list should address a range of topics and scope, and may have a range of maturities up to and including completed projects. No project should be included on the list that does not have a documented work plan.
- We will select four of the listed projects for review at the rate of one project per quarter. For the remainder of FY 2004, only two projects will be reviewed.
- A panel of nominally three ACRS members will be formed for each of the projects selected for review. This panel will consist typically of an experienced chairman, a member with special expertise in the general area of the research program, and one other ACRS member.
- The panel will meet with the project staff only after all relevant documents have been assembled and the panel has had the opportunity to examine these documents. The amount of documentation will depend on the maturity of the project, but should include at least a project plan.
- The panel will conduct its detailed review of a project, prepare a report and defend its assessments of the project before the full Committee. The defense of the assessments by the panel before the full Committee is intended to ensure consistency among the reviews of the various research projects.
- The panel report, amended as mandated by the full ACRS, will be made available to RES as soon as possible.

- At the end of the fiscal year, we will issue a summary report to the RES Director.

The panel will consider the following questions in its review of the research projects:

- Are objectives of the research project adequately defined and quantified where appropriate?
- Has an adequate technical approach been defined and pursued?
  - Has planning of the work taken advantage of applicable technology established in the literature?
  - Has planning or execution of the work used available expertise in appropriate disciplines?
  - Have assumptions key to the technical approach and results been identified and tested or otherwise justified?
  - Have interfaces among elements of the project been identified and the interface requirements controlled?
  - Have technically defensible alternatives been considered and compared in trade studies of appropriate formality?
  - Has risk information been used appropriately?
- Have adequate quality controls been applied to the work?
  - Has peer review been used effectively?
- Do the results of the research satisfy objectives of the program?
  - Have significant uncertainties been characterized?
  - Have important sensitivities been identified?
- Has documentation of research results been appropriate and done adequately?

Sincerely,



Mario V. Bonaca  
Chairman

## Assignments and Schedule for ACRS Review of Research Quality

<b>Project</b>	<b>Panel Chair</b>	<b>Repeat Member</b>	<b>Panel Members</b>	<b>Report Date</b>
<b>Sump Blockage</b>	Rosen		Kress, Wallis	Sept. meeting
<b>MACCS improve.</b>	Kress	<b>Kress</b>	Apostolakis Sieber	Oct. meeting
<b>Issue report to RES; amend process as needed; revised RES list</b>				
<b>TH experiments</b>	Wallis	<b>Wallis</b>	Ransom, Shack	Dec. meeting
<b>LOCA frequency</b>	Apostolakis	<b>Apostolakis</b>	Bonaca, Ford	3/2005 meeting
<b>SPAR 3 QA</b>	Bonaca	<b>Bonaca</b>	Rosen, Sieber	6/2005