



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

*R. Silver*  
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JAN 0 2 1981

MEMORANDUM FOR: George W. Knighton, Chief  
Research and Standards Coordination Branch  
Division of Safety Technology

FROM: Victor Benaroya, Chief  
Chemical Engineering Branch  
Division of Engineering

SUBJECT: COMMENTS ON PROJECT DESCRIPTION, PROGRAM BRIEF AND  
189 FOR ARGONNE NATIONAL LABORATORY RES PROGRAM,  
"ENVIRONMENTALLY ASSISTED CRACKING IN LWR PIPING  
SYSTEMS"

At your request, we have reviewed the research program on environmentally assisted cracking in LWR piping for suitability for NRR endorsement as to need in CEB areas of licensing responsibility. We understand that RES will establish a Corrosion Research Review Panel with NRR representation. We also understand that this panel will convene a program direction meeting with Argonne in the near future.

With respect to the Project Description Summary, Attachment 1, it is stated that the proposed research is needed because "serious concerns exist about the validity of some of their (EPRI) research." However, from our discussions with RES, we understand that the main concern is the interpretation of the research data. If this is correct, we should be careful not to establish duplicative testing facilities. Such duplication would be justified only if EPRI would not share with us all of their test results, or if we did not agree with their test procedures on parameters or if there were a licensing need for confirmation of the test results.

We recommend that NUREG-0313, Revision 1, "Technical Report on Materials Selection and Processing Guidelines for BWR Coolant Pressure Boundary Piping - Resolution of Technical Activity A-42", July 1980, be used as a basis for the establishment of NRR licensing needs as well as the recommendations of other NRC Task Groups such as A-10, "BWR Nozzle Cracking", and the staff evaluation of PWR feedwater pipe cracking as discussed in NUREG-0679, "Pipe Cracking Experience in Light-Water Reactors", July 1980.

We have the following specific comments on the Program Scope descriptions contained in the FY 81 Program Brief (Attachment 2):

Item 6. Establish Importance of Low Temperature Sensitization At the present time we are not aware of any definite NRR licensing need for data in this area, and it therefore should have a lower priority than other work. Should the results of the EPRI work in this area (Attachment 1, Section III) bring forth areas of new concern, it would then be appropriate for NRC to do experimental work.

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Item 8. Evaluate Validity of Full Scale Pipe Testing as Means to Determine Alternate Methods/Materials of Construction. Initiate Tests

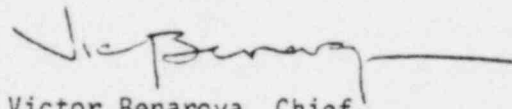
In our licensing actions, NRR is not proposing new materials or welding processes. Our approval for any new materials/processes proposed by applicants and licensees is usually based on test results reported by them. Only in the case that we would then face problems, would it be necessary for the NRC to request additional testing.

Item 9. Determine the Role of Water Chemistry on Susceptibility to Pipe Cracking Through Analysis and Lab. Tests and Propose Operating Limits

NRR at present does have a need to develop a basis for requiring more stringent oxygen/impurity limits on BWR water chemistry. However, laboratory testing in simulated BWR coolant loops as proposed by ANL (Attachment 1, Section VI) is expensive and recent work by EPRI indicates that laboratory testing does not simulate operating reactor conditions. The only way to answer these questions is to do measurements in actual operating BWR's. EPRI is better able to work with utilities to do this in-situ testing and is doing so. We recommend that work in this area be closely monitored but recommend against the establishment of test loops to duplicate those already in existence, i.e., at GE, MIT, Japan, Europe and other places.

As for PWR primary chemistry, NRR satisfactorily controls these parameters through the Technical Specification.

In summary we have too many concerns in the program as described by the Argonne 189 proposal. We recommend that the need for work in the area of environmentally assisted cracking in LWR piping be initiated and that the Corrosion Research Review Panel provide specific review and guidance to Argonne on our needs and priorities.



Victor Benaroya, Chief  
Chemical Engineering Branch  
Division of Engineering

cc: R. Vollmer	P. Williams
V. Noonan	R. Silver
W. Kreger	R. Gustafson
V. Benaroya	B. Turovlin
S. Pawlicki	A. Taboada
R. Gamble	R. Hermann
W. Hazelton	J. Collins
B. D. Liaw	T. Murphy
P. Matthews	H. Levin
H. Conrad	