

BROOKHAVEN NATIONAL LABORATORY  
ASSOCIATED UNIVERSITIES, INC.

Upton, New York 11973

Department of Nuclear Energy

(516) 3452144

June 16, 1980

Mr. Robert L. Ferguson  
Chemical Engineering  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

RE: Safe Shutdown Analysis, R.E. Ginna Nuclear Power Plant

Dear Bob:

A mini-review of the R.E. Ginna Nuclear Power Plant has been completed by E. MacDougall and V. Lettieri with the assistance of J. Klevan. The following items are documented herein:

- I. Adequacy of Documents Provided.
- II. Adequacy of Conformance to the SER.
- III. Appendix R and Appendix A Review.
- IV. Other Comments on the Licensee's Submittal and Potential Problems for the Final Review.

I. ADEQUACY OF DOCUMENTS PROVIDED

The submittal consists of basically three parts identified in Sections IV, V, and VI. Section IV is entitled "General Shutdown Methods." In this section the licensee discusses, in somewhat detailed terms, how shutdown will proceed. To adequately evaluate this section in conjunction with Section V, P&ID's, Operating and Emergency Checklist Procedures, Instrument and Logic Drawings, and Electrical Drawings are necessary. Section V is entitled "Specific Shutdown Methods." Unfortunately Section V is less than specific except to state certain modifications will be made. The details of these modifications are not included for review. Section VI is entitled "Proposed Modifications" and is 2-1/4 pages long. Section V which states the modifications are required takes 30 pages. The detail that is presented in Section VI is negated by the fact it is not clear which, if any of these modifications, will be applied in what areas.

8011140

626



To: R.L. Ferguson

-2-

June 16, 1988

Section VI is unacceptable because it does not come forth with a clear method of accomplishing a task. Even if an example or two had been given, a start on the evaluation could be made. The approaches listed in VI A, B, and C could very well be satisfactory if they meet all existing NRC and other required codes and guidelines. However, we feel the burden is on the licensee to make a detailed alternate shutdown method for the staff to review.

The isolation amplifiers, described in Section VI, could provide satisfactory isolation, but again, we feel it's the licensee's job to propose specific details that meet the requirements of IEEE 279 and 384 and other NRC requirements and applicable codes. When this is done, we can make a review of the proposal.

The same is true for "Transfer Devices."

The proposal to re-route cables from the fire area, Separation Requirements, is an acceptable approach.

The separation requirements of IEEE 384 in part 5 - "Additional Separation Analysis" is not acceptable. IEEE 384 allows separation of only 1" between redundant circuits in covered trays. The Sandia tests demonstrated that this separation criteria is not adequate. We recommend that the requirements of Appendix R Section II E be followed.

The end result is that this submittal does not provide sufficient documentation in sufficient detail to perform a detailed review of this submittal nor an Appendix R and Appendix A review. We recommend the NRC request full size (readable) P&ID's, plus the above listed documents. In addition, the licensee should further develop the contents of this submittal so that a reviewer can independently determine that safe shutdown in the event of a fire is possible.

## II. ADEQUACY OF CONFORMANCE TO THE SER

Item 3.2.1 of the SER addresses the requirements for the safe shutdown analysis. The following is extracted from the SER.

3.2.1 Shutdown Analysis - The licensee is conducting a study to:

- (1) identify various means of bringing the plant to, and maintaining at the safe shutdown condition,
- (2) determine whether safe shutdown can be achieved without equipment/cables in any one fire area, and
- (3) identify modifications necessary to preserve the safe shutdown capability if safe shutdown cannot be achieved or maintained following a major fire in any fire area.

The submittal addresses all of the requirements of Item 3.2.1 of the SER. However, as stated in I above, the details and documentation are missing to confirm that safe shutdown in the case of a fire is possible.



June 16, 1980

### III. APPENDIX R AND APPENDIX A REVIEW

The submittal does not provide sufficient detail to allow a review to the standards provided in Appendix R and Appendix A. For example, this submittal does not describe the justification for separation of fire areas by distance alone, rather than by barriers as required by Appendix R, Section III M on page 39. This review must await the receipt of further details as requested above.

### IV. OTHER COMMENTS ON THE LICENSEE'S SUBMITTAL AND POTENTIAL PROBLEMS FOR THE FINAL REVIEW

1. The cover letter states "specific modifications will be proposed after the staff has reviewed and concurred with the assumptions and shutdown methods presented in the enclosure." This statement is consistent with the submittal and explains the difficulty with performing a mini-review. An approach of this type will make a review of safe shutdown very time consuming for both the plant and for the NRC. It is possible to say this submittal is a start in the right direction; but a review is not possible on safe shutdown due to the lack of detail provided.
2. The licensee should justify why the assumption that "the pressure boundary integrity of a valve, pump casing, pipe or tank is assumed not to be effected by the fire" stated on page 1-1 of the submittal.
3. Statements such as "In general, fire barriers or space is used to maintain separation between fire areas. Cable trays that go from one fire area to another may require fire stops to prevent fire from spreading from one area to the adjacent area" from page 11-1 are inadequate. Unless details are provided that support why these statements are acceptable it cannot be shown that safe shutdown is possible.

### V. CONCLUSIONS

Based on the information presented to date, it is not possible to confirm safe shutdown can be achieved during or after any fire. Therefore, it is recommended that the NRC reject these alternate systems approaches, and require the more conservative dedicated shutdown systems be installed.

The recommendation for dedicated systems being installed is based on the following:

Item 3.2.1 of the SRR requires the licensee to conduct a study to identify various means of bringing the plant to, and maintaining it at the safe shutdown condition. Also, the licensee is to determine whether safe shutdown can be achieved without equipment/cables in any fire area, and to identify what modifications are necessary for safe shutdown.



To: R.L. Ferguson

-4-

June 16, 1980

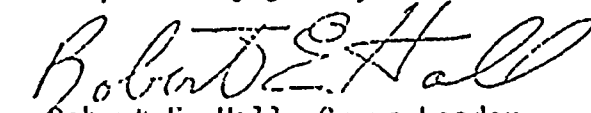
The licensee discusses, in general, 16 shutdown methods in Section IV. Then, the submittal reviews 59 Fire Areas stating which method from Section IV will be used to shutdown and which modifications, in general, are required.

The difficulty with this approach arises from the lack of detail provided in the submittal. In the event the licensee provides sufficient detail to evaluate this submittal it is conceivable that the proposed alternate shutdown systems could become acceptable.

#### REFERENCES

1. R.E. Ginna, Safe Shutdown - Fire Study, December 1979.
2. Draft Appendix R to 10 CFR Part 50, May 2, 1980.
3. Appendix A to Branch Technical Position APCS 9.5-1, USNRC, August 23, 1976.
4. Safety Evaluation Report, Robert E. Ginna Nuclear Power Plant, Unit 1, Nuclear Regulatory Commission, December 6, 1978.

Respectfully yours,

  
Robert E. Hall, Group Leader  
Reactor Engineering Analysis

REH:EAM:VL:sd

cc.: V. Benaroya  
W. Kato  
J. Klevan  
V. Lettieri  
M. Levine  
E. MacDougall

