

BROOKHAVEN NATIONAL LABORATORY
ASSOCIATED UNIVERSITIES, INC.

Upton, Long Island, New York 11973

Department of Nuclear Energy

(516) 282-2443
FTS 666

June 23, 1982

Mr. William T. Russell, Chief
Systematic Evaluation Program Branch
Mail Stop 516
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

REF: INTEGRATED PLANT SAFETY ASSESSMENT, GINNA PLANT,
SYSTEMATIC EVALUATION PROGRAM

Dear Bill:

This letter is my technical evaluation report on the Ginna Integrated Plant Safety Assessment as given in the draft report NUREG-0621. It fulfills the requirements of Task 2 of the project "Consultant Services to Review SEP Integrated Plant Safety Assessment Reports," FIN A-3367, B&R No. 20-19-20-21-1.

CONCLUSIONS

The Draft Integrated Plant Safety Assessment Report on the Ginna Plant supports my conclusions, after study of the previous report on Palisades, that the Systematic Evaluation Program is fulfilling the intent of the Commission when it authorized Phase II of the program in 1977.

I consider the staff recommendations for backfitting in various areas of the Ginna Plant, by equipment additions or modifications, procedure changes, and Technical Specifications changes, to be reasonable and appropriate and the bases upon which those recommendations are made to be adequate. I draw the same conclusions with regard to those areas in which Ginna does not conform fully to current criteria and the staff has recommended that no backfitting should be required.

As with the Palisades evaluation, a number of the staff recommendations for Ginna at this stage of the SEP review are for further analysis, evaluation, and testing by the licensee. When the results of these efforts are in hand,

8206250094
KA

8206250094
CF

decisions will have to be made about equipment or procedures backfitting. Those decisions should be made on the same integrated assessment basis as those given in the draft report.

A number of the topics listed among the 137 SEP safety topics are being treated generically under the Unresolved Safety Issues program, the Three Mile Island Action Plan program, or the generic programs connected with implementation of Appendix I to 10 CFR 50. These topics have, therefore, been excluded from the Ginna Integrated Plant Safety Assessment work reported in NUREG-0821. Resolution of these topics that are specific to Ginna will be needed eventually. Consideration should be given to applying the generic resolutions of these topics to Ginna through the SEP Branch integrated assessment process.

With regard to the full term operating license, resolutions of the "further evaluation" topics, as well as resolutions at some level of the generic USI, TMI, and Appendix I topics will have to be in hand before any proceeding on the full term operating license, or the Commission will have to exclude them from such proceedings.

DISCUSSION

THE OVERALL PROGRAM

I examined the overall aspects of the Systematic Evaluation Program as it is now functioning in connection with my review of the Palisades draft report NUREG-0820. The remarks about the overall program made in my report on Palisades are equally applicable here, and I will not repeat them. My conclusion, as noted above, is that the staff, in carrying out the SEP assessment of the Ginna Plant, has fulfilled the Commission's intent as reflected in the major program objectives laid down in the documents that are the basis for the SEP.

TREATMENT OF GENERIC TOPICS

Of the 137 safety topics in the SEP, 24 are more or less identical to TMI Action Plan items or Unresolved Safety Issues. Also, two topics related to

Appendix I matters are similar to generic activities in that area. For these 26 topics, the generic programs being carried out in other staff offices are being relied upon and these topics have not been included in the current SEP review of Ginna. Presumably, as generic resolutions of these issues are decided upon by other staff groups, they will be applied to Ginna without regard to Ginna's status as a plant under SEP review. That is certainly one way to organize the regulatory treatment of these issues. There is, however, a modification of that process that should be considered by staff management.

The SEP review of Ginna has resulted in a group of staff members and consultants in the SEP Branch who are familiar with Ginna and with the SEP-recommended backfits there. They are engaged in working out schedules and priorities with the licensee for the SEP backfits on an overall basis, taking into account the practicalities of the Ginna situation. As things stand now, the TMI, USI, and Appendix I item resolutions will, as they are developed, be fired willy-nilly into the SEP backfitting of Ginna, with a good likelihood of disruption and inefficient use of scarce resources. Some of those generic issues are potential "big ticket" items in terms of engineering, equipment, and structural modifications.

A better way, and one that should be considered by staff management, is to put into the hands of the SEP Branch the application to Ginna of TMI, USI, and Appendix I item generic resolutions. The SEP Branch should be authorized to adapt those generic resolutions to Ginna, both in substance and in schedule, by the same integrated safety assessment process that the Branch has used on all the other SEP topics. The result, I think, would be a more efficient regulatory process with regard to use of staff and licensee resources, a better fit of the generic resolutions to the specific Ginna situation and improved safety thereby, and a more orderly scheduling process.

Further, even though the generic resolutions of the TMI, USI, and Appendix I items are being done by other staff groups, the SEP Branch will have to deal with these items in any event in the course of the POL/FTL conversion proceedings.

THE STAFF SAFETY REVIEW

The mandate of the SEP review is to examine a chosen plant against current licensing criteria and practices in 137 safety topic areas. Where deviations from current criteria are found, there are a number of alternatives, or combinations of alternatives, that may be considered as a basis for acceptability. These include acceptance of the deviation because it does not significantly decrease the plant safety level, use of non-safety grade systems to perform safety functions, administrative or procedural changes to enhance safety system reliability, augmented surveillance programs for the same purpose, and selected backfitting. Deviations from current criteria are acceptable if staff evaluations show that the plant would respond satisfactorily to the various design basis events and that the probability of those or the consequences are not significantly higher than for plants now being licensed in accordance with current criteria.

The Ginna Plant has been reviewed against the 137 SEP safety topics -- these are listed in Appendix A of the draft report. Of the 137 topics, 21 were deleted from the review, mostly because they are not applicable to pressurized water reactors in general or to the Ginna site or design in particular. One of the 21, Topic V-1, Compliance with Codes and Standards (10 CFR 50.55a), was deleted because it concerns ASME Code conformance requirements that had been previously reviewed and found satisfactory for Ginna or are the subjects of ongoing staff surveillance. Two others, Topics XI-1 and XI-2, concern Appendix I (10 CFR 50) matters that are the subject of generic programs in other staff offices. The Technical Specifications topic, XVI, is to be addressed later when all of the SEP topic resolutions are settled. I find these 21 deletions, which are listed in Appendix C of the draft report, to be proper and appropriate.

A further list of 24 topics, given in Appendix B of the draft report, is not covered in the current work because these topics are essentially the same as TMI Action Plan items or Unresolved Safety Issues that are being treated on a generic basis by other staff groups. As noted, the resolutions of some of the TMI and USI items could have major effects on Ginna and its operation, and

the coordination of these resolutions with the requirements of the SEP review needs careful consideration by the staff. The deletions of these 24 topics from the present SEP Ginna review are reasonable, with perhaps one exception, the Conduct of Operations topic, XIII-1. In spite of the fact that the regulatory criteria referenced in SEP topic XIII-1 and in the TMI items I.C.6, III.A.1, and III.A.2 are identical, somewhat different points of view have developed in these reviews and the SEP topic and the TMI items are not the same thing, at least for TMI I.C.6. The SEP reviewers seem to have sensed that difference, as evidenced by the Oak Ridge appendix (Appendix F in the draft report) on the Ginna operating experience and the discussion of operations in the report. If there really were no difference, there would be no reason to look at the Ginna operating history under both SEP and TMI activities. As I read the matter, the TMI item I.C.6 is aimed at assuring that Ginna is operated with emphasis on correct performance according to approved procedures; the SEP operations review is aimed at searching for any substandard performance of safety systems, or of operating personnel, with a view to applying that information in the other areas of SEP review. It is a reasonable division of emphasis, and I think the SEP report would lack an important element if the discussion of operating history were omitted.

With regard to the Ginna operating experience, I judge, from Appendix F and the discussion in Section 1.4 of the draft report, that Ginna is one of the better operations around. One element of Appendix F is misleading and ought to be corrected, both in this report and in other SEP reports where the same approach is being used. In Section 4.5 of Appendix F, there is a tabulation of reportable events over the years. That is fair enough and the tabulation is useful information. The collection of reportable events by year, and comparison of yearly totals to draw conclusions about the trend, as in Figure 4.1; is misleading. The rules and attitudes about what is "reportable" have changed substantially over the years of Ginna's operation, and yearly totals are simply not comparable over the 11-year period shown in Figure 4.1. The licensee claims that if account were taken of the changes in reporting requirements, the apparent upward trend in reportable event frequency would disappear. I have no way of knowing whether that is, in fact, the case, but I am sure that because

those changes are not taken into account, the data presented in Appendix F do not support a conclusion that there is an upward trend in reportable event frequency. I must add that I do not think an attempt at "normalization" of the yearly reportable event data would be worthwhile. Trying to sort out what operating events in 1972, say, would have been reportable under today's rules and attitudes, but were not reportable under the 1972 rules and attitudes, strikes me as a futile exercise.

Turning back to the SEP topic reviews, after deletion of the "not applicable" topics and those covered under generic activities, 92 topics remained to be covered in the Ginna review. For 58 topics, it was determined that Ginna meets current licensing criteria, or is acceptable on another defined basis. I have reviewed about one-third of the safety evaluation report letters on those 58 topics, by way of spot-checking the staff approaches, and find nothing to complain about. The staff's bases for its conclusions in the items checked were reasonable and adequate.

For a further set of seven topics, licensee actions during the SEP review to correct deviations from current criteria resulted in these topics being placed in the acceptable category. The equipment modifications and procedural or administrative changes made in these areas are appropriate.

The remaining 27 topics were treated under the SEP integrated assessment procedure, to determine the staff's recommendations for the identified deviations from current criteria. No deviations were found that constituted urgent safety problems requiring immediate action, a conclusion with which I agree.

The box score on the outcome of the staff's integrated assessment process is as follows. The 27 topics include a number of topics that have several sections or subtopics that had to be treated as separate items. Counting all of the separable issues, the 27 topics break down into 53 subtopics. The results of the integrated assessment for the 53 subtopics were that:

- 14 subtopics were found to require no backfitting or other changes (although one, leakage detection, could end up with some additional requirements in the course of resolution of another subtopic);

- 18 subtopics require further evaluation, analysis, testing, or verification information from the licensee, and some backfitting may be needed when all the data are in hand and considered by the staff; and
- 21 subtopics yielded recommendations for backfitting in equipment or procedural and administrative changes, or both.

In an exemplary display of responsiveness to regulatory concerns, the licensee has agreed to the outcomes of most of the 53 subtopic reviews. The licensee disagrees with only six, has yet to respond on three, and has accepted all the rest. I suspect that there was spirited discussion of some subtopics, and some agreements delivered through clenched teeth, but that is the nature of regulatory exchanges. Overall, the response seems characteristic of this licensee -- a no-nonsense, business-like determination to get the job done.

The six subtopics on which there were disagreements all concern flooding of Deer Creek: II-3.B, II-3.B-1, II-3.C, III-3.A (both subtopics), and III-3.C (one subtopic). Ginna predates current design basis flooding criteria using the probable maximum flood. However, the probable maximum flood is a highly unlikely event. Further, an analysis of the historical data in the region shows a maximum discharge about one-third the capacity of Deer Creek, and suggests a recurrence interval of several hundred years. The data are limited in time span, however, and are not of a quality to convince the staff that there is no potential for some flooding from Deer Creek. The staff has concluded that some flood protection should be provided, and has set for a design basis a level one foot above that which would be produced by the Corps of Engineers standard project flood on Deer Creek. I understand that amounts approximately to ground elevation at the site.

As a general proposition, I am not much enthused by supplementary flooding protection requirements for older plants that predate current criteria. Even without the benefit of regulatory guidance, those older designs were sited by engineers aware of flooding potentials, and I expect their judgments were sound enough. Also, a large flood is not the sort of thing that happens without warning, and a competent operations staff can make all kinds of ad hoc arrangements to protect essential safety functions as the water rises. In this

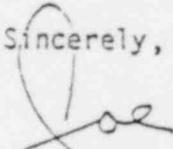
case, the staff has not insisted on conformance to current criteria, but has set a design basis flood for Ginna at the still-conservative standard project level and added one foot for good measure. It is certainly an adequate flooding protection level, probably more than adequate, but apparently can be met by the licensee with reasonable measures.

I find it a close call. On balance, I will come down on the staff's side, for no good reasons that I can articulate beyond a confidence in the staff meteorologists and hydrologists. I see no reason, however, to require the licensee to do a cost-benefit study on providing protection to higher flood levels. The design basis set by the staff is good enough. Do it on that basis and don't waste the licensee's resources on further studies.

The staff's judgments on the other topics and subtopics in the integrated assessment area seem reasonable to me. The treatment of assorted structural issues, from storm loadings, missiles, design codes, criteria, and loading combinations, seismic design, pipe breaks in and outside containment, etc., as a general structural upgrading package is very good. So is the treatment of containment isolation matters, topic VI-4. Both show the merit of an overall consideration of similar plant features where there are deviations from current criteria, and the value of balanced judgments on the safety increments to be achieved by possible changes.

In summary, on the integrated assessments, I think the staff's bases for recommending equipment additions or modifications in some areas, procedural and administrative changes in others, and no backfitting in yet other areas are adequate and reasonable and are consistent with the Commission's directives for the Systematic Evaluation Program.

Sincerely,



Joseph M. Hendrie

JMH/dt