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William T. Russell
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Dear Bill:

Enclosed is a draft of my review of the Palisades SEP Report. Since I expect to be in Bethesda the week of April 19, I will attempt to check with you regarding the content. If you wish modifications, it would still be possible to obtain them and get the report back to you by the 29th deadline.

I feel that your get together of the consultants, once all reports have been written, to critique the contents could be quite beneficial when the Ginna Report is available.

Very truly yours,

S. H. Bush
Senior Staff Consultant

SHB/ss

Enclosure
cc: RJ Budnitz, w/encl.

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PALISADES PLANT

A CRITIQUE OF THE INTEGRATED PLANT SAFETY ASSESSMENT SYSTEMATIC EVALUATION PROGRAM

S. H. Bush

Since Palisades is the first plant reviewed under the Systematic Evaluation Program, the approach taken and the criteria used to establish the acceptability of assessment are somewhat tentative, particularly because there has been no opportunity to interface with authors and other reviewers. Two suggested benchmarks are:

- Does the report meet the original AEC/NRC Commission Charter for SEPs.
- Are the items identified as problems adequately described, including justification of their resolution.

An examination of documents SECY-76-545 and SECY-77-561 provided some insight into the approach used to handle SEP plants. The five program objectives can be used as criteria for measuring compliance. The suggested approach for handling deviations can permit an assessment of the resolutions suggested in the Palisades report. These criteria follow.

The following five objectives of the program were established by the Task Force:

1. The review program must assess the adequacy of the design and operation of all currently licensed nuclear power plants.
2. The program should establish documentation which shows how each operating plant compares with current criteria on significant safety issues, and provide a rationale for acceptable departures from these criteria.

3. The program should provide for the capability to make integrated and balanced decisions with respect to any required backfitting.

4. The program should be structured for early identification and resolution of significant deficiencies.

5. The program should efficiently utilize available resources and minimize requirements for additional resources by NRC or industry.

The planned systematic evaluation would establish the adequacy of all operating power reactors with respect to safety and provide clear written documentation bases for this conclusion.

When deviations from current licensing criteria are identified, the following alternatives (or combinations of alternatives) will be considered as a basis for establishing acceptability:

1. The deviation can be justified as not significantly decreasing the level of safety.

2. Use of non-safety systems to perform safety functions.

3. Administrative or procedural changes to enhance system reliability.

4. Augmented surveillance programs.

5. Selected backfitting to enhance system reliability.

Presumably one critical evaluation of Appendix A will be sufficient on the assumption that these items will remain unchanged in the future. While Appendix B covering generic issues may change somewhat, one review as to adequacy should be sufficient. Obviously, Appendix C will change because of plant and site specificity. Appendices E and F will need review on a case-by-case basis.

Examination of Appendices A, B, and C unearthed some problems. The wording, references and approach used with the items in Appendix A reveal the "mind set" of the 1976-77 period. Personally, I feel that some of the strong positions taken then have weakened in the past 4-5 years. An example might be valve lockout. As predicted some of the locked out valves have been found to be in the wrong position so the effects of an accident would be exaggerated.

I suspect a probabilistic approach could lead to dropping others; however, the option appears to exist in the so-called "lesser safety significance" approach.

With regard to Appendix B as related to A, I am at a loss as to why some of the unresolved safety issues were ignored. Specifically, issues A-11, A-31, A-45 and A-49 were not cited. If these were included, some other items would shift to the generic packet. While I understand the words regarding folding in the USI and TMI issues, it is not immediately obvious how this will be accomplished.

I suspect that the issues in Appendix A, if written in 1982-82, would differ substantially from the words generated in 1977; however, those words can be accepted.

SECTION 1

An item of major concern becomes apparent in the listings on page 1-7 and in Appendix F. While the number of LERs arising from personnel or procedural errors is not large, the safety significance of some of the events is substantial, particularly with regard to loss of containment integrity and improper positioning of safety-related valves. These events extend over a sufficiently long period that is indicative of an indifference on the part of top management to take appropriate action. In my opinion the document does not stress this area sufficiently. Unless there is positive evidence of an improvement in operator actions, I question approving a full-term operating license.

SECTION 2

Explanatory only--no comments.

SECTION 3

The positive actions taken to resolve issues III-6, VII-3, VIII-2, VIII-3B and VI-6 are considered appropriate. My personal opinion is that some of the changes under III-6 may not have contributed much to plant safety.

SECTION 4

In essence, this section represents the actions and bases for the actions taken including a factoring in of the PRA in Appendix B.

II-1-A no comment; no problem.

II-3B, B1.C Pending; probable backfit.

III-1 Positive actions that should provide missing information and enable decision as to acceptability of various items.

III-2 A good example of accepting alternate approaches when deviation occurs. Instead of backfitting, it is recognized that sources of water can be made available. Emphasis is on clearly defined procedures covering use of alternate water sources than on upgrading or backfitting.

III-3-C The positions of staff and utility are apparent. I would have thought this to be an economic problem that would become apparent during operation rather than under accident conditions. I agree with staff.

III-4-A I applaud the decision not to backfit. It's appropriate.

III-5-A, III-6 I disagree on philosophic grounds with this item. In ten years of review I have yet to find a case where piping failed from seismic loads and no breaks result from an unrealistic application of the design load cycles. Current analytic technique yield a false picture of piping response that seemingly is not recognized.

III-7-A No disagreement--okay.

III-7-B Primarily a bookkeeping activity to provide analytic answers.

III-7-C I understand the need to do another examination for delamination. I do not understand an arbitrary five-year repeat. We don't require that on embedded flaws in vessels.

III-8-A May shift to generic.

V-5 A realistic approach. I agree with staff analyses.

V-10-B Action taken resolves issue.

V-11-A This had potential to overpressurize and fail piping. The action only resolves it partially since case of released flapper is not covered.

VI-2-D, VI-3 I agree with decision and PRA value. No action required.

VI-4 Removal of threaded piping is appropriate. Other decisions acceptable.

VI-6 Forced action taken--no issue.

VI-10-A No action.

VII-1-A A good example of use of PRA to require revision or accept status quo.

VII-3 DC power obviously is important. Basically handled as generic problem. Other actions based on a realistic assessment of tradeoffs.

VIII-3-A Important issue. Must assume loss of diesel generator plus offsite power.

VIII-4 Action taken.

IX-3 Presumably fix will be procedural in nature. Not clear. Second item procedural plus modification.

IX-5 Analytic only--not complete.

IX-6 In essence a generic backfit item.

XV-2 I am not surprised regarding the uncertainty in failure rates. Basically, this will be handled generically.

XV-12 A realistic approach to the problem.

With regard to equipment and design items, the authors addressed to a major degree the SEP task force objectives as well as applying the tiered criteria to resolve deviations. Generally, the approach is even-handled, not requiring backfit arbitrarily. I am less satisfied with the handling of operating history.

Appendix F points out the high incidence of loss of power. This combined with some of the operator errors listed could yield a definite degradation in safety margins.