SUPPLEMENTAL FILE COPY

OCT 10 1968

Docket No. 50-286

P. A. Morris, Director

INDIAN POINT NUCLEAR GENERATING UNIT NO. 3 SIGNIFICANT PROBLEM AREAS

The following is a summary of the significant problem areas which will be discussed with the applicant at a meeting in Bethesda on Friday, October 11, 1968. We request a meeting with you prior to that date to discuss our proposed resolutions.

1. Offsite Doses

A dose reduction factor of approximately 11.8 is required in order to meet the 10 CFR 100 guidelines at the outer boundary of the low population zone for the duration of the accident. The maximum attainable dose reduction factor using the current assumption that 10% of the iodine inventory in the containment vessel is non-removable is 10. Further, the proposed DRL evaluation guidelines for iodine formation and removal in "Reactor Technology Memorandum -- Fission Products - Iodine Formation and Removal in Power Reactor Facilities" which are presently being commented on propose an additional 5% of the iodine is adsorbed on non-removable submicron particles. This assumption reduces the maximum attainable dose reduction factor to 6.67. In order to reduce the doses to below the Part 100 guidelines, credit must be given for removal of organic iodine from the containment atmosphere, the fraction of the organic iodine assumed must be reduced, or the meteorological model employed must be changed.

We recommend that credit be given for removal of organic iodine from the containment provided the applicant proposes a research and development program directed toward this effort which is reasonably designed to resolve the issue, and that this program provide preliminary experimental evidence and conceptual engineering design before we issue a construction permit.

2. Research and Development

Westinghouse considers the research and development program concerning the effectiveness of the containment reagent spray as an iodine scavenger to be complete. We do not agree and believe additional effort is required in the area of drop size distribution and chemical compatability.

We intend to inform the applicant that we disagree on this subject, and request that he outline an additional research and development effort to handle these problems.

3. Emergency Core Cooling System

The emergency core cooling system can be disabled by a single failure of the header at the outlet of the residual heat exchangers. We intend to inform the applicant that his system should be modified to preclude such an occurrence.

4. Production of Hydrogen

Considering only coolant radiolysis and assuming a "G" factor associated with boiling, the applicant calculates that the flammable limit for hydrogen will be reached in the containment in approximately 18 days. Westinghouse is studying solutions to this problem and is considering venting of the containment or installation of a recombiner. We recommend that either (1) the effect of venting on offsite doses be evaluated and considered acceptable, or (2) a conceptual design of a recombiner with an outline of the associated research and development program be evaluated prior to the issuance of a construction permit.

5. Tornado Design

Structural tornado protection is not provided for the 480 volt system which includes the three diesel generators. The applicant wishes to take credit for the redundancy provided by the three diesel generators, 138 kv above-ground system and the 6.9 kv under-ground system. We believe that the 480 volt system should be protected from tornado effects.

6. PLOCAP

The applicant has stated that should his analyses show that complete pressure vessel penetration is possible due to the thermal shock experienced by the vessel during safety injection, "systems will be added to the plant to cool and cover the core when reactor vessel integrity is lost." To remain consistent with Zion, we plan to request the applicant to provide a conceptual design of this system.

7. In-core Instrumentation

In view of the recent experience at San Onofre, we plan to require that the applicant have the means of providing permanent in-core instrumentation. This is the same position we've taken on other recently licensed PWR's.

8. Actuation of Chemical Additive Spray

In previous PWR's using chemical additive to enhance the iodine-getting power of the spray, the chemical additive is automatically injected into the borated water being pumped to the spray headers. In this case, however, the applicant proposes that the addition of the chemical additive to the spray be accomplished manually by operator action in the control room. We do not believe it prudent to rely on operator action to actuate significant dose limiting safety features immediately following a loss of coolant accident. We intend to request the applicant to modify the system to make addition of the sodium hydroxide to the spray automatic.

9. Loss of Coolant Accident Analyses

The curves presented in the PSAR showing temperatures, volumes, pressure, etc., as a function of time are excerpts from the forthcoming Indian Point 2 FSAR. As such, they are evaluated for a power level of 2758 Mwt rather than 3025 Mwt. However, comparisons of peak clad temperature and percent perforations for various break sizes are given in tabular form in the First Supplement to the Indian Point 3 PSAR. Since the shapes of the curves of the various parameters vs. time should not significantly change with an increase in power level, we conclude that no further curves be requested.

10. Status of Continuing Review Items

In response to questions from the staff regarding the design of the protective system circuitry and pressure vessel thermal shock, the applicant stated that these problems are being reviewed by a Reactor Technology Branch and that the final design will reflect the results of these reviews. While this statement is a true representation of the facts, we do not believe it is sufficient to form a record for the contested hearing anticipated. We recommend that the applicant be required to document the latest information in these areas for this proceeding. This information may be withheld from public disclosure in accordance with 10 CFR 9.5 if the applicant desires.

11. Conduct of Operations and Organization

The Indian Point 3 PSAR as amended does not include information on the organization, staffing, competence, and method of operation for the proposed facility. OSB has provided an outline indicating information which should be required in the areas of the organization and responsibilities of the company engineering staff, station staff, and inter-

relationships between the company and the vendors; minimum requirements for the station staff; training of initial and replacement personnel; pre-operational and post-operational testing, technical specifications; operating procedures; administrative controls; record keeping; and emergency planning. We recommend that the applicant be requested to provide this information, emphasizing that the last six items may be answered in preliminary form for the construction permit review.

Original signed by
Roger S. Boyd

R. S. Boyd, Assistant Director
for Reactor Projects
Division of Reactor Licensing

Distribution:
Suppl.
RL Reading
RPB-1 Reading
D. R. Muller
J. A. Murphy
N. Blunt
Branch Chiefs, RL/RP

OFFICE ▶	RL:RPB-1	RL:RPB-1	RL:RP			
SURNAME ▶	Murphy:eb	Muller	Boyd			
DATE ▶	10/9/68	10/9/68	10/10/68			