



Commonwealth Edison

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July 6, 1984

Mr. Richard C. DeYoung, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: Byron Generating Station Units 1 and 2
Integrated Design Inspection
I&E Inspection Report No. 50-454/83-32

References (a): June 5, 1984 letter from J. Nelson
Grace to Cordell Reed.

(b): June 11, 1984 letter from Cordell
Reed to R. C. DeYoung.

Dear Mr. DeYoung:

This letter provides responses to NRC comments on the plan for the Byron Independent Design Review (IDR) which is presently in progress. The program plan was provided in section E of the IDR interim report provided in reference (b).

Attachment A to this letter contains Bechtel's responses to the NRC comments provided in reference (a). Please address further questions regarding this matter to this office.

One signed original and fifteen copies of this letter and the attachment are provided for NRC review.

Very truly yours,

FOR Cordell Reed
Vice President

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cc: J. G. Keppler - RIII

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Bechtel Responses to
NRC Comments on Byron IDR Program Plan

1. COMMENT: Page 8 states that no attempt will be made to re-verify each step in designing the specified system, and instead "...the designs will be reviewed for accurate inputs and reasonableness of outputs, and adequacy of the design techniques...". The review should also include adequacy of assumptions.

RESPONSE: The review of designs for the specified system by the IDR team has always been intended to and will include consideration of the adequacy of assumptions.

2. COMMENT: Page 8 states that independent calculations will be performed only to the extent necessary, and not as a general rule. The program plan or implementing procedures should establish criteria for determining when independent calculations will be performed.

RESPONSE: Guidance has been given to the IDR team as to criteria to be considered by reviewers when determining whether independent calculations are to be performed. This guidance generally addresses situations where the reviewer decides that a formal

calculation is necessary to substantiate conclusions, or decides such calculation is the appropriate and expedient method to evaluate complex situations for adequacy for the particular area reviewed. The reviewer may also consider whether calculation by Bechtel would be beneficial for the review. Major emphasis is placed on reviewing existing S&L calculations, and secondarily on having S&L perform calculations for Bechtel consideration. Additionally, the Bechtel Level 1 and Level 2 committees have the prerogative as part of the management overview to request that additional calculations be performed by Bechtel where supplementary information is deemed necessary.

3. COMMENT: Page 8 states that judgements on accuracy and completeness of design documents will consider the level of detail needed to link design requirements with the output documents, and the process employed. Page 8 also states that such judgments will consider the need to justify design decisions and assumptions. These judgments should also consider the ability of calculations to be easily reconstructed, as required by S&L procedure 3.08.

RESPONSE: In the course of considering whether S&L had the need to justify various applicable design decisions and assumptions, IDR reviewers will also consider where appropriate the extent of reviewed calculations so that they generally represent good design practice, being cognizant of the calculation reconstruction requirement of S&L procedure 3.08.

4. COMMENT: Page 9 states that each system will be reviewed from the standpoint of an integrated design, properly coordinated between disciplines, and will include mechanical, electrical, nuclear, and civil/structural aspects of the design. No reference is made to instrumentation and control. Page 19, Figure 1 indicates that reviews of the component cooling water and essential service water systems do not involve electrical and instrumentation and control personnel. However, page 5 notes that reviews will cover instrumentation and control and electrical aspects of design. The staff assumes that reviews of all three systems will include electrical power and instrumentation and control areas. Figure 1 and page 9 should be revised accordingly.

RESPONSE: The IDR does include electrical power and instrumentation and control areas in the reviews of all three systems. This was intended by the note on Figure 1 of the Program Plan.

5. COMMENT: Page 9 states that the last design revision will be considered the basis of the review. This may be a field change request or other change notice. Also in-process work will be included, where appropriate. In order to make the review representative of S&L work in general, Bechtel should impose a cutoff date, e.g., the date it was announced that the three specific systems would be reviewed. Observations should be based on status of the design prior to that date. It has been our experience with Integrated Design Inspections that, without a cut-off date, design organizations tend to "fine-tune" the design for the systems to be inspected.

RESPONSE: The IDR covers several aspects, specifically compliance with design requirements, design adequacy, and adequacy of the design process. The IDR team believes it is able to and will discriminate between valid work in-process and last minute "fine-tuning". Consideration of valid in-process design is particularly essential to ensuring a thorough and complete review is conducted for design adequacy. Otherwise, as stated in the May 1984 report, the date of 4/1/84 was established as the basis for evaluation.

6. COMMENT: Page 10 states that in the event there are activities for which procedures were not followed, the actual practices used will be evaluated. The Bechtel report should identify where procedures were not followed and the actual practices used in such cases.

RESPONSE: In the course of the review, the IDR team will note substantive departures from required procedures. This area will be addressed in the Final Report in the overall evaluation of the adequacy of design process.

7. COMMENT: Page 10 states that due consideration will be given to the extent to which engineering judgment is appropriate, in lieu of written procedures, and that recognition will be made of the complexity of the work, how unique it is, qualifications of personnel performing it, and other relevant factors. The

details of engineering judgments should be documented to be consistent with S&L's procedure 3.08 with respect to allowing easy reconstruction of calculations.

RESPONSE: The IDR team will note where significant judgments are not called out. The IDR team is cognizant of S&L procedure 3.08 relative to calculations (see also the response to Comment 3).

8. COMMENT: Please provide us with the checklists for Tasks 1-3.

RESPONSE: Checklists have been provided as requested.

9. COMMENT: The Bechtel review should cover fire protection.

RESPONSE: The IDR will include consideration of fire protection for the three selected systems reviewed.

10. COMMENT: Page 21 states that detailed schedules will be developed after initial reviews have taken place. Please provide us with a schedule which indicates the level of manpower and mix of disciplines at each work location (e.g., Chicago or San Francisco) week-by-week.

RESPONSE: Schedules have been provided as requested.

11. COMMENT: Page 8 states that Task 2 will review each of the selected systems for adequacy in meeting the licensing commitments and safety related design requirements. As part of Task 2, an assessment should be made with respect to whether calculations exist wherever required (e.g., to support design parameters indicated in the FSAR) and whether calculations have been updated to reflect the latest design configuration.

RESPONSE: The IDR team will note substantive omissions of required calculations. The review will also note substantive failures to update calculations to reflect the latest design configuration where required.

12. COMMENT: Page 5 indicates that the review will cover mechanical, structural, and plant arrangement aspects of the design of each system. Bechtel should assure that the review addresses interactions between Category I and non-Category I structures, systems, and plant equipment, e.g., as indicated in Standard Review Plans 3.7.2 and 3.7.3.

RESPONSE: The IDR will address the potential interaction of non-seismically supported systems and equipment on the Category I systems reviewed (classically referred to as II/I situations where the failure of the Category II system may possess the potential for preventing the Category I system from performing the required safety functions). This is consistent with the considerations of Standard Review Plan (SRP) 3.7.3. Structural interactions as indicated in SRP 3.7.2 will be reviewed consistent with the scope of the IDR.