

Barbara Stamiris

INTERROGATORY IV

RE INDEPENDENT DESIGN AUDIT: CONTENTION 8

Questions

1. How much time, money, and effort is involved in the Bechtel Audit of Bechtel construction and design announced at the 5/20/82 ACRS meeting? What is the purpose and justification for this self-audit? Who will pay for it?
2. What plans have been made toward an independent design and construction audit at Midland?
3. What contacts have been established thus far with various firms concerning the design and construction audit?
4. Provide names and addresses of all firms considered for performing the independent design and construction audit.
5. What criteria are being used to select the firm for the independent design and construction audit--what are the job requirements?
6. Explain in detail the job description, scope of the audit, and other descriptions of what exactly is to be done during this audit.
7. Provide all documents and correspondence exchanged thus far between CPC and prospective companies or individuals regarding the design and construction audit.
8. Explain to what extent the audit scope, depth, or methodology will be controlled by CPC.
9. Explain CPC's proposed plan of action for responding to audit findings.
10. When does CPC expect the selection of this audit firm to be decided?
11. When does CPC expect the audit to begin? To be concluded?
12. How is it possible for an outside auditor to independently assess the structural adequacy of the containment structures and other structures (due to the missing reinforcing bars) without relying upon CPC's statements and analysis of internal wall conditions?

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Reponses

1. This question refers to a "Bechtel audit of Bechtel construction and design announced at the 5/20/82 ACRS meeting." During the 5/20/82 meeting there was discussion of an "independent design verification" conducted by Bechtel and CP Co. We assume that is what the question addresses.

The Midland Independent Design Review Program conducted by Bechtel & CP Co personnel (who were independent of the Bechtel Ann Arbor office and CP Co Midland Project) involved 3183 manhours of the personnel on the review team, at a cost of \$204,100.

The purpose of the Program was to review Bechtel project engineering activities to determine if design criteria are being correctly implemented and if the design assumptions, design methods and the design processes are satisfactory. As discussed at the 5/20/82 ACRS meeting, CP Co decided that based on occurrences at Diablo Canyon and other plants, a design audit was prudent, even without a specific NRC request. CP Co decided that such an audit could be optimized by using people who were knowledgeable about the system but were not working on Midland design such as Bechtel personnel located in offices other than Ann Arbor or CP Co personnel that have not been involved in Midland. The Company also did not at that time, nor do we as yet, know what NRC staff requirements would apply to independent audits for plants that are in the construction and licensing stage similar to Midland. The Company believes that the Bechtel-CP Co audit will be extremely useful either in confirming the adequacy of design and construction, or, if problems are

found, in providing timely identification so that corrective action may be taken consistent with overall project schedules.

2. To date the following plans have been made for an independent design and construction verification program on Midland.

CP Co Management decided that the Independent Design and Construction Verification Program should consist of two parts, and that both parts should be integrated into one report under the jurisdiction of one subcontractor.

The first part is to be an INPO-type evaluation. This type of evaluation has been under development since March of 1982 with INPO developing criteria to be used by the Utility Industry in performing their self evaluation. INPO evaluation teams made up of utility personnel and consultants have conducted evaluations of several pilot plants in 1982 and, in September 1982, issued the latest draft of the "Performance Objectives and Criteria for Construction Project Evaluations." In September 1982, workshops were held by INPO for utility and consultant personnel on how to implement the evaluation. INPO has discussed the program with the NRC Staff and NRC Staff has taken part in training sessions and INPO pilot plant programs. Although the INPO Evaluation Program was designed as a self evaluation program by the utility using its own employees in conjunction with assistance from other utilities or consultants, CP Co has decided to have the INPO evaluation performed by non-CP Co employees to obtain an extra degree of independence in the INPO-type evaluation.

The second part of the Independent Design and Construction Verification Program will be similar to what has been conducted on several plants which were or are to be licensed in 1982. This would be an in-depth review of a system which is important to safety and whose initial design required interfaces within the principal design organization and with another organization, such as the NSSS supplier. This type of program has been accepted by the NRC Staff on other plants. The contractor who will perform the independent, in-depth design and construction verification will be required to meet the independency criteria provided in Chairman Palladino's 2/1/82 letter to Representative John Dingell.

On September 2, 1982 a meeting was held with Region 3 and the staff to discuss the above plans.

3. Three firms have been contacted as potential suppliers of the services described in Item 2 above. All three firms have presented proposals and met with the Company.

4. The three firms considered were:

(a) Management Analysis Co
11095 Torreyana Rd
San Diego, CA 92121

A subcontractor for the second part of the independent design verification proposed by them was:

CYGNA Energy Services
141 Battery Street
Suite 400
San Francisco, CA 94111

(b) TERA Corporation
3131 Turtle Creek Boulevard
Dallas, TX 75219

(c) Torrey Pines Technology
PO Box 81608
San Diego, CA 92138

5. The basic criteria that are being used to select the firm for the Independent Design and Construction Verification Program include:

- a. QA Knowledge and Experience
- b. Technical Capability Including Experience of Personnel
- c. Independency
- d. Program Planning
- e. Cost

The job requirements are explained in the answer to Question 6.

6. As discussed in the answer to Question 2, the independent design and construction verification program will consist of two parts.

Part 1 - INPO

The description of the work is found in the September 1982 INPO Performance Objectives and Criteria for Construction Project Evaluations. The contractor performing Part 1 will assemble a team of personnel who will use these criteria in implementing the evaluations. The preplanning phase will consist of selecting review areas based on complexity, status, interfaces, safety significance, and history of problems (Plant and Industry); and defining review material required (procedures, SAR,

Spec's, drawings, develop tentative assignments and schedule). There will then be more detailed planning of the above, with a plant tour and identification of interfaces. The actual evaluation will consist of interviews, reviews of material provided, observation of activities, discussion of findings within the team, and drafting of performance evaluations.

Part 2

The INPO evaluation team will include one or more members who are employed by the Contractor doing the Part 2, in-depth review. They will assist in the INPO design review aspects, and use the information from the INPO activities to assist in determining the system to be verified in-depth.

The in-depth Part 2 design verification will confirm the design adequacy of an important safety system and will consist of the following activities:

- a. Reviewing design inputs for conformance to system design criteria and commitments;
- b. Confirming that the design process conforms with design control requirements and that interface requirements were factored into design;
- c. Reviewing drawings and specifications for conformance with design criteria, commitments, and incorporation of results of analysis and calculations;

d. For analyses and calculations, reviewing input assumptions, methodology, validation and usage of computer programs and checks of certain calculations outputs;

e. Performing confirmatory analyses and calculations of certain original design analyses and calculations;

f. Verifying as-built conditions by inspections and walkdowns of selected systems and components for conformance with design, inspection and test documentation.

The above would include all engineering disciplines involved in the system (electrical, mechanical, nuclear, civil, instrumentation and control, materials selection, and equipment qualification).

8. Consumers Power Company will not be controlling the Independent Design and Construction Verification Program. CP Co personnel will be answering questions during Parts 1 and 2, and will be providing information on the appropriate organization within CP Co or other Companies to obtain the answers to questions of reviewers. The methodology has been defined in the answer to Question 6. The scope and depth of the audit is pre-defined in accord with the audit methodology as described in the Response to Question 6. Once a contractor is retained, the Company will not interfere with the auditor's ability to carry out its function in accordance with the methodology. The auditors will be free to pursue areas to a depth which they believe necessary to support their conclusions.

9. Findings from the program will be evaluated to determine what corrective action, if any, should be taken. Depending on the nature of the finding, action could include re-analysis, rework, or replacement of hardware items or modifications of programs.

10. The selection of the firms to be involved in Parts 1 and 2 was made on September 16, 1982.

11. Consumers Power Company expects the Independent Design and Construction Verification Program to begin shortly after we make an additional presentation to the NRC. This presentation has not been scheduled. We hope that the Program can begin in October 1982. Some preliminary activities such as training of review team personnel is expected to start the last week in September 1982 and may commence before the additional presentation to the NRC. We expect that the Program would be concluded approximately four months after it commences.

12. For either of the structures mentioned, the independent design and construction verification reviewer would not have to rely upon CP Co statements and analysis of internal wall conditions other than to utilize the as-built drawings for the rebar. He could then use his own method of analysis to assess the adequacy. This is covered in the answer to Question 6, Part 2, Item (e). (Whether or not an independent audit would pursue the rebar matter on these structures depends on whether the audit encompasses them, and, if it does, whether the auditor judges Consumers Power Company's analysis to be adequate.)