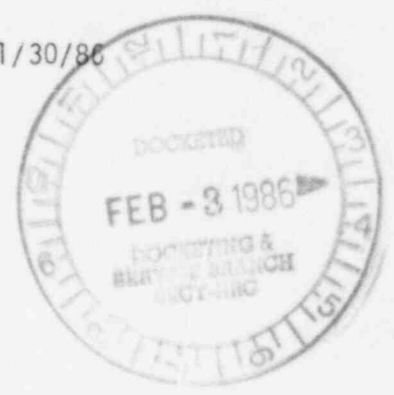


1/30/86



UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)
TEXAS UTILITIES ELECTRIC)
COMPANY, et al.)
(Comanche Peak Steam Electric)
Station, Units 1 and 2))

Docket Nos. 50-445 *OL*
50-446

NRC STAFF COMMENTS ON
STATISTICAL INFERENCE MEMORANDUM

I. Introduction

On November 11, 1985 the Licensing Boards ^{1/} issued their "Memorandum (Statistical Inferences from CPRT Sampling)" ("Memorandum"). Therein, the Board expressed certain propositions and concerns about the ongoing reinspection effort by the Applicants' Comanche Peak Response Team ("CPRT"). In particular, the Board raised concerns in the area of the statistical sampling process developed and being used by the CPRT. The Board has acknowledged that the CPRT results are not yet in evidence, but raised its concerns now to avoid delay at a later stage in the case. Memorandum at 1. The Board invited the comments of the parties on the points made in the Memorandum. Memorandum at 4-5.

^{1/} On December 24, 1985, the two dockets in this proceeding were unified before the initial Licensing Board, hence, hereinafter, reference will be to the "Board".

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II. Staff Comments

The principal area of concern for the Board is the manner in which the CPRT structures its samples for reinspection. ^{2/} While not specifically stated in the Memorandum, it is assumed that the genesis of the Board's concerns is Appendix D to Applicants' "Comanche Peak Response Team Program Plan and Issue-Specific Action Plans," Revision 2, dated June 28, 1985 ("Program Plan"), entitled "CPRT Sampling Approach, Applications, and Guidance," which contains information pertaining to the Applicants' sampling plans.

As evident from the Memorandum itself, ^{3/} the Staff, as part of its evaluation of the CPRT Program Plan, has raised a number of concerns regarding the sampling process developed for use by the CPRT. The Staff will present its overall evaluation of the Plan, including the sampling process, in a supplemental Safety Evaluation Report (SSER), which is currently being prepared. It is the intention of the Staff to address the concerns raised by the Board (e.g., stratification of samples) in the SSER, as well. The Staff believes that by presenting the Board with its evaluation of the sampling program when the Staff has completed its review, and in the context of its full evaluation of the Program Plan, the Board will have a more complete picture of the sampling program. In order to complete its evaluation of the Program Plan, however, the Staff

^{2/} The Applicants have stated that the CPRT will perform "a sample reinspection of essentially the entirety of the safety significant hardware in the plant." Applicants' Current Management Views and Management Plan for Resolution of All Issues, June 28, 1985, p. 23.

^{3/} Memorandum, n.1

will need to review Revision 3 of the Plan which will contain revisions addressing, among other matters, the Staff's concerns; as noted by the Applicants in their "Request for Enlargement of Time . . . ," dated December 16, 1985, Revision 3 to the Program Plan will contain a revised Appendix D. ^{4/} Revision 3 to the Program Plan was provided to the Staff on January 27, 1986, but does not contain the latest revision of Appendix D; the Staff was informed that Appendix D would be provided at some later date. In any event, the Staff's receipt of the latest revision of Appendix D will be significantly later than anticipated when the Board extended the time for reply to its Memorandum from December 31, 1985 in response to the Applicants' "Request for Enlargement of Time" As a consequence, completion and issuance of the SSER has been delayed and is now expected in mid to late February 1986. ^{5/}

As a related, although severable matter, the Board, in its Memorandum, also invited the comments of the parties on "the possible need for an exemption for Appendix B." Memorandum at 4-5. The Board's concern was that if the "level of safety contemplated by Appendix B" could not be assured by the Applicants' sampling process, "the plant would appear to fail to meet Appendix B requirements and to require the granting of an exemption from Appendix B pursuant to 10 C.F.R. 2.758." Id. at 4.

^{4/} Request for Enlargement of Time . . . at 2.

^{5/} The Staff has discussed the above approach with counsel for Applicants and Intervenor CASE. Counsel for Applicants had no objection; counsel for CASE took no position. The Board chairman was informed of the foregoing and agreed to await issuance of the SSER, except that if its issuance were to be delayed, then the Staff would endeavor to address the matters raised in the Memorandum in a separate filing.

Appendix B to 10 C.F.R. Part 50, Quality Assurance Criteria for Nuclear Power Plants, was first proposed and noticed in the Federal Register on April 17, 1969 as a proposed amendment to 10 C.F.R. Part 50. 34 Fed. Reg. 6599. According to the notice, the criteria proposed were to assist applicants (1) to comply with 10 C.F.R. 50.34(a)(7), which requires a description of the quality assurance program in the preliminary safety analysis report (PSAR) and (2) in the development of controls to assure safety operation to be included in the final safety analysis report (FSAR) as required by 10 C.F.R. 50.34(b)(6)(ii). Id. at 6600. The criteria were also to be "used for guidance" in evaluating quality assurance programs in use by holders of construction permits and operating licenses. Id. Appendix B became effective July 27, 1970, with minor changes. 35 Fed. Reg. 10498, June 27, 1970. Subsequently, in amending Criterion I of Appendix B the Commission stated that:

The intent of the quality assurance criteria provided in Appendix B to 10 C.F.R. Part 50 is to require that all activities affecting the safety-related functions of nuclear facility structures, systems, and components be accomplished in a systematic and controlled manner so that there is a high degree of assurance that these activities are performed correctly. 40 Fed. Reg. 3210C (January 20, 1975).

From the initial notice in the Federal Register to the present, the Introduction to Appendix E has defined "quality assurance" as "all those planned and systematic actions necessary to provide adequate confidence that a structure, system or component will perform satisfactorily in service." (Emphasis supplied).

For an applicant to provide the "adequate confidence" that the safety-related functions of a plant will perform satisfactorily in service, a quality assurance program complying with the requirements of

Appendix B (the eighteen criteria) must be demonstrated. But, in discussing what constitutes compliance with Appendix B, the Appeal Board has stated:

In any project even remotely approaching in magnitude and complexity the erection of a nuclear power plant, there inevitably will be some construction defects tied to quality assurance lapses. It would therefore be totally unreasonable to hinge the grant of an NRC operating license upon a demonstration of error-free construction. Nor is such a result mandated by either the Atomic Energy Act of 1954, as amended, or the Commission's implementing regulations. What they require is simply a finding of reasonable assurance that, as built, the facility can and will be operated without endangering the public health and safety. 42 U.S.C. §§ 2133(d), 2232(a); 10 C.F.R. § 50.57(a)(3)(i).

Union Electric Company (Callaway Plant, Unit 1), ALAB-740, 18 NRC 343, 346 (1983). "Thus," the Appeal Board continued, "in examining claims of quality assurance deficiencies, one must look to the implication of those deficiencies in terms of safe plant operation." Id. Where, as here, deficiencies in a quality assurance program are raised in a licensing proceeding, a licensing board must consider (1) "whether all ascertained construction errors have been cured" and (2) even if so, if there remains a question "whether there has been a breakdown in quality assurance procedures of sufficient dimensions to raise legitimate doubt as to the overall integrity of the facility and its safety-related structures and components." Id. Subsequent cases have endorsed the Callaway

concept, ^{6/} and it has been acknowledged by the Board in this proceeding. ^{7/}

As noted above, the Board has expressed concern about assuring "the level of safety contemplated by Appendix B." There is, however, no precise, quantitative measure by which to gauge whether an applicant has provided "adequate confidence" for a given quality assurance program.

Normally, an effectively functioning quality assurance program ensures that the design of a nuclear power plant is in conformance with the design criteria and commitments set forth in an applicant's PSAR . . . and FSAR

Pacific Gas and Electric Company (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-763, 19 NRC 571, 576 (1984). In Diablo Canyon, the Appeal Board was faced with evidence that the design quality assurance program was "faulty" and "failed to comply with 10 C.F.R. Part 50, Appendix B." Diablo Canyon, ALAB-763, supra, 19 NRC at 576. Nevertheless, the Appeal Board recognized that an operating license could be authorized if it could otherwise be demonstrated that the facility's design was correct. Id. ^{8/} In examining such issues, it is appropriate to

^{6/} See, e.g. Pacific Gas and Electric Company (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-756, 18 NRC 1340, 1344-45 (1983); Louisiana Power and Light Company (Waterford Steam Electric Station, Unit 3), ALAB-812, 22 NRC 5, 14-15 (1985).

^{7/} "The project is too large to be perfect." Memorandum at 4.

^{8/} The Appeal Board noted that:

. . . the Commission mandated the IDVP [Independent Design Verification Program] to provide after the fact assurance that the Diablo Canyon design conformed to the various design criteria and nevertheless could receive

look to the totality of an applicant's efforts to assure that the design and construction of the facility satisfy the requirements of Appendix B, in this case including the activities of the CPRT as well as the project itself. See, Diablo Canyon, ALAB-763, supra, 19 NRC at 576, 577-578 (1984). Referring to independent design verification activities, analogous to the CPRT in this proceeding, ^{9/} the Appeal Board stated that these activities "if properly conceived and carried out, are to substitute for, and supplement, the applicant's apparently faulty design quality assurance program." Id. ^{10/} And there, as here, it was recognized that a substantial amount of the verification effort was predicated on a sampling of appropriate structures, systems and

(FOOTNOTE CONTINUED FROM PREVIOUS PAGE)

an operating license even though the applicant apparently failed to comply with the Commission's quality assurance regulations.

Diablo Canyon, Order at 5, August 16, 1983 (unpublished).

- ^{9/} The IDVP implemented for Diablo Canyon, however, focused almost exclusively on design activities and examined construction activities on a rather limited basis, unlike the CPRT being implemented with respect to Comanche Peak which has significant components directed to both design and construction.
- ^{10/} Likewise in the context of adjudging the adequacy of a construction quality assurance program, the Appeal Board, in Waterford, stated the obvious: that one cannot "turn back the clock" and literally satisfy the requirements of Appendix B, nunc pro tunc. Rather, the focus must be on deciding "whether any significant construction deficiencies resulted and remain as a consequence of" prior failures to comply with provisions of Appendix B and whether the applicant "has taken steps to prevent . . . [recurrence of the problem] in the future." See, e.g., ALAB-812, supra, 22 NRC at 21. Consistent with these teachings, the Staff typically looks to and evaluates the corrective actions taken by a licensee to address deficiencies found in the implementation of its QA program to provide the requisite "reasonable assurance."

components, rather than on a 100% review. Appendix B does not require the use of any particular sampling scheme. Rather, such sampling process must, as the Appeal Board observed, be sufficient together with the associated analyses and evaluations, to permit a determination of "adequate confidence." Id. at 587. As relevant to the Licensing Board's inquiry, the Appeal Board, in Diablo Canyon, stated:

This qualitative standard is not numerically quantifiable into expressions of probability of errors or error rates Thus, the ultimate determination regarding the adequacy of the plant's design remains a qualitative judgment and we must turn to the verification work that was performed to ascertain whether its scope and quality are sufficient to provide the requisite assurance of design adequacy.

Id. at 587-588, footnotes omitted. ^{11/} Moreover, in rejecting the intervenors' claim that a demonstration of compliance with each and every licensing criterion and commitment, irrespective of safety significance, was required and, thus, that it was unacceptable that there may exist certain undetected deficiencies, the Appeal Board concluded that

The central issue with respect to the proper design of . . . any . . . facility, is the conformance of the design to the

^{11/} As in this proceeding, the use of a statistically-based sampling program was of concern in Diablo Canyon. In this regard, the Appeal Board noted the difficulties associated with the development and implementation of a "statistically valid" sampling effort for design verification and thus concluded that "a coherent sampling scheme devised in view of a system's characteristics, its function, and its interaction with other systems appears . . . to be a more acceptable method for ascertaining the adequacy of the design of a nuclear power plant." Diablo Canyon, ALAB-763, supra, n.71. Based on a review of the Applicants' Design Adequacy Program Plan as presented in Appendix A of the CPRT Program Plan, it is the Staff's understanding that the Applicants will be utilizing a sampling approach in the design area which is consonant with the Appeal Board's observations. The Staff expects the distinction between the construction and design sampling approaches will be clarified further in Appendix D of Revision 3 to the Program Plan. See pp. 2-3, supra.

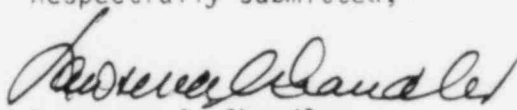
significant and substantive safety requirements and licensing criteria. To conclude otherwise would ignore reality and substitute "perfection" for the regulatory standards of "adequate confidence" and "reasonable assurance."

Id., n.68.

III. CONCLUSION

Consistent with Commission precedent, it is appropriate, at this juncture of the proceeding, to evaluate the adequacy of the CPRT and related project efforts in terms of their scope and quality in providing the "adequate confidence" and "reasonable assurance" required by the Commission's regulations. With respect to the Board's specific inquiry regarding the need for an exemption, in light of the requirements of 10 C.F.R. Part 50, Appendix B as interpreted by Commission caselaw, discussed above, the Staff cannot envision circumstances under which the Applicants might petition for and justify a waiver or exception to Appendix B pursuant to 10 C.F.R. § 2.758.

Respectfully submitted,



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Special Litigation Counsel



Richard G. Bachmann
Counsel for NRC Staff

Dated at Bethesda, Maryland
this 30th day of January, 1986

A circular clock face with a white background and black markings. The numbers 1 through 12 are arranged around the perimeter. In the center, the word "LOCKING" is printed at the top. Below it, the date "FEB - 3 1986" is printed, with a black arrow pointing to the 3 o'clock position. At the bottom, the text "DOCKING & SERVICE BRANCH" and "BOSTON, MA" is printed.

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