

QAS-85/161

Bechtel Power Corporation

Engineers — Constructors

15740 Shady Grove Road
Gaithersburg, Maryland 20877
301-258-3000



August 9, 1985

Mr. Gary G. Zech, Chief
Vendor Program Branch
Division of Quality Assurance, Vendor
and Technical Training Center Programs
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Mr. Zech:

Reference: Letter, July 11, 1985; Gary G. Zech, USNRC to H. W. Wahl,
Bechtel Power Corporation; Docket No. 99900519/85-01

This letter is in response to the referenced letter which transmitted the report of your inspection of the Eastern Power Division Quality Assurance Program related to procurement of safety-related equipment. The inspection was conducted by Mr. P. D. Milano of your office on January 7-11, 1985.

The enclosure to this letter contains our response to your report.

Your Inspection Report No. 99900519/85-01 contains no information which we believe to be proprietary.

Very truly yours,

H. W. Wahl
H. W. Wahl

Vice President and General Manager

HW:SRK:kc

Enclosure

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NRC INSPECTION REPORT

No. 99900519/85-01

Notice of Nonconformance

Based on the results of an NRC inspection conducted on January 7-11, 1985, it appears that certain of your activities were not conducted in accordance with NRC requirements.

Criterion V of Appendix B to 10 CFR Part 50 states: "Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Instructions, procedures, or drawings shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished."

Nonconformances with these requirements are as follows:

- A. Part 2, Section 4.2 of Bechtel Engineering Department Project Instruction EDPI-4.58-01, "Specifying and Reviewing Supplier Engineering and Quality Verification Documentation," Revision 4, dated September 18, 1981, states, in part, "When reviewing calculations or test results, the responsible engineer shall... Evaluate testing techniques and review results if Supplier is qualifying equipment by test."

Contrary to the above, the responsible engineer approved the design test documentation provided by the Supplier of the Battery Chargers, purchase order E-051, which did not meet all the requirements of the industrial standard referenced in the specification. In particular, the requirements of National Electrical Manufacturers Association (NEMA) Standard PV-5-1976 for the AC and DC transient voltage withstandability tests were not completely met.

Bechtel Response

We believe that the design test documentation provided by the supplier of the Battery Chargers met the requirements of the specified NEMA Standard PV-5-1976 for the AC & DC transient voltage withstandability tests.

NEMA Standard PV-5-1976 requires, for the AC Transient Voltage Test, that four consecutive pulses be applied at 3000V (for the subject chargers) for a duration of 20 μ sec (each) at the half voltage points. The SNUPPS test was performed with the first pulse at 3000V for 40

μsec (twice the required duration). The second test achieved two successive peaks (at 3000V) but was performed for 16 μsec. The third and fourth tests were also performed at 3000V for 21 μsec each. Considering that the first test was twice the required duration and that two peaks at full test voltage were achieved during the second test, we consider that the overall intent of the subject NEMA standard has been met, despite the second test duration having been 4 μsec less than the required 20 μsec duration.

With respect to the DC Transient Voltage Test, the curve shown on the design test report (Bechtel Vendor Print #E-051-0055-01, page 15 of 23) is representative of four identical tests run at opposite polarity, each of which was greater in duration and equal in magnitude to the requirements of the subject NEMA PV-5 standard. This is confirmed by letter, dated July 30, 1985, from the charger supplier. It should be noted that the Supplier's procedure did include the requirements for the chargers to be subjected to four consecutive pulses of transient voltage.

As such, the requirements of NEMA PV-5-1976 have been satisfied. Therefore, no further action, including corrective action to prevent recurrence is required.

- B. Section 2.0 of Bechtel Engineering Department Procedure EDP-4.54, "Qualification of Personnel Authorized to Perform ASME III Code Certifying Activities," Revision 0, dated July 29, 1983, states, in part, "It is the responsibility of those individuals selected for certification activities to provide their Chief Engineer evidence of the qualifications to meet the requirements of Exhibit A. Records of basic education and continuing qualifying experience are maintained by the Chief Engineer."

Section 3.3, "Review" of EDP-4.54, states, in part, "To maintain qualification, the selected employee shall keep current on knowledge of code requirements and continue professional development in the specialty field through personal study and experience or by attendance at appropriate courses, seminars, society and technical committee meetings. The personnel files of the selected employee must contain evidence that demonstrates maintenance of qualifications."

Contrary to the above, no objective evidence could be produced in either the Chief Engineer or personnel files, except for a resume, to support the qualification and maintenance of qualification of two Registered Professional Engineers engaged in ASME certification activities.

Bechtel Response

We believe that identification of this item as a nonconformance stems from a misunderstanding of the requirements of our procedure.

The intent of the requirements of our procedure is to document that the employees selected for certification of ASME Code Activities meet the guidelines of ANSI/ASME N626.3-1979.

We initially certified the employees based upon the Chief Engineer's personal knowledge of each individual's qualifications, past experience and familiarity with the ASME Code requirements. It was intended that, at the time of initial certification, the employee's resume and completed Exhibit B of EDP-4.54, (which indicates employees authorized to perform Code Certifying Activities), would provide sufficient documentation regarding the qualifications of the employees to perform Code Certifying Activities.

Personnel resumes and completed Exhibit B of EDP-4.54 were and are available in the Chief Engineer's files, as required.

It is intended that when the employees are recertified, 3 years after initial certification, the Chief Engineer's file include appropriate documentation which establishes the basis for recertification. The EDP requires that the Chief Engineers provide appropriate documentation to establish the employee's current knowledge of Code requirements and continued professional development in the specialty field through personal study and experience or by attendance at appropriate courses, seminars, society meetings, and technical committee meetings. Since recertification for maintenance of qualification has not yet become due and, therefore, has not yet been performed, the Chief Engineer's files do not contain documentation pertaining to the basis for recertification.

As such, we believe no action, including corrective action to prevent recurrence, is necessary at this time.

- C. Section 3.2(b) of Bechtel EDPI 4.58-01, "Specifying and Reviewing Supplier Engineering and Quality Verification Documentation," Revision 4, dated September 18, 1981, states, in part, that "Documents reviewed shall assure that equipment is capable of fulfilling its function and that documents conform to purchase specification requirements."

Contrary to the above, the Seismic Analysis Report, Bechtel No. C-175-0014, prepared by Wachter Associates Incorporated for Spent Fuel Storage Racks, utilized a damping value, which was provided by Bechtel, of 5% rather than the specification value of 4%.

Documentation was not available to support the basis for this departure.

Bechtel Response

We believe that the Seismic Analysis Report No. C-175-0014, prepared by Wachter Associates Inc. for Spent Fuel Storage Racks, meets the Bechtel specification requirements.

The specification allows Wachter Associates Inc. to choose appropriate damping values considering the interaction between the racks, the fuel assemblies and the water in the pool. Our approval of the Vendor's Seismic Analysis Report documents the acceptance of the 5% damping value used by Wachter Associates. As such, we do not believe there is any deviation from the specification requirements.

Technical Specification No. 10466-C-175, Appendix A, Section 2.1 states, "The damping values for spent fuel storage racks are 2 percent for OBE and 4 percent for SSE. The Seller shall determine modal damping values to be used in the analysis, considering interaction between the racks, the fuel assemblies and the water in the pool."

The damping values of 2 percent for OBE and 4 percent for SSE, as stated in the specification, are appropriate damping values for welded steel structures (BC-TOP-4-A, Table 3-1), and are applicable to an analysis of a welded rack structure rigidly attached to the building structure. These values also provide a basis for determining the damping value to be used in the seismic analysis when the effects of interaction between the racks, the fuel assemblies and water in the pool are considered.

The Vendor's seismic analysis considers the effects of the interaction between racks, the spent fuel assemblies and water in the pool. In addition, the final design of the SNUPPS spent fuel storage racks consists of free standing racks which are supported by pedestals, which rest on, but are not integrally attached to the spent fuel pool floor. The racks are bolted together in pairs (from BC-TOP-4-A, Table 3-1 the damping value for bolted steel structures is 7 percent) and the fuel assemblies are not rigidly attached to the rack structure. Considering all of these factors, Bechtel Project engineering and civil engineering staff personnel concluded that a 5 percent damping value, as proposed by the Vendor's Seismic Analysis Report (and allowed by the technical specification), is a conservative estimate of the damping value for the spent fuel storage racks analysis. Approval of the Vendor's Seismic Analysis Report (Vendor Document No. 10466-C-175-00014-03) documents Bechtel's acceptance of the 5% damping value.

As such, we believe no action, including corrective action to prevent recurrence, is necessary at this time.