

07/11/84

SSER

Task: Allegation A-258

Reference No.: 4-84-A-06-142(1)

Characterization: It is alleged that Chicago Bridge and Iron Company (CB&I) did not maintain material traceability on certain seismic Category I structural components in the containment vessel that were fabricated from Class D materials.

Assessment of Allegation: Chicago Bridge and Iron Company (CB&I), fabricator of the containment vessel, used material they had categorized as Class D to fabricate certain nonpressure retaining structural components in the containment vessel. These structural components include seismic clips that support safety-grade class piping systems, parts of the equipment hatch handling device, parts of the personnel and escape locks, crane rails and girders, stairs, ladders, and some temporary attachments and components. EBASCO categorized these components as seismic Category I, a category requiring material traceability. But, according to CB&I quality assurance procedures, material traceability was not required for Class D material and thus was not maintained. Nonconformance Report (NCR) No. W36224, issued by EBASCO Quality Assurance Group on May 13, 1983, addressed this issue.

To resolve the material traceability problem, EBASCO contacted CB&I and requested that they conduct a search of their in-house records to establish traceability of these materials where possible. CB&I was able to provide Certificates of Compliance or Certified Material Test Reports which established material traceability for a large portion of the components. A listing of those components, which could not be identified as temporary, or for which material traceability could not be established through CB&I records, was forwarded to EBASCO Site Support Engineering (ESSE) for engineering evaluation. Based on their review, ESSE concluded that material traceability was not critical to the safe operation of the components, including bolting and angle iron connectors on stairs, platforms, and crane rails; the equipment hatch handling device; and parts of the personnel and escape locks.

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ESSE pointed out that in the CB&I design of the containment vessel, the structural members were categorized in material Classes A through D reflecting their order of importance, Class A being the most important and Class D the least important. Thus, there was a conscious decision by CB&I regarding the materials classification of components. ESSE indicated that they had reviewed and concurred with the CB&I materials classification system.

The NRC staff reviewed the ESSE evaluation, including in the resolution of NCR W36224, and performed an independent assessment of the components with potential safety significance, specifically the equipment hatch handling device and the personnel and escape locks. The equipment hatch handling device is used for opening, closing, and storing the 14foot diameter equipment hatch during maintenance operations but is not relied upon to maintain containment integrity during normal or postulated accident conditions. The NRC staff concurred with the ESSE conclusion that material traceability is not essential for this component. The personnel and escape locks each have two gasketed doors in series with valve and interlock mechanisms so that containment integrity can be maintained during entry and exit. The NRC staff review of the bill of materials and drawings for the personnel and escape locks showed that the Class D materials in these components were used primarily in the fabrication of actuating mechanisms for valves and interlocks, and for miscellaneous items such as valve handles, bolting, and indicator plates for which material traceability is not critical. The main concern regarding these components is operability and LP&L is required by the final safety analysis report and in their Technical Specifications to perform operability testing of the personnel and escape locks each time they are opened and at periodic intervals. This surveillance testing should provide adequate assurance that these components will perform satisfactorily.

Based on the review of the ESSE evaluation of this issue and on its own independent review and evaluation, the NRC staff concluded that traceability issue for Class D material used in the containment vessel as addressed in NCR W3-6224 has been satisfactorily resolved through the actions taken in the resolution of that NCR.

One issue with possible generic implications is that EBASCO did not perform a comprehensive, initial review of the contractor's (CB&I) procedures to determine that they were consistent with EBASCO specifications. Vendor and contractor QA procedures should have been reviewed to ensure that they were consistent with the prime contractor's specifications and quality assurance program. Although a failure in the quality assurance program in effect initially did occur because of inconsistency between documents was not identified, the same program through internal review identified the material traceability issue. NCR 6224 was written and no violation of NRC regulations was identified.

This allegation has neither safety significance nor generic implications.

Potential Violation: EBASCO designated all portions of the containment to be seismic Category I, requiring material traceability; however, CB&I classified some materials as Class D, which required no traceability. This is a potential violation in that Criterion III of 10 CFR 50, Appendix B, states that measures shall be established and executed such that the design bases for structures are correctly translated into design documents and that deviations from those design bases are controlled. EBASCO, in reviewing design documents submitted by CB&I, did not identify the fact that the Class D materials were not required to have traceability. This condition was not identified until work was completed.

Actions Required: None.

References

1. NCR W3-6224 issued May 13, 1983.
2. CB&I Nuclear Quality Assurance Manual for ASME Section III Products; Section 4.0, Procurement and Material Control; Revision 6; April 3, 1975.
3. Material Requirements Table for Contract No. 71-2426.

4. EBASCO Internal memorandum from B. Grant, to L. A. Stinson; Subject: Relocation; dated July 19, 1983.
5. Waterford Steam Electric Station Final Safety Analysis Report, Section 3.8.
6. Waterford Steam Electric Station; Technical Specifications Section 3/4, Containment Airlocks.

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POTENTIAL VIOLATION.
IF SATISFACTORY
I WILL INCORPORATE
IN SSER.

Bill C

7/2/84

FINAL SSER ROUTING

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Revision :	0	1	2	3
Denny Crutchfield	✓			
✓ Jim Gagliardo	✓			

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Potential Violation: EBASCO designated all portions

of the containment to be seismic Category I, requiring material traceability, however CB&I classified some materials as Class D which required no traceability. This is a potential violation in that Criterion II of 10CFR 50, Appendix B states that measures shall be established and executed such that the design bases for structures are correctly translated into ~~drawings~~ design documents and that deviations from those design bases are controlled. EBASCO in reviewing design documents submitted by CB&I did not identify that fact that the Class D materials were not required to have traceability. This condition was not identified until work was completed.

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