

SSER

Task: Allegation \*A-222, A-231

Reference Number: 4-84-A-06/110; 4-84-A-06/119  
(Note: These are duplicate allegations)

Characterization: The allegation is that the Mercury Construction Company's concrete expansion anchor installation and inspection procedure does not give sufficient guidance to inspection personnel to assure that all important physical characteristics are inspected for conformance to installation requirements.

Assessment of Allegation: The alleged provided a copy of a memorandum stating that Mercury Construction Procedure SP-666, Rev. 8, "Drilled-In Expansion Type Anchors in Concrete for Category I Structures," does not require QC verification of many characteristics necessary to ensure proper installation of concrete expansion anchors. These characteristics include:

- Spacing between adjacent anchors
- Spacing between an anchor and the edge of a concrete surface
- Spacing between an anchor and an embedded plate
- Minimum anchor embedment depth
- Grouting of unused/abandoned holes in the concrete
- Mounting plate size
- Size of holes in mounting plates and hole distance from plate edges

A review of procedure SP-666 revealed that, although most of the above - referenced requirements are addressed in Section 6.1 "Installation," they are not included within Section 6.2 "Inspection," as items requiring QC to verify. In addition, QC Inspection Report Form 277A, Rev. May 1982, "Equipment Installation (Anchors)," does not list these attributes as inspection points.

In an attempt to determine if QC inspectors were, in fact, inspecting concrete anchors for these attributes (over and above procedural instructions), 27 Mercury nonconformance reports, written between May 1979 and May 1983 were reviewed and found to address such installation deficiencies. However, of these 27, only 4 appear to have been initiated as a direct result of original inspections performed in accordance with Procedure SP-666. The remaining 23 were as a result of various walkdowns, surveillances, or of an undetermined nature.

A sample of installed concrete anchors in Diesel Generator Room "B," Component Cooling Heat Exchanger Rooms "A" and "B," and a hallway adjoining these rooms, was then inspected to determine whether installation deficiencies may have eluded detection due to the above procedural omissions. The inspection revealed six instances of spacing violations which had not been identified by Mercury QC. Although none of these six violations are considered significant, their discovery raises questions about the thoroughness of the overall inspection effort with respect to concrete anchors.

In summary, Procedure SP-666 does not provide sufficient direction to QC personnel to perform meaningful inspections; sufficient documentation does not exist to indicate that QC personnel were aware of all necessary installation criteria; and, the identified, currently existing discrepancies indicate that the inspection program utilized was not adequate to ensure that concrete anchors installed by Mercury Construction Company are in conformance with design requirements.

This allegation could have some safety significance and therefore some reinspection will be necessary. This is an example of a weakness in the QA inspection procedures which may be generic.

Potential Violations: Contrary to 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," Mercury Procedure SP-666 does not include appropriate quantitative and qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished.

Actions Required: See Item No. 17 in the Enclosure to the D. Eisenhower letter to J. M. Cain, (LP&L), dated June 13, 1984.

#### References

1. Memo from N. Banerjee to J. McKenzie/R. Crisp dated February 5, 1983.
2. Mercury Procedure SP-666, Rev. 8, "Drilled-In Expansion Type Anchors in Concrete for Category I Structures"
3. List of 27 Mercury nonconformance reports reviewed
4. List of six spacing violations discovered during this assessment

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