

DETAILS

1. Persons Contacted

Public Service Electric and Gas Company

- *F. Barnabei, QA Engineer
- *A. Giardino, Project QA Engineer
- *G.D. Owen, Acting Project Construction Manager

Bechtel

- *L. Bedford, Contracts Engineer
- *M.A. Drucker, Lead QA Engineer
- *R. Hanks, Project Construction QC Engineer
- *M.C. Henry, Project Field Engineer
- *P. Patil, Resident Engineer
- *L.E. Rosetta, Field Construction Manager
- D. Seker, Assistant PCQCE
- A. Vanek, Resident Engineer

U.S. Nuclear Regulatory Commission

- *W.H. Bateman, Senior Resident Inspector

(Persons denoted * attended exit interview)

2. Plant Tour

The inspector conducted a walk-through plant site tour of Units 1 and 2 containments, reactor buildings, and other safety related structures to assess the work procedure and general conformance to good practice in the areas of temporary storage, erection and installation of structural steel. A licensee QA engineer accompanied the inspector on this tour.

No items of noncompliance were identified.

3. Observation of Work for Safety Related Structural Steel

The inspector observed and inspected some completed structural steel items to determine that the items are of the type specified, are properly fabricated, are properly installed as specified by design, and specific clearances and critical dimensions are maintained. The inspector inspected the following structural steel beams in reactor and other buildings:

Beam Nos: HB-190; HB-140; HB-141; HB-218; HB-219; HB-273;
HB-166; HD-61; HD-133; HD-197.

During this inspection the inspector observed that some beams designed for seated connection did not have a "Top Angle" as required by AISC manual of standard practice for seated beam connectors. The inspector reviewed the applicable drawing showing the details of such connections. The drawing no. C-849, RW 15 did show the top angle, however, a note indicated that these angles would be used if required and shown on framing drawings. The applicable framing drawing did not show any top angles. The inspector requested the licensee to provide an engineering rationale for this omission and a departure from an accepted standard practice.

In response to the inspector's questions the licensee stated that the omissions of top angles are a deliberate design decision. The engineering rationale for the omission are as follows:

- (i) The "top angle" required by AISC is to provide for a overturning restraint for a seated beam.
- (ii) This restraint in the seated beam connections is provided by approximately two feet thick concrete slab on top of the beams.
- (iii) Stiffeners have been provided at the end of beams to prevent flange and/or web buckling.

However, the inspector pointed out to the licensee that there were beams with seated beam connection without concrete slab over it. These beams support steel floor gratings. Also, the end stiffeners do not provide restraints for overturning of the beam. The inspector requested that the licensee provide further information to support the omission of angles; specifically, an analysis to show that concrete provides at least an equal to or greater resistance to overturning than top angle; where there is no concrete, one bolt on the lower flange is able to resist all the tensile stresses and moments generated by overturning. The licensee indicated that these informations would have to be obtained from their A/E's home office in San Francisco, California, and would take some time. The inspector indicated that this item was unresolved and would be followed-up in a subsequent inspection. (50-354/81-01; 50-355/81-01)

4. Review of Documentation Associated with Structural Steel Items

The inspector reviewed pertinent documentation and held discussions with licensee and construction personnel to verify that quality control operations were adequate, project procedures were implemented, and the records were maintained. The inspector reviewed the following documents.

- Drawing Nos.
 - C-0803-1, Rev. 16
 - C-0805-1, Rev. 12
 - C-0808-2, Rev. 3
 - C-0816-0, Rev. 7
 - C-0849-0, Rev 15.
- FCRs C-4016; C-4013; C-3864; C-3591; C-3823; C-3911; C-2788.
- Bechtel Specification-Technical Specification for Purchase of Steel; 10855-C-124(Q), Rev. 8.
- Bechtel Specification-Erection of Structural Steel for Category I Structures; 10855-C-126(Q), Rev. 7.
- Bechtel Specification-Technical Specification for Purchase of Structural Steel for Auxiliary Building; 10855-C-125(Q), Rev 7.
- Bechtel Specification-Technical Specification for NDE of Structural Steel Welds; 10855-C-127(Q), Rev. 2.
- Bechtel Specification-Technical Specification for Purchase of Miscellaneous Metals for Category I Structures; 10855-C-131(Q), Rev. 15.
- QCIR-C0803-3-C-2.10, dated 12/21/78; completed 6/3/80.
- QCIR-08031-C-2.10, dated 12/1/78; completed 5/7/80.
- QCIR-C-0803-4-C-2.10, dated 1/5/79; completed 5/16/79.
- Bechtel QC Log, "Change to Design Documents."
- American Institute of Steel Construction-"Steel Construction Manual". **Sec. 4.**

Based on the review of above documents and discussion with licensee personnel, the inspector determined that the erection and installation of structural steel was generally proper, except as discussed in the previous paragraph, and adequate records were being maintained.

However, the licensee was not able to provide some material certifications for structural steel used in category I structures. The licensee informed the inspector that due to the change over of document control system from manual to computerized record management system, there are some problems in retrieving records. The inspector indicated that the material certification will be reviewed at a subsequent inspection.

No items of noncompliance were identified.

5. Unresolved Items

Unresolved items are matters about which more information is required to ascertain whether they are acceptable items, items of noncompliance, or deviations. Unresolved items disclosed during this inspection are discussed in Section 2 of this report.

6. Exit Interview

The inspector met with licensee representatives (denoted * in Paragraph 1) at the conclusion of the inspection. The inspector summarized the purpose, scope, and the findings of this inspection.