

## ATTACHMENT 65001.F

### INSPECTION OF THE ITAAC-RELATED DESIGN AND FABRICATION REQUIREMENTS

PROGRAM APPLICABILITY: 2503

#### 65001.F-01 INSPECTION OBJECTIVES

- 01.01 To verify that design and fabrication activities have been completed in accordance with applicable specifications, drawings, and approved procedures.
- 01.02 To determine whether licensee records establish an adequate basis for the acceptance of ITAAC with design and fabrication attributes.
- 01.03 To verify design and fabrication activities have been performed by qualified personnel.

#### 65001.F-02 INSPECTION REQUIREMENTS

This inspection is performed to demonstrate that structures, systems and components (SSCs) are designed and fabricated in conformance with requirements in the facility license, applicable codes and standards, licensing commitments, the Final Safety Analysis Report (FSAR), and regulations. All dimensions and related tolerances of the components must be in accordance with design drawings and specifications.

Design/Fabrication requirements include specific ITAAC that refer to applicable codes and standards, such as the American Society of Mechanical Engineers (ASME) and the American Society for Testing and Materials (ASTM). The design and fabrication documentation of SSCs should demonstrate adequacy of design by reference to analyses, calculations, bounding condition checks, functional assessments, engineering evaluations and/or other design reports. Licensee reports that analyze the functional capabilities of the SSCs should be reviewed for compliance with applicable documents, codes, standards and regulations referred to in this procedure. Fabrication requirements also include the application of service level I, II, and III protective coatings defined by Regulatory Guide 1.54 and inspections of coatings should focus on materials inside containment.

- 02.01 Design Document Review: Review the applicable SSC design documents associated with ITAAC to determine whether the documents adequately define the final design and arrangement of these SSCs. The inspectors should review applicable construction specifications, installation specifications, shop and field drawings, and construction procedures to verify SSC attributes associated with ITAAC are correctly identified and documented for review and approval by responsible engineering personnel.

Inspection Plan/Scoping: Review the ITAAC Matrix to determine the ITAAC residing in families along Column F for Design and Fabrication Requirements. The inspector may then select specific criteria based on or related to those ITAAC and the inherent characteristics of any engineering program to verify whether a program controlling

design and fabrication activities for those ITAAC has been established and is being correctly implemented. For the selected ITAAC criteria or attributes, the inspector should verify that the design and fabrication inputs were correctly identified and documented, and that their selection was reviewed and approved by the responsible engineering group.

Some critical attributes may not be clearly specified in the ITAAC table, but are included by reference to fabrication or test codes, and/or reference to requirements contained in the Design Control Document (DCD) or the FSAR. It is expected that the inspector will exercise judgement not only in the selection of the critical attributes, but also in determining how much inspection is necessary to confirm that the ITAAC have been satisfied.

The ITAAC, should provide sufficient details for guidance in the selection of critical attributes and in establishing what needs to be inspected to verify adequate licensee completion, compliance, and acceptance.

02.02 Fabrication Records Review: Review a sample of SSCs fabrication records for selected ITAAC to verify compliance with applicable documents, codes, standards, regulations, and quality and technical requirements.

- a. Review a sample of purchase orders and verify that they appropriately specify acceptable quality, technical, and 10 CFR Part 21/10 CFR 50.55(e) requirements.
- b. Review a sample of fabrication records and verify that they are adequate to furnish evidence of activities affecting quality and SSCs conform to applicable codes, standards, regulations, and quality and technical requirements. Review certified material test reports to verify that materials meet the specified mechanical testing requirements. The inspectors should review applicable ASME materials code data reports furnished by the vendor for acceptability.
- c. If applicable, the inspectors should review a sample of nonconformance reports and other design deviation documents associated with SSCs that were dispositioned as “repair” or “use-as-is”.
  - i. Review “repair” item reports and associated documents to verify the repair was performed in accordance with applicable codes, standards, regulations, and quality and technical requirements. The inspectors should also verify the repaired condition complies with the final design.
  - ii. Review “use-as-is” item reports and associated documents to verify that the condition was adequately evaluated by the responsible design organizations and that any design change was completed in accordance codes, standards, regulations, and quality and technical requirements. The inspectors should verify that the accepted condition complies with the final design.
- d. If possible, the inspectors should perform an observation of the item(s) selected for review above.

- i. The inspectors should observe the storage of the item and determine whether the storage conditions meet applicable quality and technical requirements.
- ii. The inspectors should review the markings on the item(s) to determine whether the markings are in accordance with the applicable quality and technical requirements. NOTE: For ASME pressure boundary items, the ASME Code specifies material marking requirements, including the location of markings, and the method used to make the markings.
- e. Verify the licensee, vendor, and fabrication personnel have established an effective method for tracking completion of design and test acceptance criteria at vendor manufacturing facilities.
- f. Verify the licensee, vendor and fabrication personnel have established an effective method for tracking, evaluating, and dispositioning changes or modifications, and that they were appropriately resolved, including completion of any changes to design and test acceptance criteria.
- g. For components subject to industrial standards outside of the ASME Code, see Inspection Procedures for ITAAC rows (1) through (15). These will include references to industrial standards for seismic or environmental qualification, fire protection standards, etc. (One exception would be the ASTM requirements for protective coatings as designated by Regulatory Guide 1.54.)

02.03 Observation of Fabrication Activities: If possible, the inspectors should observe a sample of fabrication activities to determine whether the activity meets applicable quality and technical requirements established by the procurement documents.

02.04 General Quality Assurance (QA) Review:

See Section 02.02 of IP 65001.

## 65001.F-03 INSPECTION GUIDANCE

### Generic Inspection Guidance:

#### 03.01 Specific Guidance for Section 02.03 (Observation of Fabrication Activities)

Fabrication specifications include, but are not limited to, component material specifications, fabrication techniques, examination techniques, and required dimensions and tolerances. Previously identified problems related to component fabrication include incomplete documentation of actual fabrication activities in fabrication traveler documents, i.e.: failure to explicitly state required critical component dimensions, such as minimum allowable wall thickness; failure to require verification of critical component dimensions using a specified non-destructive examination technique as required in the design documentation; design changes made outside the approved design change process; inadequate oversight of

fabrication activities by the licensee; and, fabrication of a component to a different safety classification than that shown in design specifications.

The inspection requirements for fabrication activities include, but are not limited to, the following:

- a. Verify that fabrication and procurement specifications are consistent with the design commitments and requirements documented in the licensing basis (i.e. FSAR, DCD and, if applicable, technical specifications).
- b. Verify that corrective actions for identified fabrication deficiencies have been implemented in a timeframe commensurate with their significance, and whether nonconformance reports documenting the deficiencies have been resolved.
- c. Verify that individuals performing the quality-related activities are trained and certified where required.
- d. Verify those materials, components and other equipment received by the fabricator meet design procurement specifications.
- e. Review NDE procedures, NDE records of welds, NDE personnel qualifications, certification of NDE materials penetrants and cleaners used, etc. Review protective coating procedures, coating inspection records, coating personnel qualifications, and certification of coating materials used. Verify that the NDE procedures, personnel qualifications and materials applied are consistent with the applicable construction code and design specification. In particular, observe or review the final acceptance pressure test for completed pressure boundary components and the final radiographs for welded components to confirm Code requirements were met.
- f. Verify that components are being fabricated per approved applicable QA and 10 CFR Part 21 or 50.55(e) implementing procedures and meet fabrication specifications.
- g. Verify that supervision and quality control (QC)/QA personnel perform appropriate oversight during fabrication activities. This can be accomplished by observing/reviewing the number and basis for selection of the QA/QC hold points in the fabrication work control document (e.g. traveler). For example, an appropriate selection criterion for a QC observation hold point could be to observe critical fabrication steps that cannot be verified after final component assembly.
- h. Verify that requirements have been satisfied for preparation of certified material test reports for the various components. Verify that the records of all required examinations and tests are traceable by work control travelers to procedures and revisions to which they were performed.

- i. Verify that the required electrical component characteristics, material, performance tests, environmental and seismic qualification tests, nondestructive tests, and other specification requirements were met or were properly dispositioned.
- j. Check for adequate foreign material exclusion controls.
- k. Observe control of installation, use, and removal of temporary services directly related to component fabrication.
- l. Ensure that the contractor has established a program for ensuring that all craft, NDE, and inspection personnel associated with the installation of safety-related SSCs have been trained, or otherwise qualified to the work procedures involved.

#### 65001.F-03 RESOURCE ESTIMATE

Inspection resources necessary to complete this inspection procedure are estimated to be 640 hours of direct inspection effort over the course of plant construction.

#### 65001.F-04 REFERENCES

1. Facility Final Safety Analysis Report (FSAR) and Design Control Document (DCD).
2. IMC 2503 Appendix B Site Specific ITAAC Matrix.
3. IP 65001, Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) Matrix Inspections.
4. IP 35007, Quality Assurance Program Implementation During Construction and Pre-Construction Activities.
5. IP 40504, Part 52, Identification and Resolution of Construction Problems.
6. Regulatory Guide 1.84, Design, Fabrication, and Materials Code Case Acceptability, ASME Section III.

END

Attachment:  
Revision History for IP 65001.F

Attachment 1 - Revision History for IP 65001.F

Commitment Tracking Number	Accession Number Issue Date Change Notice	Description of Change	Description of Training Required and Completion Date	Comment and Feedback Resolution Accession Number
N/A	08/19/08 CN 08-024	Initial issuance to support ITAAC inspections under 10CFR52.	N/A	N/A
N/A	ML13207A061 09/20/13 CN 13-022	Researched commitments for 4 years and found none.  Complete re-write to address current inspection program policies.	N/A	ML13207A056