

Draft

Request for Additional Information No. 148 (1652, 1669), Revision 0

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U. S. EPR Standard Design Certification

AREVA NP Inc.

Docket No. 52-020

SRP Section: 14.03.03 - Piping Systems and Components - Inspections, Tests, Analyses, and Acceptance Criteria

SRP Section: 14.03.07 - Plant Systems - Inspections, Tests, Analyses, and Acceptance Criteria

Application Section: FSAR Section 2.7.11 in Tier 1

Application Section: FSAR Section 2.8.1 in Tier 1

QUESTIONS for Construction Inspection and Allegations Branch (CCIB)

14.03.03-19

ITAAC Item 4.4 in Table 2.7.11-3

The AC should follow more closely to what is stated in the Commitment Wording. For instance, "For a simulated failure of one ESWS pump during normal operation, a switchover to the other ESWS train is carried out automatically for entire cooling train by the CCWS Switchover sequence." In addition, what is meant by 'other ESWS train' since there are four divisions?

This question is also applicable to the following ITAAC:

ITAAC Item 4.5 in Table 2.7.11-3

The AC should follow more closely to what is stated in the Commitment Wording. For instance, "For a simulated failure of one ESWS pump discharge valve, a switchover to the other ESWS train is carried out automatically for entire cooling train by the CCWS Switchover sequence." In addition, what is meant by 'other ESWS train' since there are four divisions?

ITAAC Item 4.6 in Table 2.7.11-3

Item 4.6 is the same as Item 4.5 in this same table.

Evaluate these deficiencies and revise/respond as necessary.

14.03.03-20

ITAAC Item 7.2 in Table 2.7.11-3

The Commitment Wording, ITA, and AC refer to either sufficient or adequate NPSHA. Either the result of having the required NPSHA should be provided or a number that equates to sufficient or adequate NPSHA should be provided.

Evaluate this deficiency and revise/respond as necessary.

14.03.03-21

ITAAC Item 7.1 in Table 2.7.11-3

The Commitment Wording and the ITA refer to transferring heat from CCWS and EDG heat exchangers and the ESWPBVS room coolers by the ESW UHS. However, the AC refers to removing the heat from those heat exchangers and room coolers. The Commitment Wording and ITA should also refer to removing the heat from those components instead of transferring heat from them.

This is also applicable to the following ITAAC:

ITAAC Item 7.5 in Table 2.7.11-3

Evaluate these deficiencies and revise/respond as necessary.

14.03.03-22

ITAAC Item 7.3 in Table 2.7.11-3

The Commitment Wording, ITA, and AC would be more easily understood if they just stated that "The Class 1E valves listed in Table 2.7.11-2 perform the functions listed in Table 2.7.11-1 without any reference to 'system conditions'.

Evaluate this deficiency and revise/respond as necessary.

14.03.03-23

The following ITAAC should have their individual sub-steps numbered. There are two cases to which this applies. (1) When there are two different criteria stated in the Commitment Wording, for instance, for ITAAC 3.3b in Table 2.3.3-3 in reference to welding and hydrostatic testing. Both the two different criteria in the Commitment Wording and the sub-steps in the ITA and AC should be separately numbered. (2) Only one criteria stated in Commitment Wording , for instance, ITAAC 5.1 in Table 2.3.3-3, the two different sub-steps in the ITA and the AC should be separately numbered. **This applies to all the ITAAC for both cases even if the ITAAC to which they are applicable are not indicated below:**

ITAAC Item 3.3b in Table 2.3.3-3

ITAAC Item 5.1 in Table 2.3.3-3

ITAAC Item 7.4 in Table 2.6.6-3

ITAAC Item 3.3b in Table 2.7.1-3

ITAAC Item 3.4 in Table 2.7.1-3

ITAAC Item 4.3 in Table 2.7.1-3

ITAAC Item 5.1 in Table 2.7.1-3

ITAAC Item 6.1 in Table 2.7.1-3

ITAAC Item 7.3 in Table 2.7.1-3

ITAAC Item 3.3b in Table 2.7.2-3

ITAAC Item 3.4 in Table 2.7.2-3

ITAAC Item 4.3 in Table 2.7.2-3
ITAAC Item 5.1 in Table 2.7.2-3
ITAAC Item 6.1 in Table 2.7.2-3
ITAAC Item 7.3 in Table 2.7.2-3
ITAAC Item 3.3b in Table 2.7.11-3
ITAAC Item 3.4 in Table 2.7.11-3
ITAAC Item 4.3 in Table 2.7.11-3
ITAAC Item 5.1 in Table 2.7.11-3
ITAAC Item 6.1 in Table 2.7.11-3
ITAAC Item 7.6 in Table 2.7.11-3
ITAAC Item 3.2b in Table 2.8.2-3
ITAAC Item 5.1 in Table 2.8.2-3
ITAAC Item 5.2 in Table 2.8.2-3
ITAAC Item 3.3b in Table 2.8.6-3
ITAAC Item 5.1 in Table 2.8.6-3
ITAAC Item 5.2 in Table 2.8.6-3
ITAAC Item 3.2b in Table 2.8.7-3
ITAAC Item 5.1 in Table 2.8.7-3
ITAAC Item 5.2 in Table 2.8.6-3

Evaluate these deficiencies and revise/respond as necessary.

14.03.03-24

ITAAC Item 7.6 in Table 2.7.11-3

The first sub-step in the AC states that the ESWS delivers the following design rate to the CCWS and EDG heat exchangers and the ESWPBVS room coolers: 19,340 gpm. Is that the flow rate through each CCW and EDG heat exchanger and each ESWPBVS room cooler?

Evaluate this deficiency and revise/respond as necessary.

14.03.07-26

ITAAC Item 1.0 in Table 2.8.1-3

The AC for this ITAAC is confusing. The DC states that turbine disc integrity is provided by combined use of selected materials with suitable toughness, analyses, design testing, and inspections. The ITA states an analysis of turbine rotor material property data, turbine rotor and blade design, and pre-service inspection and testing will be conducted.

Then the AC states the following: An analysis exists that includes:demonstrating sufficient safety margin to withstand loadings from overspeed events, and pre-service testing and inspection information (including scope, methods and acceptance criteria).

This AC should state something equivalent to the following: " An analysis exists and concludes that turbine disk integrity is demonstrated by (1) turbine material property data, rotor and blade design analyses (including loading combinations, assumptions, and warm-up time) that demonstrate sufficient safety margin for loadings experienced during overspeed events; and (2) the results of pre-service testing and inspection."

There is an error in this table since there are two Items 1.0.

Evaluate these deficiencies and revise/respond as necessary.

14.03.07-27

ITAAC Item 5.1 in Table 2.8.1-3

The Commitment Wording, ITA, and AC should refer to table 2.8.1-1 for the listing of the valves and their ID numbers affected by this ITAAC.

Evaluate this deficiency and revise/respond as necessary.

14.03.07-28

ITAAC Item 5.2 in Table 2.8.2-3

This ITAAC should be split into four ITAAC.

1 - Main Steam Relief Valve's failure position

2 - Main Steam Isolation Valve's failure position

3 - Turbine Bypass Valve's failure position

4. - All other valves in Table 2.8.2-2 besides main steam relief and isolation valves and turbine bypass valves fail as-is.

Also applicable to ITAAC Item 5.2 in Table 2.8.6-3

This ITAAC should be split into three ITAAC.

1 - Main Feedwater full load isolation valves are energized to close. In addition, what is meant by two closing lines?

2 - MFWFLIV's failure position

3 - All other valves in Table 2.8.6-2 besides MFWFLIVs fail as-is.

Evaluate these deficiencies and revise/respond as necessary.

14.03.07-29

ITAAC Item 7.2 in Table 2.8.2-3

The Commitment Wording should state the following: "Each of the two MSSVs per main steam line provide relief capacity for the main steam system."

The AC should state the following:

The rated capacity of each MSSV is greater than or equal to 1,422,073 lbm/hr. The MSSV per main steam line with the lower pressure setting delivers that rated capacity at 1504 psig. The MSSV per main steam line with the higher pressure setting delivers that rated capacity at 1535 psig.

Evaluate this deficiency and revise/respond as necessary.

14.03.07-30

ITAAC Item 7.3 in Table 2.8.2-3

There may be an error in this ITAAC or in the design description. The ITAAC states that the relief pressure is less than or equal to 1414.7 psia, whereas the design description states maximum relieving pressure is 1400 psig. Taking into account atmospheric pressure are these two pressure settings the same?

ITAAC Item 7.4 in Table 2.8.2-3

Change Commitment Wording to "Each MSRIV per main steam line opens upon receipt of a signal."

The AC should be " Each MSRIV opens within 1.8 seconds after receipt of a signal."

ITAAC Item 7.5 in Table 2.8.2-3

Change Commitment Wording to "Each MSIV per main steam line closes upon receipt of a signal."

The AC should be " Each MSIV closes within 5 seconds after receipt of a signal."

ITAAC Item 7.6 in Table 2.8.2-3

Change Commitment Wording to "Each SG steam outlet flow restrictor has a throat area established by the design."

The AC should be "Each SG steam outlet flow restrictor has a throat area less than or equal to 1.39 sq ft."

Evaluate these deficiencies and revise/respond as necessary.

14.03.07-31

ITAAC Item 4.4 in Table 2.8.7-3

This ITAAC should be split into two ITAAC:

First ITAAC

Commitment Wording - "The containment isolation valves listed in Table 2.8.7-1 close and isolate on a containment isolation signal."

ITA - "Tests will be performed using simulated signals to verify the interlock."

AC - "For a simulated containment isolation signal, the containment isolation valves listed in Table 2.8.7-1 close and isolate."

Second ITAAC

Commitment Wording - "The blowdown isolation valves listed in Table 2.8.7-1 close and isolate on a EFW isolation signal."

ITA - "Tests will be performed using simulated signals to verify the interlock."

AC - "For a simulated EFW isolation signal, the blowdown isolation valves listed in Table 2.8.7-1 close and isolate."

Evaluate these deficiencies and revise/respond as necessary.

14.03.07-32

ITAAC Item 7.2 in Table 2.8.7-3

The AC should state the closure times of the valves not state within the 'required times'.

Evaluate this deficiency and revise/respond as necessary.