

From: Ward, William
Sent: Wednesday, March 14, 2018 7:09 PM
To: 'jiyong oh'; Tony(WDCC); Robert Sisk; 'Wagner, David'
Cc: Umana, Jessica; McCoppin, Michael; Santos, Cayetano; Cranston, Gregory; Goel, Raj
Subject: Response to RAI 357-8344, Question 06.02.04-11, APR1400 Containment ITAAC

Dr. Jiyong Oh,

I am writing to follow-up on KHNP's response to Request for Additional Information (RAI) 357-8344, Question 06.02.04-11, (dated June 20, 2017, [ML17171A364](#)), regarding the ITAAC (Inspections, Tests, Analyses, and Acceptance Criteria) for containment isolation valves (CIV) provided in APR1400 Design Control Document (DCD), Revision 1, Tier 1, Table 2.11.3-2, "Containment Isolation System ITAAC." The RAI concerned documenting the compliance of an as-built plant with the requirements of [10 CFR 50, Appendix A, General Design Criteria \(GDC\) 55, 56, and 57](#), which require, in part, that isolation valves outside containment should be located as close to containment as practical.

The RAI requested KHNP to answer the question, "How will this ITAAC, as written, ensure that the supplied as-built piping distances from the outer CIV to the containment will be such that the valves are located as close to containment as practical? (i.e. describe any inspections, test, or acceptance criteria which will confirm that the as-built piping distances will not exceed those listed in DCD Tier 2, Table 6.2.4-1).

Your response stated:

GDCs 55, 56, and 57 require that isolation valves outside containment should be located as close to containment as practical. The APR1400 design has incorporated this design concept into the location of the containment isolation valves and has reflected the locations in the piping analyses performed. However, in applying the graded approach for piping design and analysis, only specific piping lines that penetrate containment are in the scope of the program and are required to be analyzed. Acceptable containment isolation valve location is assured through the overall design and piping analysis program. The length of pipe between containment and the outboard isolation valve indicated in DCD Tier 2, Table 6.2.4-1 does not necessarily represent a bounding condition for each piping line listed. Therefore, including verification of as-built piping distances as a prescriptive ITAAC item is not meaningful nor practical for a subjective criteria such as locating isolation valves as close as practical to containment and the graded approach for piping analysis that has been implemented for the APR1400.

NRC has reviewed your response and determined that it does not satisfy the requirement for an ITAAC to document the as-built plant meeting the requirements of GDCs 55, 56, and 57 with respect to the location of isolation valves outside containment. NRC understands KHNP's concern regarding the acceptance criteria. However, NRC cannot complete its review without an ITAAC to verify the compliance with GDCs 55, 56, and 57. NRC is requesting KHNP to re-evaluate its response and propose an ITAAC for this purpose. Below is an example, reworded for KHNP, of such an ITAAC proposed by a prior applicant. Please make changes as appropriate for your design, including in the acceptance criteria. If you prefer, you can provide more detail in the design description section (2.11.3.1) of Tier 1, including moving the bulleted

items in the acceptance criteria and referring to them from the acceptance criteria. However, KHNP should consider that the descriptions in 2.11.3.1 and ITAAC have different application lifetimes.

New ITAAC for DCD Tier 1, Table 2.11.3-2, Containment Isolation System ITAAC

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
<p>11. Containment isolation valves outside the containment as listed in Table 2.11.3-1 and as shown in Figure 2.11.3-1, are located as close to the containment as practical, consistent with General Design Criteria 55, 56, and 57.</p>	<p>11. An inspection and analysis will be performed to verify the as-built location of outside containment isolation valves.</p>	<p>11. A report exists and concludes that the outside containment isolation valves listed in Table 2.11.3-1 and shown in Figure 2.11.3-1 are located as close to the containment as practical with consideration of the following:</p> <ul style="list-style-type: none"> • Access for inspection of welds • Containment leak testing • Replacement • Valve maintenance

Please provide a revised response to RAI 357-8344, Question 06.02.04-11, which includes an ITAAC to verify compliance with GDCs 55, 56, and 57, as discussed above.

If you have any questions, please contact me.

Sincerely,
William R. Ward, P.E.
APR1400 DCA Lead Project Manager
U.S. Nuclear Regulatory Commission
m/s O8-G9A
Washington, DC, 20555-0001
 NRO/DNRL/Licensing Branch 2
 ofc O8-H15
 ofc (301) 415-7038

*U.S. NRC Protecting People and the Environment
 Please consider the environment before printing this email.*