Example – ITA Specificity related to "As-built" ITAAC Maintenance

10 CFR 52.99(e) requires that: "The NRC shall ensure that the prescribed inspections, tests, and analyses in the ITAAC are performed."

The following two ITAAC have similar design commitments for establishing sufficient NPSH for the pumps for two separate ABWR systems. However, the wording for the "prescribed" ITA performance is significantly different for each of these ITAAC and correspondingly, the acceptance criteria is written in conformance with each separate ITA implementation.

ABWR Table 2.4.2 High Pressure Core Flooder System

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
g. The HPCF pumps have sufficient NPSH available at the pumps.	g. Inspections, tests and analyses will be performed upon the as-built system. NPSH tests of the pumps will be performed in a test facility. The analyses will consider the effects of: – Pressure losses for pump inlet piping and components. – Suction from the suppression pool with water level at the minimum value. – 50% minimum blockage of the pump suction strainers. – Design basis fluid temperature (100°C). – Containment at atmospheric pressure.	g. The available NPSH exceeds the NPSH required by the pumps.

ABWR Table 2.2.4 Standby Liquid Control System

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
h. The SLC pumps have sufficient NPSH.	h. Tests will be conducted on the as-built SLC System by injecting demineralized water using both SLC System pumps from the storage tank to the RPV with the storage tank at the low level (pump trip level) and a temperature of greater than or equal to 43°C.	h. The available NPSH exceeds the NPSH required as demonstrated by the SLC System injecting greater than or equal to 378 liters/minute.

Assume an HPCF pump is replaced (post-ITAAC closure) with another pump, adequately tested for NPSH in a test facility, and no other as-built configuration changes have been implemented. In accordance with Threshold 1, the post-work verification (PWV) for the pump (e.g., a test loop flow test) uses the same approach to the performance of this ITA for this particular HPCF ITAAC. Therefore, no supplemental ITAAC closure letter is required.

Instead, now assume a SLC pump is replaced (post-ITAAC closure) with another pump (even if meeting all procurement requirements for the pump) and no other as-built configuration changes have been implemented. In accordance with Threshold 1, the PWV for the pump (e.g., a test loop flow test) would constitute a different approach to the performance of this particular SLC ITAAC. The noted test was not repeated and no other method for validating the NPSH for the procured pumps is specified. Analysis is required to supplement the "prescribed" testing to establish that the ITAAC remains met. Therefore, a supplemental ITAAC closure letter is required.

From an engineering perspective, the different handling of these two example ITAAC (both documenting a similar Design Commitments) is incongruous. However, as has been stated many times: "it depends how the ITAAC are written". The HPCF ITA permits analyses of the "as-built" system to be performed along with any tests; and specifies where the pump NPSH tests will be performed. The SLC ITA does not provide such latitude. As written, the ITA implies that the NPSH testing is conducted in parallel with the "as-built" system flow test. Therefore, any replacement pump testing, using the test loop, signifies a different approach to the acceptance of this ITAAC.

The proper wording of the ITAAC is necessary to assure not only a correct interpretation, but also a common, shared understanding of the ITAAC requirements. Given this basic principle, along with the 52.99(e) requirement to ensure "prescribed" ITA performance, the guiding details for when notification thresholds have been crossed should not be based only upon engineering logic, but also upon what is "prescribed" by the ITAAC. Otherwise, the NRC might never be notified in situations where a licensee's engineering logic might be in need of independent regulatory confirmation.