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REQUEST FOR ADDITIONAL INFORMATION
for Duane Arnold Energy Center
Source: Reactor Systems Branch
Technical Assignment Control (TAC) Number MD7824
Generic Letter 2008-01, "Managing Gas Accumulation In Emergency Core Cooling, Decay Heat Removal, And Containment Spray Systems"

Guidance on NRC staff expectations is provided by Reference 1 which is generally consistent with Nuclear Energy Institute (NEI) guidance provided to industry in Reference 2 as clarified in later NEI communications. The NRC staff recommends that the licensee consult Reference 1 when responding to the following RAIs:

1. In page 4 of the submittal [Ref. 3], the licensee stated, "…..the DAEC licensing basis has no specific requirements regarding precluding gas accumulation (voiding) in piping systems (suction or discharge) for either the Containment Spray or Decay Heat Removal functions as a condition for Operability. This is principally because these are manually initiated systems, that are generally not vulnerable to water hammer concerns, and they have no specific timing requirements for initiation in response to any analyzed event in the DAEC UFSAR."

   The staff reiterates that the GL is intended for addressing all modes and all operating conditions, and it is not limited to events and accidents evaluated in the UFSAR. The staff believes that since the Containment Spray and Decay Heat Removal systems have been specifically identified as within the scope of the GL, it needs to be addressed. The staff, therefore, requests the licensee to clarify whether the Containment Spray or Decay Heat Removal systems are intended to be used for any other safety functions for any modes of operation, including shutdown mode; for example, to mitigate loss of shutdown cooling accidents. If needed, then justify whether the licensee would be able to or have sufficient time to vent the piping during such events.

2. The staff requests that any item that is credited in the assessment of whether the subject systems are reasonably ensured to be operable be captured in the licensing basis. Therefore, a summary of categories of such documents as instructions, procedures, drawings, analysis techniques, vendor documentation, and the Corrective Action Program (CAP), and any other documents that provide information that affects operation, are part of the licensing documentation and should be identified.

3. In page 9 of the submittal [Ref. 3], the licensee stated, "The review of plant drawings confirmed that piping high points either had vent valves at those locations or were capable of being dynamically vented during system operation (e.g., inverted piping loops would be flushed during system operation, such as during post-maintenance testing prior to return to service.)" Confirm whether the pump test flow rates are adequate to remove voids. If not, would the maximum flow rate achieved during actual events move potential remaining voids? Did DAEC consider the difference? Provide Froude numbers associated with the test and maximum flow rates.

4. Describe the method used to determine void volume when it is discovered.

5. With respect to discharge side piping in the subject systems, in page 15 of the submittal [Ref. 3], the licensee stated, "These procedures require venting at high point locations in

the respective systems and ensure adequate pressure is available to perform the venting. They were determined to have no other acceptance criteria than to ensure that a steady stream of water is observed when venting. This is consistent with meeting the specific requirement of the SRs to verify that the piping system is filled with water."

Justify how the current requirement of piping system “filled with water” assures that the acceptance criteria of system operability is met; and ensures that all voids, including trapped voids, have sufficiently been vented.

6. Until resolution of the TS issues related to GL 2008-01 is complete, identify supplementary actions, such as use of procedures and other processes, to address control of voids in the subject systems that are not covered by the current DAEC TS requirements.

7. Training was not identified in the GL but is considered to be a necessary part of applying procedures and other activities when addressing the issues identified in the GL. Training should be briefly discussed.

REFERENCES

1. Ruland, William H., “Preliminary Assessment of Responses to Generic Letter 2008-01, ‘Managing Gas Accumulation in emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems,’ and Future NRC Staff Review Plans,” NRC letter to James H. Riley, Nuclear Energy Institute, ML091390637, May 28, 2009.

2. Riley, James H., “Generic Letter (GL) 2008-01, ‘Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Contain Spray Systems’ Evaluation and 3 Month Response Template,” Letter to Administrative Points of Contact from Director, Engineering , Nuclear Generation Division, Nuclear Energy Institute, Enclosure 2, “Generic Letter 2008-01 Response Guidance,” March 20, 2008.

3. R.L. Anderson, “Nine-Month Response to NRC Generic Letter 2008-01 - Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems," Vice President, Duane Arnold Energy Center, FPL Energy Duane Arnold, LLC, October 13, 2008.

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