



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

December 19, 2013

Mr. David A. Heacock
President and Chief Nuclear Officer
Dominion Nuclear Connecticut, Inc.
Innsbrook Technical Center
5000 Dominion Boulevard
Glen Allen, VA 23060-6711

SUBJECT: MILLSTONE POWER STATION, UNIT 3 – REQUEST FOR ADDITIONAL
INFORMATION REGARDING LICENSE AMENDMENT REQUEST TO REVISE
TECHNICAL SPECIFICATION 3/4.7.5 “ULTIMATE HEAT SINK”
(TAC NO. MF1780)

Dear Mr. Heacock:

By letter dated May 3, 2013 (Agencywide Documents Access and Management System
Accession No. ML13133A032), Dominion Nuclear Connecticut, Inc. (the licensee), submitted a
License Amendment Request to revise Technical Specification 3/4.7.5, Ultimate Heat Sink.

The U.S. Nuclear Regulatory Commission staff has reviewed the information provided by the
licensee and has determined that the enclosed request for additional information (RAI) is
needed in order to complete the review. A response to this RAI is requested to be provided by
January 31, 2014.

If you have any questions regarding this matter, please contact me at 301-415-4125.

Sincerely,

A handwritten signature in black ink that reads "James Kim".

James Kim, Project Manager
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-423

Enclosure:
Request for Additional Information

cc w/encl: Distribution via Listserv

OFFICE OF NUCLEAR REACTOR REGULATION

REQUEST FOR ADDITIONAL INFORMATION

LICENSE AMENDMENT REQUEST

PROPOSED TECHNICAL SPECIFICATIONS AND BASES AMENDMENT TS AND

BASES 3/4.7.5, ULTIMATE HEAT SINK

MILLSTONE POWER STATION, UNIT 3

DOCKET NUMBER 50-423

1. Vendor data sheet [Figure 6 of Millstone Power Station, Unit 3 (MPS3) letter dated July 2, 2013] for recirculation spray heat exchangers (3RSS*E1A, E1B, E1C, E1D) specifies approximate service water flow of 6500 GPM at 75°F for a heat load of 184,534,533 BTU/Hr. But Table 5.2 of MPS3 letter dated May 3, 2013 lists a minimum flow of 5400 GPM at 80°F.
 - a.) Explain why the licensee's minimum required flow is significantly less than the vendor sheet specified flow for the same heat removal duty.
 - b.) Explain why the flow rates specified in Table 5.2 for the recirculation spray heat exchangers (3RSS*E1A, E1B, E1C, E1D) are identical for both the 75°F and 80°F analyses of record.
2. Table 5.2 of the MPS3 letter dated May 3, 2013 lists calculated minimum available flow for all the safety related heat exchangers cooled by Service Water (SW). In order to provide validity to the proposed increase in SW temperature to 80°F, calculated flow rates from the SW model should match actual flow rates as determined by measurement in the field.
 - a.) Describe the accuracy of calculated SW flow values provided in Table 5.2 as compared to field measured testing of flow rates and provide justification that the calculated flow rates are valid.
 - b.) Provide assurance that calculated flow rates are accurate for the various SW lineups including the "DBA COINCIDENT WITH LOSS OF OFFSITE POWER" and "LOSS OF POWER WITH TRAIN FAILURE" lineups as specified in Table 9.2-2 of the Final Safety Analysis Report (FSAR) by comparing calculated values to measured values in the field.
3. MPS3 letter dated May 3, 2013, paragraphs 5.3.2.4 and 5.3.2.5, for the Residual Heat Removal Pump Ventilation Units and the Containment Recirculation Pump Cubicle Ventilation Units, respectively, and Table 5.2 list identical required minimum flow rates for 75°F and 80°F SW temperatures. The stated reason is the limit was based on "downstream piping analysis temperature limitation. Re-evaluation of the piping system

Enclosure

at an increased outlet temperature has increased this limitation such that the required flow is unchanged from the 75°F Analysis Of Record.”

Explain the downstream temperature limitation and how this limitation was increased for the 80°F analysis.

4. Tables in the MPS3 letter dated July 2, 2013, for ESF Air Conditioning Unit Heat Exchangers 3HVQ*ACUS1A, 1B, 2A and 2B list Figure 4 as the vendor data sheet. The vendor data sheet shows a SW flow rate of approximately 65 GPM at 80°F for a heat load of 510,000 BTU/hr. The tables in the July 2 letter list design heat loads of 360,600 BTU/hr and 396,400 BTU/hr with required minimum SW flow rates of 25 GPM and 33.2 GPM respectively, for these heat exchangers. Using a linear heat transfer relationship on the water side of the heat exchangers, the listed flow rates of 25 GPM and 33.2 GPM are much lower than flow rates needed for transfer of 360,600 BTU/hr and 396,400 BTU/hr, since 65 GPM at 80°F is needed to absorb 510,000 BTU/hr.

Please explain the seeming inconsistency.

5. Vendor data sheet (Figures 2(a) and 2(b) of MPS3 letter dated July 2, 2013) for the emergency diesel generator heat exchangers (3EGS*E1A, E1B, E2A, E2B) specify SW flow of 1900 GPM at 80°F. But Table 5.2 of MPS letter dated May 3, 2013 lists a minimum flow of 1444 GPM at 80°F.

Explain and justify why the licensee's minimum required SW flow is significantly less than the vendor sheet specified flow for similar heat load removal duty.

6. Paragraph 5.3.2.8 titled “EDG Heat Exchangers (3EGS*E1A/B and 3EGS*E2A/B),” states that the analysis of record was performed using an overly conservative heat load assumption and that when the calculation was revised for an Ultimate Heat Sink (UHS) temperature of 80°F using the design basis heat load, the minimum required flow rate did not change from the calculation performed at 75°F.

Describe the aforementioned overly conservative heat load assumption and justify the assumption(s) used in its place.

7. The list of regulatory commitments in Attachment 4 of the May 3, 2013 letter list calculations/analysis [Commitment numbers 4, 7, 8, 9, 10, 11, and 13] that the licensee plans to complete upon implementation of the NRC approved License Amendment Request (LAR).

The NRC cannot approve an LAR unless all pertinent safety related calculations/analysis are complete in accordance with the licensee's approved quality assurance program that meets the requirements of 10 CFR 50 Appendix B.

The licensee is requested to complete all calculations/analysis associated with the commitments listed above and report the status of completion of those items and any

effect of the completed calculations/analysis on the LAR to the NRC before NRC staff approval of the LAR.

8. The vendor data sheet for the Reactor Plant Closed Cooling Water (RPCCW) heat exchangers (Figure 1 of the July 2, 2013 letter) show that the heat exchanger's capability is $76 \text{ E}+6 \text{ BTU/hr}$ with a SW flow rate of $4,000,000 \text{ lb/hr}$ (8000GPM) at 75°F . This does not apparently correlate with the information provided in Enclosure 2 page 1 of the July 2, 2013 letter which shows a design heat load of $117.8 \text{ E}+6 \text{ Btu/hr}$. Neither data sheet correlate with the heat transfer requirements listed in Table 9.2-2 of the FSAR.

The licensee is requested to explain the seeming lack of agreement in the above listed documents and justify the proposed UHS/SW temperature limit of 80°F for the RPCCW heat exchangers.

9. Table 5.2 of the MPS3 letter dated May 3, 2013 lists similar minimum SW flow requirements at 75°F and 80°F for the control building air conditioning water chillers (3HVK*CHL1A/B) with no justification given for why the required flow has not increased for 80°F .

Provide justification as to why the required SW flow at 80°F has not increased when compared to the required flow for 75°F .

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/ra/

James Kim, Project Manager
Plant Licensing Branch I-1
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ADAMS Accession No.: **ML13347B093**

*via memo dated December 6, 2013

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