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

July 18, 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 2 – REQUEST FOR ADDITIONAL INFORMATION REGARDING LICENSE AMENDMENT REQUEST TO REVISE TECHNICAL SPECIFICATION 3/4.7.11 "ULTIMATE HEAT SINK" (TAC NO. MF1779)

Dear Mr. Heacock:

By letter dated May 3, 2013 (Agencywide Documents Access and Management System Accession No. ML13133A033), Dominion Nuclear Connecticut, Inc. (the licensee), submitted License Amendment Request to revise Technical Specification 3/4.7.11, 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 is needed in order to complete the review.

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

Sincerely,

James Kim

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

Docket No. 50-336

Enclosure:
As stated

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 3/4.7.11, ULTIMATE HEAT SINK

MILLSTONE POWER STATION, UNIT 2

DOCKET NUMBER 50-336

RAI-1

Background

The vendor heat exchanger data sheet for the reactor building closed cooling water (RBCCW) heat exchanger provided in the licensee's letter dated June 27, 2013 states that the design service water (SW) inlet temperature is 75 °F. The Updated Final Safety Analysis Report (UFSAR), Section 9.7.2 states that the maximum service water temperature is 75 °F.

The UFSAR, Section 9.4.2.1 states that the maximum RBCCW heat load during the injection mode following loss-of-coolant accident (LOCA) is 213.4 x 10^6 Btu (British Thermal Unit)/hr and 146.0 x 10^6 Btu/hr during recirculation mode. The table provided as Enclosure 2, page 1 of 17 of MPS2 June 27, 2013 letter lists the design heat load of the RBCCW heat exchangers as 2.044 x 10^8 Btu/hr [204.4 x 10^6].

Issue

The licensee has proposed raising the SW temperature limit from 75 °F to 80 °F. The increase in SW temperature will cause a corresponding increase in the RBCCW heat exchanger outlet temperature which supplies the RBCCW cooling loads.

The maximum heat load stated in the UFSAR is different than the heat load presented in Enclosure 2, page 1 of 17 of MPS2 June 27, 2013 letter.

Request

Discuss the quantitative effects and acceptability of the increase in RBCCW cooling water to all of the safety related loads cooled by RBCCW during normal and accident conditions assuming the maximum RBCCW heat loads described above. In the discussion of the acceptability of the increased RBCCW cooling water, please provide the following:

a) all the design inputs, assumptions and acceptance criteria of the design calculations that proved that the increase in RBCCW cooling water is acceptable for each safety related load that is cooled by RBCCW cooling water.
b) Explain how the acceptance criteria are met to provide satisfactory results.
c) Described how you verified the RBCCW cooling water flow and SW flow to the RBCCW heat exchangers in the design calculations referred in a) above.
d) Explain why there is a difference in the design heat loads listed in Enclosure 2, page 1 of 17 of MPS2 June 27, 2013 letter and the UFSAR.

RAI-2

Background

Technical Specification 3.9.3.1, REFUELING OPERATIONS DECAY TIME, states that the reactor shall be subcritical for a minimum of 100 hours prior to movement of irradiated fuel in the reactor pressure vessel.

Issue

Minimum time for sub criticality is dependent upon the capability to remove heat from the spent fuel pool which is dependent upon RBCCW cooling capability which is dependent on ultimate heat sink (UHS) temperature.

Request

Discuss the impact of raising the maximum UHS temperature to 80 °F upon TS 3.9.3.1 and whether the proposed UHS temperature change is acceptable.

RAI-3

Background

The emergency diesel generator (EDG) vendor data sheets state that SW flow to the diesel generator coolers is 700 gallons per minute (gpm). The SW inlet temperatures to the in-series air cooler heat exchanger, lube oil cooler and jacket water cooler are 75 °F, 83 °F and 91.6 °F, respectively. Heat removed is 2,769,000 Btu/hr, 2,890,000 Btu/hr and 3,522,000 Btu/hr respectively.

Issue

The licensee has stated in the application that the SW supports EDG operation with 5% tube plugging, 80°F SW inlet temperature and 672 gpm SW flow.

Request

Please provide all assumptions and design inputs and acceptance criteria of the calculation that proves the Issue discussed above is accurate. Explain how the acceptance criteria are met.

Explain how you verify that the diesels are each receiving at the minimum SW required by the design calculation.

RAI-4

Background

The application states that an RBCCW supply temperature of 85 °F will be included in the FSAR as a design requirement of the RBCCW system when in Modes 1, 2 and 3. Operating procedures will be modified to maximize SW flow to RBCCW and RBCCW loads will be minimized as appropriate.

Request

Please provide the design inputs, assumptions, and acceptance criteria of the design calculation that shows that an RBCCW temperature of 85 °F can be achieved with SW temperature at 80 °F. Describe what modified operating procedures will do to maximize SW flow to RBCCW and minimize RBCCW loads as appropriate.

RAI-5

Background

The licensee has stated that allowable SW side differential pressure (DP) limit for the 'A' RBCCW heat exchanger is being lowered from 10-psid to 8-psid.

Issue

Generic Letter 89-13 Supplement 1 states "With regard to the testing of containment spray heat exchangers, as of all safety-related heat exchangers, a pressure drop test alone is not sufficient to satisfy the indicated heat transfer capability concerns."

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