From: Kim, James
Sent: Friday, July 26, 2013 3:19 PM
To: William D Bartron (william.d.bartron@dom.com)
Cc: MaryLou L Calderone (marylou.l.calderone@dom.com); Thomas G Cleary (thomas.g.cleary@dom.com); William E Brown (william.e.brown@dom.com)
Subject: FW: MPS2 RAI
Attachments: MPS2 RAI 3.docx

Bill,

Attached and below are 2 additional RAIs for MPS2.

Thanks,
Jim Kim

Background
In RAI 1 of NRC letter dated July 18, 2013, the NRC staff asked the licensee to provide the acceptance criteria that proved that the increase in RBCCW cooling water temperature is acceptable for each safety related load cooled by RBCCW cooling water and to explain how the acceptance criteria are met.

Issue
The licensee provided a response in a letter dated July 19, 2013. The NRC staff needs further clarification of the licensee's response.

Request

a) FSAR Section 9.9.8 states that the Engineered Safety Features Room Air Recirculation System (ESFRARS) is designed to limit the maximum ambient temperature to 145°F except for a brief transient temperature excursion following an accident. Discuss the ability of the RBCCW system to meet this design requirement with the UHS temperature limit rising 5°F from 75°F to 80°F.

b) FSAR Section 6.5.2 states that each containment air recirculation (CAR) cooling unit is designed for removing 80 x 10^6 Btu/hr under Main Steam Line Break accident or LOCA conditions prior to recirculation with air flow of 34,800 cfm and a fouling factor of 0.0005 for the RBCCW side of the coil. Discuss the ability of the RBCCW system to meet this design requirement with the UHS temperature limit rising 5°F from 75°F to 80°F.

c) FSAR Section 6.3.2 states that the high pressure and low pressure safety injection pumps have mechanical seals. The seals are designed for operation with a pumped fluid temperature of 350°F. To permit extended operation under these conditions, a portion of the pump fluid is externally cooled by the RBCCW system and recirculated to the seals. Discuss the ability of the RBCCW system to meet this design requirement with the UHS temperature limit rising 5°F from 75°F to 80°F.

d) The Containment Spray pumps also have mechanical seals cooled by RBCCW. Discuss the ability of the RBCCW system to meet this design requirement with the UHS temperature limit rising 5°F from 75°F to 80°F.

e) FSAR Table 9.3.1, "SHUTDOWN COOLING HEAT EXCHANGERS DESIGN BASIS PARAMETERS" lists design parameters for RBCCW and shutdown cooling. Discuss the ability of the RBCCW system to meet these design requirements with the UHS temperature limit rising 5°F from 75°F to 80°F.

Background

FSAR Section 9.9.16, "Vital Switchgear Ventilation System," specifies the maximum allowed room temperature limits for the vital AC and DC switchgear rooms. The upper and lower 4160/6190 volt switchgear rooms, the west 480 volt switchgear room, and the east and west vital DC switchgear rooms are the vital switchgear rooms cooled by the UHS. The service water systems from the UHS supply the cooling water to the ventilation systems and refrigerant system that cool these vital switchgear rooms. The current licensing basis uses a maximum UHS temperature of 75°F. FSAR Tables 9.7.5 and 9.9-21 and FSAR Section 9.9.16 provide the component description and room temperature limits of the associated cooling coils as stated below.

Switchgear Room	FSAR Table	Cooling Coil	Thermal Performance (Btu/hr)	Room Temperature Limit (°F)
West 480 Volt	9.7-5	X-181 A/B	295,641	104
Upper 4160/6900 Volt	9.7-5	X-183	166,879	122
Lower 4160/6900 Volt	9.7-5	X-182	192,763	122
East and West Vital DC	9.9-21	X-169A/B	234,400	104

Issue

For the proposed increase in maximum allowed UHS temperature to 80°F, the NRC staff wants the licensee to verify that the above listed performance requirements are met.

Request

Please answer the following questions separately for each of the switchgear rooms listed in the table above:

1) With the proposed increase in UHS temperature to 80°F
   a) Does the UHS keep room temperature below the temperature limits listed above, and
   b) Do the cooling coils have the same or better thermal performance listed above?

2) If service water flow is increased to compensate for the increase in UHS from 75°F to 80°F to satisfy the performance requirements listed above, do all the other safety related cooling loads supplied by service water have adequate flow to perform their safety functions.

3) Describe the methodology used to answer questions 1 and 2 above.