NIAGARA MOHAWK

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September 16, 1994
NMP2L 1496

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

RE: Nine Mile Point Unit 2
Docket No. 50-410
NPF-69

Subject: ***Proposed License Amendment - Uprated Operation, Response to Request for Additional Information***

Gentlemen:

In a letter to the Nuclear Regulatory Commission (NRC) dated July 22, 1993 (NMP2L 1397), Niagara Mohawk Power Corporation (NMPC) proposed a license amendment to allow Nine Mile Point Unit 2 (NMP2) to operate at an uprated power of 3467 megawatts thermal. During the course of the Staff's review of this proposed license amendment, the NRC has determined that additional information, as identified in its August 12, 1994 letter to NMPC, is required to complete its review of this matter. Attached to this letter is the Staff's question and the requested additional information.

Niagara Mohawk has provided a copy of this response to the appropriate state representative.

Very truly yours,

C. D. Terry
Vice President - Nuclear Engineering

CDT/KWK/lmc
Attachment

xc: Regional Administrator, Region I
Mr. B. S. Norris, Senior Resident Inspector
Mr. M. J. Case, Acting Director, Project Directorate I-1, NRR
Mr. D. S. Brinkman, Senior Project Manager, NRR
Ms. Donna Ross
Division of Policy Analysis and Planning
New York State Energy Office
Agency Building 2, Empire State Plaza
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ATTACHMENT

QUESTION

The Standby Gas Treatment System (SGTS) at NMP2 is designed to minimize offsite dose rates during venting and purging of both primary and secondary containment atmosphere under accident or abnormal conditions, while containing airborne particulate and halogens that might be present.

Enclosure 3, page 4-8 of the July 22, 1993, power uprate submittal states:

> "The current charcoal loading (1260 lbs) is designed to be in compliance with Regulatory Guide 1.52 (Rev. 2) with the exception of charcoal loading capacity. The NMP2 SGTS is designed for a charcoal loading capacity of 10 mgI/gC per USAR [Update Safety Analysis Report] Table 1.8-1, as compared to a value of 2.5 mgI/gC per Regulatory Guide 1.52 (Rev. 2), and meets the design requirements for 30-day and 100-day LOCA [loss-of-coolant accident] scenarios. The total post-LOCA iodine loading increases less than 4.3% at the uprated conditions and remains within the 10 mgI/gC loading capability of the system as documented in USAR Table 1.8-1, and is sufficient for uprated operation."

Provide justification for deviating from the guidance provided in Regulatory Guide 1.52 (Rev. 2) with regards to the charcoal loading capacity of the SGTS.

RESPONSE

The current design basis charcoal loading capacity, as stated on pages 27 and 28 of 78 in USAR Table 1.8-1, of the SGTS for total iodines is 10 mgI/gC. As stated in this USAR table, exception is taken to the maximum loading requirement of 2.5 mg of total iodine per gram of activated carbon specified in Regulatory Guide (RG) 1.52, Rev. 2, paragraph C.3.i. This exception to RG 1.52 was submitted to the Staff in the Final Safety Analysis Report (now the USAR) prior to issuance of the NMP2 operating license and found to be acceptable by the Staff in NUREG-1047, entitled "Safety Evaluation Report Related to the Operation of Nine Mile Point Nuclear Station, Unit No. 2," dated February 1985, section 6.5.5, page 6-41.

The justification for this deviation from the charcoal loading capacity requirement of RG 1.52 for the current licensed power level and the proposed power uprate amendment is based on meeting the following criteria:

1. The adsorbed iodine in the charcoal would not generate heat at a sufficient rate to result in either combustion of the charcoal or temperatures high enough to cause significant desorption of the iodines; and

2. The charcoal adsorption capacity of 10 mgI/gC is within the adsorption capacity of the activated carbon used in the SGTS with respect to loading capacity and adsorption efficiency.

The maximum decay heat generation rate for an assumed total charcoal iodine loading of 10 mgI/gC at the power uprate condition for an SGTS train has been calculated to be approximately 15,000 BTU/hr and would occur approximately 250 hours into a design basis LOCA. This maximum heat generation for an operating SGTS train is easily dissipated by the operation of the train's associated fan.

If an operating SGTS train were to trip, decay heat removal can be provided by using the fan of the redundant SGTS train to pass air through the tripped SGTS train, thereby removing the decay heat produced by radioactive particles in the tripped charcoal filter train. Operator action, as prescribed in approved procedures, is required to initiate this method of decay heat removal.

Assuming the above maximum heat generation rate, the operating SGTS train is capable of providing adequate decay heat removal to the tripped SGTS train, such that the temperature in a tripped SGTS charcoal bed will not increase to a level where significant desorption will occur. Furthermore, the operating fan in the redundant SGTS train will maintain the tripped SGTS charcoal bed temperature significantly below the charcoal ignition temperature. This method of decay heat cooling, when initiated 5 hours after a design basis LOCA, does not compromise the ability of either SGTS train to function independently to establish and maintain a -0.25 inch water gauge within secondary containment in response to a DBA-LOCA. If an SGTS train were to trip in less than 5 hours after a DBA-LOCA, the heat loading in the tripped SGTS charcoal train is sufficiently low such that forced air circulation is not required to prevent desorption of the iodines or combustion of the charcoal.

The charcoal for the SGTS has been purchased to meet the requirements of a 99% retention per RG 1.52, Rev. 2, for impregnated charcoal with a loading of 10 mgI/gC. Certification has been provided by the charcoal supplier which confirms that the charcoal meets or exceeds these requirements.

NMPC has concluded that, considering the above evaluation of the decay heat generation and total iodine adsorption capacity, a design basis loading capacity of 10 mgI/gC is justified.