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SUBJECT: Forwards interim addl info requested in 820426 ltr re Section III.G.3 of Appx R to 10CFR50. Remaining info to be provided by 821001.

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September 2, 1982

Mr. Domenic B. Vassallo
Operating Reactors Branch #2
Division of Licensing
Office of Nuclear Reactor Regulatory
U.S. Nuclear Regulatory Commission
Washington D.C. 20555

Re: Nine Mile Point Unit 1
Docket No. 50-220
DPR-63

Dear Mr. Vassallo:

Your letter of April 26, 1982 requested additional information regarding Section III.G.3 of Appendix R to 10 CFR 50. The attached information contains an interim response to your request. As indicated in our letter of July 22, 1982, the remaining information will be provided by October 1, 1982.

Very truly yours,

NIAGARA MOHAWK POWER CORPORATION

Charles V. Mangan
Vice President Nuclear Generation
and Licensing

RJP:bd

Encs.

A006

Request for Additional Information

Section III.G.3 of Appendix R to 10 CFR 50

for the Nine Mile Point Unit 1

Docket No: 50-220

DPR-63

Question 1. Niagara Mohawk Power Corporation should analyze all areas of the plant for compliance to Section III.G and III.L of Appendix R and answer the questions 8A through 8L and Enclosure 2 of the Staff's position dated February 20, 1981 or the clarification given in Enclosure 2 to this letter.

Response: Your letter of February 20, 1981 requested information pertaining to the requirements of Section III.G.2 and III.G.3 of Appendix R to 10 CFR 50. Our responses of March 19, 1981, June 9, 1981 and September 30, 1981 provided design information relative to the safe shutdown panels being installed at Nine Mile Point Unit 1 and the status of appropriate studies. By letter dated April 26, 1982, you indicated additional information would be required in order to complete your review. Members of your staff were informed of our plans to provide the additional information requested on a schedule which would not impact the final installation date of any required modifications. This commitment was documented by our letter of June 30, 1982 which indicated necessary modifications would be completed by the next refueling outage. As a result of discussions with members of your staff, a revised date for submittal of the requested information was provided by our letter of July 22, 1982. It is our intention to provide the response to this question as soon as it becomes finalized but no later than October 1, 1982.

Question 2. If a fire occurred in the shutdown logic panels, would safe hot shutdown still be obtainable? What alternative means would be used to obtain hot shutdown?

Response: Our letters of March 19, 1981, June 9, 1981 and September 30, 1981 provided information regarding to the remote reactor shutdown system (safe shutdown panels). As indicated in the referenced correspondence each of these panels are located in separate fire areas so that remote shutdown will be achievable irrespective of fire location. Each shutdown panel is provided with opening and closure control for the emergency condenser inlet and makeup level control valves. The shutdown panels also provide the capability to open the emergency condenser return valves and provide information with regard to selected reactor vessel parameters (reactor pressure, level, temperature, etc.). In addition, each shutdown panel has the capability to initiate a half reactor scram by de-energizing motor generator sets 131 (shutdown panel 11) and 141 (shutdown panel 12) which supply power to the inlet and outlet scram valves. This scram capability is a backup only since as outlined in our letter of March 19, 1981 Niagara Mohawk has assumed the reactor will be scrammed prior to evacuation of the control room.

Channel 11 shutdown panel is located on elevation 250' of the Turbine Building. Channel 12 shutdown panel is located on elevation 277' of the Turbine Building. The cable routing was designed to assure that as a result of a single fire, the control function of at least one emergency condenser channel will be available. Additional design information regarding the cable routing will be included in our October 1, 1982 submittal Each panel has been provided with electrical isolation from the main/auxiliary control room. Control transfer devices, i.e. key lock switches, (on the shutdown panels) must be activated prior to control functions being operable from the shutdown panel.

Our preliminary review (detailed analysis will be presented on October 1, 1982) indicates a loss of either remote shutdown panel would not impact the ability to safely shutdown the reactor to the hot standby condition.

A. Loss of Shutdown Panel No. 12
A fire resulting in the loss of shutdown panel 12 would not prevent safe shutdown from occurring. Controls are provided in the main control room or on safe shutdown panel 11 for the inlet control valves, makeup level control valve and condensate return valve for emergency condenser system 11 in order to bring the reactor to the hot shutdown condition. As discussed in the response to question 3, our emergency condenser loop is capable of safely accomplishing hot shutdown.

B. Loss of Shutdown Panel No. 11
Similarly, a fire at safe shutdown panel no. 11 would not result in the inability to safely bring the reactor to hot shutdown. Safe shutdown panel 12 and the main control room have controls, as described above, for the operation of emergency condenser system 12 in order to safely bring the reactor to the hot shutdown condition.

Question 3. Will the 8 hours of initial cooling water from the emergency condenser tanks be available with the loss of offsite power?

Response: Our preliminary review indicates that the ability to provide 8 hours of initial cooling water from the makeup storage tanks will be available with the loss of offsite power. A more detailed discussion will be presented in the system description of the safe shutdown analysis in our October 1, 1982 submittal.

The emergency condenser system consists of two emergency cooling loops each with two condensers that are designed to remove 19.0×10^6 BTU/hr per loop. This heat removal rate (for each set of condensers) is sufficient to handle the decay heat production at 100 seconds following reactor scram after extended operation from high power.

Each of the two emergency cooling loops include two condensers consisting of a tube bundle in a tank containing approximately 20,000 gallons of water. There is a 40,000 gallon makeup water storage tank which will gravity feed to the condensers. Each 40,000 gallon makeup storage tank will provide sufficient cooling water to its associated emergency condenser set for eight hours of core decay heat removal. Each emergency condenser loop is supplied with reactor steam from its own steam line. Each emergency condenser steam line has two isolation valves which are maintained in the open position during operation. The inside isolation valve is AC motor operated and fails "as is" on loss of power. Emergency AC power is available to the AC motor operated isolation valve from the emergency diesel generators in the event of loss of off-site power. The outside isolation valve is DC motor operated and it also fails "as is" on loss of power. The outside DC motor operated isolation valve would however remain operable on loss of off-site power (power supply from DC battery boards 11 or 12, respectively). Each emergency condenser loop is equipped with a condensate return line (return to recirculation loop) containing an air operated condensate return valve. This valve is maintained in the closed position during operation. The air operated condensate return valves fail open on loss of air thereby initiating emergency condenser operation. Makeup water to the emergency condensers from the 40,000 gallon makeup water storage tanks is controlled by two air operated level control valves (one air operated level control valve for each set of condensers). These two air operated level control valves are maintained in the closed position during operation. The two air operated level control valves fail open on loss of air thus allowing makeup water to gravity feed to the emergency condensers. Normal makeup to the 40,000 makeup storage tanks is from the condensate storage tanks via either of the two condensate transfer pumps (both pumps are provided with emergency AC power from the on-site diesel generators). An alternate supply of water to the makeup water storage tank is provided from the fire protection system (i.e. diesel driven fire pump via two normally locked closed valves). Both sources of makeup would be available for use in the event of loss of off-site power.

Response 3 (cont'd)

Therefore, at least eight (8) hours of makeup water will be provided for emergency condenser operation in the event of loss of off-site power. Sources of additional makeup water (i.e. fire protection system, condensate transfer system) are available beyond 8 hours.

Question 4. Can the plant achieve cold shutdown in 72 hours with loss of off-site power?

Response: Our preliminary review indicates that the plant can achieve cold shutdown in 72 hours with loss of offsite power. This question will be discussed in more detail in the safe shutdown analysis of our October 1, 1982 submittal.

The following assumptions were utilized in our preliminary review:

1. Loss of off-site power
2. A fire in the main control room
3. The reactor is scrammed
4. Hot shutdown has been achieved and
5. Emergency Diesels Generators 102 and 103 inservice.

Following loss of offsite power, the emergency diesel generators will automatically start. With both diesels running, powerboards 16B and 17B as well as motor control centers 161b and 171b will be energized.

The following equipment is required to achieve cold shutdown:

A. Shutdown cooling pumps
B. Reactor Building closed loop cooling pumps
C. Emergency service water pumps

Operators would verify that shutdown cooling pump 11, 12 or 13, reactor building closed loop cooling water pumps 12 and 13, and the emergency service water pumps are in service. These pumps are all fed from powerboards 16B and 17B. Operators would also verify that none of the core spray, containment spray or containment spray raw water pumps are running off of powerboards 102 and 103.

Flow control for the shutdown cooling system (air-operated flow control valves) would be restored by manually closing the tie breaker on either PB16 or PB17 energizing the "A" section of each respective powerboard. This would provide power to either instrument air compressor 11 or 12 which, in turn, would provide an air supply to the flow control valves.

Local manual operation is provided on the shutdown cooling isolation valves in the event they have received an erroneous isolation single.

The reactor would be cooled down to shut down cooling system design parameters by use of the emergency condenser in less than 8 hours, and subsequently brought to cold shutdown (125^{o}) by the shutdown cooling system within the 72 hour time limit.