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Office of Nuclear Reactor Regulation, Director

SUBJECT: Submits addl info to support 841206 extension of schedule until 851130 for environ qualification of Rockell Intl hydrogen recombiners, in accordance w/10CFR50.49. Extension needed to resolve listed deficiencies.

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March 19, 1985

Director
Office of Nuclear Reactor Regulation
U S Nuclear Regulatory Commission
Washington, DC 20555

MONTICELLO NUCLEAR GENERATING PLANT
Docket No. 50-263 License No. DPR-22

Additional Information to Support Extension of Schedule Specified in 10 CFR Part 50, Section 50.49, for Environmental Qualification of Rockwell International Hydrogen Recombiners

In our letter dated December 6, 1984 we requested that the Director of Nuclear Reactor Regulation grant an extension, in accordance with the provisions of Section 50.49(g), for completing evaluations and modifications necessary to meet the environmental qualification requirements specified in Section 50.49 for two Rockwell International thermal hydrogen recombiners installed during the last refueling outage. The purpose of this letter is to provide additional information in support of our request.

As discussed in our earlier letter, we are seeking an extension until November 30, 1985 to achieve full compliance with the environmental qualification requirements in Section 50.49 for the redundant hydrogen recombiners which are the principal components of the new Monticello Combustible Gas Control System (CGCS). This equipment was originally purchased to meet the requirements of IEE 323-1974 as required by Section 50.49. Subsequently, however, the manufacturer reported a number of deficiencies related to strict compliance with this standard. These deficiencies were described in detail in the proprietary report that accompanied our request. A non-proprietary description of these deficiences will be provided below.

We believe that the Monticello Nuclear Generating Plant can safety continue operation until full compliance with Section 50.49 is achieved. All deficiencies will be resolved through component replacement or engineering evaluation in accordance with "Guidelines for Evaluating Environmental Qualification of Class 1E Electrical Equipment in Operating Reactors," November, 1979. This work is expected to be completed by November 30, 1985 based on current equipment shipment schedules provided to us by Rockwell. Every effort will be made to meet this schedule.

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The following analysis is provided to support our conclusion that the Monticello Nuclear Generating Plant can safety continue to operate until these environmental qualification deficiencies are resolved:

Justification for Continued Operation

1. Alternative Means of Accomplishing the Safety Function

The function of the Monticello CGCS is to maintain oxygen concentrations in the post-accident containment atmosphere below combustible concentrations. Oxygen may be generated in the hours following a loss of coolant accident from radiolysis of reactor coolant.

The Monticello Technical Specifications limit oxygen concentration during operation to less than 5 percent by weight. An atmosphere control system is provided to inert the containment during startup and maintain low oxygen concentrations during operation. This system (non-safety grade) also provides a means to purge and vent the containment.

The Monticello plant uses nitrogen as the normal supply to the containment instrument air header. There are no significant sources of oxygen addition during plant operation.

The maintenance of an inert atmosphere during operation precludes the buildup of a combustible mixture due to a fuel clad metal-water reaction. The other potential mechanism for generation of combustible mixtures is radiolysis of coolant. The Commission has found, in Generic Letter 84-09 dated May 8, 1984, "Recombiner Capability Requirements of 10 CFR 50.44(c)(3)(ii)," that the radiolysis source term in inerted BWR containments is small.

If post accident control of oxygen generated by radiolysis is required, the atmosphere control system may be used for purging if the CGCS is not available.

2. Validity of Partial Qualification Data

The Rockwell Internation report, "Justification for Continued Operation - Monticello," that accompanied our December 6, 1984 letter stated the following information:

a. Numerous tests have been performed on the recombiner that demonstrate operability and seismic resistance.

b. Each recombiner system is factory tested and "burned-in" to eliminate random early failures.

c. Components similar to critical recombiner components have been tested for long periods in simulated post-accident conditions.

d. The power cabinet is sealed to inhibit moisture. Components will not be exposred to 100% relative humidity. Temperature sensitive components have rated operating temperatures in excess of 120 degrees F.

e. Similar units have been in use throughout the world and have been subjected to thorough inservice testing.

We believe, therefore, that the electrical recombiner components are reasonably reliable. Extensive testing has been completed.

3. No Significant Degradation of Any Safety Function or Misleading Information to the Operator As a Result of Recombiner Failure

As noted in item (1) above, it is extremely unlikely that operation of the CGCS will be required to prevent the generation of a combustible mixture inside containment following an accident.

All other analyses and modifications required to comply with Section 50.49 that have been identified to date have been completed at the Monticello plant. Qualification of the new CGSC recombiner equipment is the only known deviation from the Commission's environmental qualification requirements. We believe this reflects the good faith effort made by Northern States Power Company to achieve full compliance with these requirements.

Please contact us if you require additional information related to our request for extension of schedule.

David Musolf
Manager - Nuclear Support Services

c: Regional Administrator-III, NRC
Resident Inspector, NRC
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