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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

REQUEST INVOLVING TECHNICAL SPECIFICATION CHANGE FOR

MONTICELLO CONTROL ROOM VENTILATION SYSTEM

NORTHERN STATES POWER CO.

MONTICELLO NUCLEAR POWER PLANT

DOCKET NO. 50-263

1.0 INTRODUCTION

In a letter dated April 3, 1984, Northern Power Company submitted a licensing amendment request to change the technical specification for the Monticello control room habitability system. The submittal was made in response to Generic Letter 83-36 and the NUREG-0737. Additional information was transmitted on August 17, 1984, August 30, 1985, and October 2, 1985. The August 17, 1984 request proposed to delete the monitors for hydrochloric acid, ammonia, and hydrogen sulfide, and to reduce the filter efficiencies of the control room emergency filtration system and the standby gas treatment system.

2.0 EVALUATION

The staff review of the licensee's request was performed in accordance with the guidelines of GDC 19, SRP 6.4, and Regulatory Guides 1.95 and 1.78, and includes an independent assessment of the protection of control room operators following a potential toxic gas release for the Monticello plant. The staff's toxic gas analysis indicates that the removal of the hydrochloric acid, ammonia, and hydrogen sulfide monitors would not violate any of the staff guidelines relative to control room habitability. This is in agreement with licensee's finding. The staff, therefore, concludes that the proposal to remove the monitors for these chemicals is acceptable.

The storage of 1 ton of chlorine at Monticello, located only 61 meters from the control room air intake, conflicts with the first Regulatory Position of Regulatory Guide 1.95, which states: "Liquified chlorine should not be stored within 100 meters of a control room or its fresh air inlets (Small quantities for laboratory use, 20 lbs or less, are exempt)." The weight of liquified chlorine stored at Monticello is 100 times the amount allowed by this staff position. In addition, there are inconsistencies in the licensee's analyses of the design basis chlorine release accident, submitted in letters dated August 30, 1985 and October 2, 1985. The 0.06 air exchange per hour is assumed for an

isolated control room. For such an assumption to be valid, a periodic leak test is needed to show that 0.06 air exchange per hour can pressurize the control room to 1/8 inch water gauge pressure relative to adjacent areas. Another assumption which should be periodically verified is the 15 second isolation time following chlorine detection. The standard technical specification requires such periodic tests. The staff estimates that, even if these technical specifications limits were in place, the chlorine concentration in the control room within 2 minutes of an alarm would still exceed the SRP 6.4 guideline values of 15 ppm by more than two orders of magnitude.

In order to provide assurance that the control room can be safely operated following a toxic chlorine gas release as specified in GDC 19 and NUREG-0737, Item III.D.3.4, the licensee should reduce the risk involving such releases by taking steps such as (1) moving the chlorine to a safe, remote location, (2) using smaller storage containers, (3) reducing normal and isolated control room air exchange rates, and (4) reducing the isolation time following chlorine detection. Additional guidance is found in NUREG/CR-3786.

The portion of the request pertaining to the filtration system is currently under review and will be provided at a later date.

3.0 CONCLUSION

The staff concludes that the removal of the hydrochloric acid, ammonia, and hydrogen sulfide monitors proposed in a letter dated August 17, 1984, is acceptable and meets the guidelines of GDC 19 and NUREG-0737, Item III.D.3.4. However, the design for the protection of control room operators against chlorine release needs to be improved to meet these guidelines.

Principal Reviewer: K. Dempsey

Date: November 5, 1986