CENTRAL FILES

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

OCT 7 1976

Northern States Power
Company
ATTN: Mr. Leo Wachter
Vice President
Power Production and
System Operation
414 Nicollet Mall
Minneapolis, Minnesota 55401

Docket No. 50-263

Gentlemen:

This refers to the inspection conducted by Mr. J. S. Creswell of this office on September 13-15, 1976, of activities at Monticello Nuclear Generating Plant authorized by License No. DPR-22 and to the discussion of our findings with Mr. Eliason at the conclusion of the inspection.

The enclosed copy of our inspection report identifies areas examined during the inspection. Within these areas, the inspection consisted of a selective examination of procedures and representative records, observations, and interviews with personnel.

No items of noncompliance with NRC requirements were identified during the course of this inspection.

In accordance with Section 2.790 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of this letter and the enclosed inspection report will be placed in the NRC's Public Document Room, except as follows. If this report contains information that you or your contractors believe to be proprietary, you must apply in writing to this office, within twenty days of your receipt of this letter, to withhold such information from public disclosure. The application must include a full statement of the reasons for which the information is considered proprietary, and should be prepared so that proprietary information identified in the application is contained in an enclosure to the application.

AMERICAN REVOLUTION BICENTENNIAL 1776-1976

We will gladly discuss any questions you have concerning this inspection.

Sincerely yours,

Gaston Fiorelli, Chief
Reactor Operations and
Nuclear Support Branch

Enclosure:
IE Inspection Report
No. 050-263/76-14

cc w/encl:
Mr. L. R. Eliason
Plant Manager

bcc w/encl:
Central Files
Reproduction Unit NRC 20b
PDR
Local PDR
NSIC
TIC
Anthony Roisman, Esq., Attorney

UNITED STATES NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Report of Operations Inspection

Inspection Report No. 050-263/76-14

Licensee: Northern States Power Company
414 Nicollet Mall
Minneapolis, Minnesota 55401

Monticello Nuclear Generating Plant
Monticello, Minnesota

License No. DPR-22
Category: C

Type of Licensee: BWR GE 1670 MWt

Type of Inspection: Routine, Announced

Dates of Inspection: September 13-15, 1976

Principal Inspector: J. S. Creswell (Date)

Accompanying Inspectors: None

Other Accompanying Personnel: None

Reviewed By: W. S. Little, Chief
Nuclear Support Section (Date)

SUMMARY OF FINDINGS

Inspection Summary

Inspection on September 13-15, 1976, (Unit 1, 76-14): Review of core power distribution limits. No items of noncompliance identified.

Enforcement Action

None.

Licensee Action on Previously Identified Enforcement Items

None inspected.

Other Significant Items

A. Systems and Components

None.

B. Facility Items (Plans and Procedures)

None.

C. Managerial Items

None.

D. Noncompliance Identified and Corrected by Licensee

None.

E. Deviations

None.

F. Status of Previously Reported Unresolved Items

None reviewed.

Management Interview

At the conclusion of the inspection, an exit interview was conducted September 15 with Mr. Eliason and members of his staff. The following items were discussed:

A. The inspector stated that review of plans for the determination of core thermal margins during a computer outage revealed that the

licensee planned to use the BUCKLE System. During the review of the operability of the BUCKLE System it was determined that the computer engineer and a nuclear engineer would be required to successfully process the required data. The inspector questioned whether the nuclear engineers had sufficient training with the BUCKLE system to be able to use it proficiently when an outage did occur. The licensee stated that the computer engineer had been thoroughly trained in the use of BUCKLE and that the nuclear engineers were capable of running the BUCKLE programs with the computer engineer's help. (Paragraph 1.c, Report Details)

B. The inspector stated that review of APRM gain adjustment during a period of time during which peaking factors (peak heat fluxes) were excessive revealed that the high flux trip and rod block set point were not adjusted as per Technical Specification 2.3A and B. The licensee stated that Technical Specification Bases 2.3A and B stipulated that the trip and setpoint may be adjusted in effect by adjusting the APRM gain. The inspector stated that the item would require further review and would leave the item unresolved.* (Paragraph 1.a, Report Details)

C. The inspector stated that review of P1 computer outputs for June 6, 1976, revealed that at approximately 12:00 in the afternoon the core maximum peaking factor was very close to 3.04 for 8 x 8 fuel. At 2029, approximately 8 hours later, the core maximum peaking factor was approximately 3.25. The inspector questioned the length of time it took to adjust the APRM gain which was done at approximately 2029 hours. The inspector stated that since the peaking factor was very close to 3.04 at 12:00 and was exceeded at 2029 hours it would appear that APRM adjustment would have been required earlier. The licensee stated that the peaking was caused by rod movements and that TIP traces were taken during the subject time period and revealed no excessive peaking until approximately 2029 hours. The inspector stated that the aforementioned TIP traces were not available for review and that that fact could not be verified but that minimum Technical Specification requirements had apparently been met. (Paragraph 1.a, Report Details)

D. The inspector stated that review of Power Operation Procedure C.2 requires that computer data be used for the manual calculation of Minimum Critical Power Ratio (MCPR) during a computer outage. The inspector stated there were no criteria defined which would require TIP data to replace the obsolete computer data when core conditions had significantly changed. The inspector suggested that such criteria be established. (Paragraph 1.b, Report Details)

*Further review of this item has established that the procedures specified in the Technical Specification Bases are acceptable.

E. The inspector stated that during the review of Management Memo No. 13, which specifies how peaking factors will be determined from TIP readings, it appeared that data concerning J factors used in constructing the graphs was not conservative. The licensee said that they considered conservatism in other parameters adequate to provide conservatism in the final peaking factor.* (Paragraph 1.b, Report Details)

F. The inspector stated he was impressed by the professionalism exhibited by the Nuclear Engineers and with the organization of the records.

*Further review of this item in a subsequent inspection (Report No. 050-263/76-13) has revealed adequate conservatism in the calculation.

REPORT DETAILS

Persons Contacted

L. R. Eliason, Plant Manager
M. H. Clarity, Superintendent, Plant Engineer and Rad. Prot.
W. A. Shamla, Plant Engineer, Tech.
D. E. Nevinski, Nuclear Engineer
D. Waggener, Engineer
H. Theobalt, Computer Engineer
Gary Gault, Reactor Operator

1. Review of Core Thermal Power Limits

During this inspection records were reviewed to determine that the plant was being operated within the licensed power limits. Changes to calculational methods were also inspected to verify that the licensee had reviewed them for correctness.

a. Review of P1 computer code outputs revealed that on June 19, 1975, peak heat fluxes exceeded values as shown on Figure 2.3.2 of the Technical Specifications. The excessive heat flux required that APRM high flux trip and APRM rod block setpoints be lowered. At 12:00 the Core Maximum Peaking Factor (CMPF) was approximately equal to the limit of 3.04. Approximately eight hours later at 2029, the CMPF was 3.25. No records of TIP traces taken during the eight hour period were available for review. No areas of noncompliance with the Technical Specifications were identified.

b. Power Operation Procedure C.2 and Management Memo 13 were reviewed for content involving manual calculations to be performed in the event of a computer outage. It was found that MCPR calculations would require some computer data and that no criteria had been established as to when TIP data would be required to replace the obsolete computer data. Management Memo No. 12 also contains a procedure to manually determine the core maximum peaking factor (CMPF). The graph used to obtain the CMPF list some assumptions used to develop the curves. The inspector reviewed the vendor data used to construct the curves with regard to J factors. It was noted that J factors stated on the graphs were not the most conservative as defined in the vendor data.

c. The use of the BUCKLE System was reviewed to determine the level of availability and operability in case of a computer outage. The system was discussed with the computer engineer and nuclear engineers to assess their level

of proficiency in their use of the system. The nuclear engineers have not used the system except for a small number of cases and it appeared that some further code runs would increase their proficiency in case the BUCKLE system was needed in the event of a computer outage.