

U. S. ATOMIC ENERGY COMMISSION  
REGION III  
DIVISION OF COMPLIANCE

Report of Inspection

CO Report No. 263/70-10

Licensee: Northern States Power Company  
Monticello Nuclear Generating Plant  
License No. CPPR-31  
Category B

Dates of Inspection: May 25-28, 1970

Dates of Previous Inspection: May 12 and 13, 1970

Inspected By: *C. Felerabend* Reactor Inspector June 23, 1970  
*H. D. Thornburg*

Reviewed By: H. D. Thornburg Sr. Reactor Inspector June 24, 1970

Proprietary Information: None

SUMMARY

Replacement of sensitized stainless steel safe ends on the reactor pressure vessel with nonsensitized material was in progress. (Section II.A.)

Some of the previous General Electric Company's Deviation Disposition Requests (DDR's) from the audit of the primary pressure boundary piping have been resolved. (Section II.B.)

Receipt inspection of reactor fuel assemblies was in progress. (Section II.C.)

*C.*  
Inspection and cleaning of the reactor pressure vessel and control rod drives is in progress to determine the extent and affect of foreign material accumulation in the primary system. (Section II.D.)

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Unsafe failures of reactor protection system electrical relays were identified during functional checkout and preoperational testing. (Section II. ~~X.~~)

E.

A strike involving sheet metal workers is delaying completion of the heating and ventilation systems and completion of the standby gas treatment system. (Section II. ~~X.~~)

F.

DETAILS

I. Scope of Inspection

An announced inspection of the Monticello Nuclear Generating Plant was made on May 24-28, 1970. The inspection was to continue observation of construction and testing and to follow up on previous inspection items.

The following personnel were contacted during the course of this inspection:

Northern States Power Company (NSP)

J. Sullivan - Principal Quality Assurance Representative  
P. Krumpas - Metallurgical Engineer  
C. Larson - Plant Superintendent (Operations)  
M. Clarity - Assistant Plant Superintendent (Operations)  
L. Eliason - Radiation Protection Engineer  
G. Jacobson - Plant Results Engineer  
K. Gelle - Nuclear Engineer

General Electric Company (GE)

R. Goettge - Site Manager  
J. Sherman - Site Quality Assurance Representative  
J. Miller - Operations Manager  
M. Muir - Project Engineer  
S. Kaut - Electrical Engineer  
R. Aldinger - Fuel Inspector

Bechtel Corporation (Bechtel)

J. Behres - Quality Control Engineer

Commercial Machine Works

J. Bowman - Field Service Representative

II. Results of Inspection

A. Replacement of Safe Ends

Replacement of furnace sensitized stainless steel safe ends was in progress. The inspector observed machining operations being performed on the top head instrument nozzle safe ends. Machining services were furnished by Commercial Machine Works, Elk Grove Village, Illinois. Commercial Machine Works performed similar machining operations for other facilities, such as Nine Mile Point and Dresden 2 and 3. From discussions with the machinists and observation of their work, it was apparent that they were experienced and highly qualified. Radiography of the root pass welds on the jet pump instrument sensing line nozzles (NSA and B) was completed and preparations for completion of these welds was in progress.

Replacement of the safe ends is being closely monitored by the NSP QA Metallurgist in addition to GE and Bechtel QA personnel.

B. Quality Assurance Records

The inspector verified resolution of some additional DDR's that had been identified in a previous inspection report.<sup>1/</sup>

1. DDR 3001 - Material Substitution RCIC Check Valve Disc

The replacement check valve disc (Material Specification A351, Stellite) installation was verified in Installed Inspection Report Form OC-102 on May 11, 1970, by the responsible Bechtel field engineer. This DDR is considered to be resolved.

2. DDR 2227 - Recirculating Pump Wall Thickness Variation

The inspector verified that a nameplate had been affixed to each recirculating pump motor correctly identifying the design pressure.

C. Fuel Handling and Inspection

The inspector reviewed NSP's procedure for controlling movement of fuel into the reactor building and processing through receipt

<sup>1/</sup> CO Report No. 263/70-4.

inspection, channeling, and storage, and observed fuel inspection in progress. The fuel handling inspection process appeared to be well organized and thorough. Radiation monitoring and personnel control procedures were in effect, with adequate provision for maintaining access control.

#### D. Foreign Material in Primary System

During a previous inspection,<sup>2/</sup> an accumulation of crud was observed on the steam dryer as it was being removed from the reactor vessel. A sample was obtained by NSP at that time and forwarded to the NSP Testing Laboratory for analysis. The analysis was completed on May 18, 1970, identifying the material as including iron, aluminum, and silicon, with traces of chromium, nickel, and manganese.

Microscopic examination showed particles, mostly in the range of 77-240 microns with sharp edges and corners, characteristic of abrasives used for cleaning metal surfaces. The material appears to be from cleaning compound that has been used for cleaning the spent fuel storage tank and the interior of some condensate piping.

There were differences of opinion concerning possible mechanisms whereby the material could end up in the reactor vessel because of the apparently thorough system flushing; however, it appears that the most probable cause is an accumulation in some "pocket" in the piping that was not dislodged during flushing procedures, but was flushed into the vessel during system preoperational tests.

NSP and GE are conducting additional analysis and comparison of the material. They have planned extensive cleaning of the vessel and are removing several control rod drive assemblies for disassembly and inspection to determine if any of the material has entered the control rod drive system. Information received by telephone from the facility on June 2 indicated that some of the material was found in the control rod drives inspected and that all of the control rod drives would be disassembled, inspected, and cleaned prior to fuel loading.

#### E. Reactor Protection System (RPS) Electrical Relays

The inspector was informed of the malfunctions of several electrical relays during RPS functional checkout and preoperational testing. The cause was identified and determined to be insufficient curing of a chromate primer which subsequently cured by heat from the coil. The inspector reviewed a record of events concerning identification of the cause and the corrective action. A curing and testing program has been initiated at Monticello to preclude malfunctions in service. GE has disseminated the information to all GE facilities.

<sup>2/</sup> CO Report No. 263/70-8.

F. Standby Gas Treatment System

A strike called by the sheet metal workers early in May has delayed all sheet metal work. This has prevented completion and testing of the standby gas treatment system. The butterfly valves previously reported<sup>3/</sup> as being delayed by the transportation strike, have been received and installed.

G. Exit Interview

An exit interview was conducted with Messrs. Larson, Gelle, Clarity, Jacobson, and Eliason at the conclusion of the inspection. Results of the inspection were discussed. The inspector stated that two items were of concern to CO. These were the crud in the reactor vessel and the problem associated with RPS relays. Mr. Larson assured that these items were also of concern to NSP and that the problems would be followed closely to resolution.

The inspector stated that the relay problem should be reported to DRL. Mr. Larson stated that he believed that the proper channel for passing this type of information was to the CO inspector for assurance that it would have rapid dissemination to other facilities. He stated that, as yet, he had no direct channel of communication with DRL, but that he would contact NSP's license administrator and request that he obtain all details from GE and make a report to DRL.

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<sup>3/</sup> CO Report No. 263/70-7