

APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Inspection Report: 30-05004/92-05

License: 22-08799-02

Licensee: Northern States Power Company
414 Nicollet Mall, IN04
Minneapolis, Minnesota 55401-1927

Facility Name: Pathfinder

Inspection At: Sioux Falls, South Dakota

Inspection Conducted: December 14-15, 1992

Inspector: W. Holley, Radiation Specialist

Approved: William L. Fisher
William L. Fisher, Chief, Nuclear Materials
Licensing Section

12/23/92
Date

Inspection Summary

Areas Inspected: Special, announced inspection of licensee activities concerning the final state of the Pathfinder reactor site after the aboveground portion of the reactor building had been removed. The inspection included observations of the concrete cap that had been poured over the remaining, underground portion of the reactor building, the condition of the terrain surrounding the concrete cap, and the decommissioning records depository. The inspector independently measured the radiation levels in areas containing residual radioactivity in the fossil-powered generating system.

Results:

- The inspector determined that the licensee was in compliance with the Commission's rules and regulations and with commitments incorporated into the license. The reactor building had been demolished and removed as permitted by license amendment No. 11.

Summary of Inspection Findings:

- No violations or deviations were determined.

Attachments:

- Attachment - Persons Contacted and Exit Meeting

DETAILS

1 PLANT STATUS

During this inspection period, September 16, 1992, through December 15, 1992, the reactor and fuel handling buildings had been closed until the issuance of license amendment No. 11 on November 25, 1992, which authorized the licensee to demolish the reactor building. At the time of the inspection, the aboveground portion of the building had been removed, a concrete cap had been placed over the portion remaining, and the surrounding terrain had been graded to its final contour. The electrical generating equipment of the Pathfinder nuclear power plant has been used in conjunction with a fossil fuel steam supply as a peak load generation station. The licensee plans to continue to utilize the facility in this manner.

2 ORGANIZATION AND MANAGEMENT

2.1 Discussion

On November 10, 1992, the Commission issued license amendment No. 11, and a supporting safety evaluation report, which authorized removal of the reactor building, the final step in decommissioning the facility. The amendment also authorized possession of residual contamination, less than 41 millicuries, remaining in the operating turbine portion of the plant.

The Pathfinder decommissioning organization ceased to exist on December 18, 1992, since the licensee's decommissioning activities ended with this inspection. The administrative specialist will continue at the Pathfinder site until the end of 1992 on a part time basis. License Condition 11 of license amendment No. 11 states that the licensed material shall be possessed under the supervision of the Pathfinder generating plant manager.

2.2 Conclusions

No violations or deviations were identified.

3 REACTOR BUILDING REMOVAL

3.1 Discussion

The licensee built a scaffold around the outside of the reactor building to the top of the structure as the insulating covering material was removed from the steel shell. Then the steel structure was cut and removed a section at a time. Lifting tabs were welded onto each section and a crane removed the sections.

After the aboveground portion of the building was removed down to the reactor building main floor, the licensee knocked holes in floors and walls throughout the underground portion of the building to expedite filling it with 2450 cubic

yards of fine sand. The openings in the main floor of the building (reactor vessel cavity and equipment hoist openings) were reinforced with rebar, and a 52 cubic-yard concrete cap was poured at grade level over the top of the remaining portion of the building.

The terrain around the concrete cap was sloped gently to direct drainage into two newly installed drains. Plastic sheeting was placed over the soil and gravel was used to cover the sheeting.

3.2 Conclusions

The remaining (underground) portion of the reactor building appeared to be adequately sealed to prevent entry of moisture and inadvertent intrusion.

No violations or deviations were identified.

4 RADIATION PROTECTION

4.1 Discussion

The inspector surveyed the reactor building concrete cap and the premises surrounding the cap for radiation and found the exposure to be 6-7 microrentgen per hour ($\mu\text{R/h}$), essentially background. Surveys were performed on the first floor of the turbine building basement in the area where previous surveys had indicated the greatest residual radioactivity in the Pathfinder generating system, specifically in the boiler condensate line, condensate suction line, and a condensate drain tube. Exposure rates in these places ranged from 13-90 $\mu\text{R/h}$ at contact. The maximum exposure rate at 1 foot was about 48 $\mu\text{R/h}$. The radiation is due to neutron activation products produced during reactor operation and plated out on the inside surfaces of the equipment. The licensee had posted "Caution Radioactive Material" signs in this area.

The licensee had developed a routine radiation survey procedure and a special maintenance procedure for activities in the residual radioactivity area. The inspector reviewed these procedures and determined them to be adequate for personnel safety. The inspector discussed the importance of these procedures with Pathfinder plant operator and maintenance personnel.

The inspector surveyed a radioactive material storage room located on the mezzanine floor of the turbine building basement. This room contained two 55-gallon drums partially filled with soil taken from outside the fuel handling building in an area found to have slightly elevated radiation readings during the confirmatory final survey. A radiation survey of these drums resulted in background readings. This contaminated soil will be disposed of as radioactive waste in the future. The room also contained several instrument check sources stored in a cabinet, which measured about 150 $\mu\text{R/h}$ at the surface.

4.2 Conclusions

Considering the low exposure rates involved and the procedures the licensee had established, operations and maintenance personnel at the Pathfinder site will be able to perform their duties in the residual radioactivity areas without receiving any significant radiation exposure.

No violations or deviations were identified.

5 RECORDS DEPOSITORY

5.1 Discussion

The licensee stated that all decommissioning records will be maintained in fireproof file cabinets in the administrative offices at the Pathfinder site. The records will be removed only when being microfilmed at the licensee's Monticello nuclear power plant. The inspector stressed to the Pathfinder operations and maintenance personnel the importance of these records not being disturbed.

5.2 Conclusions

No violations or deviations were identified.

ATTACHMENT 1

1 PERSONS CONTACTED

1.1 Licensee Personnel

*D. Zercher, Decommissioning Project Manager
R. Fair, Assistant Construction Superintendent
R. Thomas, Administrative Specialist
P. Caine, Pathfinder Plant Operator
B. Ben Sunvold, Pathfinder Plant Maintenance

*Denotes personnel who attended the exit meeting.

2 EXIT MEETING

An exit meeting was conducted on December 15, 1992. During this meeting, the inspector reviewed the scope and findings of the report. The licensee did not identify as proprietary any information provided to or reviewed by the inspector. The inspector reviewed with the licensee the requirement of License Condition 14, which requires that release data and the licensee's evaluation of the total radioactivity released during the Pathfinder Atomic Power Plant decommissioning be submitted to NRC Region IV within 120 days. Also, the inspector discussed the final collection of environmental samples and the reporting of the data to Region IV. Upon NRC's acceptance of the data and evaluation by the Commission, the decommissioning of the Pathfinder Atomic Power Plant will be considered completed.