

FROM: Northern States Power Company
Minneapolis, Minn. 55401
L.O. Mayer

DATE OF DOCUMENT:

Nov. 24, 1971

DATE RECEIVED

Nov. 29, 1971

NO.:

TO:

Dr. Peter A. Morris

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ACTION NECESSARY ☐

NO ACTION NECESSARY ☐

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50-263

DESCRIPTION: (Must Be Unclassified)

Ltr reporting an explosion which occurred
in Monticello Plant's off-gas system
on 11-14-71.....

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DISTRIBUTION:

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AEC PDR

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Morris/Schroeder

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E.G. Case

DTIR (Laughlin)

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ACKNOWLEDGED

REMARKS:

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U.S. ATOMIC ENERGY COMMISSION

MAIL CONTROL FORM FORM AEC-326S
(8-60)

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NORTHERN STATES POWER COMPANY

Minneapolis, Minnesota 55401

November 24, 1971

Dr. Peter A. Morris
Division of Reactor Licensing
United States Atomic Energy Commission
Washington, D. C. 20545

Dear Dr. Morris:

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

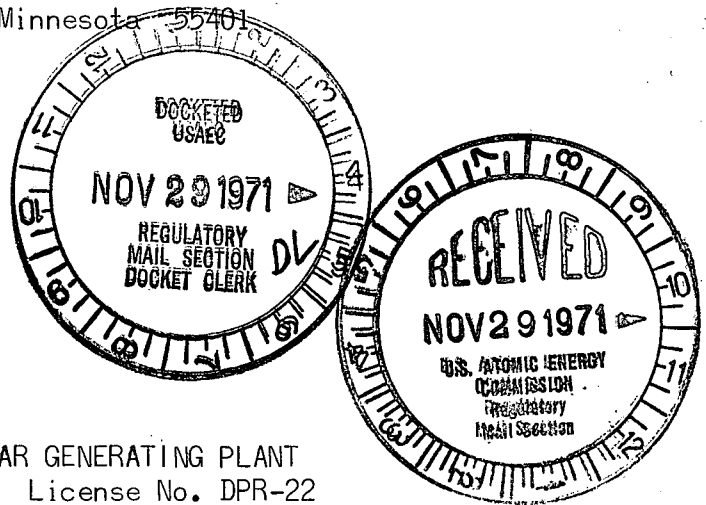
Report on Off-Gas System Explosion

A condition has occurred recently at the Monticello Nuclear Generating Plant which we interpret to be reportable in accordance with section 6.6.B of the Technical Specifications. The Region III Compliance office has been notified of this event.

On November 14, 1971, an explosion occurred in the plant off-gas system. At the time of the occurrence, the plant had been shutdown for about 36 hours, and the condenser equalized to the atmosphere for 32 hours. The off-gas system had been isolated from the condenser at the air ejectors and the off-gas line loop seal was being cut with an acetylene torch to install a liquid level switch on the loop seal.

No personnel injuries resulted from this occurrence. Following the event, the stack gas monitor indicated an activity release rate of less than the normal operating activity release rate. (The stack gas monitor showed an increase in the activity release of from ~2500 uci/sec to 10,000 uci/sec at the time of the event) The mechanical vacuum pump was started at this time to purge the moisture separators, and the change is due to mechanical vacuum pump flow. Airborne activity in the air ejector room increased slightly (from 8.8×10^{-10} uci/cc to 1.7×10^{-9} uci/cc), and the reactor building ventilation radiation monitors did not show any change in ventilation air activity.

The rupture diaphragms on the steam jet air ejector discharge ruptured to relieve the internal pressure created by the explosion and protected the air ejectors from any overpressure damage. The relative location of the air ejectors, rupture diaphragms, and the off-gas pipe protected the air ejectors from the shock wave. The shock wave would have to follow a 180° bend in the pipe (a tee, and a 90° elbow) to enter the air ejector after condenser, but would only have to follow a straight pipe to impact on the rupture diaphragm.



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One pressure switch (PS-1921) used to cause isolation of the off-gas suction valves on high pressure was damaged by the explosion. The remaining instrumentation connected to the off-gas system has been tested and found to be in good working order.

Inspection and testing performed on the off-gas system has detected no damage. The air ejector condensers have been hydrostatically tested, the off-gas piping from the air ejectors to the inlet of the stack off-gas filters has been pressurized with air and the leakage rate measured, the stack HEPA filters have been tested with DOP, and ultrasonic testing has been performed on welds at pipe elbows. The piping system has been visually inspected for signs of pipe movement and none can be found.

General Electric Company and Bechtel Corporation have been involved in the review of the occurrence. Representatives of these two companies support our conclusion that the piping system has not been damaged.

Two changes will be made as a result of this occurrence. It was found that the off-gas system suction valves (AO 1083A & B, 1084A & B) isolation logic does not "seal in" on trip action. The logic circuit will be changed to "seal in" and require operator action to reset an isolation. (Note that the isolation of these valves was meaningless with respect to this occurrence, since the explosion occurred on the discharge side of the air ejectors, and the manual valves at the air ejectors were closed. The off-gas system suction valves are located between the air ejectors and the condenser, or on the suction side of the air ejectors.)

A procedure will be prepared to purge the off-gas line prior to maintenance on the system. This procedure will become a part of the Operations Manual.

Based on all findings, the off-gas system damage was limited to the rupture diaphragms, and the one pressure switch. These components will be replaced before the plant is returned to service. This information has been made available to the Compliance Inspector. An Event report has been written and will be reviewed by the Safety Audit Committee.

Yours very truly,



L. O. Mayer
Director of Nuclear Support Services

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